**INTRODUCTION**

**HISTORY OF FINANCE MANAGEMENT**

Before the 1950’s Finance was chiefly concerned with the issue of various types of securities, i.e., equities and different types of preference shares and debt instruments Finance also considered capital structure and liquidity, but each of these primarily from the view of an external analysis. Financial control consisted of various rules of thumb in respect of financial analysis ratio like the gearing ratio or current ratio.

In the 1950’s the methodology of investment appraisal received increased attention, but the decade was especially marked by the publication of 2 important articles. 1st was by Markowitz in 1950 and concerned the theory of portfolio selection dealing with risky investment. This led to the later development of the capital Asset Pricing Model that deals with the pricing of risky asset and the relationship between risk and return.

The Second article was by Modigliani and Miller in 1958 and concerned firm valuation and gearing. These articles were the start of the development of a coherent theory of finance. The subject has also come to include dividends, efficient markets and option valuation theories.

Finance is one of the major elements which activate the overall growth of the economy.

 A well-knit finance system directly contributes to the growth of the economy an efficient financial system calls for the effective performance of financial institution, financial instruments and financial markets.

Finance is the life blood of economic activity. Finance in a business is what blood to human body. While in the human system, automatic regulation of quantity and quality of blood is available no such automation is available for business. It is therefore, essential to have adequate funds at the disposal of the business. Funds of various types to carry out the business smoothly without fear of losing funds. Proper composition of funds so the funds stream required is obtained. It also encompasses the study of financial markets, institutions and activities of government, with stress on those aspects relating to financial decisions of individuals and companies. In fact, finance is also indispensable, that it is rightly said that finance is the life-blood of an enterprise. Finance is one the basic foundation of all kinds of economic activities.

In present day’s economy, finance is defined as the provision of money at the time when it is required. Every enterprise, whether big or small or medium, needs to finance to carry on its operation and to achieve its target.

Finance is one of the basic foundations for all kinds of economic activities.

Finance is regarded as the key or master key, which provides access to all other sources employed in the manufacturing and merchandising activities. However, it is true that money multiplies more money only when it is properly managed and this can be achieved through proper planning and decision-making.

Finance is the management of the monetary affairs of a company. It includes determining what is to be paid for raising the money on the best terms available and utilizing available funds to the fullest extent.

**BUSINESS FINANCE**

The term business finance mainly involves in raising of funds and their effective utilization, keeping in view, the overall objects of the firm. In a broader sense, finance includes determining what has to be paid for rising money on the best term available and devoting the available funds to the fullest extent.

**DEFINITION:**

According to Guthman and Dougall, “Business finance can be broadly defined as the activity concerned with planning, raising, controlling, and administration of funds used in the business”.

**SCOPE AND FUNCTION OF FINANCIAL MANAGEMENT**

The approach to the scope and functions of financial management is divided for purpose of exposition, into two categories:

1. Traditional Approach
2. Modern Approach

**Traditional Approach:**

The Traditional approach to the scope of financial management refers to its subjects matter in the academic literature in the initial stages of its evaluation as a separate branch of academic study. The term “Corporation Finance” was used to describe what is now knows in the academic world as “Financial Management”. The concern of Corporation finance was with the financing of corporate enterprises. In other words, the scope of finance function was treated by the traditional approach in the narrow sense of procurement of funds by corporate enterprises to meet their financial needs.

**Modern Approach:**

The traditional approach was criticizes for its conceptual and analytical grounds by the proponents of modern or contemporary approach since the former neglects the process of allocation of capital to different assets and the problem of optimum combination of financial management, according to the new approach is concerned with the solution of problems relating to the financial operation of a firm, the problems like, investment, financing and dividend decisions.

**FUNCTION OF FINANCE**

1. Investment Decision: Investment decision relates to the selection of assets in which funds will be invested by a firm.
2. Capital Building: The long term investment decision is probable the most crucial financial decision of a firm. It relates to the selection of an asset or investment proposal or course of action whose benefits are likely to be available in future over the lifetime of the project.
3. Working Capital Management: Working capital management is concerned with the management of the current assets. It is an important and integral part of financial management as short term survival is a pre-requisite to long-term success.
4. Financing Decision: The financing decision of a firm relates to the choice of the proportion of these sources to finance to finance the investment requirements. It is concerned with the financing mix or capital structure of leverages.

**MEANING OF INVENTORY**

Inventories means Tangible Property held.

* For sale in the ordinary course of business

 OR

* In the process of Production for such sale

 OR

* For consumption in the Production of goods or services for sale in including Maintenance supplies and consumable and other than the Machinery spares.

**MEANING OF INVENTORY MANAGEMENT**

Inventory management deals with adequate supply of materials to meet the expected demand pattern subject to budget consideration.

Inventory management usually is not the direct operating responsibility of the finance manager, the investment of funds in inventory is an important aspect of financial manager. Consequently, the finance manager must be familiar with ways to control inventories effectively, so that the capital can be allocated efficiently.

**DEFINITION OF INVENTORY MANAGEMENT**

It may be defined as the systematic location storage and recording of goods in such a way that desired degree of service can be made to operate at minimum ultimate cost.

**OBJECTIVES OF INVENTORY MANAGEMENT**

The main objectives of inventory management are:

* Investment in inventory like any other current asset involves a trade-off. The investment in inventory should strike a balanced between efficient and smooth production or sales operation and profitability. This is so because both excessive and inadequate inventories are not desirable.
* Excessive investments in inventory would ensure that there are no shortages in production or sales operation.
* To keep material cost under control so that they contribute in reducing cost of production and overall cost.
* To avoid both over stocking and under stocking of inventory.
* To minimize losses through deterioration, wastages and demand.
* To maintain investment in inventory at the optimum level as required by operational and sales activity.
* To facilitate of data for short term and long term planning and control of inventory.

**NEEDS OF INVENTORY**

Inventory is needed to regulate the flow of raw materials and work in progress for purchasing and finished goods for sale. Inventory does not earn interest, and is expensive to store, insure, protect and stock out costs. Therefore, inventory should b held so as to hold enough to operate but not too much. The inventories are needed for the following reasons.

1. **Avoiding Losses of Sales**

If the firm is not having enough stock of finished goods it will result in the loss of sales normally, unless the product is being made to order as per the specific requirement of the customer. In most cases, however, firm must be in a position to deliver goods on demand.

1. **Gaining quantity Discounts**

Suppliers of raw materials usually offer quality discounts if purchase are made in bulk. These discounts will reduce the cost of goods increase the profit when it is sales. Thus, the firm would like to purchase raw materials in quantities greater than their requirements.

**3. Reducing Ordering Cost**

Each time a firm places an ordered; it incurs certain expenses, which are called as ordering cost. Forms have to be filled, approvals have to be obtained, and goods that arrive must be accepted, inspected, and counted. Later, an invoice must be processed and payment made. The greater the number of orders greater is the ordering cost.

**4. Achieving efficient Production Runs**

Each time a firm organized works and machine to produce an item, startup costs are incurred. These are then absorbed as production begins. Frequent setups will result in high startup costs; larger runs involve lower costs.

**5. Reducing risk of production shortages**

Once the production process starts all the required raw materials, components etc, should be made available to the production department without any delay.

**TYPES OF INVENTORY**

The inventory required by any firm would depend upon the nature of industry. Usually there are types of investments

**1. Raw material inventory**

This consists of those basic materials that are converted into finished goods through the manufacturing process. The purpose of maintaining raw material inventory is to separate the production function from the purchasing function so that delays in shipment of raw materials do not cause production delays.

**2. Stores and spares**

This category includes those products, which are accessories to the main product for the purpose of sale. Examples of store and spares items are bolts, nuts clamps, screws etc.

1. **Work in process (WIP)Inventory**

These are semi-finished products. The longer and more complex the production process, the greater will be WIP inventory. It helps separating the various operations process so that machine failures and work stoppages in one operation do not affect other operations.

1. **Finished goods inventory**

These are completely manufactured products awaiting sale. The purpose of a finished goods inventory is to separate the production and sales function so that sales can occur without any immediate dependence on production.

**COMPANY PROFILE**

 

**BACKGROUND AND INCEPTION OF THE COMPANY**

 H.M.T. is one of the leading public sector companies, in India, HMT I & II Bangalore plant was inaugurated in 1953 by **PANDIT JAWAHARLAL NEHRU**; it has 16 manufacturing units spread over 10 states, 24 divisions and 29,000 employees in 10 different states.

DR.S.M.Patil started HMT limited as a Hindustan Machine Tools Limited on 7th February 1953 in technical and financial collaboration with the **DERLIKON MACHINE TOOLS WORKS** of Switzerland. The first product produced by HMT was lathe on 6th October 1953.Then the government of India bought the shares held by Derlikon thereby transforming HMT as a Government undertaking

**INTRODUCTION OF MACHINE TOOLS LIMITED**

HMT Limited, the pioneer in Machine Tools Industry in India and manufacturers of a diversified range of products has incorporated “HMT MACHINE TOOLS LIMITED” as its fully owned subsidiary on 9th August 1999.

* “HMT MACHINE TOOLS LIMITED” (HMT-MTL) is a Multi-unit, Multi location, Multi technology Company manufacturing a wide variety of “STATE-OF-THE-ART” Machine Tools.
* Comprehensive Customer Support services including Application Engineering, Customer Training and after sales service.
* The best of products in terms of technology, productivity and cost effectiveness
* All manufacturing units of HMT Machine Tools are ISO9001 certified.

**NATURE OF BUSINESS CARRIED:**

HMT limited, the pioneer in machine tools industry in India and manufacturers of a diversified range of products has incorporated “HMT MACHINE TOOLS LIMITED” as it’s fully owned subsidiary on 9th August 1999.

“HMT MACHINE TOOLS LIMITED” (HMT-MTL) is a multi-unit, multi-location, multi Technology Company manufacturing a wide variety of “STATE-OF-THE-ART” machine Tools. HMT-MTL has its manufacturing units at five locations with each unit specialized in a particular family of Machines. The sales and service network is spread across the length and breadth of the country. As leading manufacturer of Machine Tools in India, HMT-MTL provides the best of products in terms of technology, productivity and cost effectiveness.

**VISION, MISSION AND QUALITY POLICY**

****

**Corporate Vision**

* To be a leading GLOBAL ENGINEERING CONGLOMERATE Focused on CUSTOMER DELIGHT in our fields of Endeavour.

**Corporate Mission**

* To establish ourselves as one of the world’s premier companies in the engineering field having strong international competitiveness.
* To achieve market leadership in India through ensuring customer satisfaction by supplying internationally competitive products and services.
* To achieve sustained growth in the earnings of the group on behalf of shareholders.

**Quality Policy**

* To maintain **QUALITY LEADERSHIP** in all our **PRODUCTS & SERVICES**
* **TOTAL CUSTOMER SATISFACTION** through Quality Goods and Services
* **COMMITMENT** of management to Quality
* To create a **CULTURE** amongst all Employees towards **TOTAL QUALITY CONCEPTS**
* **TOTAL QUALITY** through **PERFORMANCE LEADERSHIP**

**PRODUCT PROFILE**

****

**Our Business Domain**

****

**HMT PRODUCTS**

****

****

**TRACTORS**

****

 **BEARINGS WATCHES**

********

****

****

HMT is synonymous withexcellence in precision engineering in India. HMT is built on a strong foundation of technical know – how acquitted from world leaders in machine tools, such as ORELIKON, MANURCHIN,GILD MEISTER, LEE BEER, RINO BERADI, FRITZ WEMER PEGARD. Today HMT Machine Tools expertise has been developed to such an extent that HMT can design and develop any kind of machines. From simple lathe to multi – station transfer lines, from stand –alone CNC machine to flexible manufacturing systems (FMS) leading to factory automation HMT’s broad range of machine tools covers.

General – purpose machines and CNC machines are produced to meet the application needs of every engineering industry.

1. Computer Networking Control (CNC) machines.
2. Turning machines.
3. Milling machines.
4. Drilling machines.
5. Grinding machines.
6. Boring machines.
7. Broaching machines.
8. Special purpose machines.
9. Other products:
* Metal forming.
* Die costing and plastic machinery.
* Printing machines.
* Food processing machines.
* Tractors.
* Quartz watches.
* Bearings.
* Précising ball screw.
* Recondition.

**ORGANIZATION STRUCTURE OF HMT**

**HRM**

**SECURITY**

**TRAINING**

**CANTEEN**

**JGM (HRM**)

**SALES**

**ENGG.**

**JGM(S)**

**DESIGN**

**DEVELOPMENT**

**JGM (DD)**

**ENGG.**

**SUBCONTRACT**

**COMP’R & MIS JGM(E)**

**QUALITY & INSPECTION**

**JGM (QI**)

**HOSPITAL CMO**

**MATERIAL & STORES**

**JGM (M)**

**DGM (CNC)**

**JGM (PSB)**

**GM (P)**

**PRODUCTION**

**BALL**

**SCREW**

**TOOL**

**ROOM**

**PROGRESS**

**AGM (PR**)

**(MFG)**

**JGM**

**ASSEMBLY**

**JGM (AY)**

**TRAIL & SERVICING SPARES DGM (TS)**

**FOUNDARY JGM (F)**

**GM (F)**

**FINANCE**

**FINANCE**

**PLANT SERVICE**

**DGM (PS)**

**GM (MBX)**

**ORGANIZATION STRUCTURE OF PRODUCTION DEPARTMENT**

**General Manager**

**Joint General Manager**

**Deputy General Manager**

**Assistant General Manager**

**Manager**

**Deputy Manager**

**Foremen**

**Supervisor**

**Junior Superior**

**Worker**

**CUSTOMERS OF HMT**

* HAL
* BHEL
* RAILWAYS
* SHIP BUILDING INDUSTRIES
* CEMENT INDUSTRIES
* GENERAL ENGINEERING INDUSTRIES
* BAJAJ AUTOS
* TVS

**COMPETITORS OF HMT**

* Micrometrics-Turning centre& grinding machines.
* Perished- Ghazi bad– Grinding machines.
* HEC (Heavy Engineering Corporation- heavy duty lathe.
* ACE designers at Bangalore - turning center, Machining centers.
* LMW –turning and drill tap centers.
* TAL –PUNE – spam.
* JYOTHI –turning center& machining center.
* ASKAR MICRON- Mysore –turning centers.
* WIDIA- Bangalore- spam.
* Kirloskar - Mysore.

**REVIEW OF LITERATURE**

**TECHNIQUES OF INVERTORY CONTROL:**

 Inventory control techniques are mainly followed by control organizations within the frame work of one of the basic inventory models like

1. Fixed order quantity system or 'Q’ system
2. Fixed order period system ‘P’ system

These techniques represent the operational aspect of inventory management and help realize the objectives of inventory control and inventory management. Several techniques are there which is used according to convenience of the technique

What should be stressed however is the need to cover all the items of inventory and all stages that means from the point of receipt from supplier to the point of use

The techniques in inventory control are as following

1. ABC(always better control)classification
2. HML(High, Medium, Low)classification
3. VED (Vital, Essential, Desirable, Easy) technique.
4. SDE (Scarcsem, Desirable, Easy) technique.
5. FSN (fast, Medium, Non-moving) technique.
6. EOQ (Economic Order Quantity) analysis.
7. Maximum and Minimum system
8. Two-bin system.
9. JIT (just-in-time) technique
10. MRP (Materials Requirements Planning).

**ESSENTIAL REQUIREMENTS OF INVENTORY CONTROL**

1. There should be proper cooperation and coordination between various departments viz., purchasing inspection, storage costs department etc.
2. Purchasing of stocks or other materials should be centralized under the control of a competent manager.
3. There must be adequate planning of materials requirements and also the classification of materials with their appropriate codes.
4. There should be effective planning control on stock in terms of physical storage through satisfaction control procedures.
5. The storing of materials and issuing also should be planned properly so that there will be delivery of materials upon requisition to departments in the right time they are needed.
6. Accurate records should be maintained so that the issues and utilization of stocks in production can be controlled.
7. Maximum minimum and reorder levels of stocks should be fixed
8. There must be a system of regular reporting regarding purchasing of materials, issuing and storage to the management.
9. The system of internal audit and internal check and maintenance must be very effective and efficient.

**The formula for computing maximum level is**

**Maximum level = reorder level + reorder quantity – (minimum consumption \* minimum reorder period)**

**Minimum level**

 In this system when the inventory items reaches to a predetermined minimum level it is replenished by the fresh purchases up to the predetermined maximum level the minimum level serves as a reordering point. The fresh order is placed for that much quantity which shows deficiency in maximum level. This level is fixed by considering the following factors.

* Rate of consumption
* The time required under top priority conditions to acquire enough supplies to avoid a stoppage in production.

**The formula for computing minimum level is**

Minimum level = reorder level – (normal consumption \* normal reorder period)

**Reorder level**

 The prescription of reorder level (ROL) is an important technique of inventory management. It fundamentally deals with “when to order “ to replenish the inventories reorder level is predetermined point and when the existing stock of inventories reaches this point or falls below it the purchase action is initiated to replenish them.

 The reorder level is decided for each important item of inventory on the basis of following considerations

* Lead time
* Average periodic consumption (daily consumption )
* Safety stock

**Re-order level is decided as under**

 **ROL = (lead time \* average daily consumption) + safety stock**

**Economic order quantity**

EOQ is an important technique of inventory management. EOQ prescribes the order at which the ordering cost and the inventory carrying cost will be the minimum. Reorder quantity is sometimes known as economic order quantity (EOQ) because it is the quantity which is most economical to order. In other words, EOQ is the size of the order.

 This give maximum economy in purchase of any material and ultimately contributes towards maintaining the materials at an optimum level and at the minimum cost. It equates the cost of ordering with the cost of ordering with the cost of storing materials.

**Ordering cost**

 It consists of the cost of paper work for placing an order like use of paper, typing posting filling etc., the cost of the staff involved in this work in the costs incidental to order like follow-up inspection etc., ordering costs includes

1. Cost of placing an order with a vendor of materials
* Preparing a purchase order
* Processing payments
* Start =-up scarp generated the material
1. Ordering from the plant
* Machine setup
* Start-up scarp generated from getting a production run started.

**Ordering cost is ascertained as under**

 **Annual requirement (R) \*cost per order**

**O.C =**

 **Order size**

**Carrying cost**

 Costs incurred for maintaining a given level of inventory are called carrying cost. They include the cost of store keeping (stationery, salaries rent, material, handling cost etc.,) interest on capital locked up in stores, the incidence of insurance cost, risl of obsolescence, determined and wastage of materials, evaporation etc

* Interest cost due to locking up of funds
* Cost of storage space

**Total carrying cost is ascertained as under**

**T.C.C = average inventory \* per unit carrying cost**

**Economic order quantity is ascertained as under**

**E.O.Q = 2 X Quantity required\* ordering cost Carrying cost**

**INVENTORY CONTROL TECHNIQUES**

Effective inventory management requires an effective control for inventories. Excess inventory holding leads to excessive carrying cost on account of interest of interest, storage and handling changes, insurance, record keeping, inspection and the risk of deterioration in quality and thus adversely affects the profitability of the organization. Even through the optimum level of inventory varies from industry to industry, it is generally considered that the value of inventory as a percentage of annual consumption may not exceed 33 percent and the value of finished goods to net sales may be about one month’s sales. Managing inventory levels in an ongoing balance between the costs of carrying extra inventory, versus the revenue losses incurred by not having enough inventories available. A proper inventory control not helps in solving the acute problem of liquidity but also increases profits and causes substantial reduction in the working capital of the concern. The following are the important tools and techniques of inventory management and control.

**A.B.C. ANALYSIS :( Always better control)**

An ABC analysis offers an important solution to be problem of a scientific planning and control of inventories and is on important technique of inventory management. It is based up on the value of different items constituting inventory. It may be concerned with several items, raw materials, factory and office supplies, machine tools and handling equipments. The idea underlying on ABC analysis is in recognition of the principle that some items of inventory are more important than other. The ABC techniques enables the enterprise to keep its investment low avoid stock out of critical items. Its objective is to reduce the minimum stock as well as the working stock. ABC analysis underlines a very important principal “Vital few trivial many” statistics reveal that just a handful of times account for bulk of the annual expenditure on materials. These few items called “A” items are numerous in numbers, and their contribution is less significant. ABC analysis trends to segregate all items into categories, A, B and C based on their annual usage. The categorization so made enable us to pay the right amount of attention and minimum of effort and expenditures.

**A.B.C classification**:

The following steps have been undertaken to implement ABC analysis.

* The price per unit for each purchased item is obtained.
* The total consumption value is determined by multiplying consumption quantity by its unit price.
* The consumption value is arrived by the above calculations for each of the items.
* The items are ranked in accordance with the total consumption value, giving first rank to the item with highest total value. The items are arranged in the order of decreasing annual consumption value.
* The ratio of total value of all items is determined.
* The list of value is divided into three groups, namely, A-high value, B-medium value, and C-low value. In making that division, a graph with y-axis as “cumulative percentage of value of inventory”, and x-axis as “percentage of inventory items” can be used.

**F.S.N Classification:**

This classification is based on the pattern of issues from stores and is useful in controlling obsolescence. To carry out FSN analysis, the data of receipt or the last date of issue, whichever is later, is taken to determine the number of months, which have lapsed since the last transaction, the items are usually grouped in period of 12 month. It is found that many companies maintain huge stocks of non-moving items.

* If the item is ordered in all 0-12 months, the item is classified as fast-moving.
* If the item is ordered in all 12-60 months, the item is classified as slow-moving.
* If the item is ordered in all above 60 months, the item is classified as Non-moving.

In HMT Ltd, inventories that are lying in stores for more than 5 years are considered as non-moving items. To verify the items, stock verification has to be done by the stores department and result must be given to the inventory control department for reconciliation.

**RESEARCH METHODOLOGY**

**METHODOLOGY OF DATA COLLECTION**

The methodology involves collection of data from primary and secondary sources. The data so collected id subjected to analysis using the necessary tools that are relevant. Inference is drawn incorporating both quantitative and qualitative data available at the research disposal. Based on inferences, conclusions are drawn and recommendations are made to enhance the study on inventory management of HMT machine Tools Limited, Bangalore complex. The relevant to the study was collected through both primary and secondary data.

**Primary Data**

It is nothing but discussion with higher authorizes and various managers regarding the procedures of receiving and issuing to stock and other functions performed by them in the organization and personal visits to the stores department. An interview schedule also helped in the collection of data.

**Secondary Data**

Secondary data was collected from magazine, journals, HMT official website, records of the company and annual reports.

**Reference period:**

The reference period is for five years, i.e., 2005-06 to 2009-10. For clear and detailed picture of the study, five-year information is necessary.

**OBJECTIVE OF THE STUDY**

* To know the overall effectiveness of inventory management in HMT Ltd.
* To study the methods of inventory control in HMT-MBX.
* To study the materials stored.
* To know how the procurement of material is done.
* To study the inventory valuation in HMT-MBX.
* To suggest a remedial measure for better decision making by the organization.

**NEED OF THE STUDY**

Financial statements are prepared for the purpose of presenting a periodical review of report by the management in business and result achieved during the period under review. It reflects a combination of recorded facts accounting conventions and personal judgments.

Financial analysis helps in assessing the financial position and profitability of the concern.

**SCOPE OF THE STUDY**

A study was conducted in “HMT-MBX Ltd” to analyze the above-mentioned functions in brief and inventory control in detail. Maintaining optimum level of inventory is the difficult task for the organization. Is to be maintained in such a way that neither excessive nor in sufficient. Excessive investment on inventory leads to blocking of funds, shortage of inventory effect production process this study highlights problem in maintaining of optimum level of inventory.

**LIMITATIONS OF THE STUDY**

* Inventory is more involved in the data financial performance of the company however all relevance financial area could not be made available to the researcher. This to some extent would limit the conclusions arrived at by the research.
* Time was major constraint so research study could not be made in depth.
* The confidentially of some facts and figures.
* The constraints limit is the scope of the study.
* A detailed analysis of all items was not post

**DESIGN OF THE STUDY**

**TITLE OF THE STUDY**

A study on “INVENTORY MANAGEMENT” with reference to “HMT MACHINE TOOLS LIMITED, BANGALORE COMPLEX”

**Statement of the problem**

Investment can range from 20 to 35% of its total investment capital. Inventory management must have as its aim the reduction and control of that investment in inventory.

The company’s operating efficiency is well understood with effective management of inventory. This is essential because never too much capital has to be invested on idle stock of inventory and at the same time the organization should not run with shortage of materials. Hence, the inventory management, which includes right purchase of materials, storing, pricing, controlling, etc. is very significant. The overall profitability position of the company is much dependent upon the inventory management.

In this study an attempt is made to understand the inventory management of HMT Machine Tools Limited, which is one of the market-leading participants in the machine tools. An attempt is also made to ascertain drawbacks if any, in the inventory management and to suggest suitable remedies for the same.

**DATA ANALYSIS AND INTERPRETATION**

1. ***INVENTORY TURNOVER RATIO:***

Inventory turnover or stock turnover ratio is the indicates the number of times the stock is turnover (i.e., sold) during the year. In other words, it is relation between the stock and cost of goods sold. This ratio indicates whether investments in inventory are efficiently used or not.

A high inventory turnover ratio indicates brisk sales. The ratio is a measure to discover the possible trouble in form of over stocking or over valuation. A low inventory turnover ratio results in blocking of funds in inventory, which may ultimately result in losses due to inventory becoming absolute, or deteriorating in quality.

The ratio is expressed as: = **Annual sales /Average stock of Inventory**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Annual sales (Rs)** | **Average stock of Inventory(Rs)** | **ITR** |  |
| **2008** | 711049820 | 331128862 | 2.15 |  |
| **2009** | 749145908 | 352167951 | 2.13 |  |
| **2010** | 480030182 | 341860689 | 1.4 |  |
| **2011** | 519415843 | 336205679 | 1.5 |  |
| **2012** | 517609558 | 249868315 | 2.1 |

**Inference:**

From the table it is clear that inventory ratio had increased in 2008, 2.15 respectively, but slightly decreased by 0.02 in 2009, 0.73 in 2010 and 1.25 in 2011 when compared to 2010(i.e.1.4 and 0.15 in the year 2010&11 respectively).

**Interpretation:**

From the above graph, it is Cleary shows that the inventory turnover ratio fluctuating year over year. Inventory turnover ratio has a declining trend from 2008 which indicates that inventory utilized efficiently without blocking of inventors in stock and making them obsolete.

**2. Raw Material turnover ratio:**

Raw Material turnover ratio shows the ratio of turnover of inventory based raw material consumed and average inventory. Raw material is those basic inputs that are converted into finished product through the production process. Raw material inventories are those units which have been purchased are stored for future productions. This ratio shows the number of times the raw materials were replaced during a fiscal year.

The ratio is expressed as:

**Annual consumption of raw materials / average raw materials**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Material consumed(Rs)** | **Average stock of raw material(Rs)** | **RMTR** |
| **2008** | 202988988 | 54740677 | 3.7 |
| **2009** | 258354512 | 72275937 | 3.57 |
| **2010** | 232768231 | 91777764 | 2.53 |
| **2011** | 232793494 | 99709297 | 2.33 |
| **2012** | 201583439 | 88760886 | 2.27 |

**Inference:**

From the above table it is clear that raw material was lying in the inventory for a long time when we see the ratio in the year 2006 to 2007.But it has slightly come down 2008 i.e. 2.53, next year also it was low at 2.33 and 2010 also low at 2.27.

**Interpretation:**

From the above graph, raw material ratio has shown a decline in previous two year giving a good sign of effective use of raw materials for the production process.

**3. Work in Progress turnover ratio**

Work in progress goods are those which are in the process of production in the manufacturing unit. They are also called as semi finished goods.

The ratio is expressed as:

 **Cost of completed works / average working progress**

|  |  |  |  |
| --- | --- | --- | --- |
| **year** | **Cost completed works (Rs)** | **Average stock of WIP (Rs)** | **WIPTR** |
| **2008** | 459700000 | 159175871 | 2.88 |
| **2009** | 644100000 | 184395990 | 3.49 |
| **2010** | 629600000 | 178705152 | 3.52 |
| **2011** | 510300000 | 155556797 | 3.28 |
| **2012** | 472800000 | 3013832592 | 1.7 |

**Inference:**

From the above table, in the year 2006 the WIPTR was 2.888 but in the year 2007 and 2008 It has increased to 3.493 and 3.523 respectively. Previous year the ratio 1.7.

**Interpretation:** From the above graph it is clear that work in progress ratio has declined in previous year but it is high when compared to 2006.also this ratio was in the year 2007 and 2008.

**4. Finished goods turnover ratio**:

Finished goods are those which are read for delivery to the customers, but lying in the inventory due to some delay of sales. This ratio indicates the average finished goods turnover in one fiscal year.

It is expressed as:

**Cost of goods sold / average finished goods inventory**.

|  |  |  |  |
| --- | --- | --- | --- |
| **year** | **Cost of goods sold(Rs)** | **Average stock of finished goods inventory(Rs)** | **FGTR** |
| **2008** | 355433001 | 61743602 | 5.76 |
| **2009** | 217902752 | 86397708 | 2.52 |
| **2010** | 510209350 | 103720829 | 4.92 |
| **2011** | 391747173 | 97118808 | 4.03 |
| **2012** | 475825957 | 951288185 | 0.50 |

**Inference:**

From the above table the FGTR is changing. In the year 2006 it was 2.73, increased to 5.76 in 2007 and decreased tremendously to 2.63 in 2007 again FGTR was increased to 5.73 in the year 2009 while in previous year it was low to 1.61.

**Interpretation:**

From the above graph it shows that this ratio, throughout the period of study showed fluctuating trend, which shows that finished goods are deign in the inventory depending on sales.

**5. Inventory to working capital ratio:**

Inventory to working capital is the liquidity ratio, which helps to measure the short term solvency of the company. This ratio indicates that the proposition of the working capital tied up in the inventories. As we know that inventory is a current asset and component of working capital, this ratio shows the percentage of inventory in working capital.

The ratio is expressed as:

**Inventory / working capital**

|  |  |  |  |
| --- | --- | --- | --- |
| **years** | **Inventory(Rs)** | **Working capital (Rs)** | **I TO WCR** |
| **2008** | 255923194 | 118264769 | 2.16 |
| **2009** | 406334134 | 184880590 | 2.19 |
| **2010** | 298001371 | 102606769 | 2.9 |
| **2011** | 385720007 | 159119142 | 2.42 |
| **2012** | 286754600 | 87208510 | 3.29 |

**Inference:**

From the above table it is clear the inventory plays a vital role in WC. It is increasing the year 2006 to 2010 respectively.

**Interpretation:**

From the above graph it can be observed that inventory carries steep ratio in last few years when compared to 2006 figures giving a positive indication of inventory.

**6. Inventory holding period:**

Inventory holding period should be minimum. Number a day for which inventory is holding is calculated by the following formula.

Inventory holding period = **inventory / annual sales \* 365 days**

|  |  |  |  |
| --- | --- | --- | --- |
| **year** | **Inventory(Rs)** | **Annual sales (Rs)** | **IHP(Days)** |
| **2008** | 255923194 | 562190859 | 166 |
| **2009** | 406334134 | 711049820 | 208 |
| **2010** | 298001371 | 749145908 | 145 |
| **2011** | 385720007 | 480030182 | 293 |
| **2012** | 286754600 | 519415843 | 202 |

**Inference:**

From the above table it is clear that IHP was more in the year 2007, 2009,2010 i.e. 208, 293 and 202.but we see that in the year 2006 and 2008 IHP was less.

**Interpretation:**

As we know that IHP should be minimum. Here in the above graph it shows that HMT Machine tools ltd is holding inventories for longer period in the previous year. This is due to decline in sales and other reason like change in design, order being cancelled etc.

**ABC ANALYSIS**

**CLASSIFICATION OF ITEMS:**

ABC classification is based on value

* 10% in number and 70% by value classified as CLASS A.
* 10% in number and 20% by value classified as CLASS B.
* 80% in number and 10% by value classified as CLASS C.

In HMT Machine Tools Limited ABC classification of items is as follows:

 **A Class Items:** Consumption value more than and above. Example, etc

 **B Class Items:** Consumption value more than but less than. Example, etc

 **C Class Items:** Consumption value less than Rs... Example, bolts, nuts, etc

**Polices adopted by ‘A’ class items:**

* ‘A’ class items account for bulk of the annual usage value, hence it is required for at most attention of senior level in administration and is responsible for regular reviewing of these items.
* The inventory control department maintains up-to-date and accurate records: It will be sent more frequently to the top management.
* The inventory is at minimum level.
* The purchase department maintains better vendor relations confiding with VRM (Vendor Relation Management).
* The concept of first in and first out is adopted.

**Polices adopted by ‘B’ class items:**

* The policies for these items are intermediate between ‘A’ and ‘C’ items.
* These items are ordered more frequently than ‘A’ class items.
* Stock and issue cards are maintained.

**Polices adopted by ‘C’ class items:**

Since the items are too much value is less, the policies are aimed at reducing the ordering and stock keeping work to an extent possible and ensuring the availability at all times by stocking liberal quantities.

Liberal quantities are kept in stock, since it does not involve much capital tie up.

Bulk purchase is done to take advantage of quantity discounts.

For ordering these items, a combination of review period system and 2-bit system is maintained.

|  |
| --- |
| **ABC ANALYSIS** |
| **Type** | Quantity | Rate | InventoryValue (Rs) | Ranking | Percentage | Cumulative |
| **1** | 95 | 8069 | 766562 | 51504825 | 0.4600 | 0.4600 |
| **2** | 8508 | 6054 | 51504825 | 23733679 | 0.2119 | 0.6719 |
| **3** | 1931 | 3683 | 7111949 | 13241796 | 0.1182 | 0.7901 |
| **4** | 98 | 2443 | 239433 | 8226838 | 0.0734 | 0.8635 |
| **5** | 173 | 7804 | 1350016 | 7111949 | 0.0635 | 0.9270 |
| **6** | 1791 | 13252 | 23733679 | 3135454 | 0.0280 | 0.9550 |
| **7** | 355 | 6525 | 2316198 | 2316198 | 0.0206 | 0.9756 |
| **8** | 361 | 34188 | 12341796 | 1350016 | 0.0120 | 0.9876 |
| **9** | 9 | 25820 | 232377 | 993269 | 0.0088 | 0.9964 |
| **10** | 128 | 24496 | 3135454 | 766562 | 0.0035 | 0.9999 |
| **11** | 626 | 13142 | 8226838 | 239433 | 0.0021 | 1.0020 |
| **12** | 42 | 23649 | 993269 | 232377 | 0.0020 | 1.0040 |
|  |  |  | 111952397 |  |  |  |

**INVENTORY MOVEMENT SUMMARY**

In this analysis, the quantity and rates of consumption is to be analyzed and is to classify the items fast moving (F), slow moving(S) and non moving (N) items. Fast and slow moving classification held in arrangements of stock in the stores and in deciding the distribution handling methods. It is found that many companies maintain huge stocks of non-moving items.

**Fast and Slow Moving Inventory Table**:

 **Inventory summary as on 31**-**mar-2010**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **Description**  | **Total-inventory** | **00-12- fast moving** |
|  |  | **Count** | **Value** | **Count** | **Value** |
| **13** | Accessories | 626 | 8226838 | 127 | 1564821 |
| **12** | Auxiliary materials | 128 | 3135454 | 56 | 1823102 |
| **07** | Electrical parts | 1791 | 23733679 | 690 | 7826120 |
| **04** | Electrical spares | 98 | 239433 | 5 | 39757 |
| **14** | Foundry materials | 42 | 993269 | 39 | 964980 |
| **08** | Non-ferrous castings | 355 | 2316198 | 35 | 611030 |
| **09** | Production steels | 361 | 12341769 | 168 | 8962899 |
| **01** | Shop stores | 95 | 766562 | 50 | 548901 |
| **02** | Standard parts | 8508 | 51504825 | 3067 | 20519372 |
| **10** | Timber | 9 | 232377 | 6 | 216687 |
| **03** | Tools | 1931 | 7111949 | 326 | 1731119 |
| **06** | Mechanical spares | 173 | 1350013 | 8 | 13725 |
|  | Total | 14117 | 111952397 | 4577 | 44822515 |

**Slow moving inventory**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Type*** | ***Description***  | ***13-24 months*** | ***25-36 months*** |
|  |  | **Count** | **Value** | **Count** | **Value** |
| 13 | Accessories | 29 | 369927 | 35 | 770603 |
| 12 | Auxiliary materials | 20 | 618836 | 9 | 256529 |
| 07 | Electrical parts | 140 | 3749382 | 143 | 1317059 |
| 04 | Electrical spares | 1 | 91 | 2 | 418 |
| 14 | Foundry materials | 3 | 28289 | 0 | 0 |
| 08 | Non-ferrous castings | 23 | 476109 | 58 | 297605 |
| 09 | Production steels | 55 | 718185 | 32 | 305882 |
| 01 | Shop stores | 11 | 68785 | 6 | 40013 |
| 02 | Standard parts | 787 | 2972440 | 850 | 4544383 |
| 10 | Timber | 0 | 0 | 0 | 0 |
| 03 | Tools | 158 | 750188 | 183 | 774036 |
| 06 | Mechanical spares | 12 | 20268 | 5 | 6099 |
|  | Total | 1239 | 9772500 | 1323 | 8312629 |

**NON-MOVING SURPLUS ITEMS**

Items, which have not moved for 5 years and more than the date of lost issue, will be considered as “NON-MOVING ITEMS”, non-moving items list will be prepared the end of the year and the material register for March is printed. The surplus committee declares at last either the item to surplus / obsolete.

After the approval, the stock items will be transferred to salvage stores and stock transfer will not be received in material account section to remove the value from the respective inventory accounts to the obsolescence.

**Non-moving inventory**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Type*** | ***Description***  | ***37-60 months (slow)*** | ***Above 60 months*** |
|  |  | **Count** | **Value** | **Count** | **Value** |
| 13 | Accessories | 34 | 377321 | 401 | 5144066 |
| 12 | Auxiliary materials | 190 | 217828 | 24 | 219159 |
| 07 | Electrical parts | 170 | 1715183 | 648 | 9125934 |
| 04 | Electrical spares | 2 | 3017 | 88 | 196150 |
| 14 | Foundry materials | 0 | 0 | 0 | 0 |
| 08 | Non-ferrous castings | 93 | 549525 | 146 | 381929 |
| 09 | Production steels | 44 | 971166 | 62 | 1383664 |
| 01 | Shop stores | 11 | 12202 | 1 | 1144 |
| 02 | Standard parts | 947 | 4222857 | 2853 | 19226689 |
| 10 | Timber | 0 | 0 | 3 | 15690 |
| 03 | Tools | 255 | 1036833 | 1003 | 2656270 |
| 06 | Mechanical spares | 6 | 127783 | 142 | 1182141 |
|  | Total | 1581 | 9233713 | 5371 | 39532935 |

**Table showing non-moving inventory value for last 4 years**

|  |  |
| --- | --- |
| **Years** | **Non-moving inventory value** |
| **2006-07** | 68640771 |
| **2007-08** | 69115099 |
| **2008-09** | 63904124 |
| **2009-10** | 54037536 |

**Reason for Non-moving inventory**

* + - Change in design of the equipment

* + - The sale order may be cancelled
		- Change in the production pal

**COMPONENTS OF INVENTORY**

All efforts of the management to control inventories should aim at maintaining various components of inventory at economic levels and in proper proportions.

In HMT Machine Tools Ltd, Inventory is divided into the following categories.

* + Raw material and components
	+ Stores and maintenance spare parts
	+ Tools and Instruments
	+ Work in progress
	+ Stock in trade
	+ Material and components in transit
	+ Scrap

Table showing the % change in components of inventory from 2006 to 2007

|  |  |  |
| --- | --- | --- |
| **Inventory** | **2006** | **2007** |
|  | **Value (Rs)** | **%** | **Value (Rs)** | **%** |
| **Raw material and components** | 56259639 | 21.98% | 88292234 | 21.73% |
| **Stores and maintenance spare parts** | 43575373 | 17.03% | 70424054 | 17.33% |
| **Tools and Instruments** | 6784051 | 2.65% | 11623924 | 2.86% |
| **Work in progress** | 157983036 | 61.73% | 210808944 | 51.88% |
| **Stock in trade** | 44228574 | 17.28% | 128566842 | 31.64% |
| **Material and components in transit** | 13557863 | 5.29% | 12199115 | 3.00% |
| **Scrap** | 382055 | 0.15% | 506206 | 0.12% |
| **Less: provision for obsolescence** | 66847400 | -23.11% | 116086789 | -28.56% |
| **TOTAL** | 255923194 | 100% | 406334530 | 100% |

**Components of Inventory 2006**

**Components of Inventory 2007**

Table showing the % change in components of inventory from 2008 to 2009 and 2010

|  |  |  |
| --- | --- | --- |
| **Inventory** | **2008** | **2009** |
|  | Value (Rs) | % | Value (Rs) | % |
| **Raw material and components** | 95263294 | 31.97% | 104155299 | 27.00% |
| **Stores and maintenance spare parts** | 78708704 | 26.41% | 61500000 | 15.94% |
| **Tools and Instruments** | 9834637 | 3.30% | 11958169 | 3.10% |
| **Work in progress** | 146601361 | 49.19% | 164512233 | 42.65% |
| **Stock in trade** | 78874816 | 26.47% | 115361800 | 29.91% |
| **Material and components in transit** | 12199115 | 4.09% | 0 | 0 |
| **Scrap**  | 478992 | 0.16% | 2000000 | 0.52% |
| **Less: provision for obsolescence** | 123959548 | -41.29% | 73768494 | -19.13% |
| **TOTAL** | 298001371 | 100% | 385720007 | 100% |

|  |  |
| --- | --- |
| **Inventory**  | **2010** |
|  | Value (Rs) | % |
| **Raw material and components** | 82258478 | 28.68% |
| **Stores and maintenance spare parts** | 46217359 | 16.12% |
| **Tools and Instruments** | 9310239 | 3.24% |
| **Work in progress** | 154781231 | 53.98% |
| **Stock in trade** | 74894837 | 26.19% |
| **Material and components in transit** | 1120000 | 0.39% |
| **Scrap**  | 751000 | 0.26% |
| **Less: provision for obsolescence** | 82578544 | -28.80% |
| **TOTAL** | 286754600 | 100% |

**Interpretation:**

From the above, we can say that the components of inventory fluctuating during the study period. If we study the composition of inventory in HMT Machine tools ltd the major portion of its total inventory consist of work in progress and components and stock in trade.

**Components of Inventory 2008**

**Components of Inventory 2009**

**Components of Inventory 2010**

**SIZE AND GROWTH OF INVENTORY**

The size of inventory and growth shows of the company. The effective regulation of inventory calls for the maintenance of inappropriate level of inventory. All though

Inventory is necessary to run a plant efficiently the excess of inventory serves no purpose and also affects the profitability of the firm.

 Growth rate of inventory shows the ratio of current Asset as it is a part of current Asset reflects on current ratio establishes relationship between the current asset and current liabilities. The ability of a company to meet its short-term commitment is normally assessed by comparing current asset whit current liabilities.

**Table showing % Increase in inventory & Sales from 2006 to 2010**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Inventory (Rs)** | **Sales (Rs)** | **% Increase in inventory** | **% Increase in sales** |
| **2006** | 255923194 | 562190859 |  |  |
| **2007** | 406334134 | 711049820 | 58.77% | 26.48% |
| **2008** | 298001371 | 749145908 | -26.66% | 05.36% |
| **2009** | 385720007 | 480030182 | 29.44% | -35.92% |
| **2010** | 286754600 | 519415843 | 25.65% | -07.58% |

**SIZE AND GROWTH OF INVENTORY**

**Interpretation:**

 The graph it shows that inventory of the HMT Machine Tools Limited as increased at high rate in the year for 2008 & 2010. The size of inventory Bares a relation with the sales of an undertaking. The table shoes that inventory has increased considerably when compared to increase in sales . Graph showing the growth of inventory and net sales of HMT Machine in the changed market conditions the organization needs to focus on the custemer satisfaction in reaching out this goal or conclusion basis the management has toconstantly upgrade technology product profile internal works process & Plant & machinery in the end ultimately it is the employees who will change of the company .

During the short period of my study various departement I found HMT a well-structured organization capable to maintain interpersonal relationships among employees. Employees are very experienced & very dedicated where they feel company a home.

**FINDINGS**

The growing competition and technological developments in this sector are having inevitable effects on the Indian machine tool industry as a whole. The HMT machine tool limited is facing typical problems in the emerging globalization scenario as under:

* HMT machine tool has a regular system for determining unserviceable or damaged stores, raw materials and finished goods.
* The unit has maintained proper records showing full particulars including quantitative details and situations of fixed assets.
* Materials are classified as ‘A’ ‘B’ and ‘C’ class items.
* The unit has maintained good relationship with the employer and employees.
* The unit has maintained up to date records and submitted to respective authorities.
* Inventory has been physically verified during the year by the management.
* The technology is not advanced. This is one of the reasons for low productivity.
* Most of the machines are obsolete. Thus production process is costly and time consuming.
* Bin cards are used for maintenance of stores.
* Idle time is more; there is no proper time management in HMT.
* Overhead costs are high.
* Absenteeism and inefficiency are high in the company.
* The company has not been utilizing whole installed and licensed capacity of its machine effectively, which has in turn resulted in production.
* Motivation of employees is less.

**SUGGESTIONS**

* The company should make efforts in making the whole use of installed and licensed capacity.
* The company should fix competitive prices for the productions in order to compete in the global market.
* The company should adopt modern costing systems, balance scorecard concept etc.
* The company inventory management is at moderate level. Hence effective steps have to be taken to see that the inventory management is made more efficient so that capital is blocked in inventory can be used for working capital required.
* Major part of revenue earned is spent on payment of interest: therefore measures should be taken to reduce the amount of credit.
* Since the company is incurring loss for the past few years, the management should take measures to bring such a situation under control in order to flourish in the near future.
* The material cost is high in the company, thus the company should make efforts to buy the materials at reasonable price.
* The company should update its technology so that it can beat the competitor’s price and also produce higher quality products.
* The company has to concentrate much on credit policy for speedy collections of accounts receivable.
* Suitable measures should be taken for improving shorts term solvency position, current ratio and working capital.
* The company should reduce inefficiency, absenteeism and idle time.
* The company should make improvement with regard to productivity.

**CONCLUSION**

The study carried out as a part of curriculum of MBA Sri Venkateswara University gave me a real exposure to the operational procedures of the company. It helped me to explore the possibility of rejuvenating the health of a company.

HMT is a very popular name among every Indian, because of its innovation of technology quality assurance durability affordability to its people or customer. HMT has created the brand image that symbolizes machine tools to a manufacturer, tractors to a farmer and watches to millions of people in India.

Today HMT’S machine tools expertise has been developed to such an extent that HMT can design and develop any kind of machine from simple lathes to CNC machines to flexible manufacturing system. Today HMT is multi technology multi Product Company.

HMT commitment to the development of machine tool technology is clearly reflected in the fact that HMT has as many as 9 exclusively machine tool until spread across the country.

In the changed market condition the organization needs to focus on the customer satisfaction, in reaching out this goal are conclusion basis the management has to constantly upgrade technology product profile internal work process and plant and machinery in the end ultimately it is the employees who will change the performance of the company. Therefore motivation must find priority.

**BIBLIOGRAPHY**



**BOOKS**

* Financial Management I.M. Panday
* Financial Management Prassannachandra
* Financial Management M.Y. Khan & P.K.Jain
* Management Accounting Dr. P.N. Reddy
* Advanced Accounting Jain and Narang

**WEBSITES:**

* [www.hmtindia.com](http://WWW.hmtindia.com)
* [www.hmtmachinetools.com](http://WWW.hmtmachinetools.com)