

## The Impact of Size and Age on Profitability of Indian Food Processing Industry

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### Abstract

The purpose of this paper is to investigate the effect of age and size on Indian food processing industry's profitability based on margin of sales. The study covers all firms of Indian food processing sector listed in Bombay Stock Exchange over the years 2009-2013. Ratios of profitability on margin of sales like EBIT, gross profit, profit before and after tax with net sales have been analyzed. T-test and ANOVA have been used for empirical analysis. The results indicate that there is no significant relation between age and profitability so the general notion of as firms grows older; their profitability seems to decline does not stand. Further the level of investment and its impact on profitability is tested; the results indicate the size of investment is no longer a factor deciding the earning capacity of the firm. The paper suggests older firms can use their experience and learning to decrease the higher costs. Diversification, investment in research and investment is a better option for large firms to increase their profitability.

**Keywords:** Firm size, Firm age, Profitability, Food processing Industry

### Introduction

India is one of the world's largest producers of raw food products. The Indian Food processing industry has risen as a "sunrise industry" having vast potential for uplifting the Indian agrarian economy, creation of large scale processed food manufacturing industries and food retail chain facilities, and the resultant generation of employment opportunities and export earnings. Food processing industries act as a link between farm and Industry, accelerating agricultural development through the creation of backward linkages – supply of credit, inputs and other production enhancement services and forward linkages like – processing and marketing (Shah, 1998).

Historically, Indian consumers preferred fresh and unprocessed food over processed and packaged food; however, the recent changes in consumption patterns, particularly in middle and high income groups, show ample opportunity for processed food segments in the country (Bhalla and Hazell 1998; Bhalla, Hazell, and Kerr 1999; Chand 2003; Chenggapa et al 2005; Deininger and Sur 2007; Kumar 1998; Mukherjee and Patel 2005). Rising income, increased urbanization, changing lifestyle, greater willingness to experiment with new products and flavours, desire for convenience and an increase in the number of working women have led to a strong growth in consumption of packaged and processed food products both in urban and rural areas.(Goyal and Singh 2007).

The sector contributes nearly 15.7 % (2011-12) to the Gross Domestic Product of the nation. According to data compiled by APEEDA, India's agri and processed foods exports stood at Rs 116,331.68 crore (US\$18.65 billion) during April-March, 2012-13, as compared to Rs 82,480.25 crore (US\$13.22 billion) in the corresponding period last year. Apart from robust growth, policy changes like allowing 100% FDI in the sector have opened up a stage of competitive environment at a global scale.

This necessitated a study with regard to the performance of the Indian food processing companies in perspective of their profitability and growth. The paper attempts to analyze different levels of profit margin in the income statement to check the consistency in the company earnings in the food processing sector in India.

### **Literature Review**

According (Fischer & Schornberg, 2007) profitability is a key variable for assessing sector competitiveness. Given that large firms have lower information asymmetries and are less risky they have access to lower cost of capital. It also proposes that larger firms may have strategic and competitive advantages that help them to realize superior profits. (Majundar, 2007). A positive relationship between firm age and profitability can be expected if older firms benefit from dynamic economies of scale by learning from experience. They may also benefit from reputation effects, which allow them to earn higher profits. At the same time, an older firm may also experience more rigidity in the organizational structure not in line with changes in market conditions that can negatively affect firm performance (Glancey, 1998). A non-significant relationship between size, age and the growth of firms is an indication that Gibrat's proportional growth law holds, while a negative relationship is a rejection of Gibrat's law and at the same time a validation of Jovanovic's managerial efficiency theory. The latter asserts that efficient firms grow while inefficient firms decline. The results of empirical studies on the relationship between firm growth and firm size are not equally unanimous. In most studies (Harhoff, 1998) Almus and Nerlinger, 2000) Gibrat's Law is rejected. Some findings lend support to this law (Griliches, 2000), while Hall (1987) cannot reject the law for larger firms. But young firms are expected to grow faster than older. A same line of thought had been depicted in (Glancey, 1998; Davidsson et al. 2002) which proved that the relationship between firm age and growth is negative suggesting that older firms grow less rapidly than younger firms.

The quest for organizational immortality has attracted considerable attention in the field of management and the industrial organization literatures (Stinchcombe, 1965; G.R, 2003). But the issue of actual performance of the older firms was not much looked at by the economists. (caves, 1998) Firms are organizations that can be restructured. In fact, as firms mature, they should be able to learn. Firms can learn by doing or by investing in research and development; they can hire human capital and train their employees; and they can learn from other firms in the same and in other industries (Bhak, 1993). Over time, firms should also discover what they are good at. (Jovanoic, 1982). (Waekchli, 2010) in his life-cycle argument, based on specific patterns in firm profitability, investment opportunities, and size, not age (Fama E.F, 2001) and (Stulz, 2006) and financing decisions (Udell, 1990) defined, age itself could define the firm's life cycle. The optimal location, the optimal number and size of processing plants as well as about where raw material can be acquired have a long

history in research. Based on region the classical location theory (Christaller, 1933) and decrease in transportation cost (Glaeser E L, 2004) have increased the profit margin, but from constantly rising prices and tolls as well as newly arising environmental regulations, it can be expected that costs will continue to increase (Boysen O, 2006).

A study by McKinsey reiterates the importance of the food sector in India. It indicates that food in India has an economic multiplier of 2-2.5. Thus an understanding of the performance of Indian Food industries based on their age, region and level of capital investment becomes inevitable.

### **Scope of Study**

The scope of the study is limited to the financial statements analysis of BSE listed firms in Indian food processing industry. The progress of analysis involves the compilation and the study of financial and operating data and the preparation and interpretation of measuring devices such as ratios. The hypotheses are tested using ANOVA and T- test using SPSS. The quantitative relation of the kind represented by ratio analysis is not an end in them but is a means to understand firm's financial positions.

### **Significance of the Study**

Interests of various parties both directly or indirectly related to the success of an enterprise. Their interests will suffer when the enterprise fails to generate the expected wealth. This is why the parties are eager to foresee indications about a firm's profitability growth. Although the concept is simple, the process of getting the right balance can be quite a complex and time consuming task without the right tools and technique. Hence, study on Measuring the Profitability on Sales margin has greater importance. The present study attempts to measure the relation of size and age with profitability of Indian Food processing industry.

### **Objective of Study**

The main objective of this study is to analyze whether overall profitability on margin of sales of Indian food-processing firms listed in BSE during the years 2009-2013 depends upon size and age of the company.

### **Hypothesis of the Study**

H01: There exists no significant difference on the profitability earned by companies based on their size of investment.

H02: There exists no significant difference on the profitability earned by companies based on their age.

### **Data Source**

The data used in the present study was acquired from financial portal money control. The financial statements of 33 companies of the Indian food processing sector listed in BSE from the year of 2009–2013 were utilized in this analysis.

Table 1: Selected companies

S.No.	Name of the Company	Age	Size
1	ADF Foods	Moderate	Large
2	Amrit Corp	Old	Small
3	avanti feeds ltd	Moderate	Small
4	Bambino Agro Ind	Moderate	Small
5	britannia Industries Ltd	Old	Large
6	Cadbury India Ltd	Old	Large
7	DFM Foods	Moderate	Small
8	eco friendly food processing	New	Small
9	flex foods ltd	Moderate	Small
10	food & Inns ltd	Old	Small
11	Freshtrop Fruits	Moderate	Small
12	Glaxo smithkline consumer healthcare ltd	Old	Large
13	Hatsun AgroProd	Moderate	Small
14	Heritage Foods	New	Small
15	Himalaya Intl.	Moderate	Large
16	Jubliant Food works Ltd	Moderate	Large
17	Kanco Tea	New	Small
18	Kohinoor Foods	Moderate	Large
19	KRBL	Moderate	Large
20	Kwality	Moderate	Large
21	L T Foods	Moderate	Large
22	lakshmi Energ & foods	Moderate	Small
23	Lotte India	New	Small
24	Mount Everest Mineral Water Ltd	Moderate	Large
25	nestle India Ltd	Old	Large
26	REI Agro	New	Large
27	Sampre Nutrition	Moderate	Small
28	tasty bite eatables ltd	Moderate	Small
29	umang diaries	Moderate	Small
30	usher Agro	New	Large
31	Vadilal Inds.	Moderate	Small
32	Vikas Wsp	Moderate	Small
33	Zydus Wellness	New	Large

**IV.3 Tools for analysis**

(1)Ratio Analysis

Selected variables for ratio analysis on margin of sales are:

- a) EBDIT/Net sales
  - b) EBIT/Net sales
  - c) Gross profit / Net sales
  - d) PBT/ Net sales
  - e) PAT/Net sales
- (2)T-Test  
(3)ANOVA

**V. Analysis and Interpretation**

Financial data of 33 companies from Indian food processing industry was selected. Table 1 shows the list of all 33 companies. Few companies could not be included as they were very new to the industry for the selected period of study.

**Table 2: Classification of Companies Based on their Age**

Age Group	Age	Year of Incorporation	No: of Companies	% to total
New	< 20 yrs	after 1993	7	21
Moderate	25 to 35 yrs	1977- 1992	20	61
Old	> 35 yrs	Before 1978	6	18
		Total	33	

Table 2 depicts the classification of companies based on their age of operations ,the industries with age less than 20 years were classified as new while those between 20 - 35 years were considered as moderate and above 35 years were considered as old companies. Most of the companies belonged to moderate i.e 61% of the companies while old and new accounted for 18% and 21% respectively.

**Table 3:Classification Of Companies Based on Paid Up Equity Share Capital**

Size	Value of Paid Up Equity Share Capital	No:of Companies	% of Total
Small	Less than Rs 20 Crores	15	45
Large	Greater than Rs 20 Crores	18	55
	Total	33	

Table 3.shows the classification of companies based on their paid up equity capital, those firms with more than 20 crores were categorized as large and less than 20 crores were classified as small. There was 55 and 45 percentage respectively of them.

**Table 4: Mean Profitability based on Size**

Size of company	N	Mean
Small	18	23.12
Large	15	10.15

**Table 5: Result of T -test**

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances assumed	1.964	.171	1.065	31	.295
Equal variances not assumed			1.142	22.618	.265

Independent T test is carried out to check whether there is any significant difference between size and profitability. The Levene's test significant value (.171) is greater than .05 which suggests that there is no significant relation between the size of the company and profitability. Hence  $H_0$  is accepted.

**Table 6: Age wise mean profitability**

Age of Company	N	Mean
Old	6	20.62
Moderate	20	8.97
New	7	37.89
Total	33	17.23

**Table 7: Anova**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4422.258	2	2211.129	1.922	.164
Within Groups	34521.512	30	1150.717		
Total	38943.771	32			

The P value obtained is .164 which is higher than .05 (for 5% level of significance).Hence H02 is accepted from this it is inferred that there is no significant difference in the Profitability of the company with respect to Age.

### **Findings**

1. The level of variation in the mean profitability in the Indian food processing sector varies from 192 to (45) percent.
2. There has been a substantial increase in the number of new entrants in the industry due to the increase in demand change in social factors. The mean profitability of small firms is higher than the large ones. With respect to age profit earning capacity of new and large is more than moderate firms.
3. With regard to the size of investment and profitability the sector portrays no significant relationship with profitability; increased efficiency, product differentiation, location specific plants along with government subsidies have helped smaller firms overcome the economies of scale of larger ones
4. The result of the study revealed there was no significant difference in the profitability of the firm based on the age of the firm, the adaptation of new technology, procurement efficiency; learning and experience of older firms help older firms to overcome the organizational rigidity and decline in profits as they age.

### **Suggestions**

1. Large firms normally have lower information asymmetries and are less risky, they have access to lower cost of capital, they can think of strategic and competitive advantages that help them to realize superior profits like diversification.
2. Investment in research and development; hiring human capital and train their employees; and they can learn from other firms in the same and in other industries

### **Future Research**

Future research should investigate generalization of the findings beyond the Indian food processing sector. The scope of further research may be extended to the other factor which affects profitability like management efficiency, economic factors, region etc

### **Conclusion**

This paper has examined whether the size and age of firms influence firms' profitability based on margin of sales using a sample of 33 Indian Food processing

firms, larger firms are found to be profitable as smaller, whereas older firms were equally efficient with new and moderate firms with regard to profitability. These results are attributed to the institutional framework of the Indian economy, and industrial policy instruments, such as, globalization, increasing the FDI limits, Infrastructure development, technology up-gradation & modernization, human resources development and R&D in the Food Processing Sector are purported to account for these findings with respect to the influences that size and age have on firm-level productivity and profitability.

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