# CHAPTER – 1

**Research Methodology**

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1.1 Introduction

Research is referred to a search for knowledge, it can also be define research as specific systematic search for pertinent information on a specific information on a specific topic, in fact research is an art of scientific investigation, Redman and Moray defined research as a systematized effort to gain new knowledge some people consider research as a movement, A movement from the known to unknown.

Research is a diligent enquiry and careful search for new knowledge through systematic scientific and analytical approach in any branch of knowledge. Constant search and research are the guiding factor of research which helps to discover new facts.

1.2 Definition:

Redman & Moray define research as a “Systematized effort to gain new knowledge.”

According to Clifford Woody “Research comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and researching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.” ¹

According to Johan West “Research is a systematic activity directed towards the discovery and development of an organized body of knowledge.” ²

According to Kerlinger, Fred N “Scientific research is a systematic, controlled, empirical and critical investigation of propositions about the presumed relations among natural phenomena.” ³

V. P. Michael defined research “Research is a systematic activity directed towards investigating problems and results in an invention or discovery of tools for problem solving and decision – making.” ⁴
1.3 Review of literature

The present study deals with the review of literature on “Financial Performance Analysis of Pharmaceutical Industry”. A number of studies on selected companies in India have been conducted Mergers & acquisitions of in India. Review of past research studies are presented as follows:

I. Indian Review of literature

1. Santanu Ghosh and Amitava Mondal, This paper seeks to estimate and analyze the relationship between intellectual capital and corporate conventional financial performance measures of Indian software and pharmaceutical companies for a period of five years from 2002 to 2006. Findings – The analysis indicates that the relationships between the performance of a company’s intellectual capital and conventional performance indicators, namely, profitability, productivity and market valuation, are varied. The findings suggest that the performance of a company’s intellectual capital can explain profitability but not productivity and market valuation in India.\(^5\)

2. Pulak Mishra, & Tamal Chandra, finding that in the context of policy reforms in the 1990s in general and three important amendments made to the Indian Patent Act (1970) in 1999, 2002 and 2005 in particular, the present paper makes an attempt to examine the impact of MA on financial performance of Indian pharmaceutical companies. It is found that the profitability of a firm depends directly on its size, selling efforts and exports and imports intensities but inversely on their market share and demand for the products. However, MA do not have any significant impact on profitability of the firms in the long run possibly due to the resultant X-inefficiency and entry of new firms into the market. In addition, in-house R&D and foreign technology purchase also do not have any significant impact on profitability of the firms.\(^6\)

3. S. Christina Sheela1 & Dr. K. Karthikeyan, This study attempts basically to measure the financial performance of the Pharmaceutical Industry taking top three
companies like Cipla, Dr. Reddy’s Laboratories, Ranbaxy for the period 2003-2012. In order to achieve our goals in this paper we have measured the ratios of ROE, ROA applying the DuPont analyses, which have been demonstrated with the aim of tables to show the change periodically. DuPont analysis (ROI and ROE) is an important tool for judging the operating financial performance. It is an indication of the earning power of the firm. DuPont Model which is based on analysis of Return on Equity (ROE) & Return on Investment (ROI). The return on equity disaggregates performance into three components: Net Profit Margin, Total Asset Turnover, and the Equity Multiplier. Return on Investment consists of Assets Turnover and Profit Margin. The return on investment consists of Assets Turnover (Operating Income X Total Assets) and Profit Margin (EBIT X Operating Income). From the study it if found that Cipla pharmaceutical Financial performance is high followed by Dr. Reddy’s Laboratories and then Ranbaxy Pharmaceutical. The three companies are significant at their level. In conclusion, ROE & ROI is the most comprehensive measure of profitability of a firm. It considers the operating and investing decisions made as well as the financing and tax-related decisions.  

4. Md. Shoaib Alam, the finding that the goal of the CGMPs for the 21st Century initiative such as advancing science and technological innovation. Update guidance based on regulatory experience since 1987. Process Validation emphasize on process design elements and maintaining process control during commercialization and communicate that process validation is an ongoing program and align process validation activities with product lifecycle. Process validation also emphasizes the role of objective measures and statistical tools & analyses and emphasizes knowledge, detection, and control of variability and gives assurance on consistent of quality/productivity throughout life cycle of product.

5. Hasumati Rahalkar, In this research study, we have studied that drug regulations and pharmaceutical industry has developed due to circumstances faced by the Health Authority (HA) at that time. For USA, the root for vaccine industry development was the vaccine tragedy. In response to that The Biologics Act of 1906 came into force shifting vaccine manufacturing from health authority to
Vaccine Industry. Due to issue of safety and efficacy, pre-marketing approval with scientific safety data becomes mandatory. These regulations were further defined by classifying drugs into Over-The-Counter (OTC) and Prescription Only category. The USFDA has grown from one chemist to more than 9000 employees currently. In summary, US Health Authority has grown from one chemist to more than 9000 employees, no scientific data to pre marketing approval with scientific data, drug categorization and various regulations for new drugs, biologics as well as marketing authorization.9

6. Sudesh Kumar, Dr. Bimal Anjum, and Dr. Suman Nayyar, Examined that last two decades of Indian economy, there is a continue research on company financing activities, particularly aimed at understanding how companies finance their investments and what source they used to finance. In practice, it is observed that finance managers use different combinations of debt and equity to meet the various financial requirements of the company at least cost and risk and for the long term benefit of the company. Therefore, this study is aimed to make analyse of capital structures pattern of various companies for the period of 2007-2011 and analyse the effect of changes in capital structure on its investment pattern over the period of time. This study also attempt to make an intra company analysis with the objective to determine the importance of debt-equity mix for the effective investment policy. Similarly, To study the financing decisions, this paper include the trend analysis of detail financial information of four most reputed pharmaceutical companies, that are Dabur India Ltd, Cipla, Aurobindo Pharma Ltd, Cadila Health Care Ltd for the period of five year i.e. 2007-2011.10

7. Kapil Kumar and Dr. M. K. Kulshreshtha, focuses on the global pharmaceutical market is undergoing rapid transformation. There has been a dramatic shift towards emerging markets as western markets slow down. Global Pharma multinational corporations are looking at new growth drivers such as the Indian domestic market to capitalize on the growing opportunity. The huge potential of the Indian pharmaceutical industry is impossible for global Pharma companies to ignore, given that India will be one of the top 10 sales markets in the world by 2020. Some of the
largest Pharma companies in the world have been in the Indian market since the 1970s, and 5 out of the top 10 domestic Pharma companies are already foreign owned, with a consolidated share of 22 – 23%. India’s domestic pharmaceutical market has recorded a CAGR of 13.5% over the past five years. (5) With considerable expertise in manufacturing of generics and vaccines, Indian companies have now also started significant research and development (R&D). The Indian economy is growing strongly and healthcare is expanding to meet the needs of a growing population with a changing disease profile. Increase in insurance coverage, aggressive market creation, growth in the income of the Indian population and steady government investment into medical infrastructure has further propelled the growth of the industry, such that it is on the threshold of becoming a competitor of global Pharma companies in some key areas, and a potential partner in others.\(^\text{11}\)

8. **Jyoti Nair**, observed this study The growth is driven by an increase in urbanization, increase in health care expenditure, rising life expectancy, shift from chronic diseases to lifestyle diseases and support from Government in the form of liberal policies. Increase in mergers and acquisition activity has also contributed to the growth in pharma sector. The pharma sector in India comprise of over 10000 listed and unlisted companies. The objective of this study is to analyze the performance of pharma companies in India and predict the solvency of selected companies using Altman’s, Z” score model which is based on Multi variate Discriminant analysis. The study also purports to identify significant variables affecting the performance and solvency of the company. Financial indicators like revenues, profits, liquidity, and capital market performance would be used. The identification of performance and distress indicators of the companies is expected to provide new insight into company analysis. Financial ratios are proposed to be used as variables. The results of the study will be validated using statistical tools of regression.\(^\text{12}\)

9. **M.N. Raviteja & N. Vishal Gupta**, this paper examines the Pharmaceutical industries are in a highly regulated environment, hence it requires effective document management processes. In addition to the strict regulatory environment, the Pharmaceutical companies must find ways of dealing with the increasing
amount of information that must be processed. Having timely accurate data is critical for the success of any company. Data has never been easy to manage, and is especially true in pharmaceutical industry. Along with the documentation management, the security of data is also crucial. Note that electronic information includes everything such as emails, adverse event reports, complaints, batch records, quality control records – everything that is stored electronically. A document management system is designed to automate a business process. In its simplest form, this involves capturing of paper documents so that an end user can retrieve the image of paper document from their computer. Several technologies are being used currently in pharmaceutical industry to manage their huge volumes of data generated on daily basis. Some of the latest technologies are discussed in this review article along with their advantages and disadvantages.  

10. Gulshan Akhtar, analyzed that Pharmaceutical industry contributes to the welfare of humanity and provides significant socio-economic benefits to the society through creation of jobs, supply chains and community development. Indian Pharmaceutical industry is one of the world’s largest and most developed, ranking fourth in terms of volume and thirteenth in terms of value. The country accounts for an estimated 10% of global production and 2% of world markets in pharmaceuticals. It has over the years made significant progress in infrastructure development, technical capability and hence produced a wide range of pharmaceutical products. The industry now produces bulk drugs under all major therapeutic groups. It has a sizable technically skilled manpower with prowess in process development and downstream processing. It has the capital investment of about US$4.1 billion. It produced bulk drugs of value of US$3.5 billion and formulations worth US$15.4 billion in 2008. Bulk drugs have grown at a rate of approximately 14%, and formulation by 24% in the nineties. There is an increasing interest and investment in R&D. It provides employments 29 million people. The contribution of pharmaceutical sector in India’s GDP is 2% and 12% of manufacturing sector GDP. 

11. Prof. Pratapsinh Chauhan & Dr. Vijay K Patel, fined that Maximizing shareholders wealth is becoming the new corporate standard in India. Shareholders’
wealth is measured in terms of the returns they receive on their investment. Traditionally, the yardsticks used to measure the efficiency and profitability of a business organization were accounting based measures like ROI, ROE, ROCE, EPS, RONW and financial ratios. But, now a day’s value added measures have emerged as a replacement of the traditional accounting based measures. The reason behind this is that the financial performance of a business organization is measured from the shareholders’ value point of view. Value added represents the wealth created by an enterprise during a specified period. No companies can survive and grow, if it fails to generate value to its existing and potential shareholders. Hence, value added is a basic measure which is used for measuring the financial performance of an enterprise. By keeping this in mind, this study is an attempt to analyze the value creation in Indian Pharmaceutical Industry from 2000 to 2009 by using regression analysis.\textsuperscript{15}

12. **Dr. M. Sekar and A. Ramya**, analyzed that Financial performance analysis is the process of determining the operation and financial characteristics of a firm from accounting and financial statements. The ability of an organization to analyze its financial position is essential for improving its competitive position in the market place. Through a careful analysis of its financial performance, the organization can identify opportunities to improve performance of the department, unit or at the organizational level. Interpretations of financial statements and their review by business executives compel them to think ahead and provide for future. From the above point of view the researcher has undertaken an analysis of financial performance of selected Indian pharmaceutical companies to understand how management of finance plays crucial role in the growth. In this paper, we studied the Financial Analysis of selected Indian Pharmaceutical Companies analyzed by applying summary statistics, which is ANOVA and Mean performance.\textsuperscript{16}

13. **Manoj Pant & Devyani Pande**, Discussions with some major Pakistan pharmaceutical producers indicated that normalizing trade would also provide external economies in areas like R&D and standards. In some areas, the benefits could flow to Indian producers. In this context, it seems necessary to establish a
process for establishing mutual recognition agreements (MRAs), which would improve product quality in both countries. Finally, since FDI is just another way of doing trade, it seems necessary to explore the possibilities here at least to boost future trade prospects. Some harmonization of FDI policies may be warranted.¹⁷

14. M. Parveen & O. M. Haja Mohideen, observer that every enterprise whenever big, medium or small needs finance to carry on its operations and to achieve its target. This study is to provide an insight into concept of financial performance using five power analysis consists of Inventory turnover ratio, Debtors turnover ratio, Creditors turnover ratio, Total asset turnover ratio and Gross profit margin. The primary objective is to determine the financial performance of Cipla pharmaceutical company using five power analyses. The secondary objectives are to examine the relationship between Inventory turnover, Debtors turnover, Creditors turnover and Total asset turnover with Gross profit margin. Descriptive analysis is used to help researcher to describe the relevant aspect of financial performance and Quantitative analysis to measure the degree of association between different variables under consideration and researcher used regression analysis to examine the relationship of independent variable with dependent variable. The sample of the study is Cipla pharmaceutical limited. By using the analysis it was found that the Debtors Turnover Ratio and Gross Profit Margin have the highest standard deviation. Debtors Turnover Ratio enables funds for the transaction because the Cipla pharmaceutical company collects their debts quickly from their customer. Cipla pharmaceutical company has quite satisfactory because collection period is very short. Assets turnover ratio has high negative relationship with profitability. This study is concluding that the Cipla pharmaceutical limited is quite satisfied in their financial performance.¹⁸

15. Mrs. S. Senthil Vadivu and Mrs. N. Mani Mehalai, This paper focuses on “A Study on Financial Health of Select Indian Pharmaceutical Companies. The Pharmaceutical industry in India” is the world's third-largest in terms of volume. According to Department of Pharmaceuticals of the Indian Ministry of Chemicals and Fertilizers, the total turnover of India's pharmaceuticals industry between 2008
and September 2009 was US$21.04 billion. While the domestic market was worth US$12.26 billion. The industry holds a market share of $14 billion in the United States. According to India Brand Equity Foundation, the Indian pharmaceutical market is likely to grow at a compound annual growth rate (CAGR) of 14-17 per cent in between 2012-16. India is now among the top five pharmaceutical emerging markets of the world.\textsuperscript{19}

\textbf{16. Varun Mahajan, D. K. Nauriyal, and S.P. Singh,} This paper measures the technical efficiency, super-efficiency, slacks, and input/output targets for large Indian pharmaceutical firms according to ownership by applying Data Envelopment Analysis (DEA) approach. The paper uses raw material, salaries & wages, advertisement & marketing and capital usage cost as input variables and net sales revenue as output variable. The super-efficiency model is applied to rank firms on the basis of efficiency scores. The paper finds that mean overall technical efficiency scores of Private Indian and Private Foreign are higher than Group-owned firms, suggesting that type of ownership affects the performance of a given firm. Further, foreign firms were found to have minimum slacks in inputs, evidently owing to their superior technology, better engineering skills and managerial practices. The study suggests that the inputs, such as, advertisement & marketing expenditure, and also the usage of labour and capital are required to be utilized far more productively in order to improve efficiency.\textsuperscript{20}

\textbf{17. Dr. Manjula Shastri,} finding that Indian Pharma Industry is mainly operated as well as controlled by dominant foreign companies having subsidiaries in India due to availability of cheap labor in India at lowest cost. The number of purely Indian Pharma companies is fairly less. In 2002, over 20,000 registered drug manufacturers in India sold $9 billion worth of formulations and bulk drugs. 85\% of these formulations were sold in India while over 60\% of the bulk drugs were exported, mostly to the United States and Russia. Most of the players in the market are small-to-medium enterprises, 250 of the largest company’s control 70\% of the Indian market. The study helps to identify the efficient stocks among the market leaders in this sector. The performance of the stocks will be analyzed using historic
price movements for technical and fundamental techniques in order to conclude the results. Fundamental and Technical analysis helps the investors to measure the efficiency of the security and predict future movements.21

18. Subramanian, G. and Venkatachalam, K, suggest that Finance plays a significant role in the successful functioning of a business firm. The study covers the large scale & leading paper industry in India and listed in BSE. The sample of companies has been selected on a convenient basis and the necessary data have been obtained from CMIE database. Various statistical measures have been calculated i.e., Ratio analysis, A.M, S.D, C.V, CAGR, Skewness, Kurtosis and ANOVA. According to the findings, conclusions the listed paper industry should improve their financial performance.22

19. Neha Duggal, this article presented Mergers and Acquisitions (M&A) are considered as a significant tool for corporate restructuring and value creation in the present scenario. It enables the firms to expand their horizons, reducing the business risks, exploring new markets and geographical areas thereby increasing the profits and gaining through competitive advantage. The present research paper aims at studying the impact of mergers on the operating and financial performance of Indian pharmaceutical companies examining various financial ratios of the sample of companies listed on the BSE from the period 2000-2006. For the purpose of analysis paired sample t-test is conducted. The results suggested that there was positive impact (t+1 year window) of mergers on the profitability of the acquiring firms but this impact has not sustained in (t+3, t+5 yr period) post merger in terms of selected profitability variables. The results reported in the study points to the positive impact of merger announcement on the operating and financial performance in short run (+1 yr).23

20. Mohmad Mushtaq Khan, & Dr. Syed Khaja Safiuddin, fined that Indian pharmaceutical market (IPM) is one of the fastest growing pharmaceutical markets, highly fragmented with about 24000 players out of which 330 belong to organized sector. There are approximately 250 large units and 8000 small scale units, which form the core of the pharmaceutical industry in India. The market is dominated by
the branded generics, as we see the top ten companies make up for more than 3/4th of the market, that means nearly 70% to 80% of the market. As far as the reputation and rank of the IPM is concerned, it tops amongst the India’s science based industries; is 3rd largest in terms of its volume, and 13th largest as per its value in the world pharmaceutical market. Indian pharmaceutical market is expected to expand at a CAGR of 23.9 % to reach US$ 55 billion by 2020. Indian pharmaceutical companies receive a large sum of revenues from the exports besides the domestic market, as some of them focus on the generics market in US, Europe and semi regulated markets; and some of them focus on custom manufacturing for innovator companies.24

ii. Other review of literature

21. Juan Jose Ganuza, Gerard Llobet and Beatriz Dominguez, It is commonly argued that in recent years pharmaceutical companies have directed their R&D towards small improvements of existing compounds instead of more risky drastic innovations. In this paper we show that this bias towards small innovations is likely to be linked to the lack of market sensitivity of a part of the demand to changes in prices. Compared to their social contribution, small innovations are relatively more profitable than large ones because they are targeted to inelastic segments of the demand. They also study the effect over R&D incentives of marketing strategies and regulatory instruments aimed at controlling pharmaceutical expenditure. Finally, we extend the analysis to competition in research.25

22. Stuart J.H. Grahama, and b, Matthew J. Higgins, observer that How well are pharmaceutical firms able to manage new product introductions given a complex innovation environment and long time horizons? This paper demonstrates the importance that downstream complementary assets play in the innovation process, providing for the first time theory and evidence on the timing of firms’ new product introductions. We employ novel pharmaceutical-firm data, including a combination of actual new product introductions, their associated product sales data, and information about firms’ research pipelines and patents to analyze the timing of pharmaceutical firms’ new product introductions. By demonstrating that this timing
is substantially explained by the loss of FDA-sanctioned market exclusivity on a current product, we provide primary evidence that firms are effectively managing their long and complex innovation processes. We also examine the determinants of firms’ demonstrated ability to hit these targets, and find evidence that minimizing the “adjustment costs” associated with mismatched specialized complementary assets plays a primary role in explaining the behavior of firms.26

23. **Ravi Kiran, & Sunita Mishra**, analyzed that the Pharmaceutical Industry witnessed a change after the formation of World Trade Organization (WTO) in 1995 when India, being a signatory member of WTO, adopted Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. Indian pharmaceutical industry, being a highly fragmented one and dominated mostly by a large number of smaller enterprises, was also apprehensive when TRIPS was included in WTO. In the above backdrop, this paper examines the Impact of TRIPS on Research and Development, Exports and Patenting activity of The Pharmaceutical Industry of India. The results of the study highlight an increase in R & D Expenses, and R& D Intensity of leading Pharmaceutical companies in the Post-TRIPs period. Moreover, the Indian companies have been at the forefront, both in terms of Drug Master Filings (DMF) and abbreviated New Drug Applications (ANDA) filings in post TRIPS period.27

24. **Eduardo Pisani**, Pharmaceutical innovations are behind some of the greatest achievements in modern medicine. We live longer and healthier lives than previous generations. Medical advances allow people to enjoy a better quality of life and increase their productivity, contributing to the overall prosperity of society. Pharmaceutical innovation also creates jobs, spurs technology and represents an important source of income. Unfortunately, not everyone has yet fully benefited from these medical advances. Poverty and great wealth inequality between and within countries mean that many do not have access even to the simplest healthcare interventions. Addressing these issues is a complex challenge that requires long-term commitment from governments, civil society and the private sector. Through differential pricing schemes, donation programs and technology transfer initiatives,
the pharmaceutical industry has been doing its part to help those in greatest need to also enjoy the benefits of medical progress. Much still needs to be done; the path forward will require a constant rethinking on how to maximize the research-based industry’s positive impact on the health and prosperity of societies.\textsuperscript{28}

25. Dr. Asma Salman, and Romella Qamar, evaluated that financial analysis is useful for every business entity to enhance their performance, competitive strength and access their financial stability and profitability of the firm. This paper investigates the financial analysis of the two Multinational companies, GlaxoSmithKline (GSK) and SanofiAventis (SA) and an attempt to compare their financial performance by using ratio analysis. Data is drawn from pharmaceutical industry in Pakistan from financial year 2005 to 2009. Analysis of variance (ANOVA) and statistical hypothesis test (t-Test) with independent sample characteristics was analyzed through Statistical Package for the Social Sciences (SPSS). The results comparison with this method between two pharmaceutical companies is presented. It is revealed that the performance of both companies in the observed period has improved. The current method reflects that GlaxoSmithKline is leading SanofiAventis.\textsuperscript{29}

26. Mr. U. Shaji, examined that with the de-licensing of pharmaceutical industry and complemented by scientific talent and research capabilities and Intellectual Property Protection Regime, Indian pharmaceutical industry in all set to take on new challenges in the international market. Indian pharmaceutical industry has played a key role in promoting and sustaining development in the vital field of medicines. Financial analysts often assess firm’s production and productivity performance, profitability performance, liquidity performance, working capital performance, fixed assets performance, fund flow performance and social performance. The financial performance analysis identifies the financial strengths and weaknesses of the firm by properly establishing relationships between the items of the balance sheet and profit and loss account. Thus, the present paper is of crucial importance to measure the firm’s liquidity, profitability, and other indicators that the business is conducted in a rational and normal way, ensuring enough returns to the shareholders to maintain at least its market value. In this context researcher has
undertaken an analysis of financial performance of pharmaceutical companies to understand how management of finance plays a crucial role in the growth. The present study covers two public sector drug & pharmaceutical enterprises listed on BSE. The study has been undertaken for the period of twelve years from 1998-99 to 2009-10. In order to analyze financial performance in terms of liquidity, solvency, profitability and financial efficiency, various accounting ratios have been used. Statistical measures i.e., linear multiple regression analysis and test of hypothesis – t test has been used.  

27. Enekwe Chinedu Innocent, Okwo Ifeoma Mary & Ordu Monday Matthew, the finding that financial ratio analysis is a vital one since the profitability of an enterprise is directly affected by such decision. The successful selection and use of appropriate financial ratio is one of the key elements of the firm’s financial strategy. Hence, proper care and attention need to be given while such decision is taken. The purpose of this study is to examine the relationship between the financial ratio analysis and profitability of the Nigerian Pharmaceutical industry over the past eleven (11) years period from 2001-2011. These financial ratio analyses have immense potentials to help organizations in improving their revenue generation ability as well as minimization of costs. The researcher used five (5) variables for the analyses such as: Inventory turnover ratio (ITR), Debtors’ turnover ratio (DTR), Creditors’ velocity (CRSV), Total assets turnover ratio (TATR) and Gross profit margin (GPM). Profitability as a dependent variable is represented by Gross profit margin (GPM) while financial ratio analysis stands as ITR, DTR, CRSV and TATR for independent variables. Secondary data were obtained from the financial statements (Balance sheet and Profit and Loss account) of the selected quoted pharmaceutical companies’ financial statement. The data have been analyzed using descriptive research method and multiple regressions to find out the relationship between the variables. The results of the analysis showed that there is a negative relationship between all independent variables with profitability in the Nigerian pharmaceutical industry. It also revealed that debtors’ turnover ratio, creditors’ velocity and total assets turnover ratio have no significant relationship on the profitability of the company while only inventory turnover ratio shows a significant
relationship with profitability. The results further suggested that only 17.8% of the independent variables are determinant factors of profitability in the enterprises sampled while 82.2% of the major factors are determine from other factors outside the independent variables.  

28. Syeda Mahrufa Bashar1and Md. Iftekharul Islam, suggest that very few studies have been undertaken to test the determinants of profitability of the pharmaceutical industry of Bangladesh, even though the industry is one of the most technologically developed and promising sectors of the nation's economy. Following the need for such a research, this study proposed certain financial ratios as significant internal determinants of profitability of the pharmaceutical industry of the country. Profitability is the ability of a venture or business to earn profit. Financial ratios are evaluators of a company's financial health. Profitability determinants are forces that directly impact the profitability of a firm, and as such are useful tools for relevant firms to understand what needs to be done and where they should focus in order to improve on the profitability of their business. The study created a sample of five of the top pharmaceutical firms, and procures their annual reports from 2008-2012 for the research. Then with the relevant data it carried out descriptive statistics analysis, Pearson Coefficient Model and Multiple Regression analysis to test the acceptability of the proposed ratios determinants of profitability. The study tested Gross Profit Margin as dependent variable, SGA/SALES, INV/COGS, AP/COGS DEP/SALES and AR/SALES as the independent variables. After performing necessary calculations and analysis, the study found that 89.1% of the changes in the dependent variable for the pharmaceutical firms under observations can be explained through the independent variables of the study, while only 13.7% of the variations of Gross Profit Margin can be attributed to factors outside these variables. The study also established that only the INV/COGS and AP/COGS ratios can be considered as significant determinants of profitability of the pharmaceutical firms of the country. The study has also discussed how the firms can access and interpret these ratios in order to increase the profitability of their business.  

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29. **Vincentius Ivan and Ana Noveria**, the finding that Indonesia is a very big nation. It consists of 13,466 islands, and currently being the 4th highest populated country in the world with a population number of over 238 million people. Even until today, the human race still cannot live disease-free. We still got diseases because viruses are also evolving, like us. This has created an opportunity for pharmaceutical industry to make profit from selling drugs and medicines. There are many pharmaceutical companies in Indonesia, consisting of national and multi-national companies. Kalbe Farma, which was created in 1966, is the one with the biggest market share in the Indonesian pharmaceutical industry currently. The formulation of the problem in this research is about how good is the Kalbe Farma’s financial performance, analyzed using financial ratios of the company which calculated based on their annual report, DuPont formula, and Compound Annual Groth Rate (CAGR), and then compared to other companies from the similar industry, nationally and internationally. The research is aimed at finding out the performance of Kalbe Farma Pharmaceutical Company financially, and then to compare the result with other companies which are Tempo Scan, Kimia Farma, Merck Indonesia, Darya Varia (national) and Pfizer (international). 33

30. **Frederick Nsiah and Prince Aidoo**, This paper examines the profitability, liquidity and solvency and probability of failure of listed pharmaceutical companies on the Ghana Stock exchange. The findings from the activities ratios indicated efficiency of Arytons management in utilizing the asset of the firms in day-to-day basis is declining in recent years whiles that of Starwin is improving even though Aryton Drug Ltd is generally more efficient than Starwin Ltd. The Average cash conversing cycles of Aryton and Starwin were found to be 196 and 282 respectively which are relatively higher than the bench mark in Germany, UK and US of 145 days, 127 days and 142days respectively. The liquidity ratio metric indicated that Aryton Drug Ltd manages it liquidity and is very good position to meet it long term obligation as well, as oppose to Starwin Ltd which has very limited cash to cover its short term debt and is less solvent. Starwin’s is more geared which has exposed the firm to higher interest expense. The study also discovered from the DuPont analysis that operating income- to- revenue and revenue- to- total assets ratios significantly
influence ROE positively. Measurement of profitability, proxy by ROE and ROA, shows that Aryton generates more returns on it asset and on equity than Starwin Ltd, although lower than industrial bench marks in UK and US of 54.9% and 32.5% respectively, however Starwin Ltd is seen to be posting good returns in recent years which is almost at par with Aryton’s. Starwin’s COGS growth rate has been generally greater than its revenue growth rate which is note the case for Aryton Ltd. A test of financial soundness and stability with Altman’s Z-score revealed that Aryton is not financially distress but Starwin is in financial distress and likely to be bankrupt in the near future, exposing investors to serious risk. Thus Starwin Ltd should consider takeover offer or merger for reorganization of the firm.

1.4 Title of the Research Study

After going through existing literature of the library reviewing various articles from everywhere and knowledgeable discussion with the concerned respected guide and by following the existing circumstances research has Selected this topic. This research has been selected after considering available information and time tools and techniques for analysis, data regarding existing literature, external sources of information and other inclusive source. Researcher has framed the following title for the research study.

“FINANCIAL PERFORMANCE ANALYSIS OF PHARMACEUTICAL INDUSTRY” [A study of selected pharmaceutical companies of India]

1.5 Research Area and Type of Research-Study

The modern medical sector is divided into many sub-sectors, and depends on interdisciplinary teams of trained professionals and paraprofessionals to meet health needs of individuals and population. The medical industry is one of the world's largest and fastest-growing industries and forms an enormous part of a country's economy. Indian pharmaceutical industry and certain medical-pharmacompanies’ financial performance can also be judged as key factor. Hence researcher has selected this research area. As per the title of this research study the research type is an Analytical research.
1.6 Objectives of the Study

i. The main objective of this study is to know the overall Financial Performance of Indian Pharmaceutical Industry.

ii. The other subsidiary objectives in relation to fulfill the main objective of this study are listed as under:

1) To understand and compare the concept and significance of Financial Performance of selected Pharmaceutical companies of India
2) To present the study and explanation of the use of different accounting ratios in terms of Profitability, Liquidity, Activity, Solvency, Efficiency for evaluation of the Financial Performance of selected Pharmaceutical companies of India.
3) To examine and compare profitability of selected Pharmaceutical companies of India
4) To examine and compare financial liquidity position of selected Pharmaceutical companies of India
5) To examine and compare financial activity of selected Pharmaceutical companies of India
6) To examine and compare financial solvency of selected Pharmaceutical companies of India
7) To examine and compare financials efficiency of selected Pharmaceutical companies of India
8) To measure and compare the overall financial performance of selected Pharmaceutical companies of India
9) To assess and compare the financial strength of Selected Pharmaceutical companies of India
10) To suggest ways and means to improve performance of selected Pharmaceutical companies of India

From the viewpoint of researcher the fulfillment of the above main and subsidiary objectives will depend on accuracy, quality, quantity and availability of financial information.
1.7 Hypothesis of the Research Study

Ordinarily, when one talks about hypothesis, one simply means a mere assumption or some possibility to be proved or disproved. Decision makers often face situation wherein they are interested in testing hypotheses on the basis of available information and then take on the basis of such testing. Generally following two way the hypothesis are framing out for testing objective fulfillment data. Here the main assumption that any two or more particulars are equally correct and proper, hence this assumption is termed as null hypotheses and symbolized by $H_0$.

As against null hypotheses, the alternate assumption is that any one particular is rather correct and proper or superior then other that is incorrect and improper or inferior, then it is termed as alternative hypotheses and symbolized by $H_1$.

For the present study the researcher has formulated both kinds of hypothesis which will be tested with the help of statistical tools. Following are the statements of both sorts of Hypothesis for the study.

**Null Hypothesis (H₀)**

1) There will not be significant difference in Profitability related Ratios among selected Pharmaceutical companies of India during the period of study.
2) There will not be significant difference in Activity related Ratios among selected Pharmaceutical companies of India during the period of study.
3) There will not be significant difference in Solvency related Ratios among selected Pharmaceutical companies of India during the period of study.
4) There will not be significant difference in Efficiency related Ratios among selected Pharmaceutical companies of India during the period of study.
5) There will not be significant difference in overall performance of selected Pharmaceutical companies of India during the period of study.
**Alternative Hypothesis (H₁)**

1) There will be significant difference in Profitability related Ratios among selected Pharmaceutical companies of India during the period of study.
2) There will be significant difference in Activity related Ratios among selected Pharmaceutical companies of India during the period of study.
3) There will be significant difference in solvency related Ratios among selected Pharmaceutical companies of India during the period of study.
4) There will be significant difference in efficiency related Ratios among selected Pharmaceutical companies of India during the period of study.
5) There will be significant difference in overall performance of selected Pharmaceutical companies of India during the period of study.

These broader hypotheses will be redrafted with each type of ratios during the data analysis work.

**1.8 Universe of the Study**

The Pharmaceutical industry is one of the largest and fastest-growing industries in the India and in the world, and it has a direct effect on the quality of life of people in each country. The Pharmaceutical industry forms an enormous part of a country's economy of any nation because of its’ global level development. The Indian Pharmaceutical industry, which comprises hospitals, medical infrastructure, medical devices, clinical trials, outsourcing, telemedicine, health insurance and medical equipment etc. have covered large part of our industries and becoming fast growing industry sector at national and international level. Hence the universe of Pharmaceutical industry sector has very wide range as the vast population.

**1.9 Sampling Design**

According to the above universe of population scenario at international and national as macro level the present study has been carried out on the micro level. Researcher has selected the Pharmaceutical companies functioning in India. Out of total number of
Pharmaceutical companies, 10 companies will be selected as sample on basis of randomization of sampling technique.

1.10 Data Collection

As data source for any research collection of required and related data is needed. These data can be collected through primary level and secondary level. Researcher plans to collect the data on bases mainly on secondary data, as published in relevant manner and ways, through annual reports, financial particulars, notes on accounts, legal economic and accounting presentation by company etc. as the sources of data. The other Secondary sources like magazines, journals, newspapers, reference books and websites are also to be used for the purpose of study.

1.11 Period of the Study

The study period covers the period from the year 2008-09 to year 2012-13 and the research study is based on Secondary data, so that, the data will be collected from 2008-2009 to 2012-2013 as the period of the study is of 5 years and the same will be tabulated as objectively for building the comprehensive research of the financial performance on financial aspects through the financial statement analysis i.e. Balance Sheet and Profit And Loss and other relevant statements which are provided by the company. Further it is proposed by the researcher to draw the meaningful conclusion of the research.

1.12 Tools and statistical techniques

To acquire the proper and effective findings of the research result, collected data must be analyzed in a scientific analytical testing process. The researcher aims to analyze the collected data by use of mainly parametric statistical testing tools and techniques through applicable non-parametric qualitative testing tools and techniques. The Secondary data will be classified and tabulated according to the need of the study and objectives. The collected data will be analyzed by using appropriate and relevant financial techniques, graphs and tables on the basis of the information received through annual report for
further analysis. For the present study following tools and techniques have been used for analyzing the Ratio analysis and Trend analysis of health care companies.

- **Accounting Tools**: Ratio analysis
- **Statistical Tools**: As relevant to analysis appropriate tools.

Use of statistical tools has become a normal phenomenon in any type of analysis. The researcher has picked up the tools and techniques to suit their requirements and based on data available to them. Under this research study statistical tools Viz., percentage or ratio, diagrammatic and graphic presentation have used wherever needs for meaningful results, interpretation, finding and conclusion.

**1.13 Chapter Plan**

Researcher plans to present the whole research study in a systematic report by the following chapters moreover other relative details.

**Chapter 1 - Research Methodology**
**Chapter 2 - An Overview of Pharmaceutical Industry**
**Chapter 3 - Conceptual Framework of Financial Performance analysis**
**Chapter 4 - brief profile of Pharmaceutical Industry**
**Chapter 5 – Data Collection and Data Analysis**
**Chapter 6 – Finding –Suggestions- Recommendation and Conclusion**

**1.14 Limitations of the Study**

1) This study covers only Selected Health Care Companies hence the conclusion may not present the entire pharmaceutical industry’s financial scenario.
2) This study covers only area of financial performance while other special areas such as general managerial areas etc. of study may not be included in this study.
3) Finance as the core area, which is a vast field, covers many aspects, which is not possible for us to cover. The knowledge, which we have, is quite limited and thus it makes it difficult for us to deal as the practical and the theoretical knowledge has a wide difference within
4) For this study researcher has taken actual data, but budgeted data was not available so it was not used for word.

5) The study is based on the secondary data collected from the published annual reports of the selected pharmaceutical companies, so limitations of the secondary data will affect with the study.

6) Analytical tools, which will be used in the study, may have their own limitations, which may apply to this study too. Limitations of the ratio analysis are also considered as constrains of the study.
**References:-**


