CHAPTER 2: LITERATURE REVIEW

2.1 Literature Review on Impact of Industry wide Factors and Firm Specific Variables on Firm Performance

Comanor and Wilson (1967) studied the impact of various market structure variables (industry advertisement expenses, concentration, growth rate in demand, economies of scale and capital requirements) on industry profitability. Hypotheses tested are that each of the explanatory variables such as advertisement expenses, industry concentration, rate of growth in demand, economies of scale and capital requirements is positively related with industry profitability. Cross sectional regression of the following form has been formulated to examine these hypotheses.

\[ \text{Profitability} = f (\text{advertisement expenses, industry concentration, rate of growth in demand, economies of scale and capital requirements}) \]

They use data for 41 industries of which 12 industries belong to consumer durable goods industries and other 29 industries belong to consumer non-durable goods industries. Data period is from 1954 to 1957. Profitability is measured by four years average of industry ROE only for the firms having total assets of $500,000 or more. Advertising expenses are measured by advertising expense to sales ratio. Sum of sales of top eight firms of an industry is used as a proxy for industry concentration. Rate of growth in demand has been measured by rate of growth in sales between 1947 and 1957. ‘Economies of scale’ has been measured by average plant size among the largest plants which accounts for at least 50% of industry output. Average output level of plant at such size is multiplied by the ratio of total assets to gross sales to arrive at capital requirement. It is found that advertisement expenses and capital requirements have positive impact on industry profitability. Shortcoming of this paper is that study does not consider intra
industry variation in profitability in the model. Further, firms having total assets of less than $500,000 are not considered. This paper is relevant for our study as we expect that industry wide factors impact the firm performance. Sherman and Tollison (1971) find that advertising expenses do not impact the industry profitability.

Baumol (1959) has proposed that the profits increase with increase in size of firms due to economies of scale enjoyed by larger firms. Following this, Hall and Weiss (1967) empirically examine the size – profitability hypothesis. Return on equity (ROE) and return on assets (ROA) are used as dependent variables. Independent variable is size which is measured as \(1 / \log(\text{Assets})\). Other control variables considered are leverage (Equity to Assets Ratio), industry concentration (four firm concentration ratio), industry growth and stability (previous five years change in industrial output) and year dummies. They use the data from 1956 to 1962. Firms under study are the firms that are listed in top four hundred in at least one of the seven years in ‘Directories of 500 Largest Industrial Corporations’. There are 467 such firms out of which 134 firms are removed either due to unavailability of data or because these firms are regulated. Thus the sample size is 334 firms. Following regression model has been formulated.

\[
\text{Profitability} = f (\text{firm size, firm leverage, industry concentration, growth and stability of the industry, time})
\]

Pooled cross sectional regression results show that size is having positive and significant relationship with ROE and ROA. Shortcoming of this study is that authors pooled data from varied industries for analyzing the size – profitability hypothesis. Pooling the observations presupposes same parameters for diverse industry groups. If this assumption is incorrect, the results based on estimated coefficients from this model are not generally applicable. Only large firms are studied and hence results may not be applicable to smaller firms. Further, it is difficult for any business to increase profits indefinitely with increase in its size. Total profits decreases
after a certain level of size. This non–linear relationship between firm size and firm profitability is not tested in the Indian context. Thus we consider squared term of size as an independent variable to account for this non–linear relationship. Instead of using pooled cross-sectional regression, panel data regression is used to study the relationship between variables. Marcus (1969) examines size profitability relationship for firms operating in 118 industries separately for each industry. Out of 118 industries the coefficient of size for 35 industries is positive. Size coefficient is negative for 9 industries and not significant for rest of the 74 industries. Thus the author concludes that increase in size do not uniformly increase profitability for firms operating in all industries. Shepherd (1972) and Amato and Wilder (1985) find negative relationship of size with firm profitability.

Most of the studies conducted on firm performance are on aggregate level. Hence these studies assume homogeneous impact of independent variables on performance of firms operating in different industries. Study conducted by Bass et al. (1978) provides a statistical approach to examine the assumption of homogeneous relationships of independent variables on dependent variable underlying in earlier cross-sectional studies. Hypothesis developed is that the impact of industry concentration and industry advertising intensity on profitability is not the same for firms operating in different industry groups. Dependent variable is firm profitability and independent variables considered are advertising intensity for the industry, four firm concentration ratio, changes in industry demand, market share of the firm, size of the firm and firm diversification. Number of observations are 181, representing the years 1957, 1963, and 1970. To allow the variables to have coefficients that vary by industry, 63 firms were classified into 10 industry groups using three-digit Standard Industrial Code. Following model is formulated for analysis.

\[ \text{Profitability} = f (\text{advertising intensity for the industry, four firm concentration ratio, change in industry demand, market share of the firm, size of the firm, firm diversification}) \]
Two different sets of regression models were estimated. There were 181 observations belonging to 63 firms and these observations classified into 10 industries. Using 181 observations, the above regression model is estimated and residual sum of squares is calculated. This residual sum of squared is denoted as unrestricted residual sum of squares (\( RSS_{UR} \)) and it has 120 degrees of freedom. Assuming the coefficients of variables advertising intensity for the industry, four firm concentration ratio and changes in industry demand are the same across the 10 industries, the above regression model is estimated with the above mentioned restrictions and residual sum of squares is obtained. This residual sum of squares is denoted as restricted residual sum of squares (\( RSS_{R} \)). The assumption that the coefficients of variables advertising intensity for the industry, four firm concentration ratio and changes in industry demand are the same across the 10 industries is examined by using following F statistic:

\[
F = \frac{(RSS_{R} - RSS_{UR})/27}{RSS_{UR}/120}
\]

Rejection of null hypothesis shows that all the observations do not come from same population, i.e., the relationships between variables are not homogeneous across the industry groups. F-value obtained for the comparison of residual sum of squares from restricted regression and unrestricted regression analysis is 3.55, which is significant. Results indicate that the relationship is not homogeneous across 10 industries. Thus, results obtained from pooling all the data must be rejected. For the first time authors have proved statistically the need of industry level analysis for examining the determinants of firm profitability. Thus the relationship among variables forming different groups of firms based on listing group affiliation and industry is different. Following this study we conduct the analysis at aggregate level and also for the firms classified based on different categories of firms.
Beard and Dess (1981) study the relative importance of industry wide factors and firm specific variables for determining the financial performance of the firms. Authors develop following four hypotheses. Industry profitability and firm performance are positively related, relative leverage and firm performance are negatively related, relative capital intensity and firm performance are negatively related; and market share and firm performance are positively related. Two measures of firm performance have been used. Return on equity (ROE) and return on investment (ROI). Industry profitability is used as a proxy for corporate level strategy. Business level strategy has been represented by firm leverage relative to average industry leverage, firm capital intensity relative to average industry capital intensity and firm size relative to the average industry size in which the firm competes.

Data includes 40 non-diversified firms which are included in Standards and Poors for the years 1969 through 1974. Cross sectional regression model has been formulated to analyze these relationships. Regression model is computed for each of the six years from 1969 through 1974 as well as for the six year average, with respect to both the dependent variables. Model of following form has been formulated.

$$Profitability = f(Industry\ profitability, \ relative\ leverage, \ relative\ sales, \ relative\ capital\ intensity)$$

Results show that industry profitability has positive coefficient in all regressions. Relative leverage and relative capital intensity have negative coefficients in most of the years. Corporate-level strategy and business-level strategy of a firm both help to explain the variation in firm profitability. Shortcomings of this paper are as follows. Variables like export intensity, age, firm efficiency, selling and distribution expenses which may impact the profitability are not considered. Aggregate level analysis may not be applicable for firms classified into different industries or categories. Further, a variable like relative leverage gets impacted by the firm
leverage if the firm leverage is not removed from industry leverage. This results in endogeneity of variables.

Majumdar (1997) studies the impact of firm size and firm age on the performance of Indian non-financial firms. Hypotheses developed are size has positive impact on profitability of firms and age has negative impact on profitability of firms. Data consists of 1020 Indian listed firms having data for one of the six years period between 1988-89 and 1993-94. Return on sales is dependent variable. Independent variables are size and age of the firm. Other control variables are exports, advertising expenses, distribution expenses, marketing expenses, capital intensity, inventory, liquidity, sales growth, excise duties, leverage, imports, operating expenses, diversification dummy, group dummy, foreign ownership dummy and time dummies for 6 years. Cross sectional regression of the following form is formulated.

\[ \text{Profitability} = f (\text{Size, Age, Exports, Advertising, Distribution, Marketing, Capital Intensity, Inventory, Liquidity, Sales Growth, Excise, Debt Equity, Imports, Diversity, Group, Foreign, Time}) \]

Results show that coefficient for size is positive and significant. Coefficient for age is negative and significant. Short coming of this paper is that author has considered only one year data. They have not provided information on selection of data especially for firms having data for more than one year. Also it is aggregate level analysis and the results may not be applicable at classified levels. Our study analyses the data for over two decades at aggregate level and classified levels.

Kakani et al. (2001) examine the determinants of financial performance of Indian listed firms during post liberalization period. It is hypothesized that size, net exports, international diversification and marketing expenses have positive impact on financial performance of the firm; age, domestic institutional investment (DII), minority (public) ownership and leverage have
negative impact on financial performance of the firm; and industry affiliation, working capital ratio and group affiliation have significant impact on financial performance of the firm. All listed firms are studied from financial year 1992 – 1993 to 1999 – 2000 divided into two periods of four years each. Variables are four years simple average for two sub periods.

Cross sectional regressions of the following form are formulated for both the periods.

$$\text{Performance} = f (\text{size, working capital ratio, leverage, international diversification, age, public ownership, marketing expenses, domestic institutional ownership, net exports, industry fixed effects, group effects})$$

Results show that size, marketing expenses, international diversification and net exports have positive impact on the financial performance of the firm. Leverage, age, public shareholding and domestic institutional holding have a significant negative impact on financial performance of the firm. Shortcoming of this paper is that it is again an aggregate level study which may not be meaningful at classified levels. Further, current value of leverage is impacted by current performance and vice versa resulting in endogeneity of variables (Rajan and Zingales (1995)). Therefore, lagged values of leverage should be used as independent variable to explain firm performance.

Lee (2009) studies determinants of firm performance and particularly the impact of firm size on firm profitability. Hypothesis developed is firm size and profitability has inverted U – shape relationship. The factors impacting profitability are grouped into three categories; general economic conditions, industry-specific factors, and firm-specific factors. General economic conditions are measured by the annual growth rate of US GDP. Industry condition is measured by four-firm concentration ratio. Firm-specific factors include previous year’s ROA, firm size, market share, capital intensity, advertising intensity, R&D intensity, bad debt management,
inventory management, stock beta coefficient and firm’s sales growth. Dataset consists of an unbalanced panel of 7,158 US publicly-held firms listed in US stock exchanges from 1987 to 2006.

Results show that size has inverted U shape relationship with profitability. Further, coefficients of previous year’s ROA, market share, R & D, market concentration, interaction of advertising expenses and market share, interaction of advertising expenses and capital intensity; and interaction of market concentration and capital intensity are positive and significant. Shortcomings of this paper are as follows. The author examines the quadratic relationship of size with accounting based measure of performance. Market based measure of performance such as price to book value ratio is not examined. Aggregate level analysis cannot be generalized at classified levels. Also multi-co-linearity among the variables such as size and square term of size is not examined.

2.2 Literature Review on Impact of Listing on Firm Performance

Jain and Kini (1994) investigate the impact of listing on operating performance (return on assets) of firms. Hypothesis tested is that the firm performance declines after listing of firms. Median in change in operating performance has been measured by $\text{ROA}_{it} - \text{ROA}_{it-1}$, where, i represent the firm and t represents a post IPO financial year. Change in performance has been measured for the year in which the firm is going for IPO (current year) as well as for the first, second and third year after IPO, relative to the year preceding IPO. The second variable considered is industry-adjusted change in operating performance. Industry-adjusted performance of a firm is the difference between the median change in operating performance of the IPO firms and the median change in operating performance of all firms in its industry. Difference in operating performance has been tested using two-tailed Wilcoxon signed rank test. 682 firms which issued IPOs are
studied from the period of 1976 to 1988. Median changes in operating performance are negative and significant at less than 0.01 levels for the current year and for three years post IPO. Also, median industry adjusted changes in operating performance are negative and significant at less than 0.01 levels for the current year and for three years post IPO. Similar results have been found for operating cash flow measure of firm performance. Shortcoming of this paper is that operating performance of IPO issuing firms can also be compared with the operating performance of unlisted firms which is not done. Our analysis compares the operating performance of listed with unlisted firms using panel data regression.

Loughran and Ritter (1997) analyze operating performance of the firms going for seasoned equity offerings (SEO). The changes in median performance of equity issuing firms in the post-SEO period are measured by comparing the post-SEO performance for four years with their pre-SEO performance for four years. Further, equity issuing firm is matched with a non-issuer listed in COMPUSTAT for comparing the performance of issuers v/s non issuers. Non issuer is chosen on the basis of operating performance, industry and asset size. Median operating performance of issuer is compared with non issuers using Wilcoxon matched-pairs signed-rank tests. Operating performance measures like operating income to assets ratio, operating income relative to sales, profit margin and return on assets are considered for analysis. 1338 seasoned equity offerings on the NYSE, AMEX, and NASDAQ stock exchanges are studied for the period of 1979 to 1989. The authors find that operating performance of issuing firms increases during four years before the issuance of seasoned equity. However, the performance declines during four years after the issuance of seasoned equity. Further, operating performance of issuers is less than the performance of non-issuers during four years after the issuance of seasoned equity.
Mayur and Kumar (2009) examine the post IPO performance of 481 Indian firms for the period of 1997 through 2006. Median operating performance of Indian IPO firms during post issuance period has been compared with the pre issuance period performance using Wilcoxon two sample signed-rank test. Operating performance of the firms is measured with sales to total assets ratio, profit after tax scaled by capital employed and return on equity. The authors find that performance of the firms decreased significantly after IPOs as compared to their performance before IPOs.

### 2.3 Literature Review on Impact of Group Affiliation on Firm Performance

Khanna and Palepu (1997) argue that diversified businesses in developed countries have many disadvantages because of well-developed institutions such as capital, labor and product markets. But the existence of institutions which makes diversification costly are absent in emerging economies. Capital markets in developed economies are equity focused and characterized by better disclosure norms, and the market for corporate control is well developed. In emerging economies capital markets have illiquid equity markets, nationalized banks and debt markets with weak monitoring power. Similarly, labor and product markets are underdeveloped in emerging economies. The emerging economies have scarcity of management talent, few consumer activists, high corruption, insufficient legal system, politically motivated regulators and unpredictable contract enforcement. Thus business groups can be successful in emerging economies due to deep rooted institutional voids by imitating the functions of these institutions. For example, the business groups can imitate the functions of capital market by acting as venture capitalist to fund the upcoming projects of a group affiliate. Institutional voids make it costly for standalone firms to compete with business group firms. Khanna and Palepu (1999) find that group affiliation has positive impact on the profitability for Indian firms during the economic
transition due to slow development of market intermediaries and higher transaction cost in the market even after deregulation.

Khanna and Palepu (2000a) study the impact of group affiliation on firm performance. The objective of this study is to examine whether a firm affiliation with the business group is associated with inferior or superior performance. Hypothesis tested is that the firm affiliation to a diversified business group and firm performance are positively related. Performance of the firms has been measured by Tobin’s q\(^1\) and ROA. Data considered is for the year 1993 for 1309 listed firms of which 655 firms are business group affiliated firms and 654 are stand-alone firms.

Authors have used three specifications of cross sectional regression for both the dependent variables. First specification includes group dummy which takes value 1 if the firm is a group affiliate and 0 otherwise and two control variables, log (sales) and age. For second specification business group firms are divided into three diversification categories; least diversified (for groups operating in 1 to 4 industries), intermediate diversified (for groups operating in 5 to 7 industries) and most diversified (for groups operating in more than 7 industries). Third specification, instead of group and diversification dummies, includes number of industries the group operates in, square of number of industries the group is operating in and number of firms affiliated to a group. Number of industries the standalone firm operates in is assumed to be 1.

Authors estimate three linear models for firm performance as a function of independent variables. These models are as follows:

1. \[ \text{Firm Performance} = f(\log (\text{sales}), \text{age}, \text{group dummy}) \]

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\(^1\) Tobin’s Q is the ratio of market value of the firm to the replacement cost of assets. However, because replacement cost of assets is not available for Indian firms, the authors use Tobin’s q as a proxy for Tobin’s Q which is defined as \((\text{market value of equity} + \text{book value of preferred stock} + \text{book value of debt}) / (\text{book value of assets})\).
2.  \( \text{Firm Performance} = f (\log (\text{sales}), \text{age}, \text{least diversified dummy, intermediate diversified dummy, most diversified dummy}) \)

3.  \( \text{Firm Performance} = f (\log (\text{sales}), \text{age, number of industries a group operates in, squared term of number of industries a group operates in, number of firms in a group}) \)

Authors use standalone firms as reference category for all of the above three equations. Result for the first specification of Tobin’s q regression shows that the group dummy is not significant. Second specification indicates that the most diversified group firms have outperformed the standalone firms. Third specification indicates a U shape relationship between number of industries in which the group operates and Tobin’s q. Thus group affiliation is beneficial after a certain level of diversification. Result for ROA regression shows similar results. Shortcoming of this paper is that the standalone firms like ITC do operate in more than one industry in India. However, the number of industries the standalone firm operates in is assumed to be 1. Also, analysis of only one year is not sufficient enough to be generalized for a longer time period. Further, authors did not consider important variables like, promoters’ holding of the firm, firm leverage, firm size, firm age, export intensity of the firm, advertisement expenses of the firm and industry concentration. We include these variables for our study spanning over a period of 13 years.

Khanna and Rivkin (2001) find that not only group affiliation has positive impact on the profitability for Indian firms but also profitability among group members is highly correlated as compared with profitability of firms outside the group. Gopalan et al. (2007) find the evidence of propping among Indian business groups. Authors study the working of internal capital markets among Indian business groups. They find that the weaker firms are supported by transfer of cash across group firms through intra-group loans. The reason for providing support would be to
circumvent default by a group firm and consequent negative spillovers to the rest of the group. Khanna and Yafeh (2007) contended that diversified business groups are more common in economies with less developed market institutions. Thus business groups have been considered as a response to the market failures and institutional voids in the emerging economies. Mishra and Akbar (2007) have confirmed that group affiliation is beneficial in emerging markets. However, they find that the advantages of group affiliation are not equally available to related-diversified and unrelated diversified business groups firms. Unrelated-diversification has no impact on firm value. Kali and Sarkar (2012) find that business group affiliation continued to generate higher market valuation vis-a-vis standalone firms for many years into the transition in India. However, higher market valuation is not due to the diversification but it is due to propping and better monitoring through group level directorial interlocks.

Another stream of research has opposite view on group affiliation and firm performance. Bertrand et al. (2002) find evidence of tunneling in India among group affiliates. They show negative relationship between group affiliation and firm profitability. Singh et al. (2007) find that diversified firms perform significantly worse than focused firms. Singh and Gaur (2009) find that group affiliated firms perform worse than unaffiliated firms. Lensink and Molen (2010) have tested the robustness of the study of Khanna and Palepu (2000a) for the period 1996–2001. Taking 1993 data Khanna and Palepu show that the relationship between diversification and performance of group affiliated firms is U-shaped. Accordingly, Lensink and Molen test whether this relationship holds for 1996–2001 period. After controlling for the firm age, firm size and firm leverage the analyses reveal that the results offered by Khanna and Palepu are not robust. Increase of diversification does not increase performance of group affiliates. Rather group affiliation is profitable due to working of internal capital market within the business group.
Authors also argue that group affiliation is particularly beneficial for firms that suffer financial constraints. Almeida et al. (2014) find that after 1997 Asian financial crisis, Korean business groups transferred cash from low growth firm affiliate to high growth firm affiliate.

2.4 Gaps in Literature

Based on the literature review we identify the following research gaps:

1. It is possible that firm performance may be impacted by group affiliation and listing status. The joint impact of listing and group affiliation on firm performance has not been studied in the literature.

2. The effect of independent variables on firm performance may be impacted by group affiliation and/or listing status. We do not find any study which examines the relationship of independent variables with firm performance in the presence of group affiliation and/or listing status.

3. Lee (2009) examines the quadratic relationship between accounting based measure of firm performance, ROA and size (net sales) only for US firms. Market based measure of firm performance such as price to book value ratio is not examined in the literature. In the Indian context, quadratic relationship between firm performance (accounting as well as market based measure of firm performance) and size (net sales) remains unexplored.