6.1 Introduction:

Cash flow is one of the most common cash forecasting and control technique has been popularly used by most of the companies in the world. In economy, cash flow is described as “The pattern over time of a firm’s actual receipts and payments in money as opposed to credit” (Black, 1997) or “The flow of money payments to or from a firm” (Bannock et al. 1988). Generally, cash flow defines the expenses and revenues of single projects their present and future situations by demonstrate net cash conditions. Cash flow is a financial model necessary to count the demand for money to meet the project cost and the pattern of income it will generate (Smith, 2008). Therefore, the need of cash flow technique is beneficial for both the projects at the tender stage and while the projects are in progress and also every aspect of business whether it is IT, Consumer Durable, Pharmaceuticals, FMCG or Retail. The importance of cash flow is stated below.

1. With the help of cash flow the amount of money which will be required during the normal course of business can be easily ascertained and also alert the business organization when it will be in trouble.
2. It enables to trace both the expected cost and revenue of the business organization.
3. A cash flow chart summarizes and gives a snapshot of the whole picture of the financial situation of the organization.
4. It is required for describing the financial situation of the whole organization.
5. It provides cash management strategies in order to plan, monitor and control the cash shortage or surplus.
6. Cash flow is a useful tool for capital budgeting practices in decision-making process during the new investments.
7. It develops a cash conscious culture in the company by promoting allocation, usage and control or resources effectively.

It provides important information that compliments the profit and loss account and balance sheet. The information about the cash-flow of a useful in providing users or financial statements with a basis to assess the ability of the organization to generate cash and cash equivalents and the needs of the organization to utilize these cash flows.
The economic decisions that are taken by users require an evaluation of the ability of an enterprise to generate cash equivalents and the timing and certainty of their generation.

Cash flow statement consists of three stages or activities. They are

(A) Cash flow from operating activities: Operating activities are the principal revenue-producing activities of the enterprise and other activities that are not investing and financing activities. Operating activities include cash effects of those transactions and events that enter into the determination of net profit or loss.

(B) Cash flow from investing activities: Investing activities are the acquisition and disposal of long-term assets and other investments not included in cash equivalents. In other words, investing activities include transactions and events that involve the purchase and sale of long-term productive assets (like, land, buildings, machinery etc.) not held for re-sale and other investments.

(C) Cash flow from financing activities: Financing activities are activities that result in changes in the size and composition of the owner’s capital (including preference share capital in the case of a company) and borrowings of the enterprise.

6.2 Receipts and Payments Pattern of Cash:

As far as the cash position is concerned an organization is termed as most efficient if it perfectly manages or synchronizes its receipts and payments of cash. But, in many cases proper synchronization is not possible. For this reason an adequate quantity of cash must be kept in hand for all times. Generally, we are considering the accrual basis of accounting where receipts and payments of cash do not necessarily take place in the same periods for which such incomes and costs are recognized. Therefore, it can be seen that for a certain period an organization have large amount of earnings but shortage of cash, on the other hand organization have low income but more cash flow.

---

Such differences can also be found out if the timings of receipts and payments be changed under certain circumstances. Suppose, the organization engaged in developing or maintain assets such as building, dams, roadways etc. have irregular needs which require additional cash to finance these type of special contract. In reality contract may have progress payments, and actual expenditure must exceed receipts until final money is received. In case of trading or manufacturing organization the picture is different where both the receipts and payments tend to flow in a regular basis. Here also the timings of cash receipts and payments are very important from the point of view of management. It is directly or indirectly related with the different components of working capital and the very basic nature of management. But before that we have to know the different sources and applications of cash and now they economically affect the organization for meeting its day to day requirements.

### 6.3 Sources of Cash:

There are various sources of cash in an organization, which can be classified under two categories such as direct sources and indirect sources.

1. **Direct Sources:** Direct source of cash may be grouped under three heads.

   (a) Issue of share capital or issue of debentures,
   (b) Collection of money from bank as loan or inter company loans, and
   (c) Collection of money from cash sales.

   It means conversion of current assets or fixed assets into cash. Conversion of current assets into cash specifies conversion of stock-in-trade into cash directly or through debtors or accounts receivable whereas conversion of fixed assets mean sale of plants & machinery, land & buildings etc.

2. **Indirect Sources:** From the earlier discussion of direct sources of cash like issue of share capital, debentures, loan taken from bank, it is clear that such sources require some capital backing. For example, stock-in-trade which is converted into cash must have some source of capital for its formation or acquisition. Similarly, investment or sale of fixed assets also converted into cash but must have some capital backing.
In this way provision for depreciation, taxation etc and retained profit correspond to sales revenue in excess of cost of goods sold. Generally, such groups include the following heads.

(a) Purchase of goods from various parties on credit i.e. credit received from different parties,
(b) Certain portion of permanent fixed capital,
(c) Provision for taxation,
(d) Provision for depreciation and proposed dividend,
(e) Retained earnings.

6.4 Sources of cash in day-to-day business operation:

The most important sources of cash are collection form debtors. In this regard cash sales also play an important role. If sales are correctly estimated then collection from sales and debtors are also predictable with some degree of accuracy.

In case of going concern cash sales can be easily computed with the help of different statistical methods from the past data. As the trade credit period is known therefore, the amount of cash inflow can easily be estimated due to the conversion of stock-in-trade and debtors. But, problems arise as bill receivables are not honoured in due time or payment is not made by debtors in proper time. For these reasons actual amount of provision for bad debts or doubtful debt can easily calculated. To enhance the payment from debtors different steps like ‘follow-up’, ‘aging regular’ may be adopted.

Those firms which have sufficiently good credit, the bank overdraft is the only and an extremely convenient source of finance and when requirements are fluctuating and it is also an extremely economical form. Most of the Indian organisations particularly private sectors depend on debt capital which comprises bank overdraft at a large proportion.

____________________

3 F.W. Paish, Business Finance, Sir Isaac Pitman & Sons Ltd., London, 1961, p.33
It is because the Borrower has to pay interest only what he owes at the end of each day’s business and not on the total capital held as loan capital. It minimizes the cost of finance. Another reason behind such decision is that interference in the management process. It is observed that the companies operating at substantial profits are relying on bank overdraft for making payment to their employees. Now a day’s bank overdraft is considered to a very useful source of cash. Intercompany loans have also gained an importance in group of companies. In such a group one company might have surplus cash whereas other company needed it very badly for its survival. Such transactions are justifiable in the interest of both the companies, they can lend themselves to abuse for the cash reserves of a sound company may be used to bolster the position of another which may be in difficulties\(^5\) and this fail to return the money.

Sometimes share capital is used on behalf of loan capital for meeting the day to day requirements of working capital. But in India share capital is costlier than that of loan capital from the point of view of income tax. Because interest on loan capital is the allowable expenditure at the time of computing profit for taxation\(^6\) whereas, dividend on share capital is not allowable. So to earn the same rate of return on share capital or loan capital, a business has to earn three times so as to pay taxes, retain part of profits and pay dividends\(^7\).

In case of a new concern the control of movement of cash can be done in the following way:

(a) First of all, total cash is received as capital to purchase of fixed assets and some part of it is left as working capital.

(b) In the second stage when production is started cash is converted into different current assets viz., stock, debtors etc.

(c) In the last stage when operations are started at a moderate speed there will be both inflow and outflow of cash.


\(^7\) B. Banerjee, Cash Management, World Press, p. 17
For short-term needs of the business organization, it can sale the short-term investment. In U.S.A for example treasury bills are sometimes regarded as a profitable use of cash for as little as four or five days. Such include short-term loans to govt. securities dealers, which occasionally may be made for so short a time as 24 hours\(^8\). In India at present different receiving fund as ‘Term Deposits’ which can be realized or matured with in a very short period say with in seven days. Hence, such short term investment cab easily be claimed as liquid cash but in the present study these are excluded. It is also observed that excess funds not be utilized in purchasing short-term investments.

Earlier it is discussed that there are also indirect sources of cash. We cannot under estimate such sources from the point of view of their utility in the running of a business concern. Credit allowed by creditors or suppliers for materials, but the workers for wages and salaries protect the business organization from cash outflow. Such effect reduces the money lock period.

On the other hand a certain portion of fixed capital is used as working capital. Due to the nature of business and risk taken by the business organization the ratio between fixed assets and current assets to permanent capital may be different for different organisations. A high fixed asset to share holder’s equity may paralyze the organisation because it is fixed in assets, not circulating. It indirectly influences the organisation to depend on outside fund and is contingent upon profitable trading with prompt collection of debts and quick inventory turnover\(^9\).

Provision for income tax is also an important source of cash. Companies earning substantial profits, indirectly consider the finance from the taxing authority due to the fact that taxes on business organizations are generally assessed and collected in arrear\(^10\).

So if the rate of tax and profit is fixed then such fund for the govt. can be used as a part of working capital or invest them in short-term securities or in the business permanently\(^\text{11}\). It must be remembered that the fund invested in business for short-term might have some risk. It is because that the profit of the organisation can fall in any period. But, in India provision for tax can not be utilised as a source of funds due to advance payment of tax\(^\text{12}\).

**6.5 Provision for depreciation and Proposed dividend:**

We know that depreciation is included in cost but there is no outflow of cash. It is nothing but a book entry. Therefore, it is treated as source of fund in addition to the profit under certain given conditions\(^\text{13}\). The amount of depreciation which is charged on the fixed assets is generally invested outside of the business for purchasing fixed assets in replacement of the existing one. But if it is not so, then such amount can be utilised in the business as working capital for its day to day operations. So we can say that depreciation is one of the important sources of cash.

Dividend payment is also an important way of cash disbursement. There is a lag in payment of dividend from the date of declaration to the date of payment. Until it is paid, it is utilised in the business as working capital. In case of interim dividend it cannot happen. “The proprietary company in this respect has a strong advantage. Its ‘sufficient distribution’ can be covered by crediting the dividend amounts to individual shareholder’s account in the books of the company to be drawn against gradually as required for personal needs. The impact on cash is therefore gradual. The public company has no such opportunity in actual practice\(^\text{14}\).

\(^{11}\) F.W. Paish, Op. Cit., p. 35

\(^{12}\) According to Sec. 211 of the Indian Income Tax Act, 1961, Advance tax is payable in three equal installments on June 15, Sept, 15 and December 15 of the financial year.........


Retention of profit is utilised for the expansion programme in future or may be utilised for the replacement of assets. If such profit is not invested outside the business such profit is then utilised as working capital and increases the cash. Therefore, retention policy has an impact on cash holding. Whether such policy is helpful or not or effect of it ‘improving the cash position by the management action is a question and which is discussed in fifth chapter.

6.6 Applications of Cash:

Cash may be utilised in the following way:

1. Disbursement of operating expenses,
2. Payment of creditors,
3. Purchase of materials, sundry supplies etc. (cash purchase) and fixed assets and short or long-term securities.
4. Disbursement of dividend and taxes and
5. Loan repayment.

In daily business a large portion of the cash outflow is made due to payment for operating expenses and liquidation of creditors for materials and supplies. Generally, large cash payment is needed for repayment of creditors, not for emergency requirement or routine purchase. As the credit term or period is known then it is easy to determine the amount of daily cash requirement for payment to the liquidation or mitigation of creditors. In case of operating expenses at a given level of activity several factors like price changes, limiting factors, efficiency of workers can play a vital role.

Sometimes, cash may be excess. Such excess cash may be invested in short or long term securities. But, if there is some overdraft then it can not be do so. Replacement of fixed assets should not affect the cash for meeting day to day operations. It is possible only when provision for amortization, depreciation or depletion is made and does not block up the working capital. Such thing happens when there is no inflation. But at the time of inflation no one can assure that the working capital will not get reduced for replacement of fixed assets unless appropriate amount of depreciation is provided for, apart from the above discussion cash can also be used up for considering a new project or expansion of the present project.
6.7 Overdraft financing in Cash Management:

Through overdraft financing funds can be procured in an organization. Overdraft financing has certain advantages from equity shares, pref. shares and even from debt capital. Because, it is less costly as business organization uses it when it is required and it is beneficial from the point of view tax payment.

Optimum utilization of all resources makes the organization successful and in it capital is not the exception. Rather greater attention should be taken regarding capital. The word optimum utilization of capital means a situation where capital of the business is adjusted with its scale of operations. And where the capital is not commensurate with its scale of operation then there would be either idle capital or short of capital both are extremely costly from the point of view of the organisation. The situation of idle capital can be arises due to the following reasons.

(a) Capital raised through overdraft in excess of the requirement of the organization.

(b) When production level fallen due to fall in demand, competition and non-availability of imported raw materials etc.

From the above mentioned reasons overdraft financing should be arranged properly. Following steps are taken to avoid the situation. Firstly, overdraft is granted or taken when it is actually required and therefore the overdrawing is avoided. Hence, idle capital arising out of fortnight is not possible in case of overdraft due to bad financial planning. Secondly, if capital has to be raised other than overdraft arrangement it can not properly adjusted when volume of operations fluctuates widely. Therefore, fluctuations in the volume of operation may result in a shortage or excess in working capital. But financing through overdraft facility, such problem can be avoided. It can fluctuate accordingly business operations. The main advantage of overdraft financing is flexibility. An example can clear such theory. When a business organization want to produce more then it collect funds through ‘overdraft financing’ and when it collected revenues from trade debtors or receivables or from other sources it can pay the amount through cheque or cash automatically reduces the overdrawn balance.
From the above discussion it is clear that overdraft financing is cheaper than any other methods of financing due to the following reasons.

(i) It helps to accumulation of idle cash,

(ii) Interest is calculated only on the actual daily balance of the overdraft.

We know that minimization of cost of capital is one of the important objective in financial objective. Financing through overdraft helps the organization to achieve the objective of avoiding idle or surplus cash balance.

It is well known fact that bank overdraft and debt capital is advantageous because they enjoy the benefit of taxation which the equity shares have not. In taxation interest on bank overdraft or interest on debt capital is an admissible charge for computing taxable income. But, incase of equity share capital or preference share capital regarding dividend such can never be claimed under the provisions of the Indian Income Tax Act, 1961 as an admissible charge for the purpose of determining taxable income. Therefore, a question arise that whether the other methods of financing is replaced by overdraft financing or overdraft financing is the only method of financing.

In this regard debt-equity ratio may not be the solution. Because, debt-equity ratio vary from organization to organization depending upon the nature of the business and the variation in cash flows. For instance, an electricity company with decent cash flows will have a higher debt-equity ratio than a machine tool manufacturing company whose cash flows are less stable. It is so because the debt-equity ratio of the organization significantly depends upon the credit worthiness and financial risk of the financial risk of the firm. The high debt-equity ratio has the following disadvantages. Firstly, the organization can not collect the borrowed funds from banks or other institutions when it is required. It is too some extent limited. Secondly, as also the organization managed the funds but it is very costly and it gradually increases the cost of production. Thirdly, another aspect that is pressures of the creditors also restrict the organisation for collecting funds in many respects. For instance, investments in fixed assets and dividend payments may be limited by direct or implied objections from creditors\(^{15}\).

\(^{15}\) R.W. Johnson, Financial Management, Allyn and Bacon, Inc, Boston, fourth Ed., p. 74
In any kind of business organization a minimum amount of share capital must be required for running the organization. Generally it is known as equity base or equity cushion. In India a company can start its operation only if it raises funds through shares. Different provisions and statutes enforce such condition. Therefore, the business organization can never start its operation at the initial stage with bank overdraft. Bank overdraft is granted to the organization against the hypothecation of stocks or some fixed assets and for acquisition of stocks or fixed assets requires some capital. Generally, it is less costly but operating advantages does not encourage the organization to go for more and more overdrafts. If it happens then it will be the mismanagement of financial affairs of the firm. “It is foolish to borrow money and not use it as it is to discover a sudden need that can only be met by an immediate increase in overdraft”\(^{16}\).

But in India, the industrial enterprises used the overdraft for financing the working capital other than long-term loans and equities\(^{17}\).

Here we are not considering the system of operation of bank overdraft. In England, “the client is allowed to draw cheques beyond the amount previously standing to his credit in the bank’s books, up to the limit set in the overdraft arrangement. This limit will usually be well covered by the market value of the negotiable security left in the bank’s keeping”\(^{18}\). “Bank does not look kindly on customers who use their overdrafts as permanent finance. In their minds the object of the overdraft is to help an enterprise to even out the peaks and valleys of its cash resources. Overdrafts, therefore, should always in theory be self liquidating…”\(^{19}\). India is not separate in this regard. Here, overdraft is granted depending on the collateral securities of the organization in liquid form and the client must pay interest at a fixed rate on the amount taken as loan. There from, the organization which is operating on overdraft it is not impossible to find out from the past record, the minimum amount of funds drawn an overdraft.

\(^{16}\) G.P.E. Clarkson & B.J. Elliott, Managing Money and Finance, Gower Press, U.K., 2\(^{nd}\) Ed., p.28  
Theoretically the cost of overdraft can be classified into two groups viz. (1) certain fixed amount payable in regards of the minimum amount drawn, (2) the variable amount to have been paid over minimum amount of overdraft.

More specifically, overdraft is granted on behalf of the hypothecation of stocks or fixed assets. Hence, it can be said that overdraft is basically utilized as a source of working capital in the organization in India.

6.8 Revenue Flow and Cash Flow pattern:

In the previous chapter it is discussed that through changing the periods of debtors and creditors the cash requirement can be fixed. It can be done through changing the relevant accounting ratios. But, it should be remembered that the change in the cash requirement depends on several factors. On the one hand, such change depends on the volume and time-distribution of the revenue flow and on the other hand it depends on the volume and time distribution of the capacity utilization of the organization. Revenue flow is also depends on many factors. They are depreciation policy, retention policy and dividend policy of the organization. A minor change in the factor/factors can affect the cash position positively or negatively. So, in isolation of the factors mentioned below have an impact on the availability, requirement and maintenance of cash balance. Such factors are listed below:

(i) Utilization of capacity in full and proper time distribution,
(ii) Depreciation Policy,
(iii) Retention Policy, and
(iv) Dividend Policy.

These policies are discussed in detail below.

6.8.1 Utilisation of capacity in full and proper time distribution:

Utilisation of capacity means the level of capacity at which the organization working in relation to the total available capacity. If the organization working on the same capacity level or if there is no change in the capacity between two periods then the cash required for a given period or stage will be the same for future requirements for carry on production or sales programme. Here also the technology remains same as discussed earlier.
But, if there is any alteration in the production cycle, then the initial cash requirement will increase or decrease depending on the length of production cycle. But, it should be mentioned that, the change in the cash position may not directly change with the change in the activity level. We know that idle cash can affect the profitability of the organization. Therefore, in order to maximize profit, the requirement of cash as working capital should be the minimum, considering the level of activity and the organization should increase its cash requirement at a lower rate than that of the increase in activity level. There should be such an acceleration of the flow of cash that there is a constant economy in its use\textsuperscript{20}.

The above mentioned relationship between utilization of capacity and the volume of cash requirement can be better understood if the costs are classified into variable and fixed. Fixed costs are remaining constant at a given level of activity and if such costs are recovered then the activity level increases up to a certain limit, which require cash only for variable expenses. Therefore, the need of cash for non-variable and non-recurring items has to be super-imposed on the total amount of cash required at a given level of activity. Therefore, the requirement of cash is needed for increase in the volume of activity. Regarding utilization of full capacity, “if the full capacity provided to do business is utilized, all fixed costs are productive of benefits. If only a portion of the provided capacity is utilized, only a portion of the attending fixed costs are productive of benefits, and the remainder represents cost of idle capacity”\textsuperscript{21}.

Let us now consider the time-distribution. It plays a very important role in determining cash-requirement of the organization. Suppose, the capacity utilization of two consecutive periods remain same but the cash requirement be different due to time-distribution. Different time-distributions mean different volumes of Working Capital requirement in each.

\textsuperscript{20} National Council of Applied Economic Research, Structure of working Capital, New Delhi, 1966, p. 1

6.8.2 Depreciation Policy:

As we know that depreciation is treated as a cost to the organization and posted debit side in profit & loss A/C to find out net profit but there is no outflow of cash. It is utilized against the loss of fixed assets. Every year a certain portion of amount is segregated as depreciation and if such amount is not invested outside for the purpose of ensuring availability of funds for replacement of assets, such funds can be utilized as working capital for meeting day to day operation. In this regards depreciation is treated as an indirect sources of cash.

Hence, cash requirement is largely dependent upon the amount of depreciation provided for so long as it is not invested outside for securing funds for replacement of fixed assets. It is related with the retention of profit. Depreciation as a source of fund may be effective provided there is no loss and no payment is required to be made in respect of the unpaid balance of the cost of the asset in the period concerned. Broadly, it is depends on the depreciation policy which determines two things, viz. (a) total depreciable cost, and (b) the rate of depreciation to be charged under straight line, diminishing or any other methods.

Therefore, the amount of cash to be kept in the business through depreciation in each period is fixed accordingly with the exact policy of depreciation. If the total depreciation charges is just equal to or exceed the financial requirement of the organization depending upon the growth rate of it then there would be no question of retention of profit in the organization. Otherwise, additional retention may have to be made, which will be useless.

6.8.3 Retention Policy:

Cash requirement as working capital in the business can also depends upon the retention policy of the organization. Retention means the fund which may not be distributed as dividend to the shareholders from the profit and this fund can be utilized as working capital in the business.

Therefore, we can say that there should have been a negative or inverse relationship between requirement of cash from other sources and retention of profit. If more amount is retained then a small or no additional cash should be required. On the other hand, if small or no amount is retained then more and more cash should be required from outside sources.

Like depreciation policy of the organization, retention policy is a predetermined one and it depends on the management decision. Later it is discussed that how the retention policy is effective on the management from the point of view of the organization or that of the owners. Here, dividend policy of the organization is influenced by the amount retained from profit because, the amount of profit which, is retained, is related with the flexible dividend policy. Here one question arises to the finance manager. The question is: Is it beneficial to the shareholders if the earnings are reinvested in the organization or distributed to them as dividends? In this regards two types of costs can be considered. They are the cost of retaining the profit and the cost of distribution of dividend to them. Generally, the profits are retained and reinvested to the business which the cost of retention is less than the cost of disbursement. The cost of retained earning is an opportunity cost to the organization. Such can be determined by indentifying the earnings that shareholders forego for reinvestment in the business. And the organization should bear such cost if it utilizes the earnings without paying them as dividend. But, if the organization pays it as dividend in cash, then the organization has to manage such fund from other sources which has fixed costs. The reason behind it is if the organization has to meet the need of its requirement of capital for short or long run and funds paid out in dividends must be replaced by other sources of capital.

The simple form of funds is the loan capital. But, loan capital consists of cost which must be included at the time of determining cost. Therefore, cost of retained earnings included various cost which are combined in the formula below.¹²³

Here, $K_e = \text{Cost of retained earnings}$,  
$D = \text{Gross cash dividends}$  
$C = \text{Cost of loan to replace dividends paid out}$  
$ct = \text{company tax rate}$  
$st = \text{Shareholder tax rate}$  
$R = \text{rate of return a share holder can earn by investing dividends.}$

In this formula, the shareholders’ tax rate is very difficult to determine. For determining it generally past experience provisions in the current tax laws and company survey can play a very important role. For that an average rate of tax is applicable.

Again it is very difficult to know the opportunity rate of cost of capital (i.e. $R$) because the rates the share holders can earn by investing the dividend have some limitations. Because, the maximum shareholder does not know, how to use the fund if the same is paid as dividend instead of retained. They use the fund for meeting their household expenditures instead of investing it at all. For this reason the board of directors fixed a certain rate which governs whether the excess funds will be invested in the business or distributed to the share holders as cash dividends.

After finding out the cost of retained earning the next step is to find out the cost of distribution. As the earnings are distributed among the shareholders in the form of dividend, the shareholders are not in a position to invest such funds in their business. Thus, cost of distribution is nothing but the return foregone by the share holders by receiving the dividends without getting them reinvested in the firm. In other words, it is the profit of that the firm would have earned for the shareholders if these funds had been retained\textsuperscript{24}. Here, the investment opportunity which the shareholders are enjoying is similar to all. If the company expand its present operations then the marginal rate of return would be quite justifiable of the purpose. Therefore, to compute the cost of distribution it is necessary to multiply the after tax rate of return or the capital employed in the investment with the amount of earnings.

\textsuperscript{24}B.Banerjee, Cash Management, World Press, p - 94.
Share price growth, capital gain tax also play an important role in the benefits of re-invested retained earnings. Hence, the cost of distributing earnings = $D*R(1-ct)^25$. Here, $D =$ Gross amount of Cash dividends $R =$ Rate of return shareholders and hence the company, can earn by investing dividend funds. $ct =$ Company tax rate.

With the help of cost of retained earnings and cost of distributing earnings it is possible make a relationship with them.

Relative cost of retained earnings = \[ \frac{\text{Cost of retained earnings}}{\text{Cost of distributing earnings}} \].

If the ratio is less than one ($\text{RCRE} < 1$) the organization should retain the funds and invested in working capital without paying dividends to the share holders. The cost of distributing earnings should be minimizing by the amount through which it exceeding that of retaining, so that two are equal on the margin.

6.8.4 Dividend Policy:

In determining cash flow dividend policy plays an important role. We are not concerning about the pref. dividend. We are concerning equity dividend because pref. dividend is pre determined and payable subject to the availability of profits.

Therefore, payment of dividend through cash is a question of the amounts and times of their payments. The reason behind it is the decrease of cash balance and also working capital. It is a matter of decision making. Decrease in working capital can affect inversely in the organization’s earning capability at the time of inflation where there is no expansion of activities. Payment of dividend reduces the balance of working capital as well as the amount of retention which is important for the growth of the organization. Retention of profit is also a payment of dividend because it enhances the value of shares. Payment of cash dividend or retained earnings would give the same impact to the shareholders who are lower tax bracket and for that they want to receive cash dividend.

\[ ^{25}\text{G.P.E, Clarkson & B.J. Elliott, Managing Money and Finance, Gower Press, U.K., 2^{nd} Ed., p.182.} \]
Therefore, the decision should be taken in such a way that both the owners and the organization is benefited. In many cases it is seen that the owners dominating the dividend policy and it is more or less predetermined. Here also firm-needs have to adjust as far as possible. It is earlier discussed that retention becomes automatic and independent when depreciation policy and dividend policy is pre-determined. If it is not so then effort should be made to meet the problems. In many cases dividend policy is decided entirely or predominantly by the unavoidable needs of the firm. Owners’ need is therefore, being adjusted between these two variables. So, it is important to consider the prospective cost of retention and distribution of profit.

6.8.4.1 Determinants of Dividend Policy:

Earlier it is discussed that dividend can be paid either in cash or converted into shares. Whatever may be the situation dividend policy is determined from two perspectives: (1) from the point of view of owners and (2) from the point of view of the firm. Whatever may be the decision regarding dividend policy, if it is benefited the firm then it also good for the owners. It is possible only when the ownership needs and wants and the interest of the firm are inter related with each other. Practically this may not happen. Because, in case of corporate form of organization where ownership and control is separated and conflict could arise in that case. Factors are discussed in below.

6.8.4.1.(A). From the point of view of owners:

Dividend Policy is firmly depends upon owner’s desireness. If the dividend policy is not accepted by the shareholders then its share will find weak market in share market. Therefore, ownership interest must be recognized.

In various ways this factor can be controlled. They are discussed below.

(i) Current Income needed by the shareholders: Suppose a business is performing for the benefit of its shareholders or owners. In this case it is logical to say that dividend policy of the organization must be influenced by the need of income of the shareholders.
In this regard a survey was conducted on two Madras based companies in questionnaires and it was found that 44% of shareholder made investment for getting regular return, 29% made investment for appreciation of their capital, 15% for hedge against inflation and balance for liquidity. The conclusion of the study was that investment in shares is made for extra income to cope with the daily expenditure and also as an insurance against the rainy day. Cash dividend is paid not only for the current income needs of the shareholders but also the proceeds of the liquidation of a part of their shareholding of increased value.

None can say that ownership of share does not mean to receive the corporate earnings in cash and therefore, board of directors has no responsibility for meeting the income needs of shareholders. So far as dividend payment is concerned the board of directors is responsible for equal patter of dividend policy. An organization paying high rate of dividend for a number of years must commit itself to some obligation to its shareholders to maintain the same without affecting the interest of the firm. It is for those people whose livelihood depends upon dividend and due to age and other purposes purchased shares for regular dividend.

The ownership pattern and attitude of directors directly affect the income needs of shareholders upon dividend policy. With the past experience the shareholders can establish some responsibility regarding dividend policy such can be of secondary importance from business point of view. Lastly, this factor becomes more important when the income needs of shareholders and control of the organization is same.

(ii) Other uses of funds by the shareholders: The amount of funds which are not paid out as dividends are retained in the business for the interest of owners. But, the board of directors can not properly retained and reinvested their funds unless it gives higher return than other investment which the shareholders willing to invest. Therefore, from the point of view of shareholders it is very difficult to ascertain the minimum expected earnings. Most of the shareholders does not know how and where to invest the fund if the dividend is paid out instead of retaining.

A fixed rate can govern the additional funds in the business. If the objective is to consider the minimum rate then the next step is to use retained earnings or outside funds. It is therefore, become a complex problem regarding the cost of funds and its risk characteristics and from it. We can say that shareholders’ interest have directly or indirectly affected by the dividend policy.

(iii) **Tax matters for the shareholders:** Tax matters are also affects the organization. Therefore, special efforts should be made to make the organization attractive from the tax point of view. The difference between tax rate on capital gain and tax rate on current income is the matter which the shareholders are administered greatly. The shareholders with higher tax bracket prefer not to receive cash dividends. They prefer to receive share dividend or no dividends. Thus, the organization always to prepare a dividend policy in such a way that the tax related matters is considered. Such tax related matters are – i) not declaring dividends and allowing the shareholders to secure their returns by appreciating shares, ii) policy of regular share dividends in addition to or in lieu of cash dividends or iii) by using classified equity share dividend with the help of raising their value. These policies are applicable to those organizations which needs more capital. Such policies are not applicable for stagnant or declining organization. Now a day due to development of technology several non-growth organizations requires more funds for purchasing expensive equipments, software etc.

6.8.4.1. (B) From the point of view of Firm:

Considering the interest of shareholders dividend policy should be prepared in such a way that the interest of the organization is not hampered. But, it is difficult to determine the shareholders’ interest, so in preparing dividend policy focus is on the organization and shareholders’ interest is the auxiliary.

In practice several factors from firm’s point of view influence the dividend policy. Such factors are as under.

(i) **Legal Constraints:** In preparing dividend policy of the organization special emphasis should be given on legal aspects. It is necessary to consider all the legal and statutory provisions relating to the dividend declaration.
It prescribes the lower and upper limits of dividend. Several acts like companies Act 1961 and 1974 (Temporary Restrictions on dividends) govern the dividend Policy. Minimum dividend rate in India in the recent days is 12%.

(ii) Liquidity, Creditability and working Capital Considerations: Working Capital of the organization is affected by payment of regular cash dividends. Thus, for determining dividend policy the management of the organization must consider the availability of cash or the liquidity of the concern. At the time of payment of dividend, with little cash in hand, what the organization do? To carry on its regular dividend policy, it is necessary to collect funds from outside for payment of dividend. These two conflicting objectives must be resolved from the best interest of the firm. Therefore, a certain level of working capital is must for successful operation. So, in maintain a dividend rate it is necessary not to reduce the working capital below the specific safe margin.

(iii) Expansion of the Organization: Every organization which follow the going concern concept and which earning profit on regular basis must expand its production capacity can be possible by diversification of products. Therefore, extra funds are required to cope with the extra production and retained earning would be one of the most important sources which can be utilized in this regard. This will decrease the payment of cash dividend and funds are retained. But to what extent, it is affordable, is depends upon the judgment of manager concerning type of operation, nature of the market, shareholders’ interest and other related factors. While discussing the retention policy it is discussed that when the cost of distribution of earnings as dividends exceeds the cost of retention, a firm would retain earnings. How much amount or funds should be retained depends upon the following factors,

(a) In which economic cost such external capital is available.
(b) Financial condition of the shareholder i.e. whether the shareholders are in higher tax bracket or the funds are reinvested in the business.
(c) Differences in sources of capital.
(d) Debt-equity ratio acceptable to the firm.
So, decision relating to expansion of capacity is the internal matter and more funds are needed for it. In some cases expansion decision comes first and in other cases dividend declaration leads the expansion decision.

(iv) Business Cycle Consideration: Business cycle of the organization can play a vital role in dividend policy decision. In many businesses organization, business cycles are not same. Similarly, profitability may also vary from one business cycle to another business cycle. But, higher or lower dividend payment may affect the share price of the organization. Therefore, smooth dividend payment is advisable from year to year. It means at boom periods the organization is go for retained earnings so that in the recession period it can pay the same dividend what it pays in the boom period.

It is not justified from the point of view of positive dividend policy rather it is for the variation in needs of funds. At the boom season where the demand of the product is high, require more working capital for meeting the excess production expense. Contrary, at the time of recession funds are available even after payment of dividends.

(v) Dividend Policies and shareholders’ relationship: After fixing up a dividend policy a question may arise whether a minor change is justified? Generally, shareholders are willing to pay premium for a fixed dividend. It will affect the dividend policy. Therefore, relatively stable dividend policy is justifiable.

(vi) Other factors relating to prospective Investment: An organization which is thinking for collecting funds from outside for prospective investment in future must consider the financial policies in future. Past dividend policy of the organization not affect the new issue of equity shares but also affect the debt capital in its financial market. There is no relationship between percentage payment, dividend stability and type of dividend and acceptability of new shares an organization with stable dividend in the financial market. But an organization which is continuously paying all of its earnings as dividend will find debt financing difficult as its equity capital is very small.
6.9 Organising Cash Flow Control:

A good cash management system must have an organizational framework which controls the cash flow. Such framework identifies who is responsible for particular function viz. collecting cash, payment authorization, making payments, bank accounts and funds transfer between accounts, arranging overdraft facilities and loans, investing cash surpluses and foreign currency transaction.

In case of small organization it is easy to identify someone who is responsible for the work. He may be the finance director or the chief accountant who look after all the matters. But, sometime such director or accountant can be responsible for not chasing a customer for prompt payment, delays in banking cash receipts, and failure to use cash surpluses with maximum efficiency.

On the other hand, there must have a problem regarding the responsibility of the work. Therefore, a framework of authority and responsibility for individuals and departments must be established to control the cash flow.

Where a person is responsible for all the aspects of cash management and where no one is willing to accept the responsibility, in both the cases there should be no areas of uncertainty. Regarding the authority for certain areas of cash management there must be some scope of disputes.

For example, a large European based company in Sierra centralizes responsibility for banking receipts and making payments in the financial controller’s department of its head office. The managers of operating division are sanctioning fund up to a specified limit. Suppliers send the invoices to the operating managers for authorizing and sending the invoices to the financial controller for delivery of funds.

Here, the authority to pay and the responsibility for making payments are clearly mentioned. But when such payment should be made is not mentioned in the example stated above. The operational managers look after the credit terms of the suppliers and instruct the financial controller to pay quickly as per the terms of payments.
For the benefit of the company, the financial controller can delay the payments of the suppliers beyond the due date for preserving cash balances and avoiding to borrow funds from outside. Because, it is not clearly specified who is allowed to decide when payments should be made. It might create the dispute.

Authority and responsibility allocation for cash management is related with the operational cash flows and cash flows for financing and investing activities.

6.10 Operational Cash Flow:

The receipts and payments for trading activities are popularly known as operational cash flows. The allocation of responsibilities of the cash flows varies from organisation to organization depending upon the size, structure of the management, geographical location of the organization and also the relationship between the organization and its customers and suppliers.

A fully decentralized organization is operating with subsidiaries under different names, and in different markets with different bank account. Such subsidiaries have their own invoicing, receivables and payables.

A partially decentralized business organization, the subsidiaries deal with the invoicing and cash receipts but decision regarding the payment, head office does the rest. Here the responsibility of payment goes upon the head office.

Lastly, a fully centralized organization all invoicing, receivables and payables look after by the head office. So total responsibility is goes upon to the head office. Framework of cash management responsibility can be established with the help of following questions:

(1) Can head office instruct business units to transfer cash from their bank account to a head office account?

(2) Can head office instruct a business unit to change the bank that it uses?
(3) Who should make the cash payments, head office or the business units themselves?

(4) Can head office refuse to make a payment that has been requested by a business unit?

(5) Can business unit arrange its own local funding or must all funding be managed through head office?

Framework for cash management is shown in the following diagram.

Partially decentralized cash responsibilities where head office is responsible for all payments and cash balances.
Partially decentralized cash responsibilities where head office is responsible for large payments and surplus cash balances.

In this case each subsidiary has a bank A/C under the control of head office. Each subsidiary invoices its customers and received through bank. But the authority to make payment to the suppliers is strictly restricted to head office management. Suppliers will send invoices to the subsidiaries where payment is authorized. The authorized invoice is then sent to the head office which will make payments from subsidiary’s A/C. Therefore, the responsibility of Cash flow is being shares, subsidiary is responsible for receipts and head office is responsible for payments.
6.11 Financing and investment of Cash Flows:

Like receipts and payments of cash flow, financing and investment of cash flows can also be shared between head office and the subsidiary. Raising fund through issue of share capital, long-term loans, capital gearing, acquisitions and major capital expenditures are controlled by the head office.

Central Treasury Department: Central Treasury is present in large organizations where day to day cash flow control does not persists. Local financial controller control the local payments, invoicing and take the decision relating to collections and credit to customers. For these reasons the central treasury department formulates the policy of overall cash flow and liquidity management of the concern. The central treasury department monitors the development matters relating to tax, banking facilities.

Banking Arrangements: Bank, normally helps the organization from the point of view of cash collection and cash payments. So, from the point of view of cash flow control banking arrangement should be very important. Activities like cash handling, money transfer it is necessary to establish a good relationship with bank/banks. The organization may change their bank/banks for the following reasons if,

a) The organization getting poor services from bank like cheque clearing time is very large,

b) The bank unable to provide services for the satisfaction of the organization,

c) The service charge of the bank is high to tolerable and
d) The bank can achieve the cleared funds very quickly.

Most of the MNCs opened several bank A/C in several countries. But the final choice of selection of bank depends upon the local services provided by that bank and partly the services of cross border money transfers and reporting balance to the head office of the organization.

Organisations can control their cash balances with the help of pooling and netting arrangements.
Under pooling different bank accounts of the organization are pooled into a single account which popularly called as a cash pool. In pooling arrangement, the current balances are swept up into a single account. If any business unit needs additional cash, there will be a transfer from the central pool.

- If the central cash pool is surplus, these amalgamated funds can be invested.
- If the cash pool is deficit, further borrowing will be arranged centrally.

There are a number of factors involved in arranging a cash pooling system.

- The number of business units with a separate bank account.
- The number of different banks. Not all accounts need be with the same bank.
- The location of the bank accounts, particularly the country of location.
- The service the bank, or banks, is willing to offer to assist with the administration of a cash pooling arrangement, such as the automatic transfer of funds to or from the cash pool.

Netting is a process through which a company or group with two or more bank accounts transfer their money between accounts in either direction. For this there will be a separate account for each business units or subsidiaries. It helps for intra-group dividend payment or interest on loan or other transactions. It protect the regular payments from one account to another and back again, only net amounts owed amounts are paid between accounts at a certain intervals like monthly or quarterly.

Generally, netting is of two types, Bilateral Netting and Multilateral Netting. Bilateral netting agreement is the simplest and it is between two bank accounts in the same currency. It is possible only when two subsidiary companies that carry on some trade between themselves. Under this system, each company will owe the other for goods or services bought on credit, and at the same time will be owed for goods or services supplied on credit. Under this agreement there will be a single payment, i.e. either monthly or quarterly by one subsidiary to another.
Multilateral netting is possible when the company has more than two subsidiaries. Under this agreement each subsidiary operated a series of bilateral netting agreement. The principles of operating the system are same like bilateral system but it is more complex. In this system a central account at the head office control the net payment arrangement and also determine the net amount payable. Although, the bank is control the function over the netting payments.

6.12 Cash Cycle:

Generally, in business it is observed that cash received from selling of goods should exceed the cash paid for preparing such goods. In business organization cash payments are made in the expectation of receiving higher amount in future. A certain part of the cash receipts are utilized to prepare more goods or to provide more services for sale. Therefore, such activities generate the business cycle of purchasing and selling and paying for purchases and receiving from sales. Such concept gives birth of cash cycle.

---

Regarding cash cycle the management of the organization is quite aware of the following matter.

a) The cash receipts should always greater than cash payments (Profitability management)

b) The cash receipts should be received as quickly as possible and try to minimize the period of cash cycle (cash management)

c) Cash is available to meet due payments and for good use as when it is received from sales (cash management).

In organization cash cycle is related with the trading cycle. The trading cycle starts with purchase of raw materials and transfer it to the production process and then send to the warehouse for storing the finished product and at the end sale the manufactured goods whereas cash cycle begins with payment for raw materials and end with the received of cash from customer for sale of goods.

Trading cycle begins with the purchase of stock for resale and closed with sale of the stock. The cash cycle starts with payment of stock and closed with receipts of cash from customer for sale.

In most of the business organization purchase of raw materials from suppliers start the trading cycle and payments to suppliers start the cash cycle. In business there are many payments which do not go to the suppliers for materials and components. For example, wages and salaries are paid to the employees and overhead expenses including payment for rent, rates, telephones, advertising and consultancy fees. In such cases the cash cycle will be applicable due to the time gap between making payments and obtaining cash income.

6.13 Cash Flow Time Line:

Both the trading cycle and cash flow cycle are measured by time. It is earlier discussed that the trading cycle starts with purchasing of raw materials and ends with selling the goods. So, the trading cycle time would be the time from purchasing of raw materials to sale of finished goods whereas cash flow cycle time would be the time from first cash expenditures receipts of payments from sales.
Different business organizations have their own trading cycle time and cash cycle time depending upon the nature of organization.

The cash flow time line of a manufacturing organization is as under.

The length of Cash Cycle or time line varies in length depending upon the item on the time line. The important elements of the cash cycle or time line are as under,

(a) Stock holding from purchase of raw materials from suppliers, production, warehousing of finished goods to time of sale.

(b) Time for paying suppliers and other creditors.

(c) Allowing customers or debtors.

Retail business is much cash oriented. Because, in retail business most of the sales are for cash, by debit or credit card, and the organization receives almost of its cash income at the time of sale. In case of large supermarket chain, they are selling the goods after a few days of purchase and pay their supplier until the goods are sold and received cash.
Cash cycle negative, because cash income is received before expenditures are paid for.

**Working Capital:** Working capital or circulating capital means those funds which are used in the business organization for maintaining its day to day operations. Working capital regarding cash cycle would be the value of stock plus debtors and minus creditors. Simply, \( \text{Stock} + \text{Debtors} - \text{Creditors} = \text{Working Capital} \).

The change of length of cash cycle has a direct effect on the working capital. Larger cash cycle would be the effect of holding stock for more periods before it is sold, larger production cycle, customer demanding larger period for payment but suppliers require quick payments. Larger production cycle affect the cash cycle negatively. Because, slow or delay production means more costs including materials and labour in work-in-progress. The cash cycle will increase if debtors taking longer period to pay their dues and there will be some creditors who require quick payment.
Therefore, the effect of changes in cash cycle is summarized below.

<table>
<thead>
<tr>
<th>Longer Cash Cycle</th>
<th>Shorter Cash Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks held longer before use or sale - more stocks are held</td>
<td>Stocks held a shorter time – fewer stocks are held.</td>
</tr>
<tr>
<td>Production cycle longer – work-in-progress will increase.</td>
<td>Production cycle shorter – less work-in-progress.</td>
</tr>
<tr>
<td>Debtors take longer to pay - there will be more debtors</td>
<td>Debtors pay more quickly – there will be fewer debtors.</td>
</tr>
<tr>
<td>Shorter time to pay creditors – there will be fewer creditors.</td>
<td>Longer Period of credit taken from / allowed by creditors – there will be more creditors</td>
</tr>
</tbody>
</table>

So, cash flow of the organization is affected with the changes in cash cycle. A longer cash cycle having more stocks, debtors and smaller creditors will minimize the cash receipts. On the other hand, a shorter cash cycle having smaller stocks and debtors and higher creditors will increase the cash receipts of the organization.

The change in working capital with effect of cash cycle is stated below.

Changes in working capital with cash balances\(^{28}\) –

<table>
<thead>
<tr>
<th>Longer Cash Cycle</th>
<th>Shorter Cash Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>More working Capital (Stock + Debtors – Creditors)</td>
<td>Less working capital (Stock + Debtors – Creditors)</td>
</tr>
<tr>
<td>Minimise the cash balances</td>
<td>Increase the cash balances</td>
</tr>
</tbody>
</table>

6.14 Measuring Cash Cycle Time: As the cash cycle affect requirement of working capital therefore, the time for measuring cash cycle is an ample importance. The organization must monitor the length of cash cycle. They are sampling, ratio measurement.

\(^{28}\) Brian Coyle, Cash Flow Control, Fitzroy. Dearborn Publishers, Chicago, p.35.
6.14.1 Sampling: It is one of the most time consuming method of measuring time of cash cycle but it provides better information of payment time for debtors and creditors. In sampling debtors, a profile is prepared for typical time from issuing an invoice for payment by the customer. From the sample an average time for receiving payment is prepared for all customers and also different groups of customers like domestic corporate customer, domestic non-corporate customers and export customers.

In this way an average creditor’s payment time can be computed with the help of sample of receipt of invoice to making the payment. The sample is divided into two groups with their common characteristics. Such as supplier who requires payment within 15 days of invoice date and supplier who requires payment within 30 days of invoice date. Here it is important to remembered that credit terms offered by the suppliers are not same of the credit period taken.

6.14.2 Ratio Measurement: Through ratio measurement we can easily analyse the cash cycle times. The financial statement of the organization helps in preparing those ratios. The main advantage of preparing these ratios for measuring the cash cycle time is that the stock turnover time as well as debtors and creditors periods can easily be estimated.

Such measurement can be done with the help of balance sheet and profit & loss A/C of the organization.

The stock turnover period can be subdivided into period for raw material stock, a production cycle time and turnover period for finished goods stock. Ratio measurement can be obtained for a given period, especially for one year i.e. for 365 days. Actual sales figure and cost of sales are inserted to obtain the ratios.

Stock Turnover Period = \( \frac{Average\ Stock}{Cost\ of\ goods\ sold\ of\ the\ year} \times 365\ days \)

Debtors Turnover Period = \( \frac{Average\ trade\ debtors}{Sales\ of\ the\ year} \times 365\ days \)

Credit Period from Creditors = \( \frac{Average\ trade\ creditors}{Sales\ of\ the\ year} \times 365\ days \).
Ratio can be complex or puzzling when presented as a formula but significant when logic is presented. Suppose the organisation’s stock turnover cost is 365 lakh and an average of Rs. 1 lakh every day of a year of 365 days. If the organization has stock in hand costing Rs. 6 lakh, therefore, it is holding six day’s worth of stock. It is popularly known as stock turnover period. This ratio can be computed as
\[
\frac{6 \text{ lakhs}}{365 \text{ lakhs}} \times 365 \text{ days} = 6 \text{ days}.
\]

In this way we can simply computed the average debtors days and average creditors days from debtors and creditors respectively.

Average of debtors, stocks and creditors can be calculated with the help of opening and closing balances of each item from the balance sheet.

The stock turnover period of a manufacturing organization can be grouped into three ratios. They are,

\[\text{Raw material Stock turnover period} = \frac{\text{Average raw material stock}}{\text{Cost of goods sold in the year}} \times 365 \text{ days}\]

\[\text{Production Cycle} = \frac{\text{Average Work-in-progress}}{\text{Cost of goods sold in the year}} \times 365 \text{ days}\]

\[\text{Finished goods stock turnover period} = \frac{\text{Average finished goods stock}}{\text{Cost of goods sold in the year}} \times 365 \text{ days}\]

Here, cost of goods sold is used to calculate the ratios of stock turnover and creditor’s turnover period. Because, cost of goods sold is easily available in the organisation’s balance sheet. It is more accurate measure as it is calculated from the balance sheet of the organization.

\[\text{Raw material stock turnover} = \frac{\text{Average raw material stock}}{\text{Cost of materials purchases in the period}} \times 365 \text{ days}\]

\[\text{Production cycle} = \frac{\text{Average Work-in-progress}}{\text{Cost of production in the period}} \times 365 \text{ days}\]

\[\text{Credit period from creditors} = \frac{\text{Average trade creditors}}{\text{Cost of purchase or credit in the period}} \times 365 \text{ days}\]

Ratio measurement is nothing but the approximation of the average and gives an estimate of cash cycle. Though, this it is more reliable in case of changes in trends from one year to next year.
Such turnover ratios are now combined to estimate the overall cash cycle of the organization.

\[
\text{Stock turnover} + \text{Production cycle} + \text{Finished goods turnover} = \text{Stock turnover} + \text{Debtors days} - \text{Average time to pay supplier} \]

\[= \text{Cash Cycle} \]

### 6.15 Creditworthiness:

It is the age of Credit. Nothing can possible in the world of business, without the liberal extension of credit. It is an indispensable convenience or a necessity in our scheme of living. Use of credit is a complex phenomenon. It is not a recent phenomenon like the disaster of Uttarakhand (India). Use of credit can be found as early as 1300 B.C in the civilization of Babylon, Assyria, Egypt. Today credit system is the destiny of past’s way path of credit system. But, common people or even like us have wrong conception or negative idea about uses and application of credit. ‘Buy now-pay later’ or promise to pay in future for immediate goods are existed in the earlier agricultural societies.

Some transaction which may not happen but implementation of credit makes it possible. At present we are using credit for every aspect of our livelihood and also for smooth running of the business. Giving credit means you are taking risk. In order to compete in today competitive market credit management help the organization for its success. Credit analysis is actually the risk analysis. So importance should be given to the credit management because today’s business world is very complex and the scenario is changing frequently.
In order to beat the competition, protecting the market share and securing economize business has witnessed increasing numbers of mergers, buy ones and acquisition that convert small business into divisions of large corporation need credit management. An organization taken over by other big organization and the credit analysis of the first organization does not matched with second one and also not feasible as well as cost efficient. Practically these motives help in necessity of credit management.

In most of the cases it is seen that information pertinent to the credit decision making is not available from the credit applicant. Then the companies are taking decision on the basis of past experience or the general impression of the customer. Proper evaluation of risk regarding credit granting decision becomes very important before the commencement of sales because once the credit is accepted by creditor organization of its credit applicant, servicing and loss mitigation technique can control the future losses only to a limited extent. The pros and cons of the situation can affect the decision.

The credit analyst must consider the nature and type of the business as well as the applicant in his personal judgment. Now, in which basis the creditor organization should asses the credit worthiness of its credit applicant? A survey is conducted in this respect shows that there is no such fixed or particular or sophisticated basis of credit evaluation, whatever may be the size of the organization big or small. Some organization depends on past experience. Some are follow the behavior or impression of customer. The next most popular method is LAPP method and the next one is most widely known and age old method in four ‘C’\’s of credit. Now, whatever may be the basis of evaluation the two major considerations in credit analysis are the applicant’s ability to business and his general financial position. Thus, it implies the financial and non-financial sides of the applicant. In the non-financial sides of the applicant in credit analysis are managerial capabilities of the applicant or the activity to operate business. In financial aspects, the credit analysts generally judge the liquidity and debt paying ability of the credit applicant. We also know that the data represented by the financial statement do not measure the ability of the manager regarding its business i.e. the soundness or weakness of its financial position.
Therefore, the data required for the credit analysis must be changed or adjusted subject to the requirement. The next step is to application of some analytical procedure to the financial figure for judging creditworthiness of applicant. To develop the financial as well as statistical technique are fairly recent and still in process. The generally used financial tools are ratio analysis, sources and application of fund analysis, trend analysis, common size statement and other analysis determining the financial position of the applicant.

Analysis of credit from financial statement is a complex process. It helps in any credit decision. Absolute data presented in the financial statement provides the credit manager in valuable information that can be helpfully combined with the information derived from other sources. Use of financial statement for the purpose of credit extension is not a recent phenomenon. In early 1870’s mercantile agencies were able to obtain some neatly arranged financial statement from customer/credit applicants. From that with the pressure from of those agencies the practice of issuing financial statement as a basis for credit extension is developed through the 1870’s and 1880’s mercantile agencies. It should be remembered that when the seller submitting its financial statement first time then it is not possible to determine credit decision. In united states the National Association of Credit from its very inception insisted that credit manager should ask for financial statement of their customer and for this purpose, in 1898 they published standard ‘property statement’ (blank balance sheet) form for the use of its members. The practice of requesting financial statement from the customer was prevalent from that time but it was not wide speed. From that the credit managers realized the need of their customer’s financial statement which is useful for collecting credit information and the customers realized the fact that their suppliers are entitled to ask and receive their financial statement at the time of granting credit. In valuable information from financial statement can create problems if Financial Statement is using as source of information. So credit manager demanded accounting data only. But, it is costly for small business. Audited information is also questionable as in small business auditor get much information supplied by the manager ‘on trust’. In that way, some concerns are still reluctant to submit copies of their financial statement and reveal the bare minimum only.
6.16 Objectives of the study in this Chapter:

The present study is prepared to make an in-depth analysis of the selected companies in Indian IT sector, Consumer Durable sector, Pharmaceutical sector, FMCG sector and Retail sector in respect of their cash flow and credit worthiness during the period of 2002-2011. Credit worthiness is one of the dynamic measures of liquidity and credit evaluation which helps the company to get more credit so that receivables are converted into cash in a minimum period of time, the company maintained the liquidity position property and maintained the growth opportunity.

Credit analysis is not a very simple procedure. For determining credit analysis we always have to consider the nature and type of business as well as the judgment of the manager. Credit analysis is actually risk analysis. Traditional methods of credit analysis are not feasible and its cost is very high. Generally, credit granting decision is based on past experience and behavior of a customer. But, proper evaluation of risk in case of credit granting decision is very much important before the commencement of sales because if sales are made then nothing to do by the credit firm other than applying loss mitigation technique for controlling future losses. Good credit rating increases the market share value of the companies. It helps the companies to collect funds very cheaply.

More specifically the objectives of the study in this chapter are as follows.

(1) To analyse the cash flow from operating activity, investing activity and financing activity of the selected companies under study.

(2) To analyse the impact of cash flow from operating activity, investing activity and financing activity on Cash Conversion Cycle and on Cash Holding of the selected companies under study.

(3) To measure the degree of relationship between Cash flow from operating activity and Cash Conversion Cycle of the selected companies under study with the help of Pearson’s simple correlation technique and test such coefficient.
(4) To measure the degree of relationship between Cash flow from investing activity and Average Cash Holding and also Cash flow from financing activity and Average Cash Holding of the selected companies under study with the help of Pearson’s simple correlation technique and test such coefficient.

(5) To measure the total average score with the help of eight different ratios concentrating on company’s liquidity, profitability and capital adequacy. Such ratios are a) Net profit to Capital employed ratio, b) Net tangible assets (Shareholders fund) to total liabilities (long term + short term debt) ratio, c) Net profit to current liabilities ratio, d) normalized working capital to credit exposure ratio, e) equity to current liability and credit exposure ratio, f) Net assets to credit exposure ratio, g) Net profit and Depreciation to Current Debt ratio.

(6) To measure the credit score (CS) of the selected companies from five different sectors with the help of total average scores.

(7) The measure the average of eight ratios, sector wise and as a whole of the selected companies using relevant statistical tools.

(8) To analyse the cash flow status of the selected companies in order to highlight the influence of cumulative profitability and cash flow with the help of Bathory’s – ‘risk description model’.

(9) To measure the degree of relationship between cash as a percentage of current assets and liquidity ratio, sector wise and as a whole of the companies under study by using Pearson’s simple correlation technique and to test such coefficient.

(10) To analyse whether the creditors firm after accepting of credit can control the future losses with the help of loss mitigation technique.

(11) To analyse how to transit smoothly from one stage to another after weighing pros and cons are occurred in the initial state of decision.
6.17 Methodology of the study:

Twenty five popular companies from five different sectors (IT, Consumer Durables, Pharmaceuticals FMCG and Retail) have been selected taking five companies from each sector. The data of the selected companies for the period 2002 to 2011 used in this study have been taken from the secondary sources i.e. Capitaline Corporate Database of Capital Market Publishers (I) Ltd. Mumbai.

Cash flow statement is statement which reveals the impact of all business transaction over a period of time on the cash position of the firm. It shows the causes of change in cash balance between two balance sheet dates. It gives the information of sources of cash and also application of cash. It is a dynamic measure of movement of cash from one balance sheet dates to another balance sheet date. It also portrays the relationship between net profit and change in cash position. It reveals the firm’s liquidity as well as profitability simultaneously. With this statement firm can project, plan and co-ordinate it financing activities effectively. As per Accounting standard 3 Cash Flow statement consist three components:

1. **Cash flow from Operating activity:** It is generally arises due to principle revenue producing activities of the firm which have direct impact on net profit. Apart from these functions it also include cash receipts from debtors, royalties etc. and cash payments to creditors, employees etc.

2. **Cash flow from Investing activity:** Generally, it consist of cash payment for acquiring fixed assets, or acquiring shares, debentures of other companies and cash receipts from sale of assets etc.

3. **Cash flow from financing activity:** Generally, cash collected by selling shares, debentures, taking long term loan etc. and cash paid for redemption of pref. shares, debenture, interest, dividend etc.

Cash Conversion Cycle is a period of purchasing of raw-material and collection of money from debtors. So, CCC is related with the Cash flow from operating activity. More collection of cash reduces the need of working capital and we know that lower cash conversion cycle is also signifies minimum need of working capital. On the other hand, quick collection of money from debtors and late payment to creditors decreases the period of cash conversion cycle.
In computing Cash flow from operating activity we add the decrease in current asset (it means from earlier year money collected from debtors) and we less the increase in current assets (it means from earlier year money are not paid to creditors). Therefore, we can say that Cash Conversion Cycle is positively related with the Cash flow from operating activity. Higher Cash flow from operating activity means lower requirement of working capital and it indirectly decreases the Cash Conversion cycle and vice-versa.

Earlier we discussed that in cash flow from investing activity we add the sale of fixed assets and less the purchase of fixed assets. This effect can be seen in the cash holding of the firm. By investing funds in fixed assets or in shares or debentures of other companies decreases the cash holding of the firm and vice-versa. Therefore, cash holding is negatively related with the Cash flow from investing activity. Higher the investment, lower the cash holding and vice-versa.

Holding excess cash is increases liquidity but reduces profitability. All we know it. Firm can easily collect funds from money market at a very negligible cost. Therefore, they are not holding cash for future requirements. In cash flow from financing activity we consider the inflow by issue of shares, pref. shares, debentures, taking long-term loans and outflow by redemption of pref. shares, debentures, repayment of long-term loan etc. Holding cash without any purpose have to bear cost in the form of interest, dividend and also affect the profitability of the firm indirectly. Therefore, Cash holding of the firm is inversely related with the Cash flow from investing activity.

To develop a credit evaluation model from the financial statement of the selected companies, we use Bathory’s – ‘risk description model’ with small changes. In actual model the main influencing factors are accumulated profitability and inventory but for our purpose we use the cash flow instead of Inventory. Eight different ratios are calculated from the financial statement as stated above. In determination of ratios, emphasis has been given on the firms’ liquidity, profitability and capital adequacy. For the purpose of our study five companies each from five different sectors are selected, as stated earlier, with the help of purposive sampling procedure. The model is prepared on the basis of ten years data; it will be more predictive and reveals the appropriate creditworthiness of the companies.
For analyzing the data, statistical tools like arithmetic mean, percentage etc. and statistical technique like Pearson’s simple correlation analysis and statistical test like ‘t’ test have been applied at appropriate places.

**Risk Description Model:**

1. Net Profit / Capital Employed = Profitability (Annual)
2. Net Tangible assets (Shareholders Fund) / Total Liabilities (Long term + Short term debt) = Profitability (Cumulative)
3. Net Profit / Current Liabilities = Liquidity
5. Equity / Current Liability + Credit exposure = Capital Adequacy
6. Net Assets / Credit exposure = Comfort Margin
7. Total assets / Total liability + Credit exposure = Debt Capacity

In the first ratio we find out the ratio showing profitability. It is also known as return on capital employed. Here, net profit means profit after tax but before interest. In this ratio net profit is placed on capital employed for the measurement of profitability of the current year. Second ratio is calculated by placing the net tangible assets on total liabilities. Here, net tangible assets signify the shareholders fund and total liabilities is equal to the long-term debt plus total short-term debt. The second ratio reveals the measurement of cumulative profitability. In this model we consider both the profitability for current year as well as profitability for accumulated periods. In the previous two chapters we used the current ratio and quick ratio as the measure of liquidity so we are not used these in this chapter. These ratios are less impressive in respect of creditworthiness of an organization. Here, we use the Net profit to current liabilities ratio as the indicator of liquidity. Net profit of an organization generally includes some items additional to current assets such as surplus after accounting for depreciation and extraordinary items. Current liabilities here we consider the items which are payable within a particular accounting period. Another liquidity ratio i.e. fourth ratio is computed by placing Normalised Working Capital to over credit exposure. And normalized working capital is calculated by deducting the stock from net current assets (i.e. Net Working Capital).
Usually, in case of quick ratio, we place the current assets less stock over current liabilities. In this case we have already deducted current liabilities from current assets for calculating Net current assets. If we place the normalized working capital over current liabilities plus credit exposure – it will portrays a wrong picture. So we placed the normalized working capital over credit exposure. This would show how much cover a hard measure of latest liquidity can afford. Normalised working capital can be calculated by deducting hundred percent of stock or less liquid stock like raw materials and WIP in case of a manufacturing company. In case of retail companies the deductible portion may be twenty five percent. But in this study we develop the model by deducting fifty percent of stock from net current assets. The amount of credit asked by the customer is termed as credit exposure. In preparing the model we have taken twenty five percent of current assets as credit exposure. The third and fourth ratio indicates the short-term debt paying capability of the organization.

Fifth ratio measures the capital adequacy of the companies selected under study. Capital adequacy of the organization measure the long-term capital or permanent capital. Generally, long-term capital is not used to meet the short-term obligation of the organization. Fifth ratio in this model is used in respect of equity stake. In many situations such equity stake can provide the organization further borrowing powers. Very roughly speaking, if equity is greater than 50 percent of capital employed, further borrowing might reasonably be represented by the difference between actual level of equity to capital employed and 50 percent. In calculating the ratio credit exposure is added with current liabilities to provide the most serve total of firm’s obligation. In the sixth ratio net assets is placed over credit exposure. In the model it is termed as comfort margin. In the fourth ratio, normalized working capital is placed over credit exposure. Most of the cases, it produces comparatively high values and probably negative. As we know that stock is a very substantial part of current assets and we deduct stock from net current assets, there is a very high probability of a negative figure. It is expected that net assets will provide a significantly large amount of cover for small credit exposure. The resulting ratio, therefore, should provide high positive scores and it affects the scores in our model to compensate for the high negative value provide by the normalized working capital to credit exposure ratio.
In the seventh ratio total assets is placed over total liability plus credit exposure. It signifies the debt capacity of the organization. Here total liabilities include both short-term liabilities and long-term liabilities. In the ratio total liability also include the credit exposure. It indicates the safety margin taking into consideration of all known obligations including the credit asked by the customer. Such a measurement would give a rough idea of break-up value of the company where all obligations, including our original exposure to crystallize simultaneously. The ratio then gives an indication of safety margin and debt capacity both of which are functions of liquidity, Capital adequacy and Profitability.

Finally, in the eighth ratio the treatment of priority debt items is measured by contrasting current debt with financial flow that will be servicing it. Computing gross cash flow from modified accounting information will be difficult without a detailed profit and loss account showing depreciation. So, gross cash flow is obtained by adding the depreciation with net profits. Simply, the ratio is calculated by placing the financial flow (gross cash flow) over current debt. Earlier we discussed how to calculate gross cash flow. Generally, from experience it is observed that all the current liabilities are not paid at a time, so in calculating current debt in this model we consider only twenty percent of company’s current liabilities. It shows the treatment of priority debt items and it is matched with that amount which will be used to servicing it.

In our model eight ratios are taken into consideration by giving equal weight to them.

The resulting formula would be denoted as –

$$CS = L \times \sum_{i=1}^{8} x_i$$

CS = Credit Scores
Xi = Variables (I = 1 to 8)
L = Constant Multiplier = 100/8 = 0.125

The developed model is thus $0.125 \times \sum_{i=1}^{8} x_i$

Risk Description Model

Here, NWC = Normalised Working Capital, NTA = Net Tangible Assets, E = Equity Shareholders fund, CL = Current Liabilities, TL = Total Liabilities CR. EXPOSU = Credit Exposure (0.25% of CA), CD = Current Debt D = Depreciation, NP = Net Profit, NA = Net Assets, CE = Capital Employed.
6.18 Limitations of the Study:

This study is based only on the data contained in published financial statements. (1) In this study we only consider the net figure of different activities of cash flow analysis. Internal elements which increases or decreases the cash flows are not considered.

(1) This study is based on Bathory’s – ‘risk description model’. Here eight ratios are computed from the data of selected companies as per Bathory’s model. Other ratios can also be computed.

(2) The impacts of some common macroeconomic factors or general factors are not considered for the sake of simplicity of the study.

(3) More companies can be selected from the selected industries/ sectors but for simplicity, lack of time and unavailability of data it is not possible to select all companies for general comment.

(4) In this study for calculating normalized working capital we deducted fifty percent of stock from Net Current Assets. According to Bathory’s model, in case of retail companies the deductible portion may be twenty five percent. Bu, in this study for comparison of uniqueness and simplicity we deducted fifty percent of stock from Net Current Assets.

(5) In this study for measuring liquidity, emphasis is given on Net Profit / current liabilities ratio, not the generally accepted and used liquidity ratios like current ratio and quick ratio.

(6) According to Bathory’s – ‘risk description model’ the main influencing factors in this model are the accumulated profitability and the inventory. But in this study, instead of inventory we consider cash flow which is one of the prime influencing factors of our analysis.
6.19 Findings of the study in this Chapter:

Net cash flow from operating activity:

Net cash flow from operating activity has been shown in table-11. Net cash flow from operating activity of Philips is highest in the year 2007 (213.5 Crore) whereas it is minimum in the year 2006 (only 2.5 Crore). On an average it is 120.64 Crore. A mixed trend in Net cash flow from operating activity is noticed during the study period. In case of Asian the net cash flow from operating activity is highest in the year 2011 (194.91 Crore) and lowest in the year 2008 (-138.8 Crore). On an average it is 5.947 Crore. Also a mixed trend is observed throughout the study period. Table-11 shows that the net cash flow from operating activity of Wipro is highest in the year 2010 (4477.4 Crore) whereas it is minimum in the year 2008 (715.9 Crore). On an average it is 2207.05 Crore. Here also a mixed trend is noticed. In case of CMC highest Net cash flow from operating activity is noticed in the year 2011 (171.6 Crore) whereas it is lowest in the year 2002 and 2003 (-11.1 Crore). Averagely it is 63.11 Crore. A mixed trend in net cash flow from operating activity of the company is noticed throughout the study period. Table-11 shows that in Videocon the net cash flow from operating activity is highest in the year 2011 (625.3 Crore) and lowest in the year 2003 (-13.22 Crore). On an average it is 242.14 Crore. The net cash flow from operating activity fluctuated throughout the study period.

From table-11, we can see that the net cash flow from operating activity of Hawkins depicts that it is highest in the year 2010 (37.82 Crore) and lowest in the year 2002 (0.72 Crore). On an average it is 14.36 Crore. The net cash flow from operating activity is fluctuated throughout the study period. The net cash flow from operating activity of Havells is highest in 2011 (341.83 Crore) whereas it is minimum in 2003 (-8.08 Crore). On an average it is 129.49 Crore. Table-11 shows that the net cash flow from operating activity of Khaitan is highest in the year 2009 (13.1 Crore) and it is lowest in the year 2006 (-3.83 Crore). On an average it is 3.17 Crore. The net cash flow from operating activity fluctuated throughout the study period. The net cash flow from operating activity of Voltas is highest in the year 2008 (345.8 Crore) and lowest in the year 2004 (-22.8 Crore). On an average it is 84.18 Crore. It also fluctuated throughout the study period. From table-11, it is clear that the net cash flow from operating activity of Siemens is highest in the year 2011 (1001.2 Crore) whereas lowest in the year 2008 (-400.5 Crore). It also registered a mixed trend throughout the study period. On an average it is 403 Crore.
Table-11 portrays that net cash flow from operating activity of Alchemist is highest in the year 2008 (44.84 Crore) and lowest in the year 2006 (-1.29 Crore). On an average it is 13.565 Crore. A fluctuating trend in net cash flow from operating activity is noticed throughout the study period. In case of Cipla the net cash flow from operating activity is highest in the year 2010 (1041.7 Crore) whereas it is lowest in the year 2003 (67.75 Crore). On an average it is 398.36 Crore. The net cash flow from operating activity is fluctuated throughout the study period. Table-11 depicts that the net cash flow from operating activity of Dr. Reddy’s Laboratory is highest in the year 2010 (1253.2 Crore) whereas it is lowest in the year 2006 (79.67 Crore ). It also fluctuated throughout the study period. On an average it is 498.38 Crore. The net cash flow from operating activity of Lupin is highest in the year 2010 (532.57 Crore) whereas it is lowest in the year 2002 (81.11 Crore). A mixed trend of it noticed during the period under study. On an average it is 263.7 Crore. From table-11 it clear that the net cash flow from operating activity of Ranbaxy is highest in the year 2011 (1168.9 Crore) and it is lowest in the year 2010 (-665.4 Crore). On an average it is 316.71 Crore. Here also a mixed trend in net cash flow from operating activity is noticed.

Table-11 depicts the net cash flow from operating activity of Britannia is highest in the year 2009 (246.8 Crore) and lowest the year 2002 (53.08 Crore). On an average it is 134.88 Crore. A mixed trend of it is noticed throughout the study period. The net cash flow from operating activity of Dabur is highest in the year 2009 (499.59 Crore) whereas it is minimum in the year 2002 (99.84 Crore). On an average it is 253.43 Crore. It fluctuated during the study period. In case of HUL table-11 portrays that the net cash flow from operating activity is highest in the year 2010 (3441 Crore) whereas it is lowest in the year 2005 (1301.6 Crore). On an average it is 1825.49 Crore. It also fluctuated throughout the study period. The net cash flow from operating activity of Marico is highest in the year 2007 (267 Crore) whereas it is lowest in the year 2005 (46.78 Crore). On an average it is 123.58 Crore. A mixed trend of it noticed throughout the study period. Table-11 portrays that the net cash flow from operating activity of Nestle is highest in the year 2011 (1036.8 Crore) whereas it is lowest in the year 2002 (264.46 Crore). On an average it is 535.13 Crore. An Increasing trend in net cash flow from operating activity is noticed throughout the study period.
From table-11 it is clear that the net cash flow from operating activity of Bata is highest in the year 2010 (110.26 Crore) whereas it is lowest in the year 2006 (-23.4 Crore). On an average it is only 34.39 Crore. A mixed trend in net cash flow from operating activity is noticed. In case of Siyaram table-11 depicts that the net cash flow from operating activity is highest in the year 2010 (103.39 Crore) and lowest in the year 2011 (-23.14 Crore). It also fluctuated throughout the study period. On an average it is 26.004 Crore. Table-11 shows that the net cash flow from operating activity of Gini Fabrics is highest in the year 2003 (5.06 Crore) and lowest in the year 2007 (-1.19 Crore). On an average it is 1.246 Crore. The net cash flow from operating activity of the company fluctuated throughout the study period. The net cash flow from operating activity of Raymond is highest in the year 2006 (157.6 Crore) whereas it is lowest in the year 2002 (-67.53 Crore). On an average it is 74.65 Crore. It also fluctuated throughout the study period. In case of Titan, Table-11 shows that the net cash flow from operating activity is highest in the year 2011 (1025 Crore) and lowest in the year 2002 (44.08 Crore). On an average it is 226.45 Crore. A mixed trend in net cash flow from operating activity of the company is noticed throughout the study period.

**Net cash flow from Investing activity:**

Net cash flow from investing activity has been shown in table-12. Net cash flow from Investing activity of Philips is highest in the year 2007 (167.7 Crore) whereas it is minimum in the year 2009 (219.9 Crore). On an average it is 30.57 Crore. A mixed trend in Net cash flow from investing activity is noticed during the study period. In case of Asian the net cash flow from Investing activity is highest in the year 2010 (20.05 Crore) and lowest in the year 2011 (-59.71 Crore). On an average it is -11.817 Crore. Also a mixed trend is observed throughout the study period. Table-12 shows that the net cash flow from Investing activity of Wipro is highest in the year 2003 (-635.38 Crore) whereas it is minimum in the year 2009 (-3663 Crore). On an average it is -1647.4 Crore. Here also a mixed trend is noticed. Throughout the study period all the cash flows from investing activity are negative. In case of CMC highest Net cash flow from Investing activity is noticed in the year 2006 (15.98 Crore) whereas it is lowest in the year 2011 (-92.32 Crore). Averagely it is -22.09 Crore. A mixed trend in net cash flow from Investing activity of the company is noticed throughout the study period. Table-12 shows that in Videocon the net cash flow from Investing activity is highest in the year 2003 (-66.14 Crore) and lowest in the year 2008 (-877.2 Crore). On an average it is -384.9 Crore. The net cash flow from Investing activity fluctuated throughout the study period. All cash flows from investing activity are negative.
From table-12 the net cash flow from Investing activity of Hawkins depicts that it is highest in the year 2009 (0.78 Crore) and lowest in the year 2008 (-1.8 Crore). On an average it is -0.79 Crore. The net cash flow from investing activity is fluctuated throughout the study period. The net cash flow from Investing activity of Havells is highest in 2004 (-2.65 Crore) whereas it is minimum in 2011 (-339.1 Crore). On an average it is -150.47 Crore. Table-12 shows that the net cash flow from Investing activity of Khaitan is highest in the year 2007 (1.43 Crore) and it is lowest in the year 2009 (-19.2 Crore). On an average it is -1.98 Crore. The net cash flow from Investing activity fluctuated throughout the study period. The net cash flow from Investing activity of Voltas is highest in the year 2002 (82.3 Crore) and lowest in the year 2008 (-131.8 Crore). On an average it is -5.018 Crore. It also fluctuated throughout the study period. From table-12 it is clear that the net cash flow from Investing activity of Siemens is highest in the year 2010 (303.72 Crore) whereas lowest in the year 2011 (-391.9 Crore). It also registered a mixed trend throughout the study period. On an average it is -50.78 Crore.

Table-12 portrays that net cash flow from Investing activity of Alchemist is highest in the year 2003 (-16.59 Crore) and lowest in the year 2002 (-46.34 Crore). On an average it is -24.35 Crore. A fluctuating trend in net cash flow from Investing activity is noticed throughout the study period. In case of Cipla the net cash flow from Investing activity is highest in the year 2002 (-38.4 Crore) whereas it is lowest in the year 2011 (-1136 Crore). On an average it is -424.2 Crore. The net cash flow from Investing activity is fluctuated throughout the study period. Table-12 depicts that the net cash flow from operating activity of Dr. Reddy’s Laboratory is highest in the year 2005 (69.35 Crore) whereas it is lowest in the year 2008 (-1520 Crore). It also fluctuated throughout the study period. On an average it is -617.63 Crore. The net cash flow from Investing activity of Lupin is highest in the year 2002 (-51.05 Crore) whereas it is lowest in the year 2010 (-684.1 Crore). A mixed trend of it noticed during the period under study. On an average it is -259.59 Crore. From table-12 it clear that the net cash flow from Investing activity of Ranbaxy is highest in the year 2010 (86.3 Crore) and it is lowest in the year 2007 (-2104 Crore). On an average it is -793.94 Crore. Here also a mixed trend in net cash flow from Investing activity is noticed.
Table-12 depicts the net cash flow from Investing activity of Britannia is highest in the year 2007 (59.05 Crore) and lowest the year 2011 (156.4 Crore). On an average it is -22.874 Crore. A mixed trend of it noticed throughout the study period. The net cash flow from Investing activity of Dabur is highest in the year 2006 (-27.5 Crore) whereas it is minimum in the year 2010 (-259.7 Crore). On an average it is 137.47 Crore. It fluctuated during the study period. In case of HUL table-12 portrays that the net cash flow from Investing activity is highest in the year 2008 (1025 Crore) whereas it is lowest in the year 2010 (-1146 Crore). On an average it is 127.47 Crore. It also fluctuated throughout the study period. The net cash flow from Investing activity of Marico is highest in the year 2004 (8.73 Crore) whereas it is lowest in the year 2011 (-317.6 Crore). On an average it is -138.4 Crore. A mixed trend of it noticed throughout the study period. Table-12 portrays that the net cash flow from Investing activity of Nestle is highest in the year 2004 (-40.9 Crore) whereas it is lowest in the year 2011 (-445.9 Crore). On an average it is -162.71 Crore. An increasing trend in net cash flow from investing activity is noticed throughout the study period.

From table-12 it is clear that the net cash flow from Investing activity of Bata is highest in the year 2003 (-2.42 Crore) whereas it is lowest in the year 2010 (-61.59 Crore). On an average it is only -22.72 Crore. A mixed trend in net cash flow from Investing activity is noticed. In case of Siyaram table-12 depicts that the net cash flow from Investing activity is highest in the year 2003 (-1.13 Crore) and lowest in the year 2007 (-64.35 Crore). It also fluctuated throughout the study period. On an average it is -28.89 Crore. Table-12 shows that the net cash flow from Investing activity of Gini Fabrics is highest in the year 2007 (2.58 Crore) and lowest in the year 2006 (-3.15 Crore). On an average it is -0.768 Crore. The net cash flow from Investing activity of the company fluctuated throughout the study period. The net cash flow from Investing activity of Raymond is highest in the year 2011 (115.38 Crore) whereas it is lowest in the year 2009 (-361.1 Crore). On an average it is -90.10 Crore. It also fluctuated throughout the study period. In case of Titan, Table-12 shows that the net cash flow from Investing activity is highest in the year 2004 (2.26 Crore) and lowest in the year 2007 (90.63 Crore). On an average it is -34.23 Crore. A mixed trend in net cash flow from investing activity of the company is noticed throughout the study period.
Net cash flow from Financing activity:

Net cash flow from financing activity has been shown in table-13. Net cash flow from Financing activity of Philips is highest in the year 2007 (-16.2 Crore) whereas it is minimum in the year 2010 (-161.3 Crore). On an average it is -51.31 Crore. A mixed trend in Net cash flow from financing activity is noticed during the study period. In case of Asian the net cash flow from financing activity is highest in the year 2008 (144 Crore) and lowest in the year 2011 (-131.2 Crore). On an average it is 8.60 Crore. Also a mixed trend is observed throughout the study period. Table shows that the net cash flow from financing activity of Wipro is highest in the year 2008 (2291 Crore) whereas it is minimum in the year 2011 (-2733 Crore). On an average it is -84.04 Crore. Here also a mixed trend is noticed. In case of CMC highest Net cash flow from financing activity is noticed in the year 2002 (16.52 Crore) whereas it is lowest in the year 2002 and 2003 (-64.08 Crore). Averagely it is -16.91 Crore. A mixed trend in net cash flow from financing activity of the company is noticed throughout the study period. Table-13 shows that in Videocon the net cash flow from financing activity is highest in the year 2005 (826.9 Crore) and lowest in the year 2011 (-111.1 Crore). On an average it is 140.13 Crore. The net cash flow from financing activity fluctuated throughout the study period.

From table-13 the net cash flow from financing activity of Hawkins depicts that it is highest in the year 2002 (0.4 Crore) and lowest in the year 2003 (-18.19 Crore). On an average it is -9.14 Crore. The net cash flow from financing activity is fluctuated throughout the study period. The net cash flow from financing activity of Havells is highest in 2008 (223.6 Crore) whereas it is minimum in 2006 (-80 Crore). On an average it is 25.81 Crore. Table-13 shows that the net cash flow from financing activity of Khaitan is highest in the year 2009 (6.27 Crore) and it is lowest in the year 2002(-8.22 Crore). On an average it is -1.39 Crore. The net cash flow from financing activity fluctuated throughout the study period. The net cash flow from financing activity of Voltas is highest in the year 2009 (22.19 Crore) and lowest in the year 2010 (-177.9 Crore). On an average it is (-) 40.48 Crore. It also fluctuated throughout the study period. From table-13 it is clear that the net cash flow from financing activity of Siemens is highest in the year 2004 (-24.8 Crore) whereas lowest in the year 2011 (-200.7 Crore). It also registered a mixed trend throughout the study period. On an average it is -75.36 Crore.
Table-13 portrays that net cash flow from financing activity of Alchemist is highest in the year 2006 (42.62 Crore) and lowest in the year 2008 (-26.9 Crore). On an average it is 12.09 Crore. A fluctuating trend in net cash flow from financing activity is noticed throughout the study period. In case of Cipla the net cash flow from financing activity is highest in the year 2008 (254.8 Crore) whereas it is lowest in the year 2010 (-471.6 Crore). On an average it is 33.67 Crore. The net cash flow from financing activity is fluctuated throughout the study period. Table-13 depicts that the net cash flow from financing activity of Dr. Reddy’s Laboratory is highest in the year 2006 (593 Crore) whereas it is lowest in the year 2010 (-152.2 Crore). It also fluctuated throughout the study period. On an average it is 123.93 Crore. The net cash flow from financing activity of Lupin is highest in the year 2006 (401.1 Crore) whereas it is lowest in the year 2004(-301 Crore). A mixed trend of it noticed during the period under study. On an average it is -1.89 Crore. From table-13 it clear that the net cash flow from financing activity of Ran baxy is highest in the year 2009 (2791 Crore) and it is lowest in the year 2003(-322 Crore). On an average it is 484.98 Crore. Here also a mixed trend in net cash flow from financing activity is noticed.

Table-13 depicts the net cash flow from financing activity of Britannia is highest in the year 2008 (53.08 Crore) and lowest the year 2004 (-186 Crore). On an average it is -95.57 Crore. A mixed trend of it noticed throughout the study period. The net cash flow from financing activity of Dabur is highest in the year 2009 (-9.77 Crore) whereas it is minimum in the year 2010 (-227.9 Crore). On an average it is -99.242 Crore. It fluctuated during the study period. In case of HUL table-13 portrays that the net cash flow from financing activity is highest in the year 2003 (-1130.5 Crore) whereas it is lowest in the year 2008 (-2921 Crore). On an average it is -1842.5 Crore. It also fluctuated throughout the study period. The net cash flow from financing activity of Marico is highest in the year 2011 (129.72 Crore) whereas it is lowest in the year 2009 (-80.3 Crore). On an average it is 16.23 Crore. A mixed trend of it noticed throughout the study period. Table-13 prptrays that the net cash flow from financing activity of Nestle is highest in the year 2002 (-166.82 Crore) whereas it is lowest in the year 2011 (-543.8 Crore). On an average it is -332.84 Crore. An Increasing trend in net cash flow from financing activity is noticed throughout the study period.
From table-13 it is clear that the net cash flow from financing activity of Bata is highest in the year 2005 (50.41 Crore) whereas it is lowest in the year 2010 (-40.03 Crore). On an average it is only -9.17 Crore. A mixed trend in net cash flow from financing activity is noticed. In case of Siyaram table-13 depicts that the net cash flow from financing activity is highest in the year 2011 (74.55 Crore) and lowest in the year 2010 (-62.52 Crore). It also fluctuated throughout the study period. On an average it is 3.1 Crore. Table-13 shows that the net cash flow from financing activity of Gini Fabrics is highest in the year 2002 (0.83 Crore) and lowest in the year 2003 (-3.61 Crore). On an average it is -0.476 Crore. The net cash flow from financing activity of the company fluctuated throughout the study period. The net cash flow from financing activity of Raymond is highest in the year 2009 (265.6 Crore) whereas it is lowest in the year 2010 (-119.3 Crore). On an average it is 17.73 Crore. It also fluctuated throughout the study period. In case of Titan, Table-13 shows that the net cash flow from financing activity is highest in the year 2007 (-23.54 Crore) and lowest in the year 2010 (-177.9 Crore). On an average it is -85.45 Crore. A mixed trend in net cash flow from financing activity of the company is noticed throughout the study period.

**Net increase/Decrease in Cash flow:**

In 2002, 2004, 2006, 2007, 2008, 2009, 2010, 2011 the net cash flows of Hawkins are positive and only in 2003 it is negative. On an average the net cash flow of Hawkins is 4.429 Crore. The net cash flow of Havells is positive in the years 2002, 2005, 2006, 2007, 2008 and 2009 whereas it is negative in 2003, 2004, 2010 and 2011. On an average it is only 4.835 Crore. In Khaitan the net cash flows from all operations are negative except in the years 2003, 2005 and 2009. In 2011 the net cash flow of Khaitan is zero. On an average it is (-) 0.205 Crore. In Voltas the net cash flow from all operations of all the years are positive, except in the year 2006. On an average it is 38.678 Crore. The net cash flows of Siemens of all the years under study are positive, except in the year 2002 and 2008. On an average it is 162.899 Crore.


In Bata, the net cash flow in 2004, 2005, 2006, 2007, 2008, 2010 are positive and in 2002, 2003, 2009 and 2011 are negative. On an average it is only 2.51 Crore. In Siyaram, the net cash flow of all the years, except 2005, 2008 and 2011 are positive. On an average it is only 0.214 Crore. The net cash flows of Gini Fabrics in 2002, 2003, 2004, 2007, 2010 are positive and in 2005, 2006, 2008, 2009 and 2011, it is negative. On an average it is only 0.002 Crore. All the years in the study period of Raymond, the net cash flows are positive except in 2003, 2005, 2008 and 2010. On an average it is 2.278 Crore. In Titan the net cash flows of all the years except 2002 and 2006 are positive. On an average it is 106.775 Crore.

From overall point of view it is seen that the cash flow from operating activity of all the companies is positive. It may be due to efficient cash management from the point of view liquidity. Cash flow from operating activity is positive when collection from debtors is quick and in large proportion, quick stock clearance, and delay in payments of creditors. Indirectly it reduces the need of working capital. Lower cash conversion cycle might reduce the need of working capital. It has been depicted that due to higher cash conversion cycle, the cash flow from operating activity of CMC, Hawkins, Khaitan, Voltas, Alchemist, Bata, Siyaram, Gini Fabrics and Raymond etc decreases. It has also been observed that except HUL the cash flow from investing activity of all the companies are negative. It signifies large investment in assets or in some investment projects. It decreases the cash holding. From one side it affects the liquidity but from other side it increases the profitability by earning interest from investments. The average cash flow from financing activity of most of the companies specially HUL, Nestle, Dabur, Britannia, Titan, Wipro, Siemens, Philips are negative. It portrays that these companies paid their unused cash by way of repayment of Debenture, long-term loan, Preference share capital etc.

**Analysis of Correlation:**

In IT sector, Table-15 shows that the correlation coefficient between CCC and Cash flow from operating activity in Philips, Asian, Wipro, CMC and Videocon are 0.231, (-) 0.235, 0.142, 0.789 and 0.474 respectively. Out of which the correlation coefficient between CCC and Cash flow from operating activity in Philips, Wipro, CMC and Videocon are positive and correlation coefficient in case of CMC is statistically significant both at 5% and 1% level. It implies that the strength of positive association between CCC and Cash flow from operating activity in CMC is highly significant. Good cash management through operating activity minimizes the CCC of these companies except Asian which produces negative correlation and it is also statistically insignificant.
From table-15 we can see that the correlation coefficients between CCC and Cash flow from operating activity in Hawkins, Havells, Khaitan, Voltas and Siemens of consumer Durable sector are 0.633, 0.833, 0.439, (-) 0.394 and (-) 0.187 respectively, out of which the correlation coefficient of Hawkins is statistically significant at 5% level and the same in case of Havells is statistically significant both at 5% and 1% level of significance. It implies that the strength of positive association between CCC and cash flow from operating activity is highly significant in case of Hawkins and Havells. These companies might have adopted efficient cash flow control mechanism which minimizes the CCC. But in case of Voltas and Siemens the cash flow control is not effective.

Table-15 portrays that the correlation coefficient between CCC and cash flow from operating activity of Alchemist, Cipla, Dr. Reddy’s laboratory, Lupin and Ranbaxy in pharmaceuticals sector are (-)0.265, (-)0.554, 0.457, (-)0.175, (-)0.612 respectively. All the correlation coefficients except in case of Dr. Reddy’s Laboratory are negative and they are statistically insignificant. It implies the strength of negative association between CCC and cash flow from operating activity. Such negative association signifies the inefficient control over operating activity which increases the period of CCC.

In FMCG sector, table-15 shows that the correlation coefficients between CCC and cash flow from operating activity in Britannia, Dabur, HUL, Marico and Nestle are (-)0.35, 0.19, 0.472, 0.152 and 0.638 respectively. All the correlation coefficients except Britannia are positive. Out of which the coefficient in Nestle is statistically significant at 5% level. It depicts the strength of positive association between CCC and cash flow from operating activity. It implies that all the companies of FMCG sector selected in this study except Britannia followed an efficient control over operating activities of cash during the study period, which decreases the CCC.

From table-15 it is clear that the correlation coefficients between CCC and cash flow from operating activity in Bata, Siyaram, Gini Fabrics, Raymond and Titan are 0.766, 0.192, 0.621, (-) 0.145 and 0.901 respectively. The correlation coefficients between CCC and cash flow from operating activity of all the companies in Retail sector selected in the study except Raymond are positive and out of which the same in Bata and Titan is statistically significant both at 5% and 1% level.
It implies that the strength of positive association between CCC and cash flow from operating activity in Bata and Titan is highly significant. Such correlation coefficients implies that good cash management through controlling operating activity of cash might decreases the cash conversion cycle of these companies.

In IT sector, table-15 depicts that the correlation coefficient between average cash holding and cash flow from investing in Philips, Asian, Wipro, CMC and Videocon are (-)0.273, (-)0.123, (-)0.699 and (-)0.506 (-)0.225 respectively. All the correlation coefficients are negative and showing the negative relationship. Out of which the correlation coefficient in Wipro is statistically significant at 5% level. It implies the strength of negative association between average cash holding and cash flow from investing activity in Wipro is highly impressive. It signifies the efficiency in managing cash through control over investing activity.

Table-15 portrays that in consumer durable sector the correlation coefficient between average cash holding and cash flow from investing activity in Hawkins, Havells, Khaitan, Voltas and Siemens are 0.206, (-)0.939, 0.213, (-)0.565, (-)0.239 respectively. Out of which the same in Havells, Voltas and Siemens are negative and in case of Havells it is statistically significant both at 5% and 1% level of significance. It implies the strength of negative association between average cash holding and cash flow from investing activity in most of the companies in consumer Durable sector. It signifies the efficiency in managing cash through control over investing activity of cash. These companies are probably engaging their funds in income generating assets which decreases the cash level.

From table-15 we can see that in Pharmaceutical sector the correlation coefficients between average cash holding and cash flow from investing activity in Alchemist, Cipla, Dr. Reddys’s laboratory, Lupin and Ranbaxy are 0.46, (-) 0.835, (-)0.222, (-)0.192 and 0.018 respectively. The correlation coefficients in Cipla, Dr. Reddy’s Laboratory and Lupin are negative. It depicts the strength of negative association between average cash holding and cash flow from investing activity, out of which the coefficient of Cipla is statistically significant both at 5% and 1% level. It also signifies the efficiency in managing investing activity of cash. Here also most of the companies invest their fund in some income generating assets which indirectly decrease the level of cash.
Cash Management in Indian Corporate Sector: A Study of Select Companies

In FMCG sector table-15 portrays that the correlation coefficient between average cash holding and cash flow from investing activity in Britannia, Dabur, HUL, Marico and Nestle are 0.114, (-)0.677, (-)0.54, (-)0.246 and (-)0.701 respectively. All the correlations are negative except in case of Britannia. It shows the strength of negative association between average cash holding and cash flow from investing activity and out of which the same in case of Dabur and Nestle is statistically significant at 5% level of significance, highly impressive. Again it signifies the efficient cash management system in respect of controlling investment activity of the companies. The effect of such policy, the average cash holding of these companies has been decreased.

Table-15 shows that in Retail sector the correlation coefficient between average cash holding and cash flow from investing activity in Bata, Siyaram, Gini Fabrics, Raymond and Titan are (-)0.604, (-)0.49, 0.136, 0.068, and (-) 0.146 respectively. It implies the low degree of negative association between average cash holding and cash flow from investing activity in Bata, Siyaram and Titan and all are statistically insignificant. It also shows the efficiency in controlling investing activity of cash and which indirectly holding less cash in Bata, Siyaram and Titan. But, the picture in case of Gini Fabrics and Raymond is quite different.

In IT sector table-15 depicts that the correlation coefficient between average cash holding and cash flow from financing activity in Philips, Asian, Wipro, CMC and Videocon are 0.256, 0.241, (-)0.148, (-)0.543 and (-)0.099 respectively. Out of which the correlation coefficients in Wipro, CMC and Videocon are negative. It implies the strength of negative association between average cash holding and cash flow from financing activity. It signifies the efficient cash management system in regards with controlling the financing activity of these companies is impressive.

From table-15 it is clear that in Consumer Durable sector the correlation coefficients between average cash holding and cash flow from investing activity in Hawkins, Havells, Khaitan, Voltas and Siemens are (-)0.396, 0.389, (-)0.43, (-)0.288 and (-)0.613 respectively. In these correlation coefficients in case of Hawkins, Khaitan, Voltas and Siemens are negative.
It signifies the negative association between average cash holding and cash flow from financing activity. It portrays the efficiency in managing corporate cash in respect of financing activity of these companies.

Table-15 shows that in Pharmaceutical sector the correlation coefficients between average cash holding and cash flow from financing activity in Alchemist, Cipla, Dr. Reddy’s laboratory, Lupin and Ranbaxy are (-) 0.474, 0.388, 0.389, 0.351 and 0.148 respectively. All the correlation coefficients are positive except Alchemist. Most of the companies, the correlation coefficients depict the positive association between average cash holding and cash flow from financing activity. It implies the inefficient cash management system in respect of controlling financing activity of these companies. Therefore, steps should been taken to improve the financial activities.

In FMCG sector, table-15 shows that the correlation coefficient between average cash holding and cash flow from financing activity in Britannia, Dabur, HUL, Marico and Nestle are 0.1422, (-) 0.343, 0.174, 0.096 and (-) 0.793 respectively. The correlation coefficients in case of Dabur and Nestle are negative. Out of which the same in case of Nestle is statistically significant at 5% level. It implies the negative association between average cash holding and cash flow from financing activity. It portrays the efficiency in managing cash from the point of view of financing activity. On the other hand, the correlation coefficients in case of Britannia, HUL and Marico are positive. It signifies inefficient control over financing activity of cash throughout the study period. Therefore, importance should be given to those companies in respect of financing activity.

From table-15 we can say that in Retail sector the correlation coefficient between average cash holding and cash flow from financing activity in Bata, Siyaram, Gini Fabrics, Raymond and Titan are (-) 0.144, (-)0.005, 0.073, (-) 0.036 and (-) 0.308 respectively. Only in case of Gini Fabrics the correlation coefficient are positive, signifies inefficient control over financing activity of cash. But, in other companies of Retail sector showed the efficient cash management system in regards with controlling cash flow from financing activity. Though, there has been low negative relationship. It implies the negative association between average cash holding and cash flow from financing activity. And steps should be taken to control the cash flow from financing activity.
In twenty-five correlation coefficients between CCC and cash flow from operating activity sixteen correlation coefficients are positive. Out of which six are statistically significant either 5% or 1% level of significance. Therefore, we can conclude that efficient control over current assets and liabilities and also operating expenses reduces the CCC. On the other hand, out of twenty five correlation coefficients between average cash holding and cash flow from investing activity, eighteen correlation coefficients are negative and in these correlation coefficients five are statistically significant either at 5% or 1% level of significance. Most of the companies in this study followed an efficient cash management mechanism in respect of cash flow from investing activity. They utilized their unused fund to some income generating assets. Again, out of twenty five correlation coefficients between average cash holding and cash flow from financing activity fourteen correlations are negative and out of which one is statistically significant at 5% level. It implies that most of companies in this study are efficiently controlled the financing activity of cash flow. It signifies that such control minimizes the requirement of holding excess cash in the company.

The main purpose of calculating ratios is to judge the firm’s liquidity, profitability and capital adequacy. From the ‘risk description model’, scores are calculated individually for each of the selected companies under study. Tables are prepared consisting of different ratios to calculate scores. The model clearly showed that how the liquidity, profitability and capital adequacy factors influenced the scores of individual companies. In case of all the companies from five different sectors, where all the factors are good, they obtained high score. Contrary, the companies where two factors are good but the impact of one or two bad factor / factors outweighed the influence of good factors.

This model is self-explanatory in nature. In this case our objective is to gives an idea to the credit analyst, about extracting best result of using financial statement.

It is found from table-16 that in IT sector the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Philips India Ltd. (Philips) are 0.1879, 0.9567, 0.229, 65.607, 1.1326, 259.22, 2.0051 and 1.7122 respectively. Out of which ratio $x_6$ registered the highest by score 259.22 and ratio $x_1$ is the lowest which is 0.1879 score. The total of average score is 331.05. The credit score of Philips is 41.382.
From table-17, it is found that the average score of ratios $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Asian Electronics Ltd. (Asian) are 0.0425, 4.1337, 0.4173, 262.02, 4.6422, 268.64, 7.56 and 3.4261 respectively. Out of which ratio $x_6$ is the highest, which score is 268.64 whereas ratio $x_1$ is the lowest by scoring 0.0425. The total of average score is 550.9. The credit score of Asian Electronics Ltd. is 68.86.

Table-18 reveals that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Wipro Ltd. (Wipro) are 0.2553, 2.8177, 1.5202, 182.82, 5.1936, 550.28, 4.1129 and 1.7369 respectively. The highest score registered by ratio $x_6$ (550.28) while ratio $x_1$ (0.2553) is the lowest in Wipro. The total of average score is 748.73. The credit score of Wipro is 93.592.

Table-19 shows that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in CMC Ltd. (CMC) are 0.2345, 0.8938, 0.3456, 120.74, 1.2437, 236.33, 2.0051 and 1.9353 respectively. Out of which ratio $x_6$ (236.33) is the highest and ratio $x_1$ (0.2345) is the lowest. The total average score is 363.73. The credit score of CMC Ltd is 45.466.

It has been found from table-20 that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Videocon Group (Videocon) are 0.0913, 2.8602, 0.5376, 210.54, 2.9976, 347.39, 6.4592 and 3.4714 respectively. The highest score is revealed by ratio $x_6$ which is 347.39 and the lowest score is registered by ratio $x_1$ which is 0.0913. The total average score is 574.35. The credit score of Videocon is 71.794.

Therefore, in IT sector from table 16, 17, 18, 19 and 20 we can conclude that the cumulative profitability condition is good in Asian whereas regarding current profitability condition Wipro is the best. On the other hand from the point of view of debt paying capacity of Asian is the best. The score revealed that under IT sector highest credit score obtained by Wipro and it followed by Videocon, Asian, CMC and Philips in that order. The score plotted in Figure-13 revealed that under IT sector highest credit score obtained by Wipro and it followed by Videocon, Asian, CMC and Philips in that order.
Now, in Consumer Durables sector, table-21 shows that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Hawkins Cooker Ltd. (Hawkins) are 0.307, 0.6868, 0.3715, 71.228, 0.6831, 129.05, 2.1832 and 2.1614 respectively. The highest score is revealed by ratio $x_6$ (129.05) and lowest score is registered by ratio $x_1$ (0.307). The total average score is 206.67. The credit score of Hawkins Ltd is 25.833.

Table-22 exhibits that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Havells India Ltd. (Havells) are 0.2145, 1.5491, 0.5221, 72.758, 1.5365, 360.79, 3.172 and 2.5341 respectively. The highest score represented by ratio $x_6$ (360.79) and lowest score registered by ratio $x_1$ (0.2145). The total average score of Havells is 443.08. The credit score of Havells is 55.385.

Table-23 shows that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Khaitan Electricals Ltd. (Khaitan) are 0.0335, 3.1395, 0.1195, 86.385, 3.1699, 735.48, 5.0493 and 0.8221 respectively. The highest score represented by ratio $x_6$ which is 735.48 and lowest score portrayed by ratio $x_1$ which is 0.0335. The total average score of Khaitan is 834.2. The credit score of Khaitan is 104.28.

Table-24 reveals that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Voltas Ltd. (Voltas) are 0.2678, 0.2606, 0.0838, (-) 52.46, 0.2889, 89.719, 1.2401 and 0.4798 respectively. Out of which ratio $x_6$ (89.719) represented the highest score and ratio $x_4$ (-52.46) revealed the lowest score. The total average score of Voltas is only 39.883. The Credit score of Voltas Ltd. is 4.9853. The negative score of ratio $x_4$ reduced the total score.

It is found from table-25 that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Siemens Ltd. (Siemens) are 0.3041, 0.6304, 0.1843, 36.074, 0.6281, 175.92, 1.5298 and 1.0587 respectively. The ratio $x_6$ (175.92) represented the highest score whereas the ratio $x_1$ (0.3041) represented the lowest. The total average score of Siemens Ltd. is 216.33. The credit score of Siemens Ltd. is 27.042.

Therefore, in Consumer Durable sector table 21, 22, 23, 24 and 25 reveals that from current profitability point of view Hawkins is the best whereas from cumulative profitability’s view point Havells is the best. On the other hand, in respect of debt
paying capacity, Khaitan is the best. The score shows that under consumer durables sector the highest credit scores obtained by Khaitan and it followed by Havells, Siemens, Hawkins and Voltas in that order. The score plotted in Figure-14 shows that under consumer durables sector the highest credit scores obtained by Khaitan and it followed by Havells, Siemens, Hawkins and Voltas in that order.

In Pharmaceutical sector table-26 shows that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Alchemist Ltd. (Alchemist) are 0.085, 4.503, 0.71, (-) 61.206, 5.89, 843.70, 9.038 and 4.39 respectively. Out of which ratio $x_6$ is the highest which is 843.70 and ratio $x_4$ is lowest which is (-) 61.206. The total average score of Alchemist is 807.126. The credit score of Alchemist Ltd. is 100.89. Due to ratio $x_4$ the credit score is decreased.

Table-27 shows that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Cipla are 0.19617, 3.034, 0.94, 174.43, 4.344, 412.40, 4.305, and 5.415 respectively. Out of which the highest ratio is $x_6$ (412.403) and lowest ratio is $x_1$ (0.196). The total average score of Cipla is 605.077. The credit score of Cipla is 75.63.

Table-28 exhibits that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Dr. Reddy’s Laboratories are 0.146, 4.89, 1.06, 250.11, 5.97, 517.36, 6.32 and 1.28 respectively. Out of which ratio $x_6$ is the highest which is 517.36 and ratio $x_1$ is the lowest which is 0.146. The total average score of Dr. Reddy’s Laboratories is 787.17. The credit score of Dr. Reddy’s Laboratories is 98.39.

Table-29 reveals that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Lupin Ltd. (Lupin) are 0.16, 2.15, 0.85, 205.31, 2.65, 288.10, 4.98 and 4.91 respectively. Out of which ratio $x_6$ (288.10) is the highest and ratio $x_1$ (0.16) is the lowest. The total average score of Lupin is 509.13. The credit score of Lupin is 63.64.

Table-30 portrays that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Ranbaxy Laboratories Ltd. (Ranbaxy) are 0.135, 1.807, 0.626, 113.88, 2.833, 379.21, 3.716 and 3.59 respectively. Out of which ratio $x_6$ is the highest which is 379.21 and ratio $x_1$ is the lowest which is 0.135. The total average score of Ranbaxy Ltd. is 505.81. The credit score of Ranbaxy Ltd. is 63.2269.
Therefore, under Pharmaceuticals sector table 26, 27, 28, 29 and 30 shows that the current profitability condition is the best in Cipla whereas in respect of cumulative profitability, Dr. Reddys’ Laboratories is the best. On the other hand in respect of debt paying capacity Alchemist is the best. The highest credit score obtained by Alchemist, and it followed by Dr. Reddys’ Laboratories, Cipla, Lupin and Ranbaxy in that order. From Figure-15 it is clear that the highest credit score obtained by Alchemist, and it followed by Dr. Reddys’ Laboratories, Cipla, Lupin and Ranbaxy in that order.

It has been found from table-31 that in FMCG sector the average scores of ratio \( x_1, x_2, x_3, x_4, x_5, x_6, x_7 \) and \( x_8 \) in Britannia Industries Ltd. (Britannia) are 0.257, 1.71, 0.74, (-) 37.78, 2.37, 566.77, 3.933 and 4.33 respectively. Out of which, the ratio \( x_6 \) is the highest which is 566.77 and the ratio \( x_4 \) is the lowest which is (-) 37.788. The total average score of Britannia is 542.33. The credit score of Britannia is 67.79. Ratio \( x_4 \) reduced the credit score.

It is found from table-32 that the average score of ratio \( x_1, x_2, x_3, x_4, x_5, x_6, x_7 \) and \( x_8 \) in Dabur India Ltd. (Dabur) are 0.406, 1.338, 0.88, (-) 37.06, 2.022, 430.63, 2.63 and 4.88 respectively. Out of which the ratio \( x_6 \) is the highest which is 430.636 and ratio \( x_4 \) is lowest which is (-) 37.06. The total average score of Dabur is 405.74. The credit score of Dabur is 50.71. Ratio \( x_4 \) reduced the credit score.

It is depicted from table-33 that the average score of ratio \( x_1, x_2, x_3, x_4, x_5, x_6, x_7 \) and \( x_8 \) in Hindustan Unilever Ltd. (HUL) are 0.79, 0.55, 0.559, (-) 181.14, 0.777, 264.39, 1.648 and 3.021 respectively. Out of which ratio \( x_6 \) (264.39) is the highest and ratio \( x_4 \) (-181.14) is lowest. The total average score of HUL is 11.32. Ratio \( x_4 \) helps to reduce the credit score.

It has been exhibited from table-34 that the average score of ratio \( x_1, x_2, x_3, x_4, x_5, x_6, x_7 \) and \( x_8 \) in Marico industries Ltd. (Marico) are 0.302, 1.922, 0.854, 107.22, 2.188, 343.78, 3.78 and 5.03 respectively. Out of which ratio \( x_6 \) is highest, which is 343.78 and ratio \( x_1 \) is lowest, which is 0.302. The total average score of Marico is 465.09. The credit score of Marico is 58.136.
It has been found from table-35 that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Nestle India Ltd. (Nestle) are 0.8069, 0.535, 0.989, (-) 294.3, 1.132, 303.3, 1.59 and 5.88 respectively. The highest score registered by ratio $x_6$ (303.3) and lowest score registered by ratio $x_4$ (-294.3). Total average score of Nestle is 19.899. The credit score of Nestle is only 2.48. It is due to high negative ratio $x_4$.

Therefore, in FMCG sector tables 31, 32, 33, 34 and 35 shows that from current profitability point of view HUL is the best whereas in respect cumulative profitability Nestle is the best. On the other hand, in respect of debt paying capacity Britannia is the best. In FMCG sector highest credit score obtained by Britannia and it is followed by Marico, Dabur, HUL and Nestle in that order. Figure-16 portrays that in FMCG sector highest credit score is obtained by Britannia and it is followed by Marico, Dabur, HUL and Nestle in that order.

Now, in Retail sector table-36 reveals that the average scores of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Bata India Ltd. (Bata) are 0.101, 1.26, 0.167, 44.37, 1.53, 276.24, 2.52 and 1.28. The highest score deserved by ratio $x_6$ (276.24) and lowest score registered by ratio $x_1$ (0.101). Total average score of Bata is 327.5. The credit score of Bata is 40.93.

Table-37 shows that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Siyaram Silk Mills (Siyaram) are 0.074, 2.735, 0.58, 225.117, 3.435, 241.62, 7.34 and 4.88 respectively. Out of which ratio $x_6$ is the highest which is 241.626 and ratio $x_1$ is the lowest which is 0.074. Total average score of Siyaram is 485.811. The credit score of Siyaram is 60.726.

From table-38 it is found that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Gini Fabrics are 0.110, 4.916, 0.540, 179.071, 5.929, 659.039, 6.179 and 5.166 respectively. The highest score represented by ratio $x_6$ which is 659.039 and lowest score represented by ratio $x_1$ which is 0.110. The total average score of Gini Fabrics is 860.954. The credit score of Gini Fabrics is 107.619.

Table-39 exhibits that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Raymond are 0.057, 3.469, 0.459, 166.565, 4.399, 548.32, 6.852 and 0.746 respectively. Out of which ratio $x_6$ (548.329) is the highest and ratio $x_1$ (0.057) is the lowest. The total average score is 730.879. The credit score of Raymond is 91.35.
Table-40 reveals that the average score of ratio $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, $x_7$ and $x_8$ in Titan Industries Ltd. (Titan) are 0.205, 0.708, 0.292, 72.20, 0.771, 134.306, 2.84, and 1.869 respectively. Out of which ratio $x_6$ is the highest, which is 134.306, and ratio $x_1$ is the lowest, which is 0.205. The total average score of Titan is 213.208. The credit score of Titan is 26.65.

Therefore, in Retail sector tables 36, 37, 38, 39, 40 reveal that the current profitability condition is the best in Titan Ltd. whereas in respect of cumulative profitability Gini Fabrics is the best. On the other hand, regarding debt paying capacity Siyaram is the best. In retail sector highest credit score captured by Gini Fabrics and it followed by Raymond, Siyaram, Bata and Titan in that order. From Figure-17 it is clear that in Retail sector highest credit score is captured by Gini Fabrics and it followed by Raymond, Siyaram, Bata and Titan in that order.

In Table-41, sector wise ranking and ranking on the basis of companies as a whole have been done regarding their credit score. In sector wise ranking Wipro captured the first position in IT sector, Khaitan is the best in consumer durable sector, Alchemist occupied the first position in Pharmaceutical sector, Britannia registered the best position in FMCG sector and Gini Fabrics captured the top most position in retail sector.

Table-41 reveals that the highest score obtained by Gini Fabrics among all the companies selected under this study and it is followed by Khaitan, Alchemist Dr. Reddy’s Laboratories, Wipro, Raymond. Cipla, Videocon, Asian, Britannia, Lupin, Ranbaxy, Siyaram, Marico, Havells, Dabur, CMC, Philips, Bata, Siemens, Titan, Hawkins, HUL, Nestle in that order. Figure-18 discloses the status of all the companies as a whole and makes it easy to understand the original situation.

In depth analysis of credit score it is revealed that the credit score of selected companies is mainly influenced by two ratios. Liquidity ratio ($x_4$) and comfort margin($x_6$).
Table-41 shows that in IT sector the ratio $x_4$ in Philips, Asian, Wipro, CMC and Videocon are 65.61, 262, 182.8, 120.37 and 210.5 respectively. On the other hand, ratio $x_6$ in Philips, Asian, Wipro, CMC and Videocon are 259.2, 268.6, 550.3, 236.3, and 347.4 respectively. In Asian Electronics Ltd ratio $x_4$ is highest and in Wipro ratio $x_6$ is highest. Ratio $x_6$ of Wipro helped the Wipro to capture the first position in IT sector and fifth from all companies taken together in respect of credit score.

Table-41 reveals that in Consumer Durables sector the ratio $x_4$ in Hawkins, Havells, Khaitan, Voltas and Siemens are 71.23, 72.376, 86.38, (-)52.5, 36.07 respectively. On the other hand, ratio $x_6$ in Hawkins, Havells, Khaitan, Voltas and Siemens are 129.0, 360.8, 735.5, 89.372 and 175.9 respectively. In Khaitan ratio $x_4$ and ratio $x_6$ is the highest. Such ratio helped the Khaitan to occupy the first position in Consumer Durables sector and second from all companies taken together, in respect of credit score.

Table-41 exhibits that in Pharmaceuticals sector the ratio $x_4$ in Alchemist, Cipla, Dr. Reddys’ Laboratories, Lupin and Ranbaxy are (-) 61.2, 174.4, 250.1, 205.3 and 114.0 respectively. On the other hand, ratio $x_6$ in Alchemist, Cipla, Dr. Reddys’ Laboratories, Lupin and Ranbaxy are 843.7, 412.4, 517.4, 288.1 and 379 respectively. Ratio $x_4$ is highest in Dr. Reddys’ Laboratories whereas ratio $x_6$ is highest in Alchemist. Ratio $x_6$ helped the Alchemist to capture the first position in Pharmaceuticals sector and third position from all companies taken together regarding credit score.

Table-41 portrays that in FMCG the ratio $x_4$ in Britannia, Dabur, HUL, Marico and Nestle are (-) 37.8, (-) 37.1, (-) 181, 107.2 and (-) 294 respectively. On the other hand, ratio $x_6$ in Britannia, Dabur, HUL, Marico and Nestle are 566.8, 430.6, 264, 343.8 and 303.3 respectively. Ratio $x_4$ is highest in Marico while ratio $x_6$ is highest in Britannia. Ratio $x_6$ of Britannia Ltd helped Britannia to occupy the first place in FMCG sector and tenth from all companies taken together regarding credit score. It is very important to mention here that the high ratio $x_6$ in most of the companies in FMCG sector is effect less due to high negative ratio $x_4$. 

Table-41 depicts that in Retail sector the ratio $x_4$ in Bata, Siyaram, Gini Fabrics, Raymond and Titan are 44.38, 225.31, 179.1, 166.6 and 72.21 respectively. On the other hand the ratio $x_6$ in Bata, Siyaram, Gini Fabrics, Raymond and Titan are 276.2, 241.6, 659, 548.3 and 134.3 respectively. Ratio $x_4$ is highest in Siyaram while ratio $x_6$ is highest in Gini Fabrics. Ratio $x_6$ of Gini Fabrics and high positive ratio $x_4$ helped the Gini Fabrics to capture the top most position in Retail sector as well as all the companies taken together.

From overall point of view ratio $x_4$ is highest in Asian Electronics Ltd. whereas ratio $x_6$ is highest in Alchemist Ltd.

In depth analysis of the individual company’s credit performance on the basis of credit score table indicates that liquidity ratio ($x_4$) i.e. the ratio of Normalized Working Capital to Credit Exposure is highly affected by percentage of Current Liabilities to Current Assets and percentage of Cash to Current Assets.

From Table-42 it is found that in IT sector the liquidity ratio ($x_4$) as per our model in Philips is 66.547 whereas its current liabilities consist 60.31 % of current assets and at the same time cash covers 25.61% of current assets.

The liquidity ratio in Asian is 262.01 whereas its current liabilities consist only 17.90% of current assets and at the same time cash occupied only 2.41% of current assets.

The liquidity ratio ($x_4$) in Wipro is 182.81 while its current liabilities consist of 30.58% of current assets and at the same time cash occupied 22.06 % of current assets.

The liquidity ratio ($x_4$) in CMC is 120.74 while its current liabilities consist of 47.12 % of current assets and at the same time cash holds 16.75% of current assets.

The liquidity ratio ($x_4$) in Videocon is 210.54 whereas its current liabilities consist of only 30.90% current assets and at the same time cash occupied only 10.25% of current assets.
Therefore, table-42 revealed that the liquidity ratio of Asian and Videocon is good due to the reason that in these companies current liabilities consist less percent of current assets and also cash occupied very nominal portion.

It is found from table-43 that in Consumer Durables sector the liquidity ratio \(x_4\) as per our model in Hawkins is 71.23 whereas its current liabilities consist of 47.86 \% of current assets and at the same time cash occupied 10.56\% of current assets.

The liquidity ratio \(x_4\) as per our model in Havells is 72.75 whereas its current liabilities consist of 53.42 \% of current assets and at the same time cash occupied 6\% of current assets.

Similarly, the liquidity ratio \(x_4\) as per our model in Khaitan is 86.38 whereas its current liabilities consist of 60.15 \% of current assets and at the same time cash occupied 3.58\% of current assets.

The liquidity ratio \(x_4\) as per our model in Voltas is (-) 52.45 whereas its current liabilities consist of 81.59 \% of current assets and at the same time cash occupied 0.14\% of current assets.

Similarly, the liquidity ratio \(x_4\) as per our model in Siemens is 36.07 whereas its current liabilities consist of 71.27 \% of current assets and at the same time cash occupied 21.20\% of current assets.

Hence, table-43 exhibits that the liquidity ratio of Voltas is (-) 52.45. It is because in Voltas current liabilities consists higher portion of current assets and lower portion of cash. In other companies of Consumer durables sector where liquidity ratio is sound but higher portion of current liabilities on current assets is compensated by moderate cash balance.

It has been found from table-44 that in Pharmaceuticals sector, the liquidity ratio \(x_4\) as per our model in Alchemist is (-) 61.2 whereas its current liabilities consist of 98.21 \% of current assets and at the same time cash occupied 32.57\% of current assets.
The liquidity ratio \(x_4\) as per our model in Cipla is 174.43 whereas its current liabilities consist of 24.40% of current assets and at the same time cash occupied 1.49% of current assets.

The liquidity ratio \(x_4\) as per our model in Dr. Reddys’ Laboratories is 250.11 whereas its current liabilities consist of 23.03% of current assets and at the same time cash occupied 25.26% of current assets.

Similarly, the liquidity ratio \(x_4\) as per our model in Lupin is 205.31 whereas its current liabilities consist of 27.46% of current assets and at the same time cash occupied 7.99% of current assets.

The liquidity ratio \(x_4\) as per our model in Ranbaxy is 113.88 whereas its current liabilities consist of 37.54% of current assets and at the same time cash occupied 7.08% of current assets.

Therefore, from table-44, we can conclude that the reason behind the negative liquidity ratio of Alchemist is due to higher portion of current liabilities consist of current assets. On the other hand, other companies in Pharmaceutical sector under study revealed very high liquidity ratio. It is also the reason of lower portion of current liabilities consist of current assets and moderate portion of cash in current assets.

It has been revealed from table-45 that in FMCG sector the liquidity ratio \(x_4\) as per our model in Britannia is (-) 37.78 whereas its current liabilities consist of 60.14% of current assets and at the same time cash occupied 35.04% of current assets.

The liquidity ratio \(x_4\) as per our model in Dabur is (-) 37.06 whereas its current liabilities consist of 56.59% of current assets and at the same time cash occupied 10.15% of current assets.

Similarly, the liquidity ratio \(x_4\) as per our model in HUL is (-) 181.14 whereas its current liabilities consist of 89.30% of current assets and at the same time cash occupied 21.73% of current assets.
The liquidity ratio \((x_4)\) as per our model in Marico is 107.22 whereas its current liabilities consist of 43.27% of current assets and at the same time cash occupied 6.08% of current assets.

Similarly, the liquidity ratio \((x_4)\) as per our model in Nestle is (-) 294.34 whereas its current liabilities consist of 67.13% of current assets and at the same time cash occupied 23.75% of current assets.

Therefore, from table-45 it is clear that in FMCG sector, in most of the companies the liquidity ratio is negative. The reason behind such negative liquidity ratio is that such companies’ current liabilities occupied higher portion in current assets and also these companies holding moderate cash balance.

Table-46 shows that in Retail sector, the liquidity ratio \((x_4)\) as per our model in Bata is 44.37 whereas its current liabilities consist of 46.27% of current assets and at the same time cash occupied 2.38% of current assets.

The liquidity ratio \((x_4)\) as per our model in Siyaram is 225.11 whereas its current liabilities consist of 18.40% of current assets and at the same time cash occupied 0.71% of current assets.

Similarly, the liquidity ratio \((x_4)\) as per our model in Gini Fabrics is 179.07 whereas its current liabilities consist of 30.66% of current assets and at the same time cash occupied 7.68% of current assets.

In Raymond the liquidity ratio \((x_4)\) as per our model is 166.56 whereas its current liabilities consist of 31.72% of current assets and at the same time cash occupied 3.04% of current assets.

The liquidity ratio \((x_4)\) as per our model in Titan is 72.20 whereas its current liabilities consist of 49.42% of current assets and at the same time cash occupied 6.33% of current assets.

Therefore, from table-46 we can conclude that lower portion of current liabilities consist in current assets and low cash balance in current assets help to increase the liquidity ratio of Siyaram. In general, all the companies under study in retail sector maintained moderate portion of current liabilities in current assets.
Coefficient of Correlation is the measurement of degree of association between two variables. A positive value of ‘r’ indicated high values of one variable are generally associated with the high values of other variables and low values with low values. In this study multiple correlation technique among Cash as a % of CA, CL as a % of CA and NWC/Credit Exposure has been applied. To test the significance of such coefficient, ‘t’ test has been used.

It is found from table-47 that in IT sector the correlation coefficient between cash as a percent of current assets and liquidity ratio ($x_4$) revealed the negative correlation which is (-) 0.858, statistically not significant. On the other hand the correlation coefficient between current liabilities as a percent of current assets and liquidity ratio ($x_4$) signified very high negative relation (-) 0.990 and it is statistically significant at 1% level.

It follows the theoretical proposition that higher the portion of current liabilities consist of current assets lower the liquidity position of the concern and vice-versa. The correlation analysis in table-47 shows that cash as a percent of current assets and current liabilities as a percent of current assets has a high positive correlation (0.796) which is statistically insignificant.

It has been found from table-48 that in Consumer durables sector the correlation coefficient between cash as a percent of current assets and liquidity ratio ($x_4$) depicted a very low positive correlation, which is 0.261, statistically insignificant. On the other hand, the correlation coefficient between current liabilities as a percent of current assets and liquidity ($x_4$) revealed a high degree of negative correlation (-) 0.868 which is also statistically not significant.

It also supported the theoretical principle that higher the current liabilities as a percent of current assets lower the liquidity ($x_4$). The correlation analysis in table-48 exhibits that cash as a percent of current assets and current liabilities as percent of current assets has a low degree of negative correlation (-) 0.098 which is statistically insignificant.
Table-49 shows that in Pharmaceutical Sector the correlation coefficient between cash as percent of current assets and liquidity ratio \((x_4)\) revealed a low degree of negative correlation which is \((-) 0.484\) and it is also statistically insignificant. On the other hand, the correlation coefficient between current liabilities as a percent of current assets and liquidity \((x_4)\) showed a high degree of negative correlation \((-) 0.961\) and it is statistically significant at 1% level. It also proved the theoretical principle that higher the current liabilities as a percent of current assets lower the liquidity \((x_4)\). The correlation coefficient between cash as a percentage of current assets and current liabilities as a percentage of current assets is 0.689 and which is also statistically insignificant.

It has been revealed from table-50 that in FMCG sector the correlation coefficient between cash as a percent of current assets and liquidity ratio \((x_4)\) is \((-) 0.480\) which is negative and statistically insignificant. Similarly, the correlation coefficient between current liabilities as percent of current assets and liquidity is \((-) 0.732\) which is negative and statistically insignificant at 1% level.

It strengthens the theoretical proposition that higher the current assets lower the liquidity ratio \((x_4)\). On the other hand the correlation analysis in table-50 shows that cash as a percent of current assets is positively related with current liabilities as a percent of current assets. It is also statistically in significant.

Table-51 shows that in Retail sector the correlation analysis between cash as a percent of current assets is negatively related with liquidity \((x_4)\). The correlation coefficient is statistically not significant. On the other hand, the correlation coefficient between current liabilities as a percent of current assets and liquidity ratio \((x_4)\) is negative. The correlation coefficient is \((-) 0.966\) and it is statistically significant at 1% level. Here also the correlation coefficient between current liabilities as a percent of current assets and liquidity ratio \((x_4)\) supported the theoretical principle that higher the current liabilities as percent of current assets lower the liquidity. The other correlation coefficient in between cash as a percent of current assets and current liabilities as a percent of current assets is positive, which is 0.391 and it is not statistically significant.
Table-52 shows that in case of all the companies from five different sectors under study the correlation coefficient between cash as a percent of current assets and liquidity is (-) 0.418 which is negative and statistically significant at 5% level. On the other hand, the correlation coefficient between current liabilities as a percent of current assets and liquidity as a whole is (-) 0.843, which is statistically insignificant at 5% level. All the companies under study followed the same theoretical principle that higher the current liabilities as a percent of current assets lower the liquidity ratio. Finally, the correlation coefficient between cash as a percentage of current assets and current liabilities as percent of current assets is 0.463. It is positive and statistically significant at 5% level. It proves that cash as percent of current assets and current liabilities as percent of current assets has a positive relationship. It also revealed that holding moderate cash balance does not affect the current liabilities of the companies under study. In table-53 an overall analysis of credit score has been done considering eight different ratios, ratios of CL to CA, Cash to CL, CS and ranking on the basis of CS and CL as % of CA.

From the table it is seen that in Asian, Wipro, Videocon in IT sector; Khaitan in Consumer Durable sector, all the Pharmaceuticals companies selected under study, Britannia in FMCG sector, Siyaram, Gini Fabrics and Raymond in Retail Sector, credit score are above standard (58.32). In these companies current liabilities as a percent of current assets is very low except in case Alchemist and Khaitan. In these two companies strong equity base leads to high comfort margin and helps to increase their credit rating. But in other companies, whose credit scores are above standard, the low proportion of current liabilities helps to achieve very high liquidity score of the companies as well as strong equity base of those companies leads to very high comfort margin and ultimately increase their credit rating. Ranking on the basis of CL as % of CA among all the companies under study portrays the same conclusion regarding credit score. In table-52 the correlation coefficient between current liabilities as a percent of current assets and liquidity ratio (x₄) taking all the companies as a whole revealed the negative relationship which also strengthen our argument in favour of these companies whose CS is high or above standard.
On the other hand, the companies where CS is very low are Hawkins, Voltas and Siemens in Consumer Durables sector, HUL and Nestle in FMCG sector; Titan in Retail sector. In these companies ratio $x_4$ and $x_6$ are very poor. Sometimes $x_4$ in these companies are negative. In case Voltas, HUL, Nestle the positive impact of profitability, cumulative profitability and comfort margin are outweighed by negative liquidity ratio. Although the equity base of these companies are not so far been impressive.

From table-53 it is also found that the companies which maintained all the eight ratios in such a way that the credit scores of these companies reached a moderate score. In company holding liquid cash is another important factor. How much cash is to be required and how much is not is a debatable question. More or less all the companies under study maintained a moderate level of cash as a percent of current assets throughout the study period. Table-52 shows that cash as a percent of current assets have a low positive correlation with current liabilities as a percent of current assets in the companies under study.
6.20 Conclusion:

When it comes to liquidity analysis, cash flow information is more reliable than balance sheet or income statement information. Balance sheet data are static--measuring a single point in time, while the income statement contains many arbitrary noncash allocations--for example, pension contributions and depreciation and amortization. In contrast, the cash flow statement records the changes in the other statements and nets out the book-keeping, maintenance of systematic and convenient records of money transactions in order to show the condition of a business enterprise. The essential purpose of book-keeping is to reveal the amounts and sources of the losses and profits for any given period.

Creditors and lenders began gathering information about a company’s ability to meet its payment commitments than do traditional balance sheet. When a loan officer evaluates the risk she is taking by lending to a particular company, her greatest concern is whether the company can pay the loan back, with interest, on time. Traditional working capital information indicates how much cash the company had available on a single date in the past. Cash flow information, on the other hand, test how much cash was generated over a period of time and compare that to near term obligations, giving a dynamic picture of what resources the company can muster to meet its commitments.

Cash flow is just one measurement for evaluating a company, but it is important because it focuses on actual operations and eliminates one-time expenses and non-cash charges. Cash flow is one of the most important measurements used by investors in valuing a company. You will hear the term used in the context of understanding how much a company is really growing (or not) after accounting conventions are stripped out of the income statement. The reason investors are interested in cash flow is that it gives them a clearer picture of what the company is truly doing.

According to cash flow from operating activity, Wipro in IT sector, Siemens in Consumer Durable sector, Dr. Reddy’s laboratory in Pharmaceuticals sector, HUL in FMCG sector, Titan in Retail sector (considering average) captured the top position. In respect of Cash flow from investing activity Asian in IT sector, Hawkins in Consumer...
Durable sector, Alchemist in Pharmaceuticals sector, Britannia in FMCG sector and Gini Fabrics in Retail sector (considering average) occupied the first place. Regarding cash flow from financing activity Videocon in IT sector, Khaitan in Consumer Durable sector, Ranbaxy in Pharmaceuticals sector, Marico in FMCG sector and Raymond in Retail sector hold the top place.

Considering all the activities of Cash flows the net cash flow of Wipro in IT sector, Siemens in Consumer Durable sector, Ranbaxy in Pharmaceutical sector and HUL in FMCG sector and Titan in Retail sector are quite impressive from the point of view of liquidity as well as profitability.

The correlation coefficients between CCC and Cash flow from operating activity of most of the companies are positive and out of which some are statistically significant. It implies the efficient cash management system in respect of managing current assets and liabilities. The correlation coefficients between Average cash holding and Cash flow from investing activity of most of the companies are negative and out of which some are statistically significant. It Signifies most of the firms invested their unused funds in some income generating assets. Lastly, the correlation coefficients between Average cash holding and cash flow from financing activity of most of the companies are negative. It supports the theoretical principal of lower the cash holding, higher the cash flow from financing activity.

In this chapter we calculated ratios with main focus on company’s liquidity profitability and capital adequacy. With the help of ‘risk description model we find out the scores individually for each of the selected companies under study. The model clearly revealed that how the liquidity, profitability and capital adequacy factors influenced the score of individual companies. The companies, which all the factors are good, obtained the high score. On the other hand, the companies where two factors are good but one bad factor outweighed the influence of good factors.

The credit company collects different types of information to make credit analysis of the applicant and determine whether the credit applicant fall above or below the minimum quality standard. The prime objective of credit analysis is to judge the credit worthiness of the credit applicant.
Creditworthiness indicates the positive and negative acceptance of granting credit to the applicant. Generally, Creditors companies are very much interested to know the liquidity position of the applicant and also the short term debt paying capability of the company. Therefore, risk description model is developed in such a way that profitability, capital adequacy, liquidity are taken together with credit exposure from different stands point.

Credit score signifies the credit worthiness of the company. Higher CS signifies better credit worthiness and vice-versa. Higher credit worthiness gives the opportunity to the company for late payment and late payment increases the deferral period. It again decreases the cash conversion cycle. Lower CCC represents less requirement of working capital.

So liquid cash are not blocked in other types of current assets, it can invest in some profitable project to enhance profit. Hence good credit worthiness indirectly increases the profitability of the organization. From another point of view credit worthiness helps the company for achieving higher debtors’ turnover. As the credit manager takes the decision of granting credit before the commencement of sales then it helps the organization to take decision regarding its future investment projects. It helps the management to know how and when money should be collected and such information protect the company to borrow funds for investing future profitable projects. It also minimizes the CCC of the organization which indirectly increases the profit of the organization.
Figure-13
Credit Scores of IT Sector

Figure-14
Credit Scores of Consumer Durable Sector

Figure-15
Credit Scores of Pharmaceuticals Sector