"A STUDY ON THE COST OF CAPITAL AND INVENTORY MANAGEMENT IN ROOTS INDUSTRIES LIMITED", COIMBATORE.

A PROJECT REPORT

submitted

by

S.B.VASANTH KUMAR
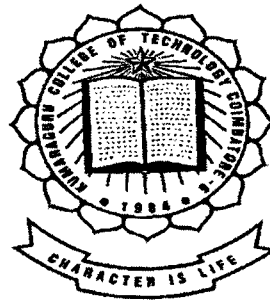
Reg No . 0720400055

in partial fulfillment of the requirements of

Anna University-Coimbatore

KUMARAGURU COLLEGE OF TECHNOLOGY(AUTONOMOUS)

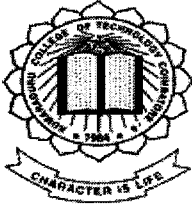for the award of the degree of

MASTER OF BUSINESS ADMINISTRATION

DEPARTMENT OF MANAGEMENT STUDIES

KUMARAGURU COLLEGE OF TECHNOLOGY

JULY 2008

Certificate

DEPARTMENT OF MANAGEMENT STUDIES

KUMARAGURU COLLEGE OF TECHNOLOGY

COIMBATORE – 641006

BONAFIDE CERTIFICATE

Certified that this project report titled "A Study On The Cost Of Capital And Inventory Management In Roots Industries Limited", Coimbatore is the Bonafide work of Mr. S.B.VASANTH KUMAR (Reg No. 720400055) who carried out this research under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Faculty Guide

Director

Evaluated and Viva Voce conducted on _____

INTERNAL EXAMINER

EXTERNAL EXAMINER

ROOTS INDUSTRIES INDIA LIMITED

RIL/HRD/2815/08   25.09.2008

PROJECT CERTIFICATE

This is to certify that **Mr.S.B.Vasanth kumar, II MBA** student of **Kumaraguru College of Technology** has done a Project Work on **"A Study on the Cost of Capital and Inventory Management"** in our organisation from **July 08** to **August 08.**

For **ROOTS INDUSTRIES INDIA LIMITED**

(KAVIDASAN)
DIRECTOR

Declaration

DECLARATION

I, hereby declare that this project report entitled as "A Study On The Cost Of Capital And Inventory Management In Roots Industries Limited ", Coimbatore has undertaken for academic purpose submitted to Anna University, Coimbatore in partial fulfillment of requirement for the award of the degree of Master of Business Administration. The project report is the record of the original work done by me under the guidance of Mrs. Hema Nalini.R, Lecturer, MBA Department during the academic year 2007-2008.

I, also declare hereby, that the information given in this report is correct to the best of my knowledge and belief.

Date: 22.10.08

Place: Coimbatore

(S.B.VASANTH KUMAR)

Acknowledgement

ACKNOWLEDGEMENT

It is inevitable that thoughts and ideas of other people tend to drift into subconscious when one feels to acknowledge helping derived from others. I acknowledge to all those who helped me in the preparation of this project work.

I wish to express my deep gratitude to **Dr.Joseph V. Thanikal** Principal, Kumaraguru College of Technology for the facilities provided to complete my project work.

I wish to express my sincere thanks to **DR.S.V.Devanathan** – Director, KCT Business School, for his continuous encouragement throughout my project.

I owe my heartfelt gratitude to **Mrs.R. Hema Nalini**, Lecturer KCT Business School, for his help and valuable guidance given to me throughout my project.

I also extend my heartfelt thanks to all the faculty members of KCT Business school, for their support provided to me throughout my project.

I express my sincere thanks to **Mr.N.Sampath Kumar**, Associate Head – Training and Development, ROOTS Industries Limited, Coimbatore for granting permission to do my project work.

I like to extend my heartfelt thanks to **Mr.G.Balasubramaniam**, Company Secretary, ROOTS Industries Limited, Coimbatore, who guided me to complete my project work.

Executive Summary

EXECUTIVE SUMMARY

This project focuses on the study of cost of capital at Roots Industries limited and inventory management. The period of study is from financial year 2003 to 2007.Recent advances in our understanding of capital structure decisions have not yet made their mark upon our capital budgeting techniques and practices. This paper attempts to bridge this gap. In doing this, it offers a surprisingly simple approach for managers to follow in marketing financial decisions.

The study tries to find out the best debt-equity mix for the financial year from 2003 to 2007. The weighted average cost of capital gives the idea to the share holders regarding the better returns for their investment. Dupont analysis is used to find out the 'return on asset'. Net income has been prepared to know the changes in the financial performance of the company.

Inventory control is a critical aspect of a successful management. Inventory management requires continuous decision making. Companies cannot afford to have any money tied up in excessive inventories.In the study, efforts have been made to conduct a detailed analysis of inventory management functions in Roots Industries Ltd. One of the objectives of this project is to study the inventory management of Roots Industries Limited and give suggestions for better inventory management.

The data has been analyzed for the past five years i.e. from 2002-2003 to 2006-2007. The nature of data was secondary data source pertaining to annual reports of the company.

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INTRODUCTION

1.1. BACKGROUND :

MEANING-COST OF CAPITAL:

The firms cost of capital will be the overall, or average, required rate of return on the aggregate investment project. A firm can achieve the objective of wealth maximization, by means of minimizing the firms overall cost of capital and should earn a higher rate of return more than its cost of capital.

ELEMENTS OF COST OF CAPITAL:

The overall cost of capital is determined by the following equation.

$$K_o = r_o + b + f$$

Where,

K_o = overall cost of capital

r_o = return at zero risk level

b = premium for business risk

f = premium for financial risk

K_0 consist of cost of debt (K_d) and cost of equity (K_e)

Return at zero risk level: Zero risk refers to the expected rate of return when a project has no risk. There are two type of risk namely business risk and financial risk.

Premium for business risk: Business risk refers to the fluctuation of the operating profit (EBIT) due to change in sales. If a project is operated with high risk of fluctuation in the return, when the cost of capital should be higher.

Premium for financial risk: Financial refers to the risk on account of pattern of capital structure of (debt equity mix). Higher the debt content more will be the risk, because the firm requirement of higher operating profit to cover periodic interest payment and repayment of the principal at the time of maturity.

INVENTORY MANAGEMENT

Inventory management is a comparatively new concept in our country. In early sixties the term was little known in India. The terms like purchasing, store keeping, transportation, etc were in common use. Though these terms were in wide use in this country, they represented, in a vague manner, the functions of today's inventory management. But modern management has received greater attention, better understanding and increasing importance during the last few years. The new term has now steadily found its way in different areas of management. No doubt the term inventory management has acquired significant importance even then it has yet to get proper recognition in this country.

Inventory means entire stock of a business including materials. The materials management involves marketing, commercial, Materials planninc, purchasing, stores departments and also includes production and shipping areas. So, it is very essential to co-ordinate and control these departmental activities.

COST OF CAPITAL:

Cost of each specific source of finance, viz.., debt, preference capital and equity capital, can be determined as follows

COST OF DEBT:

Debt may be issued at par, at premium are discount. It may be prefectural or redeemable. It is the explicit interest rate adjusted further for the tax liability of the company. It may be computed according to the following formula:

$$K_d = I(1-T)$$

Where,

K_d = cost of debt

I = interest rate

T = income tax rate

The tax is detected out of the interest payable because interest is treated as an expanse while computing a firm's income for tax purposes.

COST OF PREFERENCE CAPITAL:

The computation of the cost of preference capital possesses some conceptual problems. In case of bearings, there is a legal obligation the firm to pay interest at fixed rate while in case of preference share: there is no such legal obligation the failure to pay dividend may be a matter of serious concern from the point of view of equity share holder. They may even lose the control of the company because of the preference share holders getting legal right to participate in the general meetings of the company with equity share holders under certain conditions in the event of failure of the company to pay them the dividend. Moreover the accumulation of arrears of preference dividends may adversely affect the right of equity share holders to receive dividend.

This is because no dividend can be paid to them unless the arrears preference dividends are cleared.

$$K_p = D_p / N_p$$

Where,

K_p = cost of preference share

D_p = fixed preference dividend

N_P = net proceeds of preference shares

It should be noted that the cost of preference capital is not adjusted for taxes, since dividend on preference capital is taken as an appropriation of profits

and yet charged against profits. Thus the cost of preference capital is substantially greater that of that cost of debt.

COST OF EQUITY CAPITAL:

The equity share holders invest money in share with the expectation of getting dividend from the company. Also doesn't issue equity shares without having any intention to pay them dividends. The market price of equity shares, therefore, depends upon the return expected by the share holders. The following are some of the approaches to calculate cost of equity:

DIVIDEND PRICE APPROACH:

Investor arrives at the market price of equity by capitalizing the set of expected dividend payments. This approach rightly emphasizes the importance of dividends, but it ignores the fact that the retained earnings have also an impact on the market price of the equity shares.

$$K_e = D / N_P$$

Where,

K_e = cost of equity;

D = dividend per equity share;

Np = net proceeds of preference shares.

DIVIDEND PRICE PLUS GROWTH APPROACH

The cost of equity capital is determined on the basis of the expected dividend rate plus the growth rate in sales or dividends

$$K_e = (D / N_p) + g$$

Where,

K_e = cost of equity capital;

D= expected dividend per share;

N_p= net proceeds per share;

 g = growth rate.

EARNING PRICE APPROACH

It is the earning per share which determines the market price of the shares. This is based on the assumption that the share holders capitalize a stream of future earnings in order to evaluate their shareholders.

$$K_e = E / N_p$$

Where,

K_e = cost of equity;

E = earnings per share;

N_p= net proceeds of an equity share.

COST OF RETAINED EARNINGS:

The retained are the profits that are set aside by the company without declaring as dividends to the share holders. Show this retained earnings finally reaches the hands of the equity share holders. Thus this accumulated with the equity shares for the calculation of the cost of equity.

WEIGHTED AVERAGE COST OF CAPITAL:

Weighted average/overall cost of capital is an average on the weight given to the specific cost of capital like debts., preference capital and equity capital. It indicates the company's performance by evaluating the projects. It is estimated as follows:

$$K_o = W_d K_d + W_p K_p + W_e K_e$$

Where,

K_p = cost of preference share;

W_d = weight of debt;

K_d = cost of debt;

W_p = weight of preference share;

K_p = cost of preference share;

W_e = weight of equity share;

K_e = cost of equity.

DUPONT MODEL:

Dupont model is a technique that can be used to analyze the profitability of the company using traditional performance management tools. To enable this, the dupont model integrates elements of the income statement with those of the balance sheet.

USES OF THE DUPONT FRAMEWORK

> The model can be used by the purchasing department to examine or demonstrate what was earned for a given asset.

> Analyse changes over time.

> Teach people a basic understanding how they can have an impact on the company results.

> Show the impact of professionalizing the purchasing function.

STEPS IN THE DUPONT MODEL

1. Collect the business numbers(from the finance department)

2. Calculate(use a spread sheet)

3. Draw conclusions

4. If the conclusions seem unrealistic, check the numbers and recalculate.

WHY WE NEED INVENTORY MANAGEMENT

Inventory management is one of the areas covered by the whole process of management. The effective use of all manpower is looked after by the personnel management. Similarly for the balanced growth and efficient running of enterprise, it is necessary that material cost, material supply and materials utilization are so controlled that they lead to

(i) The maximization of production,

(ii) The reduction in the cost of production and distribution and

(iii) The maximization of the margin of profit.

This management helps in reducing materials cost, preventing a large number of capital being locked up for a longer period and improving capital turnover ratio.

Inventories expenditure in different manufacturing industries may differ. But it does not minimize the importance of inventory management. It in fact lies in effective savings in the materials expenditure. Even a small change in the materials cost can lead to a substantial saving or avert a heavy loss or push the enterprise towards a heavy loss or adversely affect the profitability of the concern.

Developments

In recent years, two approaches have had a major impact on Inventory Management: Materials Requirements Planning (MRP) and Just-In-Time (JIT).

NATURE OF INVENTORIES:

Inventories are stock of the product a company is manufacturing for sale and components that make up the product. The various forms in inventories exists in a manufacturing company are as follows:

Raw materials are those basic inputs that are converted into finished product through the manufacturing process. Raw materials inventories are those units, which have been stored for future productions.

Work in progress inventories are semi-manufactured products. They represent products that need more work before they become finished products for sale.

Finished goods inventories are those completely manufactured products which are ready for sale. Stocks of raw materials and work-in-process facilitate production, while stock of finished goods is required for smooth marketing operations.

NEED TO HOLD INVENTORY:

Managing inventories involves tying up of the company's funds and incurrence of storage and handling costs. Though it is expensive to maintain inventories, there are three general motives for holding inventories. They are as follows:

Transaction motive emphasizes the need to maintain inventories to facilitate smooth production and sales operation. **Precautionary motive** necessitates holding of inventories to guard against the risk of unpredictable changes in demand and supply forces and other factors. **Speculative motive** influences the decision to increase or reduce inventory levels to take advantage of price fluctuations.

It is not possible for a company to procure raw materials whenever it is needed. A time lag between demand and supply along with uncertainty in procuring raw materials due to factors such as strike, transport distribution, etc., may force firm to maintain sufficient stock of raw materials for uninterrupted production process. Other factors which necessitates purchasing and holding of raw materials inventories are quantity discounts and anticipated price increase.

Work in process inventory builds up because of the production cycle. Production cycle is the time span between introduction of raw material into production and emergence of finished product at the completion of production cycle. Till production cycle completes, stock of work-in-process

has to be maintained. Efficient firms constantly try to make production cycle smaller by improving their production techniques.

Stock of finished goods has to be held because production and sales are not instantaneous. A firm cannot produce immediately when customers demand goods. Therefore, to supply on a regular basis, a stock has to be maintained. Failure to supply products to customers when demanded would mean loss of the firm's sales to competitors. The level of finished goods inventories would depend upon the coordination between sales and production as well as on production time.

OBJECTIVES OF INVENTORY MANAGEMENT

The main objectives of inventory management are operational and financial. The **operational objective** means that the materials and spares should be available in sufficient quantity so that the work is not distributed for want of inventory. The **financial objective** means that investments in inventories should not remain idle and minimum working capital should be locked in it. The following are the objectives of inventory management.

> ➤ To ensure continuous supply of materials, spares and finished goods so that production should not suffer at any time and the cutomers demand also be met.

> ➤ To avoid both over-stocking and under-stocking of inventory.

> ➤ To maintain investments in inventories at the optimum level as required by the operational and sales activities.

> ➢ To keep material cost under control so that they contribute in reducing cost of production and over all costs.

> ➢ To eliminate duplication in ordering or replenishing stocks. This is possible with the help of centralizing purchases.

> ➢ To minimize losses through deterioration, pilferage, wastages and damages.

> ➢ To design proper organization for inventory management. A clear cut accountability should be fixed at various levels of the organization.

> ➢ To ensure perpetual inventory control so that the materials shown in stock ledgers should be actually lying in the stores.

> ➢ To ensure right quality goods at reasonable prices. Suitable quality standards will ensure proper quality of stocks. The price-analysis, the cost-analysis and value-analysis will ensure payment of proper prices.

> ➢ To facilitate furnishing of data for short-term and long-term planning and control of inventory.

CLASSIFICATION OF INVENTORY:

Inventory may be classified by the form as well as function. The form in which inventories are held may include the following:

PRODUCTION INVENTORIES:

Raw materials, parts and components used in the production process.

NON-PRODUCTION INVENTORIES:

Office store, machine parts and other parts come under this category.

IN PROCESS INVENTORY:

Semi finished goods lying at different stages of production process.

FINISHED GOODS INVENTORY:

Product that is ready for sales.

SCRAP:

Obsolete materials are also sometimes included as inventory.

Inventories may also classify by the functions they perform.

ANTICIPATE INVENTORY:

Anticipation inventories are built up in anticipation of future demand. They are built up to help level production and to reduce the cost of changing production rate.

LOT SIZE INVENTORY:

Items purchased or manufactured greater than needed immediately create lot size inventory is sometimes called cycle inventory. It is the position of inventory that depletes gradually as customers order come in and is replenished cyclically when supplier orders are received.

IMPORTANCE OF THE STUDY

> ➤ The importance of inventory control management cannot be over-emphasized in this complex industrial world.

> ➤ One of the most important aspects of inventory control is to have the items in stock at the moment they are needed. This includes going into the market to buy the goods early enough to ensure delivery at the proper time. Thus buying requires advance planning.

> ➤ It affects not only a particular industry but the entire economic activity of a whole nation.

> ➤ Reduction in the materials cost by about 5% is always possible through an efficient management of materials.

> ➤ Evidences are there to prove that skillful and imaginative management had been able to save even more than 5% of the total cost of the final product.

> ➤ The materials form the largest single expenditure item in most of the manufacturing organizations form the inventories usually represent 60-70% of the total cost of the final product.

> ➤ Its expenditure in different manufacturing industries may differ, it in fact lies in affecting savings in the materials expenditure. Even a small change in the material costs can lead to a substantial saving or push the enterprise towards a heavy loss or adversely affect the profitability of the concern.

ALWAYS BETTER CONTROL (ABC)

It is 'Management by exception' system of Inventory Control. In this ABC technique of inventory control, the materials are classified and controlled according to value of the materials involved. It is also called proportional parts value analysis. It always controls the best, then better anything which can be measured in monetary terms. Actually, A items are high value items, B items are medium valued items, C items are low valued items.

Under A-B-C analysis, the materials are divided into three categories viz., A, B and C.Past experience has shown that almost 10 percent of the items contribute to 70 per cent of value of consumption and this category is called "A" category. About 20 percent of the items contribute about 20 percent of value of consumption and this is known as category " B" materials. Category "C" covers about 70 percent of tems of materials, which contribute only 10 percent of value of consumption.

A-B-C analysis helps to concentrate more efforts on category A, since greatest monetary advantage will come by controlling these items. An attention should be paid on estimating requirements, purchasing , maintaining safety stocks and properly storing of "A" category materials. These items are kept under a constant review so that a substantial material cost may be controlled. The control of "C" items may be relaxed and these stocks may be purchased for the year. A little more attention should be given towards "B" category items and their purchase should be undertaken at quarterly or half-yearly intervals.

1.2. REVIEW OF LITERATURE:

C.Deepana(2007),[1]*,The* objective of the project is to find the cost of capital. The ratio analysis has been conducted to find out the cost of equity and the cost of debt. The project concludeds the firm's dividend declared percentage affects the cost of equity. The net profit margin of the firm shows an increasing trend since 2003. The study is limited to Roots Multiclean Limited, but my study is in Roots Industries India Limited along with the study of inventory management.

S. Suresh Kumar(2001),[2], stresses the cost of equity is fluctuating due to the fluctuations in dividend rate. The objective of this study is to conduct the study on the cost of capital at Pricol. From the balance sheet, the weighted average cost of capital has been computed using the mathematical formulations. The findings shows the net profit of the firm in 1996 was 7.92% and thereafter the profit increased gradually to 11.34% in the year 2000. My work involves the Du pont analysis to find out the return on assets.

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[1] *C.Deepana(2007)*[1], "A Study On The Cost Of Capital At Roots Multiclean Limited, Coimbatore, 2007"

[2] *S.Suresh Kumar(2001)*[2], "A Study On The Cost Of Capital At Pricol, Coimbatore, 2001".

Rene M. Stulz (1995),[3] examines the impact of globalization on the cost of equity capital. We argue that the cost of equity capital decreases because of globalization for two important reasons. First, the expected return that investors require to invest in equity to compensate them for the risk they bear generally falls. Second, the agency costs which make it harder and more expensive for firms to raise funds become less important. The existing empirical evidence is consistent with the theoretical prediction that globalization decreases the cost of capital, but the documented effects are lower than theory leads us to expect.

Dean Proctor .et .al (1997),[4] finds the current restriction in both Canada and India on foreign ownership in telecommunications need to be removed and this should be done sooner, not later. The original rationale behind the imposition of the rules is no longer there, and their continuance has a

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[3] *Rene M. Stulz(1995),* "Globalization Of Capital Markets And The Cost Of Capital: The Case Of Nestle" Jacf, Vol 8, Pp: 30-38, No.3 (Fall 1995).

[4] *Dean Proctor and Simon-Pierre Olivier(1997),* "Capital Flows And Cost Of Capital:The Importance Of Liberlized Investment Rules For A Competitive Telecommunications Sector" Vol.5, Pp:40-48, No.4 (Fall 1997).

negative impact on access to capital and on the quality and sustainability of a competitive telecommunication sector.

B.Sampath Kumar(2005),[5], studies on the cost of capital at LMW and finds the net profit of the firm shows an increasing trend for the past two years 2004 and 2005. The net profit shows an increase of 23.15% compared to the year 2003 and 43.59% compared to the year 2004. The return on assets of the firm was increasing year by year after 2002 due to the increase in the net profit margin of the firm. The increase of return on assets for the past five years is 39%.

Dany Aoun .et .al (2008),[6], intended to examine the information and communication technology (ICT) firms from a financial perspective. The relationship between capital structure and cost of capital (COC) is investigated in a simultaneous equation framework. we relate international

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[5] *B.Sampath Kumar(2005),*"A Study On The Cost Of Capital At Lmw, Coimbatore,2005".

[6] *Dany Aoun and Almas Heshmati(2008),* " International diversification, capital structure and cost of capital: evidence from ICT firms listed at NASDAQ" Published in Applied Financial Economics, Volume 18, Issue 12, pages 1021 - 1032 ,July 2008 .

diversification to the firm's capital structure, and on the other, we test their individual and collective inferences on the combined debt and equity COC.

David Easley .et .al (1998),[7] investigated the role of information in affecting a firm's cost of capital. We show that differences in the composition of information between public and private information affect the cost of capital, with investors demanding a higher return to hold stocks with greater private information. This higher return arises because informed investors are better able to shift their portfolio to incorporate new information, and uninformed investors are thus disadvantaged. In equilibrium, the quantity and quality of information affect asset prices. We show firms can influence their cost of capital by choosing features like accounting treatments, analyst coverage, and market microstructure.

C.Sanjeeva(2007),[8] identifies the Gross Operating Cycle and Net Operating Cycle shows a decreasing trend from 210 to 188 and 165 to 143 days respectively during the period 2001-2006. For the purpose of inventory control,A class category materials in the ABC analysis, are more important.

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[7] *David Easley and Maureen O'hara(1998),* " Information and the Cost of Capital" Volume 59: Issue 4 , Pages: 1553 – 1583, Jul 1998,.

[8] *C.Sanjeeva(2007),*[8] "A Study On Inventory Management At Roots Multiclean Limited,Coimbatore,2007"

Therefore they are closely monitored at highest level at very frequent intervals. In the VED analysis, V- class materials have to be stocked adequately to ensure operation of the plant.

Edward A.Silver (1981),[9], observed that the objectives of inventory management, including the relevant related costs, are examined in this paper. A brief review of standard problems, that have been effectively solved, is presented. However, we point out that a serious gap exists between theory and practice in many organizations. Suggestions are made for bridging this gap. Finally, a list is provided of a number of research problems whose implement able solution would have a major beneficial impact on the practice of inventory management.

Tyndall, Fiona (2007),[10], in an interview with David Jones (DJS) CEO Mark McInnes is presented. McInnes discusses the goal of the company which is to earn after-tax profit growth through the economic cycle. It cites that the company expects a favourable retail condition. When asked about the

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[9] *Edward A.Silver(1981)* , "Operations Research", Operations Management, Vol 29, No. 4, , pp. 628-645, Jul-Aug., 1981.

[10] *Tyndall, Fiona(2007),* "CEO Hot Seat", ARF Smart Investor, Vol. 2, No. 7, pp 69-71, Jul. 2007.

maintenance of targeted gross margin levels of the company, Mcinnes elaborated the capability of the company to enhance inventory management.

Jon A. Larvick (2000),[11], mentioned in the journal, When forced to decide the level of effort to expend in managing inventory, managers will often divide inventory into three classes based on costs or importance. Then, the inventory management effort and methods will be matched with the different classes. For example, the most important or costly items (usually the top 5 percent of the items [class A]) will be managed more precisely than any of the less costly items. The moderate-cost items (usually the next 15 percent [class B]) deserve some type of special management, while the inexpensive items (the other 80 percent [class C]) do not require any special management effort. [19]

Ramakrishnan Ramanathan (2006),[12], finds the Inventory classification using ABC analysis is one of the most widely employed techniques in

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[11] Jon A. Larvick(2000), "Wartime Spares - logistics support and planning for war" Air Force Journal of Logistics, ABC Inventory Control, Winter, 2000.

[12] Ramakrishnan Ramanathan(2006), "ABC inventory classification with multiple-criteria using weighted linear optimization" Volume 33, Issue 3, Pages 695-700, March 2006.

organizations. The need to consider multiple criteria for inventory classification has been stressed in the literature. A simple classification scheme is proposed in this paper using weighed linear optimization. The methodology is illustrated using an example.

Durkin, Karen (2007),[13], reflects on the relevance of the vision shared by business people to create a life that inspires them and offers a business experience that is more fulfilling and less draining. She describes the realization of such a vision to become a plan of action. She enumerates the challenges faced by new businesspeople, such as inventory management and employee hiring. The author also emphasizes the importance of having a clear plan for one's envisioned business.

Mutschler .et .al (2007)[14] article reports on the decision of Migdal Haemek, Israel-based specially foundary Tower Semiconductor Ltd. To reduse supply chain costs by $15M over 3 years. The move is aimed at integrating advanced capabilities in logistics, engineering and support services alone

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[13] *Durkin, Karen(2007),* "Life business for the making", Las Vegas Business Press, Vol. 24, No. 30, pp 21-24, Jul. 2007.

[14] *Mutschler, Ann Steffora(2007),* "Tower To Reduce Supply Chain Costs By $15M over 3 years", Electronic News, Vol. 52, No. 35, pp 9-19, Aug. 2007.

with implementing irinventory management of spare parts for Tower's manufacturing tools.

Jain .et .al (2008),[15], suggests the ABC analysis is a well known and practical classification of inventory items based on the Pareto principle. The purpose of ABC analysis is to classify the inventory into different groups of A, B, or C, according to importance based on measure of a criterion. Traditionally, the classification of inventory into the A, B, or C categories have generally been based on dollar value per unit multiplied by annual usage rate, commonly known as dollar usage. In recent years, several multi criteria inventory classification technique has been introduced. Apart from unit price and usage, other criteria like lead time, number of hits, average per hit, ordering cost, scarcity, durability.

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[15] *Jain, Ajeet; Jamshidi, Hossein(2008)*, "Multi-Criteria ABC Inventory Classification: With Exponential Smoothing Weights Journal of Global Business Issues" , Volume 37, Issue 8, Pages 95-123, January 1, 2008.

1.3. STATEMENT OF THE PROBLEM:

In the study, efforts have been made to conduct a detailed analysis of cost of capital and the return on assets in ROOTS industries limited. The study also has been made to determine the ideal Debt – Equity mix to enhance the financial performance of the company. In this study, efforts also have been made to analyse the inventory management in ROOTS industries limited.

1.4. OBJECTIVES OF THE STUDY

- To determine the cost of Debt (K_d).

- To estimate the cost of Equity(K_e).

- To calculate the weighted average cost of Capital (K_o).

- To analyze the return on assets value using Du – Pont model.

- To study and give suggestions for the introduction of inventory techniques like ABC analysis in the organization.

1.5. SCOPE OF THE STUDY:

The present study is confined to the analysis and interpretation of published financial statement viz., the Balance sheet and the income statement. The technique employed for the purpose of the study is Ratio Analysis. The study is meant to throw the light on the Cost of Capital and the Inventory Management of the Roots Industries Limited.

1.6. METHODOLOGY:

The present study is undertaken on the basis of the sources available from the annual reports published by the company. The relevant ratios have been computed with the help of accounting figures obtained from the financial statements such as profit and loss account and balance sheet.

1.6.1. Type of study:

The research design is analytical in nature. In the analytical research, the researcher has to use the facts and the information already available and analysing these to make the critical evaluation of the material.

1.6.2. METHOD OF DATA COLLECTION:

Primary data have been collected from the organization. These data were obtained from the interactions with the financial executives in the company. Secondary data were collected from annual reports and the balance sheet for the financial years 2003 to 2007.

1.6.3. TOOLS FOR ANALYSIS:

The major tool used to analyze the data collected is ratio analysis which is a widely used management tool for financial performance analysis. The other tools used are Du – Pont model for determining the return on the given assets. ABC analysis has been used for the inventory management.

1.7. LIMITATIONS OF THE STUDY:

- The study is based on the data procured from the annual reports that have their own limitations.

- The study is restricted only for the period of five years from 2003 to 2007.

- The study uses only a few inventory control techniques like ABC analysis.

- Only major items have been selected for the purpose of introducing inventory control techniques.

1.8. CHAPTER SCHEME:

The study is reported in five chapters.

- The first chapter discusses the background of study, objectives, scope, limitations and methodology of the study.

- The second chapter deals with organization profile that includes history, management, organization structure and various functional areas.

- The third chapter discusses about the macro – micro analysis which deals with the prevailing economic scenario with the industry.

- The fourth chapter deals with data analysis and interpretation.

- The fifth chapter deals with the results and discussions and considered recommendations.

Organizational Profile

CHAPTER - 2

ORGANISATION PROFILE

2.1. HISTORY OF THE ORGANISATION

It all started with just a honk. Encouraged by the response, they kept on moving ahead. In the beginning, they did not realize that they would make such an impact. Slowly but surely, the reverberations were felt far and wide. Indian automobile market responded to their call. Soon the global market too followed suit. Roots horns, in a very short span of time, got a place of pride in millions of vehicles across the globe.

What more could they ask for? But they did ask more. They indeed made a sound beginning but they could not rest on their laurels. The journey has to go on. There are more miles to ROOTS Industries Ltd. is a leading manufacturer of HORNS in India and the 11th largest Horn Manufacturing Company in the world.Headquartered in Coimbatore - India, ROOTS has been a dominant player in the manufacture of Horns and other products like Castings and Industrial Cleaning machines.

Since its establishment in 1970, ROOTS has had a vision and commitment to produce and deliver quality products adhering to International Standards and more challenging territories to explore.

Mr.K.Ramaswamy, a master degree holder in Automobile Engineering from Lincoln Technical Institute, promoted the Roots group. Its corporate office is at Coimbatore extending the philosophy of quality to all spheres of its activity, this group becomes the market leader in India for its flagship product viz. automobile horns.The company diversified to manufacture the indigenously developed high frequency wind tone horns and later started the promotion of various pneumatic and electrical horns since 1973. Start from 3,600 horns sales in 1978-1979, the sales have touched 2 million horns recently.

2.2. MANAGEMENT

ROOTS Industries Ltd., is managed by an excellent team of path-breakers, chief among them being the Chairman, Mr. K. RAMASWAMY, a Master's Degree Holder in Automobile Engineering from Lincoln Technical Institute, USA.

VISION

The vision as quoted by their company site,"We will stand technologically ahead of others to deliver world-class innovative products useful to our customers. We will rather lose our business than our customers' satisfaction. It is our aim that the customer should get the best value for his money".

"Every member of our company will have decent living standards. We care deeply for our families, for our environment and our society. We promise to pay back in full measure to the society by way of selfless and unstinted service".

QUALITY POLICY

We are committed to provide world-class products and services with due concern for the environment and safety of the society.

This will be achieved through total employee involvement, technology upgradation, cost reduction and continual improvement in

* Quality of the products and services

* Quality Management system

* Compliance to QMS requirements

Quality will reflect in everything we do and think

* Quality in behaviour

* Quality in governance

* Quality in human relation

Roots is committed to manufacture customer-centric and technology-driven products on par with international quality standards. For example, the horns manufactured undergo a rigorous life-cycle test and are subjected to an endurance of over 200,000 cycles of performance while the industry norm requires only 100,000.

With a strong innovative base and commitment to Quality, Roots Industries Limited has occupied a key position in both international and domestic market as suppliers to leading OEMs and after market. Similar to products, Roots has leading edge over competitors on strong quality system base. Now, RIL is

the first Indian Company and first horn manufacturing company in the world to get ISO/TS 16949 certification based on effective implementation of QS 9000 and VDA 6.1 system requirement earlier. RIL has entered into technical collaboration with Robert Bosch, SA to further enhance the technical competence. Roots' vision is to become a world class company manufacturing world class product, excelling in human relation.

ENVIRONMENTAL POLICY

With due concern towards maintaining and improving the Quality of Life,Roots is committed for sustainable development by minimising pollution and conserving resources. This will be achieved through continual improvement in Environmental Awareness of all employees & associates, Legal Compliance and Objective towards Environmental Protection.

2.3. PRODUCT PROFILE

Products:

Roots Industries specializes in the manufacture of a wide range and line-up of automobile horns. Roots is a leading supplier to all the major vehicle manufacturers like Ford, Daimler Chrysler, Mitsubishi Lancer, Mahindra & Mahindra, Toyota, Tata Motors, Fiat Uno and Siena, TELCO, TVS Motor Company, Kinetic Honda, etc.

Product range:

1.Windtone , 2.Vibrosonic , 3.Cleartone , 4.Bosch Range , 5.Roots 90 , 6.Megasonic , 7.Smartone , 8.Spider , 9.FSA2 , 10.R 70 , 11.Sensors.

Roots Industries Limited places a premium on original technology and innovation. Its technical collaboration with Robert Bosch S.S of Spain in 1995 has helped it to further strengthen its R & D activities and technical competence. This collaboration along with Roots' indigenous talent has kicked off a spree of growth unmatched in the history of automobile OE manufacturers.

GLOBAL ALLIANCES FOR COMPETITIVE ADVANTAGE

Roots is a leading Original Equipment supplier to major vehicle manufacturers like Mercedez Benz, Mitsubishi, Mahindra & Mahindra, Toyota, Fiat, TELCO, TVS, Kinetic, etc. The technical collaboration with Robert Bosch S.A. of Spain starting from 1995 has strengthened the R&D activities and increased Roots' technical competence to international standards.

Roots Multiclean Ltd. (RMCL) is a joint venture with Hako Werke GmbH & Co., Germany, one of the largest cleaning machine manufacturers with global operations. RMCL is the sole representative in India and SAARC countries for Hako Werke's entire range of cleaning equipment. The quality of RMCL products is so well established that Hako buys back a major portion for their global market.

RMCL also represents several global manufacturers of cleaning products and is gearing itself up to provide customized, total cleaning solutions.

ENGINEERING RESEARCH CENTRE

The Engineering Research Centre (ERC) is involved in the continuous improvement and enhancement of design to increase performance and reliability. The ERC functioning under three distinct heads cater to the needs of Roots Industries, Roots Multiclean and Roots Auto Products.
Though there is a three-pronged operational ethos, the ERC is integrated and meshed seamlessly with one single objective: that of design research and performance monitoring. Through extensive product engineering, the ERC cell of ROOTS achieves the following:

- Designing and developing new products with customer focus.

- Conducting required tests to ensure product reliability.

- Initiating necessary corrective and preventive action for ensuring peak performance

The ERC consists of the best talent that includes engineering graduates, ITI brains and design engineers. The team works with top-notch tools like

- Proe2000i2 - for solid modeling

- AutoCAD 2000 - for Drafting

- CorelDraw V 8.0 - for Graphical Applications

2.4. DESCRIPTION OF VARIOUS FUNCTIONAL AREAS

HUMAN RESOURCE DEPARTMENT

Roots has a strong people-oriented work culture that can be seen and felt across all its member concerns. Whether they work in group or in isolation, their effort is well appreciated and achievements well rewarded. They have a sense of belonging and they revel in an environment of openness and trust. Cross-functional teams function as one seamless whole and foster the true spirit of teamwork.

Roots as a learning organization systematically trains its employees at all levels. Conducted in-house, the training programmes equip them to meet new challenges head on. Employees are encouraged to voice their feelings, ideas and opinions. There is a successful suggestion scheme in operation and best suggestions are awarded. At Roots, people across the group companies, through interactions at workshops and seminars, get to know each other individually, share their common experiences and learn something about life.

Personal Culture

The management has been encouraging and promoting a very informal culture, "Personal touch", sense of belonging, enabling employees to become involved and contribute to the success of the company. The top management also conscientiously inculcates values in the people.

Work Environment

Special and conscious efforts are directed towards house keeping of the highest order. Renovation and modernization of office premises and office support systems are carried out on an on going basis.

Training

Roots believes in systematic training for employees at all levels. As a part of the Organizational Development efforts, training programmes are being conducted in-house, for employees at all levels. In addition, staff are also sponsored for need based training programmes at leading Management Development Institutes.

Total Quality Management

Customer Focus is not merely a buzzword but it has become an important factor of every day work and has got internalized into the work environment. There is an equal emphasis on internal customer focus leading to greater team efforts and better cross-functional relationship.

Quality Circle Movement

To ensure worker participation and team work on the shop-floor, Roots Industries Limited has a very effective Quality Circle Movement in the organization. As on today Roots Industries Limited has 3 operating Quality

Circles having 24 members and some of them nave won awards at different conventions and competitions.

Through interaction with workmen in these sessions, a process of 2-way communication has been initiated and valuable feedback has been received on worker feelings, perception, problems and attitudes. Simultaneously management has communicated the problems faced by them and the plans to overcome these problems.

Good Morning Assembly

The management aims in operator's mental & physical fitness and it is ensured through the GMA. The operators and shift supervisor, assemble before the I shift beginning and do occupation of fitness exercise, discuss about the Quality Safety & Production aspects of the Previous shifts and take Quality / Safety oath.

Through interaction with workmen in these sessions, a process of two way communication has been initiated and valuable feedback has been received on worker feelings, perception, problems and attitudes. Simultaneously management has communicated the problems faced by them and the plans to overcome these problems.

Roots has a strong people-oriented work culture that can be seen and felt across all its member concerns. Whether they work in group or in

isolation, their effort is well appreciated and achievements well rewarded. They have a sense of belonging and they revel in an environment of openness and trust. Cross-functional teams function as one seamless whole and foster the true spirit of teamwork.

Roots as a learning organization, systematically trains its employees at all levels. Conducted in-house, the training programmes equip them to meet new challenges head on. Employees are encouraged to voice their feelings, ideas and opinions. There is a successful suggestion scheme in operation and best suggestions are rewarded.

Lasting relationship will evolve only when people know that their work is valued and that they contribute meaningfully to the growth of the organization. At Roots, people across the group companies, through interactions at workshops and seminars, get to know each other individually, share their common experiences and learn something about life.

2.5. COMPETITIVE STRENGTH OF THE COMPANY:

The following are the ROOTS group of companies. They are as follows,

Roots Auto Products Private Limited (RAPPL), the largest supplier of Air Horns in India caters to the needs of several OEMs: Ashok Leyland, Caterpillar India and JCB Escorts. Roots Air Horns also find a place of pride in Passenger vehicles, Trucks, Earth Moving equipment, Material Handling equipment, etc.

Roots Air Horns are exported to countries in North America, Europe, Middle East, Africa and SAARC region.

Roots Cast Pvt. Ltd., (RCPL) (formerly known as Aruna Auto Castings Private Limited) was established in 1984 to meet the captive requirements of the Roots group. With its ever probing eye on the needs of the market, the company in the late 80s expanded its operations to manufacture High Pressure Die Cast Aluminium and Zinc components to the exacting needs of various customers in Automobile and Textile Industries with a high degree of Quality and Perfection.

RCPL, now has established itself as a major player in the die cast component manufacturing thanks to the expertise built in the core activities like tool design, tool making and pressure die cast component manufacturing.

The genesis of **Roots Multiclean Ltd., (RMCL)** is due to the vision of the promoter of Roots group of company about the requirement of sophisticated cleaning equipment in the country following globalization of business and entry of Multi Nationals who have very high standard of house keeping. RMCL, situated in the suburbs of Coimbatore, is a Joint Venture with Hako Werke Gmbh & Co., Germany.

It commenced manufacturing of cleaning equipment in early 90s at its modern factory located amidst natural greenery. RMCL is the sole representative of Hako Werke Gmbh & Company's entire range of cleaning equipment for India and SAARC countries. To improvise and facilitate a better

service to its customers, RMCL has established Regional offices in all Metros and a huge dealer network in bigger Cities and States.

Roots Precision Products Private Ltd., was established in 1987 to address the in-house tooling needs of the diverse industries in Roots group. Owing to continuous improvement and investment into better resources, the company has become self-sufficient. It is catering to the needs of various industries. RPP acts as a one-stop solution for tooling and precision machining. Specialized in design and manufacture of press tools, injection moulds, die casting dies, jigs and fixtures.

The following are the other ROOTS group of companies,

- Roots Brake System (P) Ltd.,
- Roots Leasing and Finance (P) Ltd.,
- Roots Industries North America Inc.,
- Roots Industries (Malaysia) SDN. BHD.,
- American Auto Service (P) Ltd.,
- Polycraft Industries Limited.,
- Roots Digital Engineering Services.

MILESTONES ACHIEVED BY ROOTS INDUSTRIES INDIA LIMITED

- Polycraft, a unit for Plastic Injection Moulding was established in 1988.

- Roots Industries Private Limited takes over Electric Horn business in 1990.

- RMCL enters into Techno-Financial collaboration with M/s. Hako Werke GmbH, Germany in 1992.

- Roots Industries Private Limited obtains the National Certification - ISI mark of quality in 1992.

- Roots Industries Private Limited wins American International Quality Award in 1994.

- Roots Industries Private Limited wins American International Quality Award in 1994.

- Becomes the first horn manufacturer in Asia to obtain QS 9000 in 1999.

- Becomes the first horn manufacturer in Asia to obtain VDA 6.1 and the first in the world to win ISO / TS 16949 in 2000.

- The first to introduce digitally controlled air horns and low frequency, low decibel irritation free Jumbo Air Horns in 2000.

- Roots Industries Ltd., Horn Division is accredited with ISO 14001 : 1996 in 2003.

- RIL successfully launches its Malaysian Plant in 2004.

- Roots Industries Ltd., is certified with MS 9000, a pre-requisite for Q1 award for Ford Automotive Operations Suppliers. Focus on Systems and Processes in 2005.

- Roots Industries Ltd., is awarded Q1 by Ford Motor Company in 2005.

- Roots Industries Ltd., Horn Division upgraded its ISO : 14001 from 1996 version to 2004 version in 2005.

ROOTS BEYOND BORDERS

Roots products have successfully made their presence heard loud and clear in the global market. Roots horns are exported to over 15 countries worldwide. A major share of the exports goes to USA, Japan, Middle East and South America. Roots is the only Indian company that meets the demanding standards of the Japanese markets. Roots cleaning equipment and die cast parts, etc. are exported to USA, Europe, Australia, Japan, Far East, South America and several other advanced countries.

Macro & Micro Analysis

CHAPTER - 3

MACRO-MICRO ANALYSIS

The macro and micro analysis of auto parts industries in economic growth, competitive strength, career growth, opportunities, etc., in domestic and foreign countries. The brief discussion is as follows;

MACRO ANALYSIS

The auto parts industry directly influences the economies of the United States and the world. In a typical year, the U.S. auto parts industry generates around 17 percent of manufacturers' shipments of durable goods (products designed to last at least three years). Auto parts production consumes large amounts of iron, steel, aluminium, and rubber. The automobile industry also consumes more copper, glass, zinc, leather, plastic, lead and platinum than any other U.S. industry.

In 1997, U.S. retail sales of auto parts exceeded $284 billion, 3.5 percent of the nation's gross domestic product. India is the second largest producer of motorcycles in the world (5.2 Million) after China which has a production volume of 12 Million. India would be the third largest economy(after China and US) by 2050 "Goldman Sachs Report".

Indian Auto Industry is the

- Largest Three Wheeler Market in the World

- Second largest Two Wheeler Market in the World

- Fourth largest Passenger Vehicle Market in Asia

- Fourth largest Tractor Market in the World

- Fifth largest Commercial Vehicle Market in the World

The Future Growth Drivers

- Higher GDP Growth

- India's huge geographic spread- Mass Transport System

- Increasing Road Development

- Increasing disposable Income with the service sector

- Cheaper (declining interest rates) & easier finance Schemes

- Replacement of aging four wheelers

- Graduating from two wheelers to four wheelers

- Increasing dispensable ncome of rural agri sector

- Growing Concept of Second Vehicle in Urban Areas

Range of Vehicles made in India include

Light Passenger Vehicles including Passenger Cars, MUV's, SUV's, Commercial Vehicles including Light Commercial Vehicles, Medium and Heavy Commercial Vehicles and Buses, Tractors including Farm, Earthmoving

and Construction Equipments, Two Wheelers including Motorcycles, Scooters and Mopeds, Three Wheelers including Passenger Carriers and Goods Carriers.

The Automotive Component Manufacturers Association of India (ACMA) is the nodal agency for the Indian Auto Component Industry. It's active involvement in trade promotion, technology up-gradation, quality enhancement and collection and dissemination of information has made it a vital catalyst for this industry's development. It's other activities include participation in international trade fairs, sending trade delegations overseas and bringing out publications on various subjects related to the automotive industry.

ACMA is represented on a number of panels, committees and councils of the Government of India through which it helps in the formulation of policies pertaining to the Indian automotive industry. For exchange of information and especially for co-operation in trade matters, ACMA has signed Memoranda of Understanding with its counterparts in USA, Canada, UK, France, Italy, Spain, Japan, South Korea, Malaysia, Uzbekistan, Pakistan, Australia, Egypt, Iran, Tunisia, South Africa, Thailand & Scandinavia.

ACMA represents over 479 companies, whose production forms a majority of the total auto component output in the organised sector. In the domestic market, they supply components to vehicle manufacturers, Tier-1 suppliers, to state transport undertakings, defence establishments, railways and even to the replacement

market. A variety of components are being exported to OEMs and aftermarkets worldwide.

The industry has been exporting around 15% of its output and growing at the rate of 30%. In the year 2003-04, industry has exported US$ 1 billion versus US$ 760 million in year 2002-2003. Principal export items include replacement parts, tractor parts, motorcycle parts, piston rings, gaskets, engine valves, fuel pump nozzles, fuel injection parts, filter & filter elements, radiators, gears, leaf springs, brake assemblies & bearings, clutch facings, head lamps, auto bulbs & halogen bulbs, spark plugs and body.

MICRO ANALYSIS

The Indian auto components industry has an estimated production of US$ 10 billion. The spiraling demand from domestic and international auto companies has seen this sector emerging as one of the fastest growing manufacturing sectors in India and globally.

According to the ACMA (Auto Components Manufacturers Association of India), the sector is set to grow at a CAGR of 15 per cent till fiscal 2012. This sector is now working towards an open market. And with India estimated to have the potential to become one of the top five auto component economies by 2025, the pace is expected to pick up even further.

Moreover the automotive components industry is perceived as a lucrative sector with tremendous potential for foreign direct investments. The year 2006-07 saw the auto components sector soar with exports touching the US$ 3 billion mark and investments continuing unabated. The ACMA estimates the global sourcing of components from the country to double from US$ 2.95 billion to US$ 5.9 billion in 2008-09, and touch US$ 20 billion in seven years owing to the huge and growing markets both within India, and overseas.

The ACMA-McKinsey Vision 2015 document forecasts the potential for the Indian auto component industry to be US$ 40-45 billion by 2015. Global automobile manufactures see India as a manufacturing hub for auto components and are rapidly ramping up the value of components they source from India due to:

- The cost competitiveness in terms of labour and raw material
- Its established manufacturing base
- Fine quality of components manufactured in India (used as original components for vehicles made by General Motors, Mercedes, IVECO and Daewoo among others).

As a result Japanese and British component manufacturers are seeking joint-ventures in India. Delphi, the auto component division of General Motors is planning to set up plants in India. Robert Bosch, auto parts maker of Germany has relocated manufacture of certain products to MICO, India. Crosslink International Wheels, Malaysia's leading automobile security provider has set up

its manufacturing unit at Baddi to make India the export hub for the SAARC region. Foreign auto makers, including Ford Motor Co., General Motors Corp., Honda Motor Co., Toyota Motor Corp., DaimlerChrysler AG and Hyundai Motor Co., all looking to increase their presence in India and use it as an export hub.

The Indian automotive export industry has made a global mark. According to ACMA, more than a third (36 per cent) of Indian auto component exports head for Europe, with North America featuring a close second at 26 per cent.

Foreign Investments

India enjoys a cost advantage with respect to casting and forging as manufacturing costs in India are 25 to 30 percent lower than their western counterparts. Seeing the growing popularity of India in the automotive component sector (a whopping US$ 530 million in terms of foreign direct investment), the Investment Commission has set a target of attracting foreign investment worth US$ 5 billion for the next five years to increase India's share in the global auto components market from the existing 0.4 per cent to 3-4 per cent.

- Chrysler is setting up a local sourcing unit in Chennai and is expected to start sourcing for its global plant by next year.

- Palfinger AG, the Austrian hydraulic lifting, loading and handling systems manufacturer, has joined hands with Western Auto LLC, Dubai, the vehicle dealership arm of ETA Star group, have invested US$ 1.7 million to set base in India.

- IFCI Venture Capital Funds Limited is launching a private equity fund in association with German consultancy UBF-B worth US$ 144.67 million focussed entirely on domestic automotive components industry.

- Auto parts maker Robert Bosch of Germany will invest US$ 201.4 million in its Indian subsidiaries over the next two years.

- Swiss company Rieter Automotive India aims to increase its production capacity in India and extend its product range to heat shields

- Fiat is setting up a group purchasing office in India as part of its strategy to cut costs by buying more components from low-cost centres such as India and China.

- Daimler, Hero joint venture will invest US$ 1.1 billion in 5 years to manufacture light and medium CVs initially, and heavy-duty vehicles by 2012.

Domestic Investments

The market is so large and diverse that a large number of players can be absorbed to accommodate buyer needs. The sector not only has global players looking to invest and expand but leading domestic component companies are also pumping in huge sums into expanding operations:

- Bharat Forge invested US$ 135 million in its Pune plant for increasing domestic capacity to 240,000 tonnes.

- Sona Koyo plans to have capacity of three million pieces of manual steering gears, 500,000 units of hydraulic power steering and 250,000 units of

electronic power steering (EPS), apart from doubling the capacity of steering columns from one million parts.

- Rico Auto is investing US$ 23 million to expand capacity.

- Apollo Tyres plans to invest US$ 469.58 million in the next three years to increase its production capacity both in India and abroad.

- Kesoram Industries is planning to set up three new tyre units in the northern state of Uttaranchal to take its tyre-making capacity to 734 metric tonnes per day.

With such accelerating interest by both domestic and foreign investors, the Indian auto component industry is set to growth exponentially. The Indian auto component industry has reached a turnover size of US$ 15 billion in 2006-07. The auto parts industry has emerged as one of India's fastest growing manufacturing sectors, growing at a compound annual growth rate (CAGR) of 28.9 per cent in value terms between 2002-03 and 2006-07.

The auto components industry has attracted investments, to the tune of US$ 5.4 billion, in 2006-07 alone. India expects to attract US$ 5 billion in foreign direct investment (FDI), over the next five years in the sector. According to industry estimates, by 2015, the Indian auto component industry is expected to reach the size of US$ 33-40 billion. Driven by India's emergence as the low cost-high quality auto component sourcing destination, exports are expected to contribute US $ 20-25 billion to this industry size.

Data Analysis & Interpretations

CHAPTER - 4

DATA ANALYSIS AND INTERPRETATION

EFFECTIVE INCOME TAX RATE (T)

The company has acquired loans from various banks (in order to meet its capital other than issuing equity shares). The interest rates differ between banks. The average interest rate is taken as 9%.The effective income tax is a combination of income tax rate with that of, surcharge rate on the income tax rate of the respective years.The formula to calculate effective tax rate is

$$T = IT + (IT * S * E)$$

Where, T = Effective income tax rate; IT = Income tax rate; S = Surcharge rate; E = Education cess.

COST OF DEBT (K_d)

The cost of debt is relatively simple to calculate, as it is composed of the interest paid (interest rate), including the cost of risk (the risk of default on the debt). Since, effective cost of debt is the tax adjusted rate of interest, the before – tax cost of debt should be adjusted for the tax effect.And it is calculated as ;

$$K_d = I (1-T)$$

COST OF DEBT (K_d)

YEAR	INCOME TAX RATE (IT)	SURCHARGE RATE (S)	EDUCATION CESS (E)	EFFECTIVE INCOME TAX RATE (T)	COST OF DEBT (K_d)
2003	30%	7.50%	2%	30.05%	6.29%
2004	30%	10.00%	2%	30.06%	6.29%
2005	30%	10%	2%	30.06%	6.29%
2006	30%	10%	2%	30.06%	6.29%
2007	30%	10%	2%	30.06%	6.29%

TABLE 4.1

COST OF EQUITY (K_e):

The equity shares are issued externally where there is no definite commitment to pay dividends but the equity share holders are the owners of the company. But rewarding the equity holders (especially public) is imperative for raising future equity resources.The free reserves implies in terms of dividends foregone by/withheld from the equity shareholders. As it indirectly affects the cost of equity as such equity shares, it is combined with equity shares for calculating the cost.

$$K_e = D1/P_o + g$$

Where, K_e = cost of equity;D1 = expected dividend per share; P_o = intrinsic value per Share; g = growth rate.

INTRINSIC VALUE OF SHARE (P_o)

As the company under study has not listed its equity shares, the market price per share is estimated by the 'NET WORTH RATIO' which is formulated as follows:

P_o = (Equity share capital + Free reserves)/(Number of paid – up equity shares)

DIVIDEND PER SHARE (D1)

INTRINSIC VALUE AND DIVIDEND PER SHARE

YEAR	EQUITY SHARE CAPITAL & FREE RESERVES(Rs. IN CRORES)	NUMBER OF SHARES	INTRINSIC VALUE PER SHARE (Po)	DIVIDEND DECLARED (%)	DIVIDEND PER SHARE (D1) IN Rs.
2003	9.07	1600000	56.69	20	2
2004	11.16	1600000	69.75	20	2
2005	11.79	1600000	73.69	20	2
2006	14.08	1600000	88.00	25	2.5
2007	16.73	1600000	104.56	25	2.5

TABLE   4.2

GROWTH RATE (g)

The growth rate of dividend of the company has been calculated for the periods 2003 to 2006. Growth may be based on past EPS rather than DPS since company do not change their DPS frequently with changes in EPS.

GROWTH RATE

YEAR	EARNINGS PER SHARE(EPS) IN Rs.
2002	3.32
2003	9.17
2004	14.79
2005	6.26
2006	17.16
2007	19.5

TABLE 4.3

Growth rate is calculated using the formula :

$$G = (EPS_n / EPS_o)^{1/n} - 1$$

$$n = 5 \text{ YEARS}$$

$$G = ((19.5 / 3.32)^{(1/5)})-1$$

$$G = 42.48\%$$

COST OF EQUITY AND FREE RESERVES (K_e)

To calculate the cost of equity capital and free reserves,

$$K_e = D1/P_o + g$$

COST OF EQUITY AND FREE RESERVES (K_e)

YEAR	INTRINSIC VALUE PER SHARE(Po)IN Rs.	DIVIDEND PER SHARE (D1) Rs.	COST OF EQUITY(Ke)
2003	56.69	2	28.72%
2004	69.75	2	28.06%
2005	73.69	2	27.90%
2006	88	2.5	28.03%
2007	104.56	2.5	44.87%

TABLE 4.4

WEIGHTED AVERAGE COST OF CAPITAL

The term cost of capital means the overall weighted cost of capital with weights equal to proportion to the type of fund. It is calculated on the book value and not on the market values, as the company's share is not listed. The following formula explains the concept:

$$K_o = K_e W_e + K_d W_d + K_p W_p$$

Where, K_o = overall / weighted cost of capital; K_e = cost of equity shares; W_e = weight of equity shares; K_d = cost of debt; W_d = weight of debt; K_p = cost of preference shares; W_p = weight of preference shares.

The overall cost of capital is tabulated as follows:

WEIGHTED AVERAGE COST OF CAPITAL

YEAR	SOURCES	AMOUNT (Rs.IN LAKHS)	WEIGHT (%)	COST(%)	WACC (%)
2003	EQUITY	907	58.86	28.72	16.9
	DEBT	634	41.14	6.29	2.59
	TOTAL	1541	100		19.49
2004	EQUITY	1116	53.02	28.06	14.88
	DEBT	989	46.98	6.29	2.95
	TOTAL	2105	100		17.83
2005	EQUITY	1179	40.6	27.9	11.32
	DEBT	1725	59.4	6.29	3.73
	TOTAL	2904	100		15.05
2006	EQUITY	1408	49.7	28.03	13.93
	DEBT	1425	50.3	6.29	3.16
	TOTAL	2833	100		17.09
2007	EQUITY	1673	52.67	44.87	23.63
	DEBT	1503	47.33	6.29	2.97
	TOTAL	3176	100		26.6

TABLE   4.5
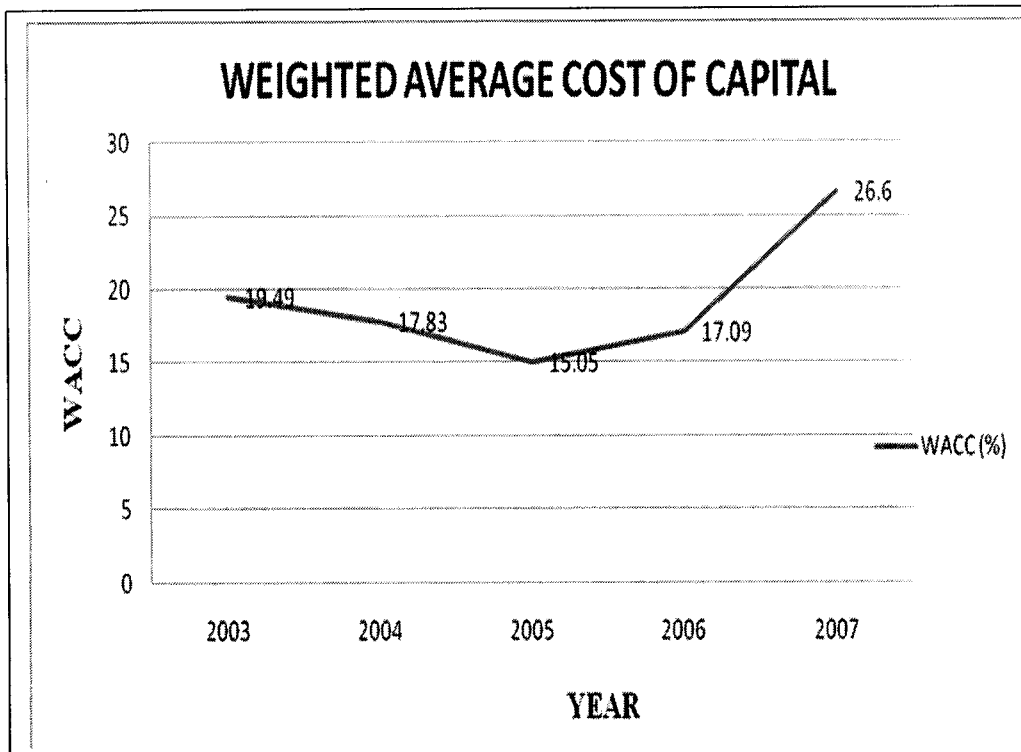
CHART 4.1

INTERPRETATION:

The cost of debt remains at a constant rate of 6.29%.The weighted average cost of capital shows a decreasing trend from the years 2003 to 2005 then it increases thereafter this is because of the increase in the cost of borrowings. The percentage of dividend declared also increases during the past two years from 2006 to 2007.

APPLICATION OF DUPONT MODEL FOR MEASURING THE FINANCIAL PERFORMANCE FOR THE YEAR ENDING 31 st MARCH, 2003

TOTAL COST

TOTAL COST = COST OF MATERIALS + SELLING EXPENSES & ADMINISTRATIVE EXPENSES + INTEREST EXPENSES + INCOME TAX

Rs.

COST OF MATERIALS	=	147775655
EMPLOYEE REMUNERATION	=	46014435
MANUFACTURING EXPENSES	=	91470784
SELLING & ADMINISTRATIVE EXPENSES	=	38179128
INTEREST	=	3880377
INCOME TAX	=	4000000
TOTAL COST	=	331320379

NET INCOME

NET INCOME = SALES – TOTAL COST

		Rs.
		Rs.
SALES	=	346758601
TOTAL COST	=	331320379
NET INCOME	=	15438222

NET PROFIT MARGIN

NET PROFIT MARGIN = NET INCOME / SALES

		Rs.
NET INCOME	=	15438222
SALES	=	346758601
NET PROFIT MARGIN	=	0.045

CURRENT ASSETS

CURRENT ASSETS   = CASH + INVENTORIES + OTHERS

		Rs.
CASH	=	7046272
INVENTORIES	=	31463506
OTHERS (SUNDRY DDEBTORS)	=	78610850

Rs.

LOANS & ADVANCES	=	20577394
CURRENT ASSETS	=	137698022

NON CURRENT ASSSETS

FIXED ASSETS	=	87955566

TOTAL ASSETS

TOTAL ASSETS = CURRENT ASSETS + NON CURRENT ASSETS

Rs.

CURRENT ASSETS	=	137698022
NON CURRENT ASSETS	=	87955566
TOTAL ASSETS	=	225653588

TOTAL ASSETS TURNOVER

TOTAL ASSETS TURNOVER = SALES / TOTAL ASSETS

Rs.

SALES	=	346758601
TOTAL ASSETS	=	225653588

Rs.

TOTAL ASSETS TURNOVER   =   1.54

RETURN ON ASSETS

RETURN ON ASSETS = NET PROFIT MARGIN * TOTAL ASSETS TURNOVER

NET PROFIT MARGIN   =   0.045

TOTAL ASSET TURNOVER =   1.54

RETURN ON ASSETS   =   0.045 * 1.54

   =   0.0691

RETURN ON ASSETS IN PERCENTAGE = 6.91%

APPLICATION OF DUPONT MODEL FOR MEASURING THE FINANCIAL PERFORMANCE FOR THE YEAR ENDING 31 st MARCH, 2004

TOTAL COST

TOTAL COST = COST OF MATERIALS + SELLING EXPENSES & ADMINISTRATIVE EXPENSES + INTEREST EXPENSES + INCOME TAX

Rs.

COST OF MATERIALS   =   195150032

EMPLOYEE REMUNERATION   =   55018941

Rs.

MANUFACTURING EXPENSES	=	121963584
SELLING & ADMINISTRATIVE EXPENSES	=	42686620
INTEREST	=	3777279
INCOME TAX	=	7700000
TOTAL COST	=	426296456

NET INCOME

NET INCOME   =   SALES – TOTAL COST

Rs.

SALES	=	441293508
TOTAL COST	=	426296456
NET INCOME	=	14997052

NET PROFIT MARGIN

NET PROFIT MARGIN =   NET INCOME / SALES

Rs.

NET INCOME	=	14997052

		Rs.
SALES	=	441293508
NET PROFIT MARGIN	=	0.034

CURRENT ASSETS

CURRENT ASSETS = CASH + INVENTORIES + OTHERS

		Rs.
CASH	=	4442704
INVENTORIES	=	49780471
OTHERS (SUNDRY DDEBTORS)	=	76488272
LOANS & ADVANCES	=	27539667
CURRENT ASSETS	=	158251114

NON CURRENT ASSSETS

FIXED ASSETS	=	127624160

TOTAL ASSETS

TOTAL ASSETS = CURRENT ASSETS + NON CURRENT ASSETS

		Rs.
CURRENT ASSETS	=	158251114
NON CURRENT ASSETS	=	127624160
TOTAL ASSETS	=	285875274

TOTAL ASSETS TURNOVER

TOTAL ASSETS TURNOVER	=	SALES / TOTAL ASSETS

		Rs.
SALES	=	441293508
TOTAL ASSETS	=	285875274
TOTAL ASSETS TURNOVER	=	1.544

RETURN ON ASSETS

RETURN ON ASSETS TURNOVER	= NET PROFIT MARGIN * TOTAL ASSETS

NET PROFIT MARGIN	=	0.034
TOTAL ASSET TURNOVER	=	1.544
RETURN ON ASSETS	=	0.034 * 1.544
	=	0.0525

RETURN ON ASSETS IN PERCENTAGE = 5.25%

APPLICATION OF DUPONT MODEL FOR MEASURING THE FINANCIAL PERFORMANCE FOR THE YEAR ENDING 31 st MARCH, 2005

TOTAL COST

TOTAL COST = COST OF MATERIALS + SELLING EXPENSES & ADMINISTRATIVE EXPENSES + INTEREST EXPENSES + INCOME TAX

		Rs.
COST OF MATERIALS	=	298369949
EMPLOYEE REMUNERATION	=	69594563
MANUFACTURING EXPENSES	=	186185275
SELLING & ADMINISTRATIVE EXPENSES	=	59747817
INTEREST	=	10622255
INCOME TAX	=	1250000
TOTAL COST	=	625769859

NET INCOME

NET INCOME = SALES – TOTAL COST

		Rs.
SALES	=	633652464
TOTAL COST	=	625769859
NET INCOME	=	7882605

NET PROFIT MARGIN

NET PROFIT MARGIN = NET INCOME / SALES

		Rs.
NET INCOME	=	7882605
SALES	=	633652464
NET PROFIT MARGIN	=	0.012

CURRENT ASSETS

CURRENT ASSETS = CASH + INVENTORIES + OTHERS

		Rs.
CASH	=	8508617
INVENTORIES	=	80827464

Rs.

OTHERS (SUNDRY DDEBTORS)   =   109865075

LOANS & ADVANCES   =   29478987

CURRENT ASSETS   =   228680143

NON CURRENT ASSSETS

FIXED ASSETS   =   163169101

TOTAL ASSETS

TOTAL ASSETS   =   CURRENT ASSETS + NON CURRENT
ASSETS

Rs.

CURRENT ASSETS   =   228680143

NON CURRENT ASSETS   =   163169101

TOTAL ASSETS   =   391849244

TOTAL ASSETS TURNOVER

TOTAL ASSETS TURNOVER   =   SALES / TOTAL ASSETS

Rs.

SALES   =   633652464

		Rs.
TOTAL ASSETS	=	391849244
TOTAL ASSETS TURNOVER	=	1.62

RETURN ON ASSETS

RETURN ON ASSETS = NET PROFIT MARGIN * TOTAL ASSETS TURNOVER

NET PROFIT MARGIN	=	0.012
TOTAL ASSET TURNOVER	=	1.62
RETURN ON ASSETS	=	0.012 * 1.62
	=	0.0194

RETURN ON ASSETS IN PERCENTAGE = 1.94%

APPLICATION OF DUPONT MODEL FOR MEASURING THE FINANCIAL PERFORMANCE FOR THE YEAR ENDING 31 st MARCH, 2006

TOTAL COST

TOTAL COST = COST OF MATERIALS + SELLING EXPENSES & ADMINISTRATIVE EXPENSES + INTEREST EXPENSES + INCOME TAX

		Rs.
COST OF MATERIALS	=	338200966
EMPLOYEE REMUNERATION	=	75924066
MANUFACTURING EXPENSES	=	117184512
SELLING & ADMINISTRATIVE EXPENSES	=	71454369
INTEREST	=	12593977
INCOME TAX	=	10675827
TOTAL COST	=	626033717

NET INCOME

$$\text{NET INCOME} = \text{SALES} - \text{TOTAL COST}$$

		Rs.
SALES	=	706495284
TOTAL COST	=	626033717
NET INCOME	=	80461567

NET PROFIT MARGIN

$$\text{NET PROFIT MARGIN} = \text{NET INCOME} / \text{SALES}$$

		Rs.
NET INCOME	=	80461567
SALES	=	706495284
NET PROFIT MARGIN	=	0.114

CURRENT ASSETS

CURRENT ASSETS = CASH + INVENTORIES + OTHERS

		Rs.
CASH	=	7441486
INVENTORIES	=	72112565
OTHERS (SUNDRY DDEBTORS)	=	126631205
LOANS & ADVANCES	=	52600232
CURRENT ASSETS	=	258785488

NON CURRENT ASSSETS

FIXED ASSETS	=	182698930

TOTAL ASSETS

TOTAL ASSETS = CURRENT ASSETS + NON CURRENT ASSETS

		Rs.
CURRENT ASSETS	=	258785488
NON CURRENT ASSETS	=	182698930
TOTAL ASSETS	=	441484418

TOTAL ASSETS TURNOVER

TOTAL ASSETS TURNOVER   =   SALES / TOTAL ASSETS

		Rs.
SALES	=	706495284
TOTAL ASSETS	=	441484418
TOTAL ASSETS TURNOVER	=	1.60

RETURN ON ASSETS

RETURN ON ASSETS   = NET PROFIT MARGIN * TOTAL ASSETS TURNOVER

NET PROFIT MARGIN	=	0.114
TOTAL ASSET TURNOVER	=	1.60
RETURN ON ASSETS	=	0.114 * 1.60
	=	0.1824

RETURN ON ASSETS IN PERCENTAGE = 13.24%

APPLICATION OF DUPONT MODEL FOR MEASURING THE FINANCIAL PERFORMANCE FOR THE YEAR ENDING 31 st MARCH, 2007

TOTAL COST

TOTAL COST = COST OF MATERIALS + SELLING EXPENSES & ADMINISTRATIVE EXPENSES + INTEREST EXPENSES + INCOME TAX

		Rs.
COST OF MATERIALS	=	379350324
EMPLOYEE REMUNERATION	=	86832655
MANUFACTURING EXPENSES	=	138517991
SELLING & ADMINISTRATIVE EXPENSES	=	98253957
INTEREST	=	13115607
INCOME TAX	=	16717025
TOTAL COST	=	732787559

NET INCOME

NET INCOME = SALES – TOTAL COST

		Rs.
SALES	=	842467673
TOTAL COST	=	732787559
NET INCOME	=	109680114

NET PROFIT MARGIN

NET PROFIT MARGIN = NET INCOME / SALES

		Rs.
NET INCOME	=	109680114
SALES	=	842467673
NET PROFIT MARGIN =		0.130

CURRENT ASSETS

CURRENT ASSETS   = CASH + INVENTORIES + OTHERS

Rs.

		Rs.
CASH	=	8684521
INVENTORIES	=	89106469
OTHERS (SUNDRY DDEBTORS)	=	156625446
LOANS & ADVANCES	=	66997586
CURRENT ASSETS	=	321414022

NON CURRENT ASSSETS

FIXED ASSETS	=	185781256

TOTAL ASSETS

TOTAL ASSETS   =   CURRENT ASSETS + NON CURRENT ASSETS

		Rs.
CURRENT ASSETS	=	321414022
NON CURRENT ASSETS	=	185781256
TOTAL ASSETS	=	507195278

TOTAL ASSETS TURNOVER

TOTAL ASSETS TURNOVER   =   SALES / TOTAL ASSETS

                                      Rs.

SALES   =   842467673

TOTAL ASSETS   =   507195278

TOTAL ASSETS TURNOVER   =   1.66

RETURN ON ASSETS

RETURN ON ASSETS   = NET PROFIT MARGIN * TOTAL ASSETS
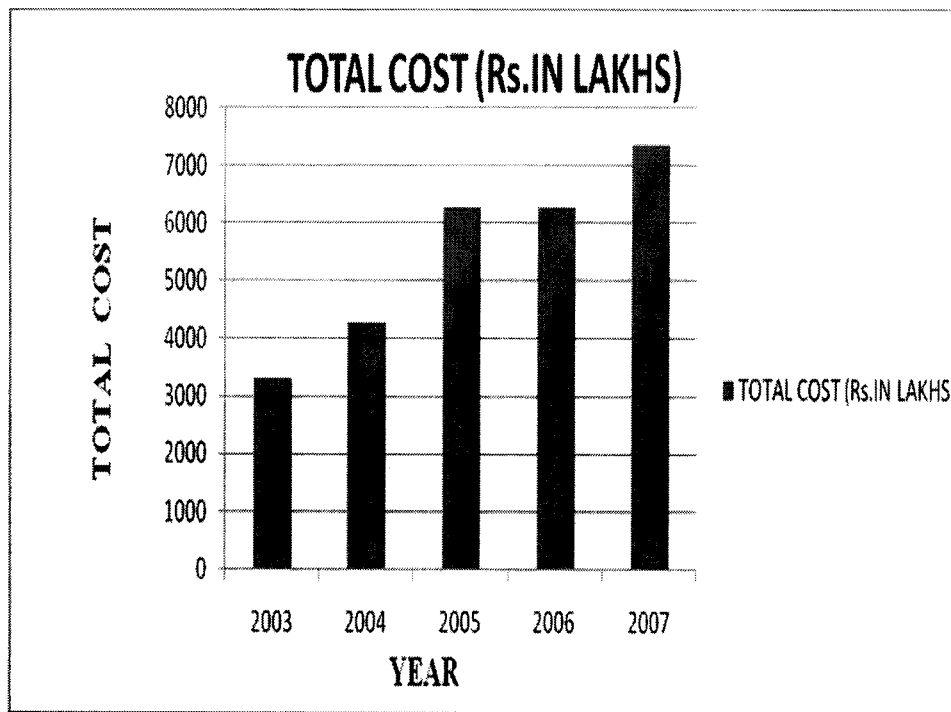TURNOVER

NET PROFIT MARGIN   =   0.130

TOTAL ASSET TURNOVER =   1.82

RETURN ON ASSETS   =   0.130 * 1.66

                    =   0.2159

RETURN ON ASSETS IN PERCENTAGE = 21.59%

TOTAL COST (Rs.IN LAKHS)

CHART 4.2

INTERPRETATION:

The chart depicts that the total cost of the firm shows a gradual increments from th year 2003 to 2007. The total cost increases due to the hike in the taxes, interest expenses and cost of materials. The percentage increase in the total cost has been reduced slightly from the year 2006 because of the efficient management of the materials and the strict quality standards.

NET INCOME (Rs. IN LAKHS)
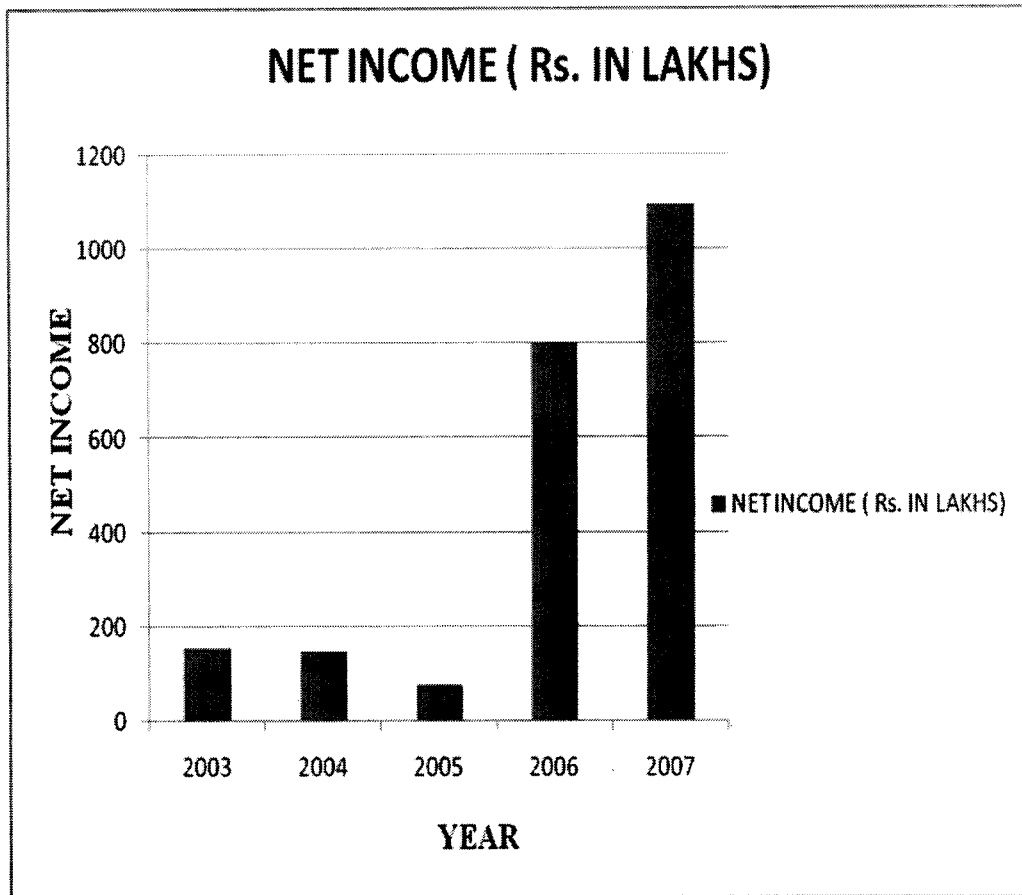
CHART 4.3

INTERPRETATION:

The net income for the years 2003 – 2005 has a fluctuating trend. This has been mainly because of the rise in the total cost amidst the increase in the sales. From the year 2006 onwards the income has been on the uptrend due to the sales growth with control over the total cost.
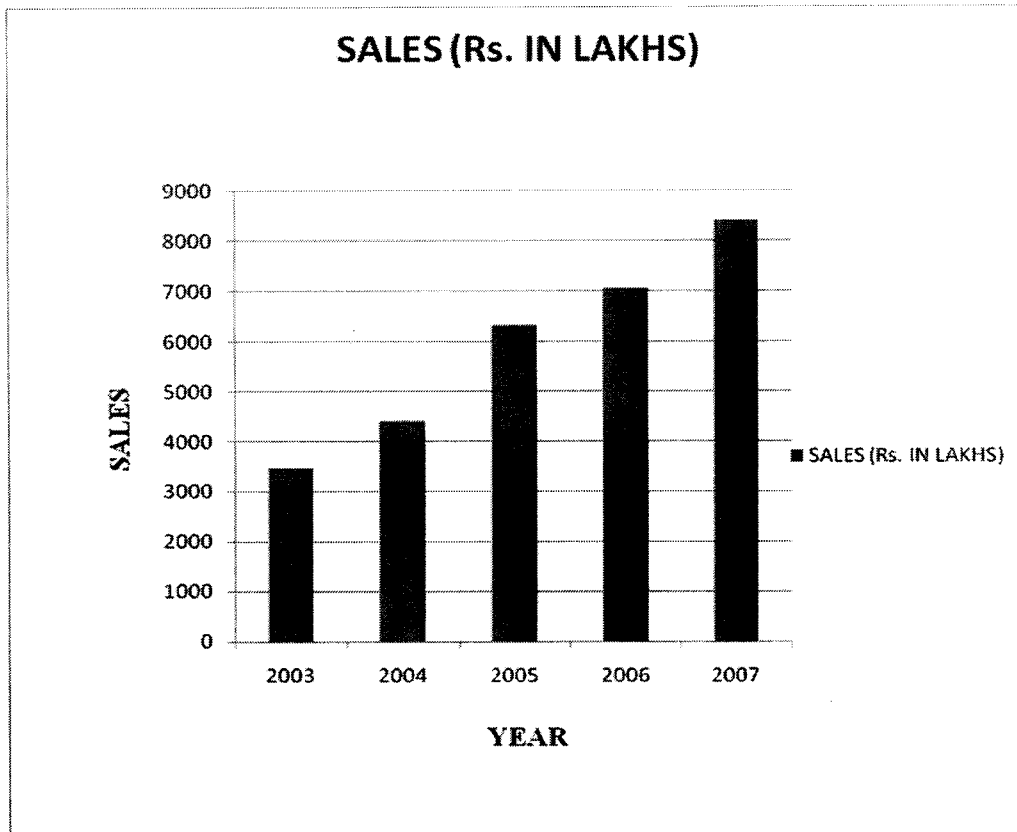
SALES (Rs. IN LAKHS)

CHART 4.4

INTERPRETATION:

The chart gives a vivid picture of the sales trend from the year 2003 due to various sales promotional activities through their marketing department and the quality standards followed by the company during the years. The sales have boosted up from Rs.3467.5 lakhs from 2003 to Rs.8424.6 lakhs in 2007.
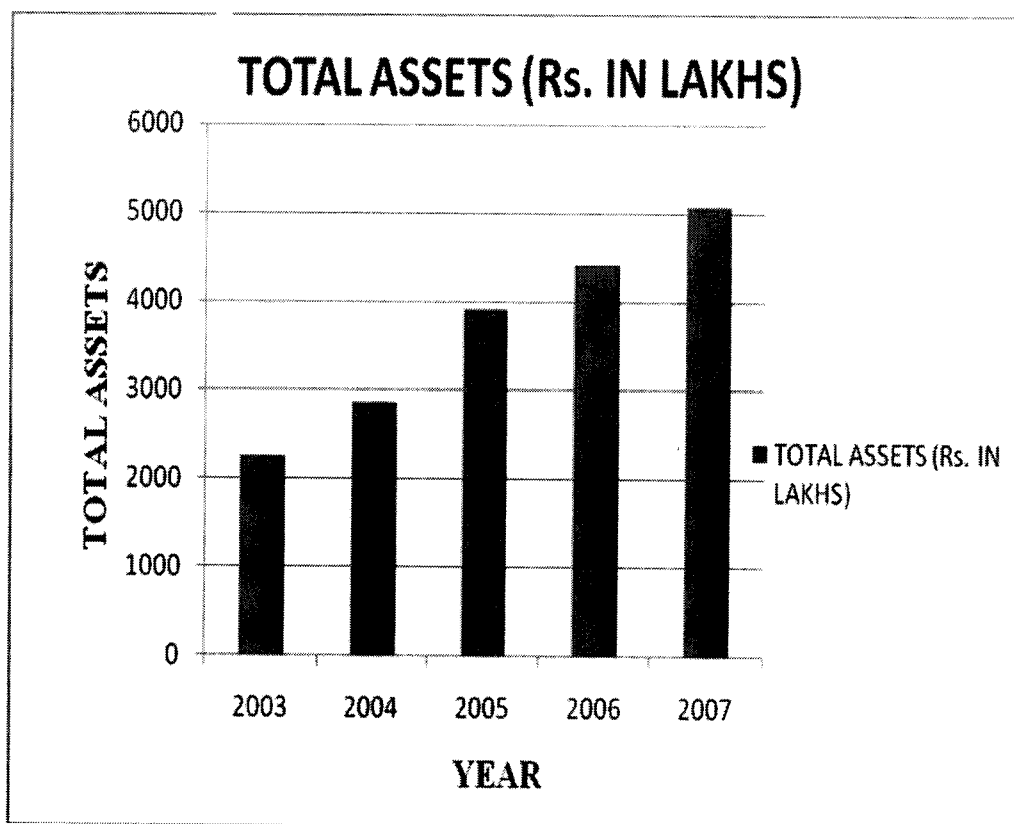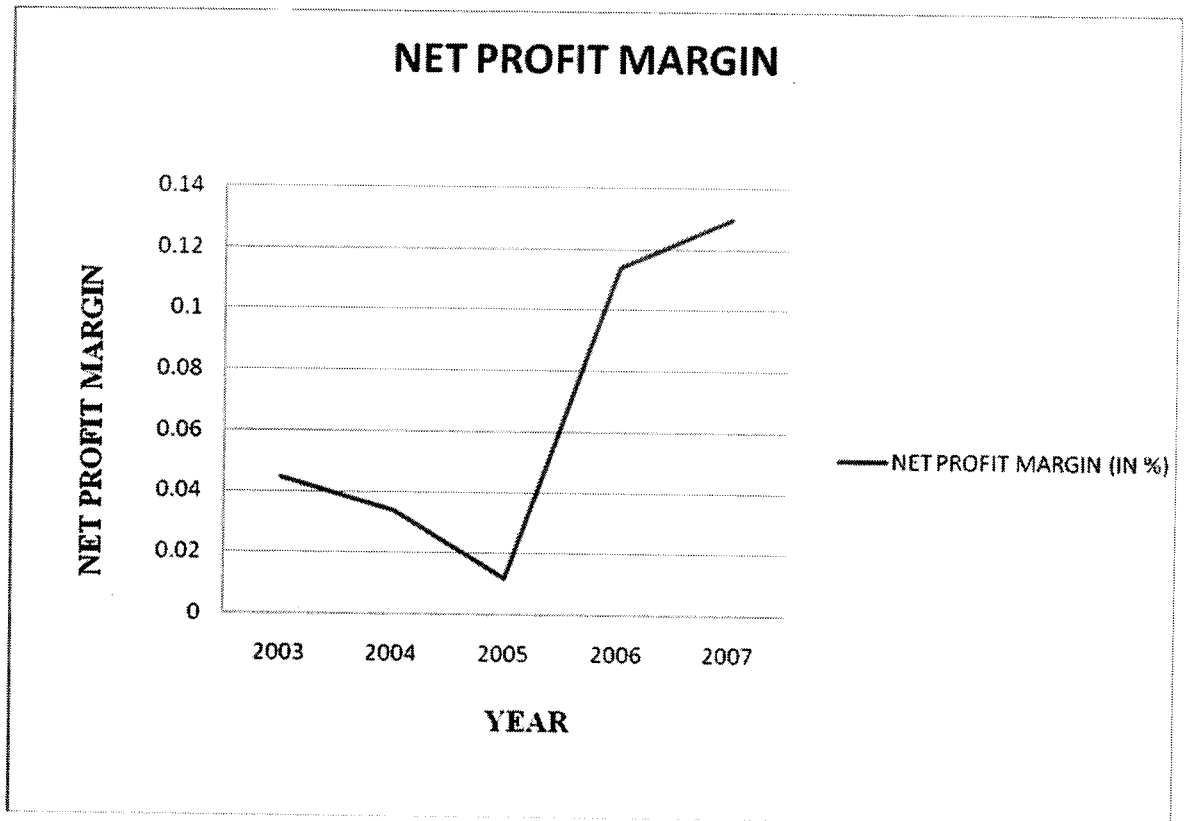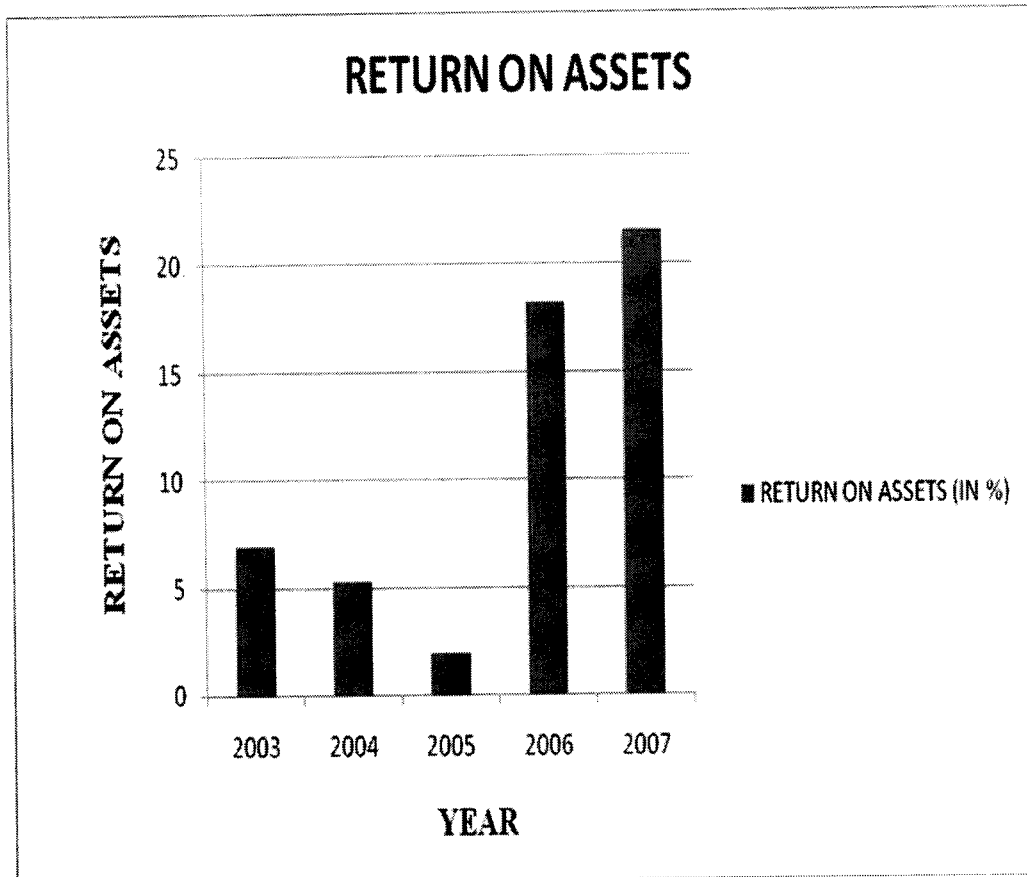
TOTAL ASSETS (Rs. IN LAKHS)

CHART 4.5

INTERPRETATION:

The chart depicts that the total assets of the concern is increasing gradually from the year 2003. This is mainly because the company has reinvested its earnings in machinery and equipments. The total assets have augmented from Rs.2256.5 lakhs to Rs.5071.9 lakhs.

NET PROFIT MARGIN

CHART 4.6

INTERPRETATION:

The net profit margin of the firm indicates that there is a declining trend from the year 2003 to 2005. This is mainly because there is large incurrence of cost during these years. From the year 2005 onwards it is an trend, because of the increase in the sales and also because of the effective cost control.

RETURN ON ASSETS

Bar chart showing RETURN ON ASSETS (IN %) on the Y-axis (RETURN ON ASSETS, scaled 0 to 25) against YEAR on the X-axis (2003, 2004, 2005, 2006, 2007).

CHART 4.7

INTERPRETATION:

The chart gives a clear picture that the return on assets of the concern has a declining trend from the year 2003 to 2005. This is due to the decrease in the net profit margin for these years. There is an increasing trend during the year 2006 and 2007 because of the increase in the net profit margin has increased because of the effective cost control and increase in the sales.

1) SALES INDEX RATIO

The sales index ratio indicates the cost of the total materials incurred against the total value of the sales. This gives a fair idea about the percentage of the total material cost to the total sales value.

$$\text{SALES INDEX} = \frac{\text{MATERIAL COST}}{\text{SALES VALUE}}$$

2) INDIGENOUS MATERIAL COST INDEX

The indigenous materials mean the materials that are available in the home place of the industry. This index is useful to know the percentage of indigenous material cost to total material cost.

$$\text{INDIGENOUS MATERIAL COST INDEX} = \frac{\text{INDIGENOUS MATERIAL COST}}{\text{TOTAL MAERIALS COST}}$$

3) IMPORT MATERIAL COST

Import material cost index is for the purpose of knowing the percentage of imported material cost to total material cost. This index helps the industry in finding the proposition of the imported materials cost to the total cost of the materials.

$$\text{IMPORT MATERIAL COST INDEX} = \frac{\text{IMPORT MATERIAL COST}}{\text{TOTAL MAERIALS COST}}$$

4)   INVENTORY TURNOVER RATIO

The inventory turnover ratio compares the sales to inventories, reflecting a company's ability to convert inventory into cash. Cost of goods sold is recorded at market value, while inventories are usually recorded at cost.

$$\text{INVENTORY TURNOVER RATIO} = \frac{\text{COST OF GOODS SOLD}}{\text{AVERAGE INVENTORY}}$$

5)   INVENTORY TO TOTAL ASSETS RATIO

The ratio indicates the proportion of inventory that constitutes the total assets. A higher ratio indicates that the firm has unnecessary lock up of funds. A lower ratio indicates better position of the firm.

$$\text{INVENTORY TO TOTAL ASSETS RATIO} = \frac{\text{INVENTORY}}{\text{TOTAL ASSETS}}$$

6)   INVENTORY TO WORKING CAPITAL RATIO

The Percentage measure of a firm's capability to finance its inventories from its available cash. An increasing inventory to working capital ratio is generally a negative sign, indicating the operational problems in the company.

$$\text{INVENTORY TO WORKING CAPITAL RATIO} = \frac{\text{INVENTORY}}{\text{WORKING CAPITAL}}$$

WORKING CAPITAL = CURRENT ASSETS – CURRENT LIABILITIES

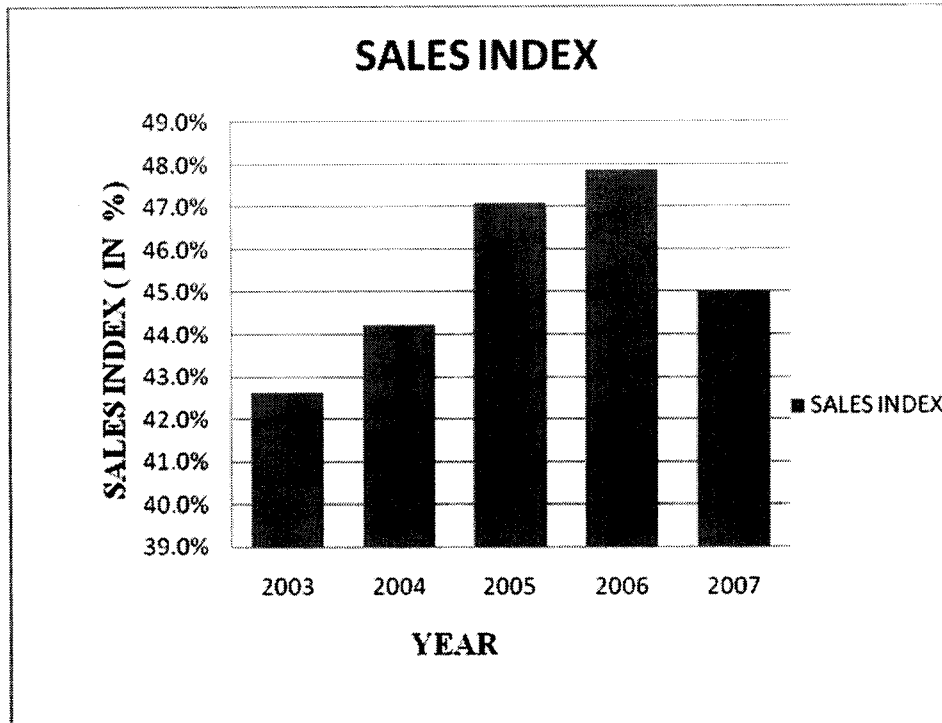**INVENTORY MANAGEMENT**

1)   SALES INDEX RATIO

MATERIAL COST

SALES INDEX = -----------------------

SALES VALUE

SALES INDEX RATIO

YEAR	MATERIAL COST(IN Rs.)	SALES(IN Rs.)	SALES INDEX
2003	147775655	346758601	42.6%
2004	195150032	441293508	44.2%
2005	298369949	633652464	47.1%
2006	338200966	706495284	47.9%
2007	379350324	842467673	45.0%

TABLE   4.6

SALES INDEX

CHART 4.8

INTERPRETATION:

This index is useful to know the material cost percentage to sales value. From 2003-2006, the index increased from 42.6% to 47.9%.The percentage increase is high in 2004-05.This is because of the rise in the steel price. From 2006, the sales index has been on the declining trend showing the uptrend in the sales value and also the better management on the cost of materials.

2) INDIGENOUS MATERIAL COST INDEX

INDIGENOUS MATERIAL COST

INDIGENOUS MATERIAL COST INDEX = ---

TOTAL MAERIALS COST

INDIGENOUS MATERIAL COST INDEX

YEAR	INDIGENOUS MATERIAL COST (Rs.)	TOTAL MATERIAL COST (Rs.)	INDIGENOUS MATERIAL COST INDEX
2003	90804221	147775655	61.4%
2004	110623050	195150032	56.7%
2005	194669885	298369949	65.2%
2006	207611633	338200966	61.4%
2007	244793746	379350324	64.5%

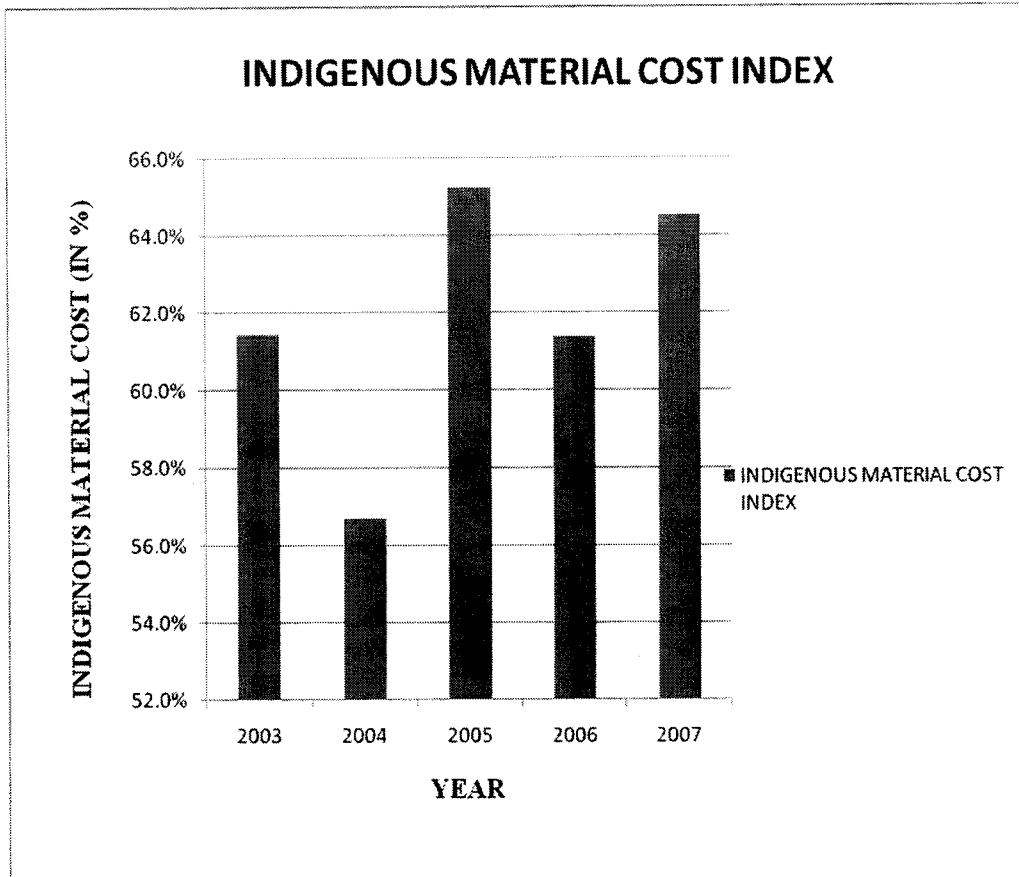**TABLE 4.7**

INDIGENOUS MATERIAL COST INDEX

CHART 4.9

INTERPRETATION:

This index is useful to know the percentage of indigenous material cost to total material cost. Almost it was in the downward trend due to increase in the price of the indigenous material during 2003 to 2005. Due to change in the global economy, their indigenous costs in certain products were more. From 2006 onwards it was on the upgoing trend.
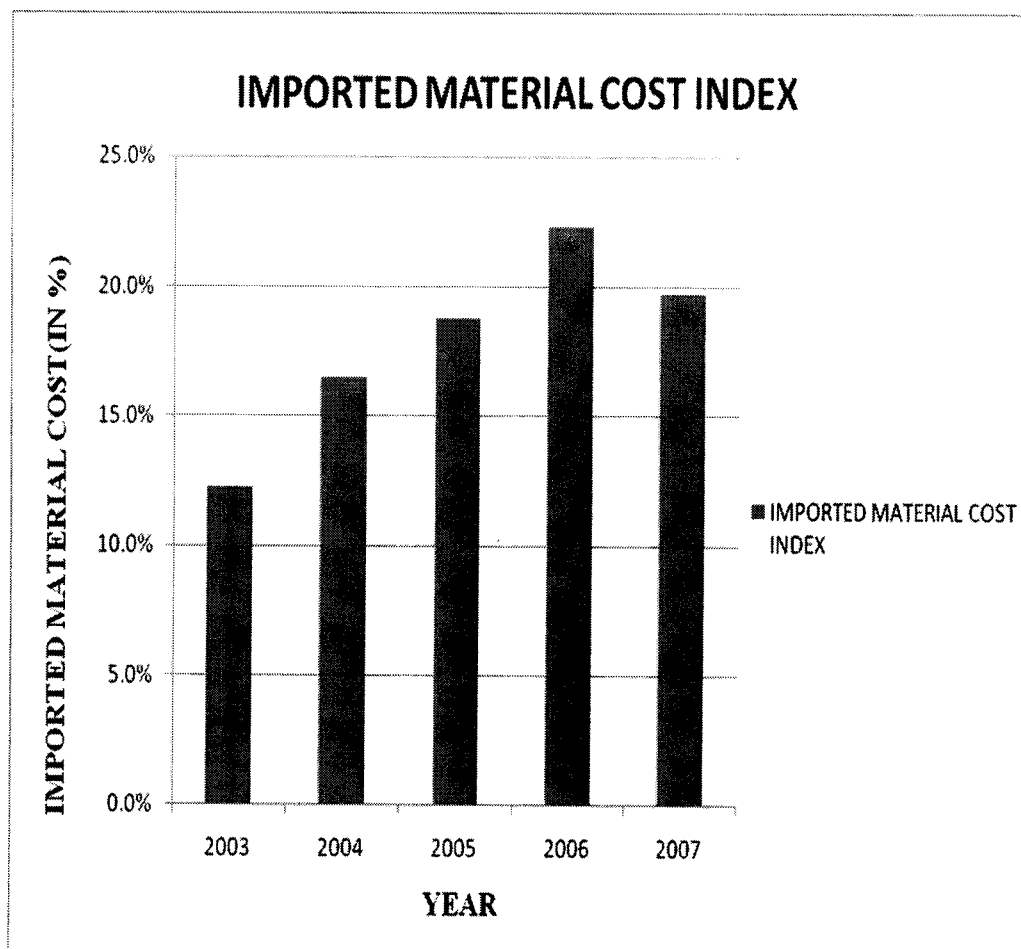
3)   IMPORT MATERIAL COST

IMPORT MATERIAL COST

IMPORT MATERIAL COST INDEX = ---

TOTAL MAERIALS COST

IMPORT MATERIAL COST INDEX

YEAR	IMPORT MATERIAL COST(Rs.)	TOTAL MATERIAL COST(Rs.)	IMPORTED MATERIAL COST INDEX
2003	18119324	147775655	12.3%
2004	32173859	195150032	16.5%
2005	55969272	298369949	18.8%
2006	75292316	338200966	22.3%
2007	74877952	379350324	19.7%

TABLE 4.8

IMPORTED MATERIAL COST INDEX

CHART 4.10

INTERPRETATION:

This index is for the purpose of knowing the percentage of imported material cost to total material cost. This was in the increasing trend due to availability of scarce input materials in India and also due to cost of imported material is cheaper than the indigenous materials.

4)   INVENTORY TURNOVER RATIO
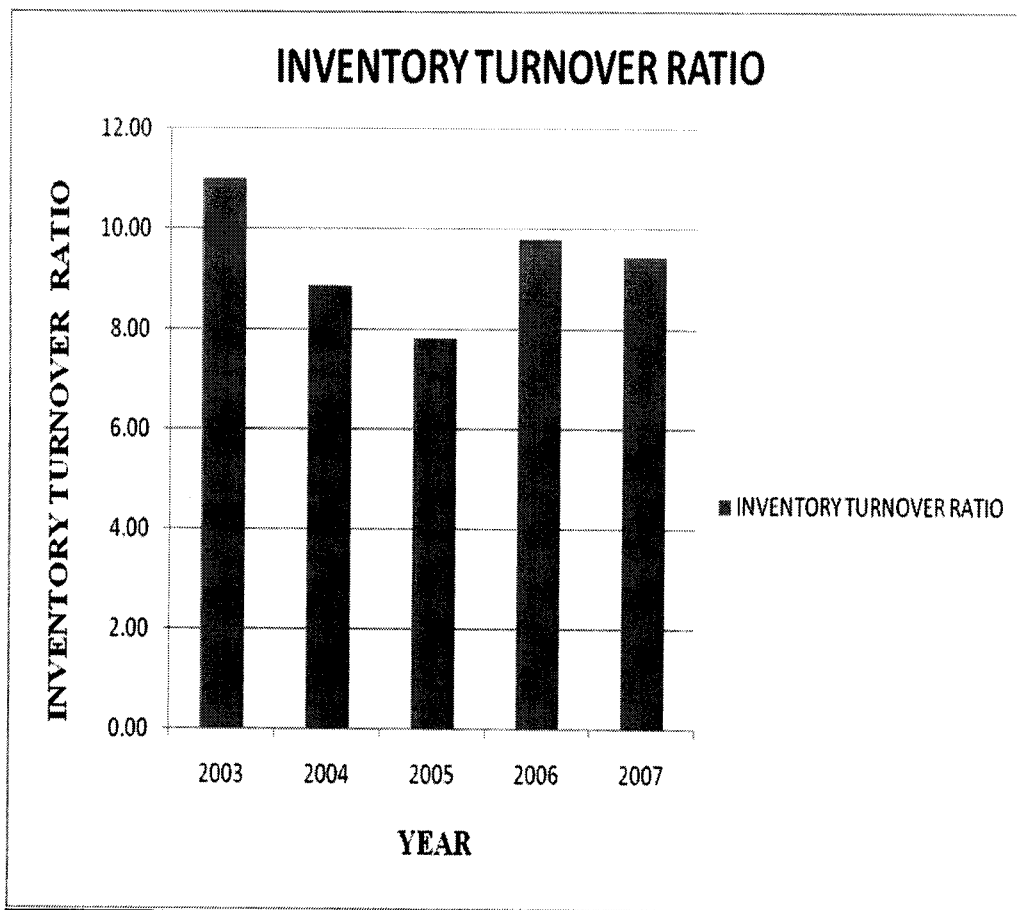
COST OF GOODS SOLD

INVENTORY TURNOVER RATIO   =   ---

AVERAGE INVENTORY

INVENTORY TURNOVER RATIO

YEAR	COST OF GOODS SOLD(Rs.)	AVERAGE INVENTORY(Rs.)	INVENTORY TURNOVER RATIO
2003	346758601	31463506	11.02
2004	441293508	49780471	8.86
2005	633652464	80827464	7.84
2006	706495284	72112565	9.80
2007	842467673	89106469	9.45

TABLE 4.9

INVENTORY TURNOVER RATIO

CHART 4.11

INTERPRETATION:

This ratio is called stock velocity ratio. It is calculated to ascertain the efficiency of inventory management in terms of capital investment. Higher the ratio indicates the better inventory management and best business operations. This ratio shows a decreasing trend from 2003 to 2005 and it gradually increases during 2006 and again decreases during 2007.

5) **INVENTORY TO TOTAL ASSETS RATIO**

INVENTORY TO TOTAL ASSETS RATIO   = $\dfrac{\text{INVENTORY}}{\text{TOTAL ASSETS}}$

INVENTORY TO TOTAL ASSETS RATIO

YEAR	INVENTORY (Rs.)	TOTAL ASSETS (Rs.)	INVENTORY TO TOTAL ASSETS
2003	31463506	225653588	13.9%
2004	49780471	285875274	17.4%
2005	80827464	391849244	20.6%
2006	72112565	441484418	16.3%
2007	89106469	507195278	17.6%

TABLE   4.10
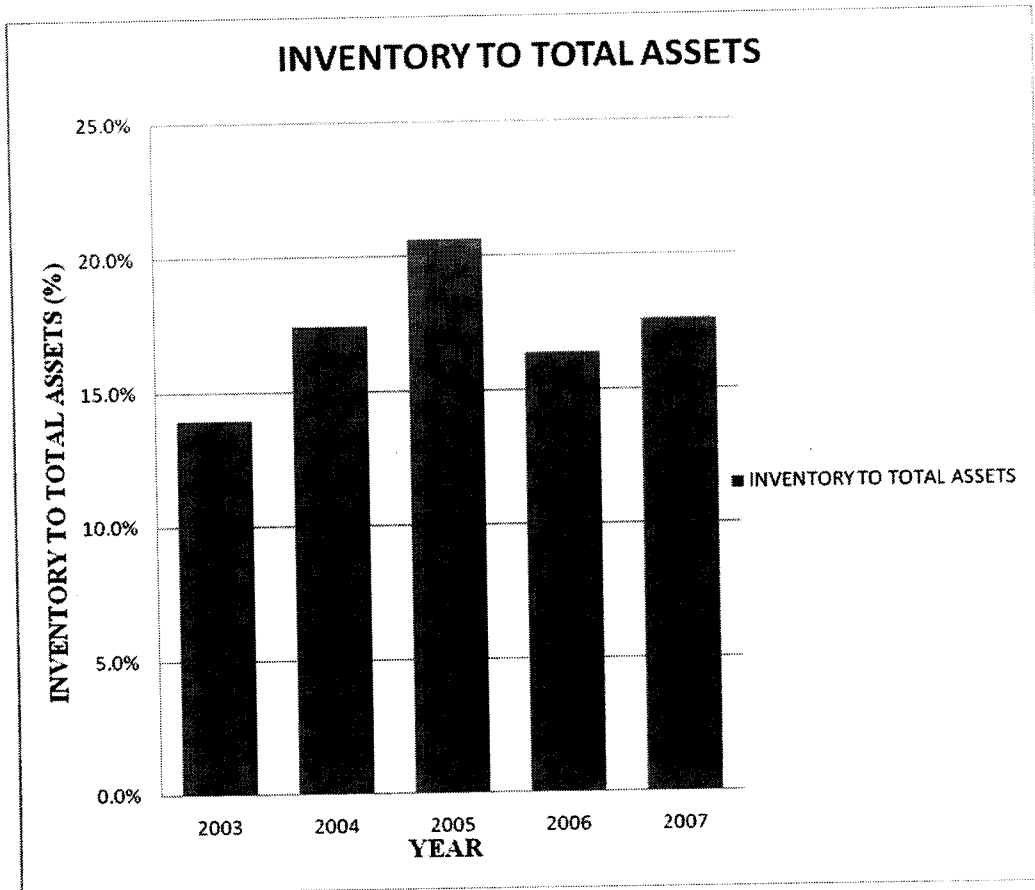
INVENTORY TO TOTAL ASSETS

CHART 4.12

INTERPRETATION:

This ratio indicates the proportion of inventory that constitutes total assets. A higher ratio indicates that the firm has unnecessary lock up of funds. A lower ratio indicates better position of the firm. There is an increasing trend from 2002 to 2005. From there onwards the inventory is better managed so that the ratio is in the lower range.

6)   INVENTORY TO WORKING CAPITAL RATIO
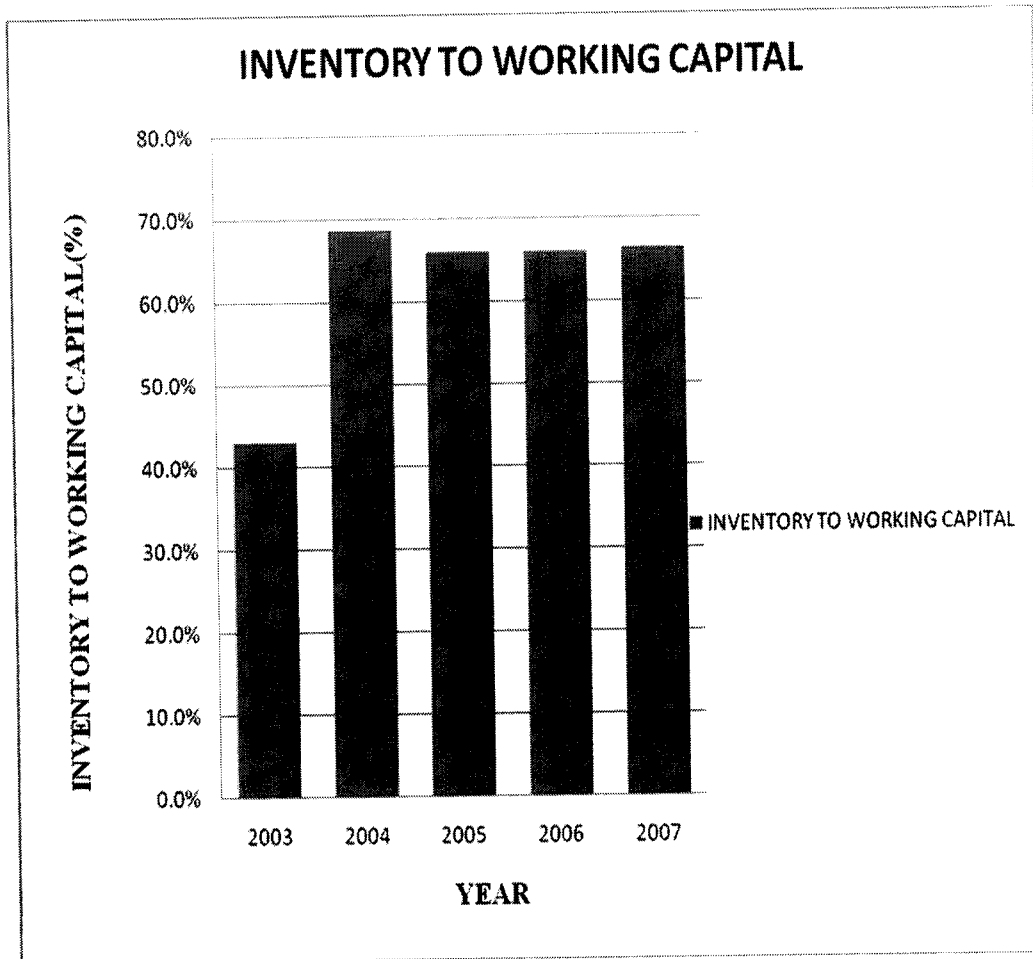
INVENTORY TO WORKING CAPITAL RATIO   = $\dfrac{\text{INVENTORY}}{\text{WORKING CAPITAL}}$

WORKING CAPITAL = CURRENT ASSETS – CURRENT LIABILITIES

INVENTORY TO WORKING CAPITAL RATIO

YEAR	INVENTORY (Rs.)	WORKING CAPITAL(Rs.)	INVENTORY TO WORKING CAPITAL
2003	31463506	73199320	43.0%
2004	49780471	72540041	68.6%
2005	80827464	122837644	65.8%
2006	72112565	109477416	65.9%
2007	89106469	134312975	66.3%

TABLE 4.11

INVENTORY TO WORKING CAPITAL

Chart showing INVENTORY TO WORKING CAPITAL (%) on the Y-axis (ranging from 0.0% to 80.0%) and YEAR on the X-axis (2003 to 2007).

CHART 4.13

INTERPRETATION:

This ratio is used to ascertain that there is no overstocking. Higher ratio indicates overstocking. Lower ratio shows the under stocking. This ratio shows only a moderate rise from 2005 indicating the firm is focussing on its inventory control. The desirable ratio is 1:1.

INTRODUCTION TO ABC ANALYSIS:

Analysis of a range of items which have different levels of significance and should be handled or controlled differently. The classification of the inventory items into three groups; A being the very important items; B, the important items; C, the marginal significance. The goal is to categorize items which would be prioritized, managed, or controlled in different ways.

ABC analysis is also called 'usage-value analysis'. It is a form of Pareto analysis in which the items (such as activities, customers, documents, inventory items, sales territories) are grouped into three categories (A, B, and C) in order of their estimated importance. 'A' items are very important, 'B' items are important, 'C' items are marginally important.

Each category can and sometimes should be handled in a different way, with more attention being devoted to category A, less to B, and still less to C. Popularly known as the "80/20" rule ABC concept is applied to inventory management as a rule-of-thumb. It says that about 80% of the Rupee value, consumption wise, of an inventory remains in about 20% of the items.

The ABC concept is derived from the Pareto's 80/20 rule curve. It is also known as the 80-20 concept. Here, Rupee/Dollar value of each individual inventory item is calculated on annual consumption. Thus, applied in the context of inventory, it is a determination of the relative ratios between the number of items and the currency value of the items purchased/consumed on a repetitive basis.

ABC ANALYSIS

NO.	PARTS	VALUE (Rs.)	CUMULATIVE VALUE (Rs.)	PERCENTAGE OF VALUE	CLASS
1	CRCS SHEETS	72536176	72536176	22.69%	A
2	OTHERS	61813661	134349837	42.03%	A
3	COPPER WIRE	60026807	194376644	60.81%	A
4	TUNGSTEN	24369853	218746497	68.43%	A
5	RODS	18721516	237468013	74.28%	B
6	ECORE	13585674	251053687	78.53%	B
7	CRSS	13558120	264611807	82.78%	B
8	TERMINAL	11148810	275760617	86.26%	B
9	ABS	10038347	285798964	89.40%	B
10	NYLON	9373849	295172813	92.34%	B
11	AL-ZINC	7907857	303080670	94.81%	C
12	AL-INGOTS	7627291	310707961	97.20%	C
13	CONDENSORS	2533509	313241470	97.99%	C
14	ANABOND	2467238	315708708	98.76%	C
15	POWDER	2218787	317927495	99.45%	C
16	RUBBER	1744203	319671698	100.00%	C

TABLE 4.12

PERCENTAGE OF VALUE CONSUMED

MATERIALS	NUMBER OF MATERIALS	PERCENTAGE OF MATERIALS	PERCENTAGE OF VALUE CONSUMED
A	4	25%	73%
B	6	37.50%	19%
C	6	37.50%	8%

TABLE 4.13

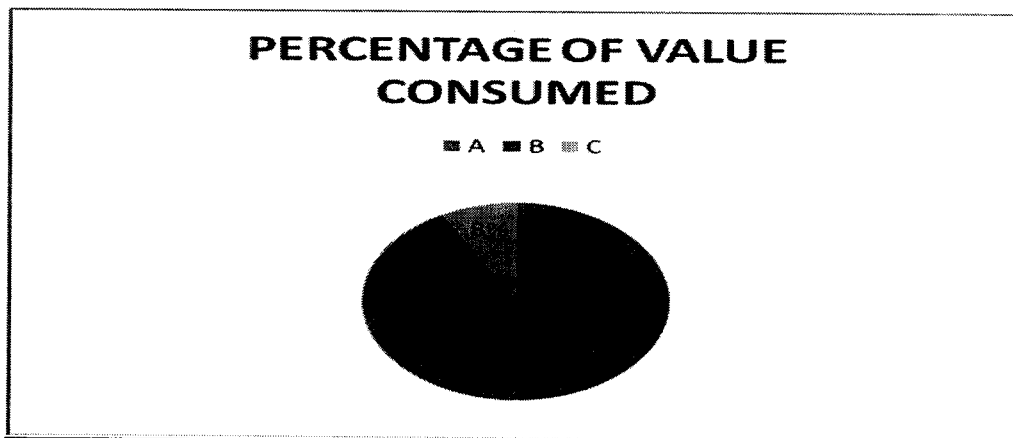**PERCENTAGE OF VALUE CONSUMED**

■ A ■ B ▦ C

CHART 4.14

INTERPRETATION:

About 25% of total number of items contribute to 73% of total consumable vale. It constitutes the A-class items. About 37.5% of the total number of items contribute to 19% of the total consumption value. It constitutes the B-class materials. about 37.5% of the total number of items contribute to 8% of the total consumption value. It constitutes the C-class items.

Conclusion

CHAPTER - 5

CONCLUSIONS

5.1. RESULTS AND DISCUSSIONS:

The findings of the study are given below:

➤ The effective cost of debt has been constant at the rate of 6.29%. Thus for the years 2003 to 2007 , the cost of debt remained constant, providing the company the opportunity to control the cost of borrowings.

➤ The intrinsic value (P_o) of the shares has been going upwards from the year 2003. It has reached Rs.104.56 during 2007. The company has retained the free reserves and a constant dividend rate.

➤ The cost of equity gradually decreases from 2003 to 2005 and then it increases because of the increase in the percentage of the dividend declared and the growth rate.

➤ The earnings per share has been constantly increasing , reaching Rs. 19.50 during 2007 has attracted more investors and making their investment worth and meaningful.

➤ The net profit margin shows a decreasing trend from 2003 to 2005 and then it increases gradually. This is mainly because of the increase in the sales and the increase in the net income during 2005 to 2007.

➢ The net profit margin increases from 4.5% in 2003 to 13% in 2007. This is mainly because of the reduction in the cost and increase of sales.

➢ The return on assets has been decreased from 6.91% in 2003 to 1.94% in 2005. Then the return on assets has been increased to 21.59% in 2007. This is mainly because of the increase in the net profit margin and the total assets turnover.

➢ The weighted average cost of capital was at 19.49% in 2003 and it decreases and reached 15.05% in 2005. Then it started increasing and reached 26.6% in 2007. This is maiinly because the cost of equity has increased from 2006 onwards.

➢ The ABC analysis shows that the A and B class items accounts for 90% of the total value of inventory.

➢ The company was able to turnover its inventory on an average of 9.4 times and takes on an average of 39 days to convert its inventory into sales. The inventory conversion period has decreased from the year 2003 to 2005. This shows the increase in the holding of inventories.

➢ The inventories constitute about 62% on an average in the working capital.

➢ The sales index has been decreasing in 2007 due to the increase in the material cost.

➤ The increase in the indigenous material cost index reveals the purchase of materials from the internal sources has come down.

➤ The imported material cost index has decreased during 2007 due to the reduction in the imported material cost when compared to 2006.

5.2. CONSIDERED RECOMMENDATIONS:

➤ The effective cost of debt for the periods from 2003 to 2007 is 6.29% whereas the cost of equity has reached 44.87% in 2007. It is evident that the cost occuring for debt is cheaper than the cost occuring for equity. So ,the company is suggested to have more borrowings in the form of debt rather than equity.

➤ From WACC calculations, the cost of capital has reached 26.6% during 2006-2007. Whereas it has been the lowest during 2004-2005 at 15.05% during the period of study. So,the company is suggested to have the Debt – Equity mix in the ideal proportion to reduce the cost of capital.

➤ The company's Dupont analysis shows that there is an increase in the percentage of the return on assets from 2006 to 2007. This is mainly because of the increase in the sales has been more than that of the total cost. Thus the company is suggested to adopt new strategies to increase its sales further.

➤ The inventory turnover ratio of the company can be further increased without sacrificing customers satisfaction.

> Materials categorised as 'A-class' and 'B-class' accounts for 90% of the total value of inventory. So,they must be ordered more frequently to avoid capital locked up at a time in one inventory.

> Materials categorised as 'C-class' can have ample stock in the firm and can avail discounts from suppliers.

> The capital that has been invested in inventory should not exceed the working capital. For a firm to have satisfactory inventory level, it should keep inventory value less than that of the working capital. For ROOTS industries limited, this has been at the moderate level and it can be increased to have a better inventory to working capital ratio.

5.3. CONCLUSION:

The cost of capital and inventory management are the two vital areas for any company. To analyze the investment decisions i.e., the optimum debt – equity mix and the proportion of the inventory to the current assets are the most significant areas of study under this topic.

The findings of the study concluded the best debt-equity mix is in the year 2005. So, the company could thrive to achieve the same debt-equity mix in the coming years in order to reduce the cost of capital.

The dupont analysis revealed the return on assets has been on the incresing trend.

The inventory turnover ratio and the inventory to working capital ratio has revealed the company is having a better control over the inventory.

Based on the analysis and the resulted findings, it is concluded that the inventory management of the organization is satisfactory. It is forecated that the better debt – equity mix would bring more profits to the firm.

The company is strong enough to withstand the variations of the economy and has got the healthy trend prevailing in the firm. Thus it is evaluated that the company will perform well and will grow higher in the future.

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