CHAPTER 6
Summary and Conclusion

6.1 Introduction
In the current era of economic liberalization, firms operate in a very sensitive business environment. Since last one decade; sensitivity of business environment has been increasing with rise in competition. Global open market also catalyzed the intensity of competition. Influences of global events affect the business of firm which further affects the value of business. Value of firm does not remain same in this fragile business environment. Valuation of firm has become very sensitive issue in current scenario. Valuation is the critical aspects in financial analysis that gives a realistic idea of worth of company. Valuation analysts analyze the economic factors at micro and macro level and measure their impact on business through financial and operational activities. Once the analysts grasp the value of business then it becomes easier for them to chalk out the future strategies like expansion of business (market expansion and product expansion), selling of business, mergers, joint venture with other firms etc. So, to know the fair market value of firm has become a difficult tiger to tame. Valuation of firm is to estimate the future CRT in current value -

a) What amount of cash flow firm can generate? (C – Cash flow)

b) How much is the risk in the business of firm? (R – Risk in business)

c) What is the minimum time period to achieve the desired target? (T – Time period)

Gerald M. Loeb (2007) wrote beautifully, “There is no such thing as a final answer to security values. A dozen experts will arrive at 12 different conclusions. It often happens that a few moments later each would alter his verdict if given a chance to reconsider because of a changed condition. Market values are fixed only in part by balance sheets and income statements; much more by hopes and fears of humanity; by greed, ambition, acts of God, invention, financial stress and strain, weather, discovery, fashion and numberless other causes impossible to be listed without omission”.

Value of firm represents the past, present and future performance of firm as well as the long term interest of investors. Investors try to maximize their expected return and minimize their opportunity cost while investing in a particular firm. All the venture
capitalists, financial institutions evaluate the value of firm before injecting the funds in the projects of firms. Valuation of business is purpose oriented activity. Calculation variation has been found while valuing the firm as valuation depends for what purpose valuation has to be used. Valuation of firms has been performed for

a) To determine the acquisition price of firms
b) To determine overvalue and under value of firms
c) To determine IPO price
d) To sketch out the corporate restructuring strategies
e) To determine the value drivers for firms

Various valuation approaches like intrinsic valuation, relative valuation etc. have been used for valuing the firm. Many researchers suggested that for understanding value of firm it has become mandatory to forecasts of future return on operating assets. **Operating efficiency** of firms has been considered a significant factor while valuations as operating activities are considered as the core source of cash generation. Operational efficiency refers to the profitable, efficient and judicious use of resources (financial) available to an organization in perfect consonance with clearly laid-down financial policies relating to the operation. The operating efficiency of an organization in terms of the efficient utilization of the resources is reflected in net profit margin. Many research studies suggested that firms can lever up margins by using operating assets more efficiently to generate sales revenue. Sales revenue has been considered as sole output variable in research studies because it is a primary source of earnings and cash flows generated from firms’ operating activities. Operational efficiency highlights the level of competence & effectiveness in the management and asset utilization. It has been suggested that the ability of firm to generate cash from operating activities is measured by Quality of income ratio. Higher the quality of income ratio, greater the ability of generating cash from operating cash inflows. Many research studies in this context have been reviewed. Seetharaman and Raj (2011) found a strong positive correlation between EPS and the stock price of Public Bank Barhad, a listed bank in Malaysia. We, however, avoid conventional measures like Earnings-per-Share (EPS) and Price-to-earnings (P/E) because when the total income of a firm is derived primarily from non-operating sources, the reality about a firm’s operational efficiency may be obscured, if not hidden altogether. Naik (2007) had also
considered variables like operating profit and expenses in his study on the operating efficiency of banks. Jin and Jin (2008) reported a positive correlation between operating performance and stock price change among the top 10 percent performers on the Shanghai Stock Exchange in the first two years of research period but in the latter period of two years, operating performance is inversely proportional to stock price change. Their principal finding is that operating performance generally declined as the stock prices went up. Similarly, Kirkwood and Nahm (2006) analyzed that changes in firm efficiency are reflected in stock returns. Beccalli, Casu and Girardone, (2006) also found that changes in efficiency are reflected in changes in stock prices and that the stocks of cost efficient banks tend to outperform their inefficient counterparts. Earlier, Chu and Lim (1998) had also found that percentage changes in the prices of the bank shares reflect percentage changes in profit. It has been analyzed that still there is a huge gap to bridge between theory and practice. A few researchers spent their time on analyzing the relationship between operational efficiency of firm and value of firm. Most of their research has been confined in banking sector. Other sectors have been ignored to analyze the effect of operational efficiency on firm value. To cater this need an attempt has been made through this research work to analyze the effect of operating efficiency on firm value.

Stock price has been used as proxy for firm value in most of the previous research studies. To keep the changing business scenario and interest of shareholders in mind, an attempt has been made in which stock price has been replaced by Enterprise value as proxy for firm value. Such attempt has not been made in any of the previous research studies. Therefore, this research work will act as a new light for the researcher in the area of valuation. New horizons will be opened and a platform has been provided for the researchers to work on this area.

On the basis of gap found in research work following objectives have been formulated –

a) To identify various variables of operating efficiency which may have probable effect on valuation of firm
b) To verify, if identified variables have any effect on the valuation of firm
c) To verify, if effect of identified variables on valuation of firms vary in various industries under study
d) To examine and suggest which variable of operating efficiency can be considered for increasing value of firm

Various dependent variables and independent variables have been identified through literature survey and discussion with experts. Enterprise value of firm has been considered as the dependent variable. The reasons for choosing Enterprise value over stock price has been spotted in previous chapters. EV values a firm based on its entire capital structure that includes a firm’s debt, cash and minority interests. As EV takes debt into account; it relates the total value of a firm to a measure of operating earnings generated (such as earnings before interest, taxes, depreciation, and amortization). This should represent a more accurate picture of a firm’s value in terms of its theoretical takeover price. Also the Stock Price is much more volatile than Enterprise value. The independent variables include:

1) \( \frac{EV}{EBITDA} \), where \( EV \) is the Enterprise value and \( EBITDA \) is the Earnings before Interest, Tax, Depreciation and Amortization

The rationale behind using \( \frac{EV}{EBITDA} \) over \( P/E \) is that \( EBITDA \) is before tax earnings whereas \( EPS \) is post tax earnings. Additionally, \( \frac{EV}{EBITDA} \) considers debt and cash position on the balance sheet of company whereas \( P/E \) does not consider cash position on the balance sheet of company.

2) Return on Capital Employed (ROCE).

3) \( \frac{EV}{S} \), where \( S \) is the Sales.

4) Quality of Earnings (CFOA/Net Income) where CFOA is the cash flow from operating activities.

5) Fixed Asset Turnover Ratio (FATO)

6) Net Profit Margin (NPM)

Scope of the research has been expanded beyond the banking sector by introducing five more industrial sectors Information Technology (IT), Pharmaceuticals, Fast Moving Consumer Goods (FMCG), Automobile and Infrastructure sectors from the Indian economy in the research study. 90 firms (15 firms from each sector with largest market
capitalization, where possible) from the year 2005 through 2012 have been collected from the *Capitaline Database* and annual reports of sample firms.

Annual reports of companies, reference books related to financial accounting and analysis, corporate finance, financial management, Valuation and other major issues of finance have been studied. The reason behind considering 8 years (2005-2012) as cut off for selection criteria is that this period faced the headwinds of major business cycles. In post liberalization era, business cycles and economic cycles have become shorter than before. Between this time period of 8 years, sectors are fancied and sectors are stunned. Up to the end of 2007, global economies went through secular bull run but when the bust came in the form of global meltdown in 2008, many sectors like IT, Real Estate, Financial Services etc. lost their glory and investors jettisoned the stocks of those sectors like dead weight. Before 2007, these sectors were considered as darling of markets.

To analyze the time series data, Multiple Regression has been used as a statistical technique to measure the influence of independent variables on dependent variables. SPSS software has been used for applying Multiple Regression on the time series data pertaining to study variables.

The following general OLS model can be used to study the effect of identified independent variables (ratios) on the dependent variable (*EV*):

\[
EV_i = \alpha + \sum_{j=1}^{J} \beta_j R_{ij} + \epsilon_i
\]

Where

- **\( EV_i \)** = Enterprise value of the *i*th entity
- **\( R_{ij} \)** = Various ratios.

Panel Data analysis has been employed to analyze the effect of operating efficiency on the valuation of firms across sectors. STATA software has been used for Panel Data Analysis.

We hypothesize that Enterprise Value (*EV*) should be more closely related with either the current operational efficiency or at best by the carry-forward effect of being efficient in the past. However, the farther we go back in time, the relationship between *EV* and past efficiency should be penalized in that the current value of the firm should not be a result of being efficient (or inefficient) in the distant past. To account for such unobservable and to avoid the omitted variable bias, we decided to use dummy variables for firms/industries and time. To carry out the analysis, the fixed effects model was chosen. We understand
that in using the fixed effects model, we are implicitly assuming that though the firms/industries have their unique attributes, this heterogeneity is constant over time. While this may not be true, we considered mitigating variable endogeneity to be more crucial and therefore, our choice of the fixed effects model.

To put our minds at rest, we used the Hausman test to see whether a random effects model would be preferable and as reported in the next section, the result was negative. As such, we initiated the analysis as per the model specified though the dummy variables for industries had to be dropped during inter-industry analysis due to collinearity.

\[
EV_{it} = \alpha + \beta_1 R_{it} + \ldots + \beta_j R_{jt} + \chi_2 D_{2i} + \ldots + \chi_k D_{ki} + \delta_2 T_2 + \ldots + \delta_1 T_1 + \mu_i
\]

where
- \(EV_{it}\) is the enterprise value of the \(i^{th}\) entity in time \(t\).
- \(D\) are the dummy variables for industries
- \(T\) are the dummy variables for time.

### 6.2 Results and Findings

A detailed discussion about the results of time series and panel data analysis has been made in following section –

#### 6.2.1 Across Time

The ensuing sectors give a brief description of findings of regression analysis on Time Series Data, which has been reported year wise.

In 2005, all the financial ratios have been emerged as significant. It reflects that operating efficiency have significant effect upon the Enterprise value as a proxy for firm value. Due to decrease in inflation to 5 percent, sharp industrial growth, high investment in infrastructure and real estate Indian economy was on the way of progress. This leads to the better performance of major industries. That’s why these ratios performed better and showed a remarkable effect on valuation of firm. Except FATO all other independent variables have significant effect on Enterprise value.

In 2006, the similar trend has been shown by the analysis. Progressive Indian economy attracted investments in real estates, financial and banking sector, impressive export
market performance, delicensing and opening up of FDI in automobile sector. All the financial ratios show a significant effect on firm value. Increase in investment, sales, better fixed asset turnover performance, impressive profitability makes these ratios significant in 2006.

In 2007, ratio like fixed asset turnover and EV/Sales have been emerged as non significant. Other four ratios have significant effect on firm value. The visible effect of global financial crisis may have some adverse effect as these ratios making then insignificant in explaining firm value.

In 2008, global financial crisis was burst. It hit the Indian economy progress badly. As growth of Indian economy get halted, the ratios ROCE, EV/Sales and FATO have been emerged as non significant. As the performance of various sectors like infrastructure, financial sector, IT sector was badly affected. Return on capital employed was negative. Export business of IT companies was hit badly. Performance of financial sector revealed negative signals in this year.

In 2009, Indian economy was still facing financial crisis trauma. Similar trend has been witnessed in 2009 analysis. ROCE and FATO were still non-significant and have no significant effect on firm value. But in 2009, companies managed their sales by diverting their business more towards domestic sales and decreased their export revenue part. This may cause to transform the EV/Sales ratio a significant ratio in the analysis. Other ratio still had significant effect on valuation of firm.

In 2010, Indian economy was on recovery mode. Sectors tried to nullify the global financial crisis effect on their performance. They adopted many routes to nullify the adverse effect and to increase the return on their investment by increasing sales, surge in profitability, increasing efficiency in fixed assets. Equity markets delivered positive return to the investors. Such efforts of all sectors transform all the independent variables into significant. It has been reflected from the analysis that all the independent variables except ROCE have significant effect on the enterprise value as a proxy for firm value.
In 2011, Liquidity of financial institutions and Banks has been improved which was adversely hit by global financial crisis. Service sector has been emerged as the resilient sector in Indian economy and it delivered a strong performance. Indian IT sectors explored new export destinations like OPEC, Eastern Europe, African countries as an alternative of USA and Europe. European market was facing European crisis in 2011 but Indian companies managed to minimize the financial dent because of this crisis. In the analysis, all the independent variables have been emerged as significant variable having effect on the firm value.

In 2012, better growth prospective has been measured. Improve global scenario strengthen the performance of Indian economy. Profitability of major economic sectors has been increased. European crisis has been nullified up to significant extent. Strong investors’ expectation, better equity market return aids the independent variable to throw a significant effect on firm value in the research study. All the independent variables have been emerged as significant in the analysis.

6.2.2 Across Sectors

Further the results of Panel Data Regression in various sectors have been depicted in the following discussion.

**In Automobile sector** it has been observed from the panel data analysis of objective three that all variables have significant effect on Enterprise value. The survival of automobile industry depends upon the sales revenue of four wheelers and two wheelers which in turn is heavily dependent on the prevailing market interest rate as around 75 percent of the overall vehicle buyers avail for loans to purchase their choice of automobile. Higher interest rate slowdown the sales of automobiles. EV/Sales play significant role in automobile sector as this ratio is part of sales revenue. Majority of the funds has been invested by the automobile companies in purchasing raw materials and inventory. Cost of goods sold is an important factor. Due to this Net profit margin is also considered an important ratio for measuring the performance of automobile sector. High initial investments in raw materials, technology, building plants all have significant effect on return on capital employed. This makes the Return on Capital Employed (ROCE) a significant ratio for this sector. Being a manufacturing industry, efficiency of operating
activities is considered as an important tool. This makes the quality of income ratio an important part of automobile sector.

**Banking Sector’s** main source of revenue is mainly through the sales of financial products and from the interest paid by the borrowers. Banking sector has large fee income component and they are distributors of financial services. Low cost of funds is also considered as profitability driver for banking sector. How much cash has been generated from the sales and interest received by banks makes a provoking thought for the financial ratio EV/EBITDA, NPM, EV/Sales, quality of earnings for banking sector. The significance of these ratios has been clearly observed from the analysis. These ratios have effect on the profitability of firm as well as value of firm. On the basis of analysis, ROCE has no significant effect in banking sector as its return depends upon the interest difference between borrowing rate and lending rate. There are some other ratios like Capital Adequacy Ratio (CAR) that is very important for banking sector. The use of that ratio was beyond the scope of the research objective.

**In FMCG Sector,** the main revenue has been generated from the consumption of daily routine goods. Sale of FMCG products has been considered as important revenue resource. EV/Sales and NPM has been emerged as the variables that have significant effect on the value of firm. These variables reflect how efficiently firms utilize its resources to generate revenue. Marketing strategies and distribution channels are very significant link in enhancing the profitability. Sales and distributors are considered as primary drivers for profitability in FMCG sector. Effective utilization of human resource for marketing and distribution has been reflected in ROCE variable in the research study. Quality of income ratio is also considered as significant in FMCG sector as liquidity is the main driver for this sector. This ratio reflects the level of cash generated from operating activities as a portion of total net income.

**In Infrastructure Sector,** inflation and interest rate have been considered as the significant macro economic factors that affect the sales of the sector. Infrastructure being a capital intensive sector and as most of the business is done on credit. Fluctuation in interest rate affects the investment as well as sales revenue adversely. For valuation purpose, EV/EBITDA has been considered important in infrastructure sector. It helps in
evaluating the stock price of infrastructure sector. Net profit margin signifies the effectiveness of firm to convert the sales into profitability. How effectively infrastructure firms enhance their profitability from the sales revenue has been analyzed from NPM ratio and quality of income ratio. As the sales in infrastructure is periodical so EV/Sales is non significant in infrastructure sector.

In IT Sector, most of the investment is done on recruiting and retaining the talented manpower. Human resource is the main asset for this service industry. The profitability of sector depends upon the effective utilization of human resources, foreign exchange rates and technology adopted by the firms. ROCE has been emerged as the significant ratio as it tells how efficiently firm utilizes its employee to generate revenue. The main revenue of IT firms come from the domestic and global sales of their products. The importance of sales makes EV/Sales a significant ratio for IT sector. For valuation of stocks of IT firms, EV/EBITDA cannot be ignored. From the analysis it has been crystal clear that these ratios have significant effect on the dependent variable in IT sector. Bing a part of service industry where the main revenue of company is generated from the services, FATO has emerged as non significant ratio on the basis of research analysis.

In Pharmaceutical Industry, as research and development accounts for most of the investment usually on new medicines, human resource and technology. ROCE ratio reflects how pharmaceutical company utilizes its capital employed like human resources, technology to enhance its return. All the investors are curious to know about their valuation of stocks by the pharmaceutical firms. EV/EBITDA reflects the overall efficiency with which capital is utilized for enhancing value of stocks of firm. Net profit margin ratio in pharmaceutical companies reflects management efficiency in manufacturing, administrating and selling of the products. Most of revenue is generated from sale of the medical products so sales ratio has significant effect in pharma sector. Being a part of manufacturing industry, revenue generated from fixed asset also contribute in total revenue in pharma companies so from the analysis FATO is considered as a significant variable for pharma industry. ROCE reflects the efficiency with which capital is used by the firm.
The composite analysis was performed in time series data (For all years together) and also in Panel Data (For all sectors together). The results in both kind of analysis brought out EV/EBITDA and NPM as the strongest variable in explaining variations in Enterprise value. Thus these ratios can be considered as the time indication of operating efficiency of a firm, by analysts for taking policy decisions.

6.3 Implications of the study

The present research work has produced some thought provoking results that may act as guidelines for the research studies in future. In this fragile business environment, accurate valuation of firm by considering all micro and macro economic factors is a daunting task. On the basis of the previous research studies and the findings of present research, analysts must realise the importance of Enterprise Value and Enterprise Value should be incorporated as proxy for firm value rather than stock price in their future valuation projects. This study serves as an important platform to understand the importance of Enterprise Value multiples over P/E multiples. In the area of valuation, Enterprise Valuation multiples have grasped the attention of analysts and their role has been considered influential for the valuation.

Through this research study, the importance of operating efficiency in valuation has been highlighted in six economic sectors. It has been exemplified practically in the research work that operating efficiency is not only a influencing factor in banking sector but it can be used as an influencing factor in other economic sectors. For the world of valuation analysts, this research study will prove very helpful and its useful findings must set up new dimensions in firm valuation. The conventional valuation variables must be replaced by new influencing variables that have gained significant importance in current business scenario.

6.4 Limitations of the study

Some shortcomings have been noticed that are expected to overcome by future research studies in the same area. The present research study was based upon the sample selection of 90 companies across 6 economic sectors. To bring the homogeneity in the sample of
companies, only those companies have been considered whose financial year ends on 31st March. To avoid any anomalies, companies whose financial year ends either in June or in December have been ignored. In this attempt some big companies have been left that have large market cap but their financial year ends either in June or in December. There were some companies which have significant market cap but those companies were not listed on or before 2005. As in our research study time frame was taken from 2005 -2012 and only those companies have been selected in the samples which had complete financial record from 2005 to 2012 or which are listed before 2005. To avoid any anomalies that could crop up due to imbalance of data, companies which are listed after 2005 have been ignored. If few years later, the future researcher try to collect data from 2007 or 2008 onwards, then they may get more firms to included in sample. The present study was limited to six economic sectors. The future research studies of similar area may target other sectors in their research work to gain deeper insights. With change in economic scenario, many new dependent factors may emerge or there may be a possibility that in changing business environment, some valuation variables may become more significant than current scenario. Future researchers may also incorporate those variables in the research work that may have significant effect on valuation of firms.