CHAPTER VII
SUMMARY AND CONCLUSION

7.1 INTRODUCTION

Liberalization, Privatization and Globalization have resulted in tough competition for business houses (Ehie and Olibe, 2010). The companies are constantly pushed to look for new growth opportunities in order to catch the market earlier than their competitors. This requires them to be innovative and novel at an extra ordinary pace in the development of new products and services. As technology and innovation are symbiotic for the survival and growth of the corporate houses, much attention is attributable to the contribution of Intangible Assets in the performance of the corporate sector.

Intangible Asset is a non monetary asset without any physical existence. Various Accounting Bodies have tried to define Intangible Assets. Accounting Standard (AS)- 26 defines Intangible Assets as “an asset that is identifiable non-monetary asset, without physical substance, held for use in the production or supply of goods or services, for rental to others, or for administrative purposes”. Even Chinese ASBE no.6 defined Intangible Assets as “identifiable non-monetary assets possessed or controlled by enterprises which have no physical shape”. The Financial Accounting Standard Board (FASB) also stresses upon Intangible Assets as the “non-current assets (not including financial instruments) that lack physical substance”.

Several authors have also defined Intangible Assets in several distinct ways. Some have defined these on the basis of their elements as Itami (1991) highlights that these assets are “invisible assets that include a wide range of activities such as technology, consumer trust, brand image, corporate culture and management skills.” Brooking (1997) describes them as the “combination of market based Intangible Assets, intellectual property, human-centered and infrastructure that enable the company to function”. Sveiby (1997) focused on the categories of Intangible Assets and opines that Intangible Assets are “invisible assets that include employee competence, internal structure and external structure”.

Few researchers have defined Intangible Assets in terms of their functioning and importance as Hall (1992) claims that Intangible Assets are “value drivers that transform
productive resources into value added assets.” Stewart (1997) describes these as “knowledge, information, intellectual property and experience that can be put to use to create wealth”. A similar opinion is generated by Sullivan (2000) who defines intangibles as “knowledge that can be converted into profit.”

Thus the literature provides several definitions of Intangible Assets but till date no consensus could be evolved among researchers as regards to an objective and concrete meaning of Intangible Assets. Itami (1991) termed these as “Invisible” assets. Even Sveiby (1997) and Guo et al. (2011) classified these in a similar manner as “Visible and Invisible” Assets. Grojer and Johanson (1999) and Guthrie & Petty (2000) called them "Soft" Assets and "Weightless Wealth". These have been termed as “Intellectual capital” by Brooking (1997), Nahapiet and Ghoshal (1998), Stewart (1998), Brennan and Connell (2000), Harrison and Sullivan (2000), Sullivan (2000), Heisig et al. (2001), Petty and Guthrie (2000), Pablos (2003), Rastogi (2003), Mouritsen et al. (2004) and “Knowledge assets” by Hall (1992); Fincham and Roslender (2003) and Lev (2001). Authors like Smith (1994) and Granstrand (1999) termed these as “Intellectual Property”. These are named as “hidden reserve” by Kane and Unal (1990). Belkaoui (1992) and Godfrey and Koh (2001) termed these as ‘Identifiable’ and ‘Unidentifiable’ Assets while Barron et al. (2001) called these as ‘Recorded’ and ‘Unrecorded’ Assets. For some researchers these include business expenditure in the form of Research and Development (R&D) (Hirschey and Weygandt, 1985; Chauvin and Hirschey, 1993; Bosworth and Rogers, 1998; Lau, 2003; Hall and Oraini, 2006; Nagaoka, 2006; Ebie and Olihe, 2010) while to others these are Patents, Copyrights and Licensing (Fang and Lin, 2010; Greenhalgh and Rogers, 2012). To Stewart (1997) these refer to technical knowhow. As for Grasenick and Low (2004) these include expenditure on human capital in the form of training and education. These are referred to as Advertising by a few authors like Hirschey and Weygandt, 1985; Chauvin and Hirschey, 1993; Andras and Srinivasan, 2003; Sahay and Pillai, 2009; Kundu et al. 2010; Shah et al. 2011. Infact the concept of Intangible Assets is quite complex.

To sum up Intangibles are “assets that are neither tangible nor financial instruments, items that fail the definition of an asset, but are important elements of business success and are merely non financial information” Upton (2001).
The integration of the world economy has emphasised the need for firms to exploit Intangible Assets on a global scale. As highlighted by Griliches, 1994; Lev, 2001; Firer and William, 2003; Boujelben and Fedhila, 2011, the basis of economic development and wealth of the economy lies no longer in the investment in Tangible Assets but in the creation and use of Intangible Assets. This increased importance of Intangible Assets in the economic value creation is also attested by the increasing gap between the firms’ accounting Book Value and their Market Value (Gu and Lev, 2001).

There are variety of reasons that lure the companies to invest in Intangible Assets. Intangible Assets play an increasingly important role in facilitating productivity and efficiency for the companies (OECD, 2008). These assets also help the companies in competing with their competitors and in enhancing their market value (Canibano et al. 1999, Mishra and Jhunjhunwala, 2009). These also provide a firm with improved customer attainment and preservation by building customer loyalty as well as brand image (OECD, 2008). Specifically mentioning the relevance of some of these assets, Goodwill is given due consideration at the time of mergers and acquisitions (PWC, 2014). A higher value is paid by a company with the intention to take advantage of the existing technology, knowledge and other Intangible Assets (Canibano et al. 1999; Gu and Lev, 2001; PWC, 2014). Investment in R&D, patents, copyrights etc. give monopoly to the firms for producing innovative products (Pradhan, 2003). Advertising and Customer Relationship Management (CRM), other Intangible Assets are documented as a generator of high profits for the companies as the advertised products are easily recallable and identifiable and the chances of confusion are minimized (Sahay and Pillai, 2009). Last but not the least, investment in Human Assets builds the intellectual capital of companies and helps them in earning high profits as the companies take advantage of the skills and abilities of its workforce to outperform their rivals (Arrighetti et al. 2014).

Intangible Assets are not free from bottlenecks. Despite the growing importance of Intangible Assets, it is strange that these are not fully recorded in companies’ Balance Sheets perhaps because these are complex to define and difficult to measure (Goldfinger, 1994; Sveiby, 1998; Lonnqvist, 2004; Gu and Wang, 2005; Lev, 2005;
Austin, 2007; Corrado et al. 2012). Infact they lack both consistent data and uniform
definition (Toubal, 2009). Also these assets are difficult to identify separately and thus fail to match the fundamental requirements for accounting recognition (Canibano et al. 1999). Intangibles are non physical in nature and do not follow the same pattern of depreciation as tangible assets (Canibano et al. 1999). Also, the future benefits derived from Intangible Assets are uncertain (Holland, 2001). As a result economic rents, growth opportunities, and other factors associated with Intangible Assets are not fully captured in the accounting system.

7.2 OBJECTIVES OF THE STUDY

The specific objectives of the study are:

1. To measure the level of investment and growth rate in Intangible Assets in the Indian corporate sector.
2. To evaluate the various corporate attributes affecting the investment in Intangible Assets in India.
3. To analyse the impact of Intangible Assets on the corporate performance in India.

7.3 UNIVERSE AND SAMPLE OF THE STUDY

Business Today (BT) - 500, November 11, 2012 companies rated on the basis of market capitalisation represent the universe of the study. These companies are not only the top most firms in India, but these also represent various sectors of the Indian economy.

Certain filters have been applied for the purpose of sample selection:

1. Companies in banking and financial sector have not been taken. The nature and significance of Intangible Assets in these companies is not comparable with that of manufacturing sector or service industries.
2. The companies in the public sector have not been considered. These companies enjoy more privileges under Companies Act, 2013 and would not provide meaningful analysis when compared with the companies in the private sector.
3. The companies which do not exist during the total study period have not been taken.
4. The companies for which requisite data is not available have been eliminated. Hence, after applying the above filters an effective sample of 346 companies is obtained. Further, to address the problem of outliers the winsorization of top and the bottom 1% of the variables has been applied.

7.4 TIME PERIOD

The study is undertaken for a period of twelve years from 2000-2001 to 2011-12. Intangible Assets need some time to grow, hence a span of more than a decade is used to establish consistency and predictability of research conclusions. This time period has been important with reference to the Indian economy as well. India exhausted a decade of its gestation period of Liberalisation, Privatisation and Globalisation (LPG) which had started since 1991 and it was believed that the country by now i.e. within twelve years must have settled enough for adapting itself to the new challenges, threats and opportunities awaiting at the global level.

7.5 DATA SOURCE

The study is based on secondary data. The relevant data has been extracted from PROWESS, a database of Center for Monitoring Indian Economy (CMIE). PROWESS is the database of financial performance of Indian companies. It contains data on approximately 27,000 companies. All the data required for the study was readily available in this database. Annual reports of the respective companies have also been reviewed wherever necessary.

7.6 MEASUREMENT OF INTANGIBLES

Primarily there are four types of methods by which the Intangible Assets can be measured- (I) Direct Intellectual Capital methods (DIC), (II) Return on Assets (ROA), (III) Scorecard Methods (SC) and (IV) Market Capitalisation Methods (MCM). DIC method seeks to identify the components of IC and attaches a monetary value to those components of IC, which when aggregated give the value of Intangible Assets. In ROA method the pre-tax average income is divided by the average capital of the company to obtain ROA. It is then compared with its industry average and the difference is
multiplied by the company's average tangible assets to get average annual earnings from the intangibles. After dividing the resultant figure by the company's average cost of capital value of Intangible Assets is derived. SC methods are similar to the DIC methods but in SC method do monetary value is attached to any of the components. In the MCM method the intellectual capital or Intangible Assets of an enterprise are valued as the difference between the market value and book value of enterprise. MCM method is highly useful in merger and acquisition situations and also in stock market valuations. In order to calculate MCM accurately the historical financial statements must be adjusted for the inflation rate or the replacement cost. The previous researcher like Booth (1998); Dzikowsik (2000); Roslender (2000); Chan et al. (2001); Eckstein (2004); Lu et al. (2010) to a large extent justify this method.

Using the Market Capitalisation Approach, Karl- Erik Sveiby developed a method to measure Intangible Assets in 1997 which is popularly known as The Intangible Asset Monitor Method. Under this method, Intangible Assets are measured as the difference between market value and book value of equity. The market value signifies both the tangible and intangible aspect while the book value represents only the tangible portion of the company. Further, Sveiby’s (1997) divided the Intangible Assets into three parts as External Structure (brands, customer and supplier relations); Internal Structure (the organisation management, legal structure, manual systems, attitudes, R&D); and Individual Competence (education and experience). Sveiby (1997) also proposes that market value of a company is a direct reflection of the Invisible Balance Sheet of the company.

Thus, Sveiby (1997), through his well defined and robust model helps to divide Intangible Assets broadly into two categories as (1) Visible Intangible Assets; those that can be seen in the balance sheet and are quantified in monetary terms and may vary from goodwill, patents, licenses, other Intangible Assets and copyright etc. (2) Invisible Intangible Assets; those that can been seen as the excess of market value over the book value of a company. These assets form a part ‘under the surface’ in the balance sheet (Sveiby, 1997).
7.7 VARIABLES USED

7.7.1 Dependent Variables

For measuring the impact of investment in Intangible Assets on performance, the study uses accounting measures and market based measures. The accounting based measures are

a. Return on Assets (ROA)
b. Return on Equity (ROE)

The market based measure is

a. Tobin’s Q

For examining the factors affecting investment in Intangible Assets, the Total Intangible Assets are taken as the dependent variable.

7.7.2 Independent Variables

The various independent variables used in the study are:

a. Intangible Assets (Total of Visible and Invisible)
b. Size (measured by log of total assets, total sales and market capitalisation)
c. Age
d. Leverage
e. Physical Capital
f. Profitability
g. Risk
h. Export Intensity
i. Market Share
j. Nature of Industry

7.8 STATISTICAL TOOLS USED

The data has been analysed using various tools based on the objectives of the study. For achieving the first objective i.e. the extent of investment in Intangible Assets by the Indian companies, Averages, growth rate and Compounded Annual Growth Rate (CAGR) has been calculated. Further, to examine the factors affecting investment in Intangible Assets, Dynamic Panel Data Regression method has been used. However, to study the impact of investment in Intangible Assets on performance, Panel Data Regression models have been used.
7.9 HYPOTHESES OF THE STUDY

For the purpose of exploring the factors affecting the investment in Intangible Assets the following hypotheses have been framed and tested:

\( H_{1a} \): There is a positive association between Size as measured by log of market capitalisation and investment in Intangible Assets.

\( H_{1b} \): There is a negative association between Size as measured by log of market capitalisation and investment in Intangible Assets.

\( H_{2a} \): There is a positive association between Profitability of a firm as measured by Return on Sales (ROS) and investment in Intangible Assets.

\( H_{2b} \): There is a negative association between Profitability of a firm as measured by Return on Sales (ROS) and investment in Intangible Assets.

\( H_{3} \): There is a negative association between Leverage of a firm as measured by its debt to equity and investment in Intangible Assets.

\( H_{4} \): There is a positive association between Age of a firm as measured by its year of incorporation and investment in Intangible Assets.

\( H_{5a} \): There is a positive association between Capital Intensity of a firm as measured by its fixed assets to total assets and investment in Intangible Assets.

\( H_{5b} \): There is a negative association between Capital Intensity of a firm as measured by its fixed assets to total assets and investment in Intangible Assets.

\( H_{6} \): There is a positive association between Market Share of a firm as measured by company sales to industry sales and investment in Intangible Assets.

\( H_{7} \): There is a positive association between Export Intensity of a firm as measured by company’s total export to sales and investment in Intangible Assets.

\( H_{08} \): There is no significant association between Nature of industry and investment in Intangible Assets.

\( H_{8} \): There is a significant association between Nature of industry and investment in Intangible Assets.

\( H_{09} \): There is no significant association between Year and investment in Intangible Assets.

\( H_{9} \): There is a significant association between Year and investment in Intangible Assets.
For the purpose of examining the impact of investment in Intangible Assets on corporate performance the following hypotheses both in null and alternate form have been framed and tested:

**H₀₁**: There is no significant association between Intangible Assets and corporate performance.

**H₁**: There is a significant association between Intangible Assets and corporate performance.

**H₀₂**: There is no significant association between Size of a firm as measured by its total assets or total sales or total market capitalization and corporate performance.

**H₂**: There is a significant association between Size of a firm as measured by its total assets or total sales or total market capitalization and corporate performance.

**H₀₃**: There is no significant association between Age of a firm as measured by its year of incorporation and corporate performance.

**H₃**: There is a significant association between Age of a firm as measured by its year of incorporation and corporate performance.

**H₀₄**: There is no significant association between Leverage as measured by its total debt to total equity and corporate performance.

**H₄**: There is a significant association between Leverage as measured by its total debt to total equity and corporate performance.

**H₀₅**: There is no significant association between Physical Capital Intensity as measured by total assets to fixed assets and corporate performance.

**H₅**: There is a significant association between Physical Capital Intensity as measured by total assets to fixed assets and corporate performance.

**H₀₆**: There is no significant association between Risk and corporate performance.

**H₆**: There is a significant association between Risk and corporate performance.

**H₀₇**: There is no significant association between Market Share as measured by the company sales to industry sales and corporate performance.

**H₇**: There is a significant association between Market Share as measured by the company sales to industry sales and corporate performance.
H₀₈: There is no significant association between the industry to which a firm belongs and corporate performance.

H₈: There is a significant association between the industry to which a firm belongs and corporate performance.

7.10 MAJOR FINDINGS OF THE STUDY

7.10.1 Extent of Investment in Intangible Assets

On the basis of analysis of the extent of investment in Intangible Assets by the Indian Corporate sector for a period of twelve years following conclusions can be drawn.

1. The level of investment in Intangible Assets has shown a growing trend over the period of the study. The Visible Intangible Assets have grown from an average investment of 60.45 million in 2001 to 825.57 million in 2012. Also the Invisible Intangible Assets have grown from a mean investment of 4661.14 million in 2001 to 49922.93 million in 2012.

2. The ratio of Intangible Assets to Tangible Assets has also increased over the period of twelve years. It showed a progressive trend and grown from 8.52% in 2001 to 31.53% in 2012.

3. The industry wise analysis shows that Information and Communication industry, Automotive industry, Drugs and Pharmaceutical industry, Chemicals industry and Textile industry bags the first five position while investing in Visible Intangible Assets. The industries on the first five podium in investing in Invisible Intangible Assets are Information and Communication industry, Transportation Services, Chemicals industry, Machinery and Equipment and Metals industry. However, the industries like Accommodation and Other Related Services industry and Rubber and Plastic Products industry, Other manufacturing industry etc. are lagging behind in investing in Intangible Assets.

4. The results of LSDV model show industries differ significantly while investing in Visible and Invisible Intangible Assets. In case of investment in Visible Intangible Assets the industries like Drugs and Pharmaceutical and Information and Communication are significant at 1% level while Food and Beverages, Textile, Chemicals, Rubber and Plastic Products, Other Non-Metallic Mineral Products,
Machinery and Equipment, Automotive and Transportation are significant at 5% level of significance. Accommodation and Other Related Services industry is found to be significant at 10% level. In case of investment in Invisible Intangible Assets Automotive industry is found to be significant at 5% level of significance while Electrical Equipment and Accommodation and Other Related Services are significant at 10% level of significance.

5. The sector wise analysis show that service sector is investing more in Visible and Invisible Intangible Assets than the manufacturing sector. The results of LSDV also reveal that the service sector is investing more in Visible and Invisible Intangible Assets than the manufacturing sector which is significant at 5% level.

7.10.2 Corporate Factors affecting the investment in Intangible Assets

The discussion on the factor affecting investment in Intangible Assets of the Indian companies for a period of twelve years is summarized as follows.

1. The results of Dynamic Panel GMM Regression reveal that Size of a firm as measured by Total Market Capitalisation is found to be positive and significant with the investment in Intangible Assets. This shows that the companies large in Size invest more in Intangible Assets.

2. Age of the firm is found to be positive though insignificant implying that the older firms invest more in Intangible Assets.

3. The results of Dynamic panel GMM Regression also show that Leverage is found to be negative although insignificant. This means that the low Leveraged firms make more investment in Intangible Assets than the highly Leveraged ones.

4. The level of Investment in Intangible Assets also depends on the Profitability of the firms. As the result of Dynamic panel GMM Regression depicts a significant and positive relation between Profitability and Intangible Assets. The profitable firms can only afford to bear the risk and uncertainty attached with the Intangible Assets.

5. Capital Intensity is found to be negative and insignificant depicting the preference of the companies on fixed assets.
6. Market Share of a firm is amongst one of the factors affecting investment in Intangible Assets. The companies with increased Market Share have to be innovative and therefore invest more in R&D activities.

7. Export Intensity is found to be insignificant although with a positive sign. The companies high towards export have more incentive to invest in Intangible Assets as they have to compete in the international market.

8. Also the Nature of industry to which a firm belongs significantly affects the investment in Intangible Assets. The industries like Rubber and Plastic Product Industry and Other Non Metallic Mineral Products Industry is found to be significant at 5% level of significance and Metals Industry is found to be significant at 10% level of significance. Time also plays a significant role in determining the investment in Intangible Assets.

9. On the basis of above findings it can be concluded that Firm Size, Profitability, Market Share, Industry and Year are found to be major variables affecting the investment in Intangible Assets.

7.10.3 Impact of Intangible Assets on the performance

The key motive of the objective is to analyse the impact of Intangible Assets on the performance of Indian companies for a period of twelve years. The findings of the study are summarised as follows:

1. The results of Panel Data Regression show that Intangible Assets show a positive and significant impact with performance at 1% level of significance depicting that Intangible Assets strongly lead companies towards better performance.

2. The results further reveal that Size as measured by Log of Total Market Capitalisation had a positive and significant impact on performance of the companies. It is significant at 1% level of significance. Also, Age is found to have a positive and significant relation with Tobin’s Q. Furthermore, Leverage is found to have a negative relation with Tobin’s Q though it is found to be insignificant. Physical Capital is positively related to Tobin’s Q though insignificant. However, Risk is found to be positive and significant at 1% level indicating that the Indian companies believe in the notion that higher the risk higher is the profit. Market Share is found to have insignificant relation with the market performance.

4. The results of industry wise analysis reveal that the nature industry is also involved in enhancing the performance of the companies. Other Manufacturing industry is taken as the reference industry and all the industries are compared against the Other Manufacturing industry. The positive sign of all the industries in comparison to Other Manufacturing industry reveal that all significant industries are investing more in Intangible Assets than the Other Manufacturing industry.

7.11 IMPLICATIONS OF THE STUDY

The present study adds to the available literature on Intangible Assets. The companies now days have become deeply involved in investment in Intangible Assets. Since there is dearth of research in the area, the present study adds better clarity by holistically examining the majority of its dimensions and evaluating significance of investment in Intangible Assets. The results have implications for a number of concerned parties, namely accounting standards setters, corporate managers, industrialists, the Government, academicians and researchers at large.

The study can be important to the accounting standard setters. It highlights the need to recognize Intangible Assets holistically in the financial statements of companies. There are many Intangible Assets such as Customer Relationship Management (CRM), Supply Chain Management (SCM), Work Related Knowledge, Entrepreneurial Spirit, Market Penetration, Intellectual Capital etc. that contribute to the performance of companies but still not recorded in the accounts of companies. Since the Intangible Assets are gradually gaining prominence, AS- 26 should develop an independent accounting framework to report expenditure on Intangible Assets. It is also recommended that provision be extended to make inter-country comparisons meaningful for reporting of generally accepted Intangible Assets.
The study can be of immense importance to the corporate managers in improving managerial insight into the significance of investment in Intangible Assets as results of the study show its positive impact on corporate performance and direct managers to understand and realize its importance. The results implicate the managers that companies large in size and market share can further boost their performance by investing in these novel assets. Similarly the older companies too can stay updated by investing in these contemporary assets. Endeavors should be made to invest in training and development of their existing employees so that organization adds to its Intellectual Capital and remains updated as it matures in years. Also as suggested by the findings, the companies with high profitability would enhance their performance by investing in such assets as R&D, software, branding, licensing, patents, copyrights etc.

The study is useful to the industrialists as well. Investment in Intangible Assets is industry specific but the study recommends industrialists to realize that such investment should be need based as it involves huge expenditure with uncertainty of returns. Further as suggested by the results, the Industries like Rubber and Plastic Products, Textile, Other Non Metallic Mineral Product and Construction have negative and insignificant impact on the Investment in Intangible Assets therefore these industries should perhaps not put in their scarce money in Intangible Assets. Similarly Industries like Information and Communication, Transportation and Accommodation and Other Related Services show positive and significant results with performance. So these industries should use their discretion and only then invest more in Intangible Assets to further augment their performance.

The present study also gives implications to the Government of India. In order to encourage entrepreneurs to take up R&D Intensive projects, the Government should offer some direct incentives in the form of tax allowances, tax breaks and subsidies to the companies. Investment in Intangible Assets needs to be made in lump-sum at a point of time while its recovery is slowly made over a period of time. Hence the Government support to the corporate sector is desirable.

Last but not the least, the research is helpful to the academicians and researchers as well. The current study makes an effort to measure the value of Intangible Assets which has never been captured before in literature. The study provides a concrete base for
further research in exploring more on the topic of investment in Intangible Assets with respect to their identification, measurement and reporting.

7.12 SCOPE FOR FURTHER RESEARCH

Evaluation of Intangible Assets is an important area of research that throws light on the investment pattern of the companies on Intangible Assets. No single study can cover such a wide gamut of dimensions of Intangible Assets and their impact. Therefore, further research can be conducted on various issues such as given below:-

1. More independent variables like corporate governance can be added for better inferences.
2. A questionnaire based primary study can also be conducted.
3. A multi-country comparison of Intangible Assets can also be carried out.
4. A study examining the impact of Intangible Assets on the productivity of the companies can also be assessed.