PART II

LITERATURE REVIEW
Chapter 2

Internal Working Capital Management

“While long-term decisions, involving plant and equipment or market strategy, may well determine the eventual success of the firm, short-term decisions on working capital determine whether the firm gets to the long term” (Block and Hirt, 1992, P. 138).

Our main objective in this chapter is to search an answer for the first conceptual research question, which states: “What are the conceptual approaches of internal working capital management that can be used to enhance firm value?” First, we present the general introduction and background of working capital management in Section 2.1. Then we consider working capital management in terms of its investment (section 2.2) and financing (section 2.3) as well as operations of purchasing (section 2.4) and sales (section 2.5). Lastly we conclude the chapter by summarising the main issues (2.6).

2.1. Introduction

Business firms are established by investments in the form of assets that can be classified on the basis of liquidity - as current or fixed. Firms finance the total investment in assets with debt and/or owners’ equity, the supply of which is limited. The principles of financial management form the basis of managing investments and related financing with current debt, long-term debt, owners’ capital contributions or retained earnings. The investment in current assets is a working capital and the related financial management approach is working capital management. Working capital management is defined here as a process of planning and controlling the levels of investment and financing current assets as well as related operations of purchasing and selling. Specifically, working capital management requires managers to decide on what levels of current assets the firm will hold at any point in time and on how these current assets are to be financed.

This research divides the management of internal working capital into levels and operations. Levels refer to investments in working capital assets (cash, inventories, accounts receivable) and short-term financing instruments (payables: trade credit, bank loan and accruals). Operations include activities related to the purchase of materials and the sales of finished goods. It is worth noting here that, internal working capital management refers only to the levels and operations which are directly connected with the with the firm’s external linkages (that is suppliers and customers). This implies that we do not refer to internal operations such as production operations and other internally performed administrative activities.

We argue here that working capital investment is mostly a result of purchase and sales operations. As figure 2-1 reveals, there is a working capital cycle that starts with financing (for the purchase of materials), continues to operations (purchases, production and sales) and ends-up at investment (in cash, inventories and receivables). According to Moyer, Mcguigan and Kretlow, (1998), a firm’s operating cycle consists of three primary activities - purchasing resources from suppliers, producing the
product internally, and selling the product to customers. This operating cycle determines a firm’s working capital investment and its financing needs. The purchase and sales operations create cash inflows and outflows, which are both unsynchronised and uncertain (Scherr 1989). They are unsynchronised because cash disbursements (like payments for resource purchases) usually take place before cash receipts (for example collections of receivables). They are uncertain because future sales and costs, which generate cash receipts and disbursements respectively, cannot be forecasted with complete accuracy. Therefore, besides managing the flow of materials and goods, working capital also plays an important role in the management of these unsynchronised and uncertain cash flows from purchase of materials and sales of goods.

**Figure 2.1 Working capital cycle**

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<th>Financing</th>
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<td>Internal External</td>
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<td>Production</td>
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Figure 2.1 explains the functions of working capital management using the working capital financing, operations and investment cycle. The flow starts with cash obtained from internal sources such as collections from operations and retained earning as well as externally from suppliers of capital (creditors or owners) which is used to finance the purchase of materials. The purchase and cash payment operations result in the investment of materials inventory, which is used in the production process. The production operation ends-up in the investment of finished goods inventory, which is sold either for cash (resulting in investments in cash) or credit, (which results in accounts receivable which is eventually turned into cash). The cash generated is then used to settle the short-term debts - trade payables, bank loans and unpaid government tax. Finally, because the ultimate objective of a firm is the creation of cash value to the owners (Rappaport 1986), all or part of this cash is paid to the suppliers of capital in the form of dividends or retained in the firm. This makes the end of a cycle and the start of another. We now consider the levels of investment and financing and then the operations of purchasing and selling.
2.2. Managing working capital investment

2.2.1. General considerations

According to Moyer, McGuigan and Kretlow (1998), the major policy issue encountered in the management of working capital is related to levels of investment and its financing. Therefore, we consider first the main components of working capital investment and liquidity management, then we continue describing the main issues of managing working capital investment (section 2.2) and financing (section 2.3). The components of working capital investments are categorised in terms of liquidity and stability of balances.

**Liquidity** Liquidity is a term used to describe the ease with which the assets can be converted into cash within a year during the normal course of business operations. Current assets include cash, marketable securities, accounts receivable, and inventories. Short-term debts or current liabilities are credit falling due within a year, and include accounts payable, accruals, tax payable, dividend payable, short-term loans, and long-term loans maturing within a year. Cash consists of coins, currency, bank deposits, and negotiable instruments such as money orders, certified checks, cashiers’ checks, personal checks, and bank drafts. Cash is the most liquid of all assets and it is the medium of exchange that permits management to carry on the various functions of the business organisation. In fact the survival of the firm can depend on the availability of cash (liquidity) to meet financial obligations on time. Near-cash liquid assets are marketable securities. Marketable securities consist of short-term investments that a firm makes with its idle cash, which can be sold quickly and converted into cash when needed. Unlike cash, marketable securities provide a firm with interest income. Accounts receivable include trade credit and/or consumer credit. A trade credit originates when a firm sells goods or services to another firm with an agreement that cash will be paid in some future period. Firms may also sell goods to final consumers. These consumer credits, make up the remainder of accounts receivable. Inventories consist of raw materials, work-in-process and finished goods. Raw materials are inventories waiting to get into the production process, work-in-process inventories are materials in various stages of production and finished goods inventory are goods whose production process is completed and ready for sale. Inventories in retail and wholesale firms include the merchandise kept for sale.

**Stability of balances** On the basis of the stability of balances compared to changes in the volume of sales and production, current assets can also be divided into permanent and fluctuating. The balance of permanent current assets remains constant regardless of the change in sales volume or production capacity, while fluctuating current assets vary with a change in sales volume and production capacity. Permanent current assets include the safety stocks of cash and inventories. They are often used to meet the long-term minimum needs of investment in current assets. Their balance is constant over a longer period of time and is therefore comparable with the firms fixed assets because investments in permanent current assets remain within the firm. The main difference between permanent current assets and fixed assets is that permanent current assets constantly change in physical terms, while fixed assets do not (Van Horne and Wachowicz, 1998).
Managing liquidity According to Moyer, Mcguigan and Kretlow (1998), firms have two goals - liquidity and profitability. Many types of costs are related to the excesses and shortages of working capital levels of investment and financing. Managing these costs can increase the profitability of a firm’s operations. Firms have to determine the individual and joint impact of the levels of short-term investment and financing on the dual objectives of working capital management. These goals imply that decisions that tend to maximise profitability tend not to maximise the chances of adequate liquidity. Conversely, focusing almost entirely on liquidity will tend to reduce the potential profitability of the firm. Liquidity is the ability to pay all expenditures and short-term debt obligations. Firms can remain liquid by either selling assets or borrowing. When liquidity is maintained by selling assets, the convertibility of assets into cash (or liquidity) matters. Assets in general have varying degrees of liquidity. For assets other than cash liquidity has two dimensions, (Van Horne, 1986): the time required to convert the assets into cash, and the degree of certainty to convert the assets into cash without loss. When liquidity is maintained through borrowing, there will be a trade-off between the interest costs paid to creditors and the income earned from the investment in the assets financed from the borrowing. Therefore, both too much and too little liquidity have costs (Yeager and Seitz, 1989). Now we consider the costs of keeping too much (costs of liquidity) and too little (costs of bankruptcy) liquid assets.

Liquidity and bankruptcy costs According to Yeager and Seitz, (1989), the cost of excess liquidity is the interest on credits and loans used to finance investment in liquid assets and opportunity cost or profit lost due to investing in less profitable current assets, compared to fixed assets. The cost of too little liquidity is the cost of additional borrowing needed as well as the loss experienced when assets have to be sold too quickly and the damage done by a failure to meet payment demands which may end up in bankruptcy (so the bankruptcy costs). If a firm does not keep proper amounts of working capital, it will be forced to go bankrupt on technical grounds leading to liquidation, in which case the primary claimants of a firm are its creditors while investors of the firm’s capital have a residual claim on the assets. According to Van Horne (1986), the eventual liquidation and realisation of assets into cash has two types of bankruptcy costs - out of pocket costs and interest costs. The direct or out-of-pocket costs are associated with the bureaucratic procedures of liquidating the non-cash assets and distributing it to the claimants. These costs include the time that the management spends dealing with the creditors of the bankrupt firm, legal expenses, court costs and advisory fees. Interest costs of bankruptcy are costs of compensating creditors ex-ante. Van Horne (1986), argues that since creditors are primary claimants of firm's assets at bankruptcy, they charge the firm a default premium on the interest rate, which reflects the probability of the firm's bankruptcy. Grinblatt and Sheridan (1998) also add a third type - the indirect costs of bankruptcy, which is created due to a firm becoming financially distressed and close to bankruptcy but which may actually never go bankrupt. These indirect costs include the losses due to the fact that the firm may be unable to get or give credit when demand for its products decreases. Therefore, liquidity decreases bankruptcy costs. However, investment in liquid assets has a cost of financing. Therefore, there is a trade-off between the benefits associated with liquidity and the cost of maintaining liquidity. Management can optimise this trade-off using investment and financing policy decisions (see Scherr 1989).
Working capital management and profitability - liquidity risk trade-off from the point of view of working capital management, firms have dual objectives, that is, maximise profitability and minimise liquidity risk. In this case risk as defined by Walker (1980) means, (a) risk of not maintaining adequate liquidity, (b) the risk of having too much or too little inventory to maintain production and sales and (c) the risk of not granting adequate credit to support the proper level of sales. Profitability has to do with the overall objective of owner wealth maximisation. Liquidity on the hand has to do with ensuring that the firm is able to satisfy all its financial obligations and has adequate funding to carry on its long-term activities of the firm. Thus the liquidity goal is closely aligned with working capital management while the profitability goal reflects both short-term and long-term decision making. The difficulty with the dual objectives of profitability and liquidity is that, one tends to be a trade-off of the other. In other words, decisions that tend to maximise profitability tend not to maximise the chances of adequate liquidity and vice versa. Moreover, the way in which working capital is managed can have a significant impact on both the profitability and liquidity goals of the firm.

Moyer, Mcguigan and Kretlow (1998) argue that, there is an optimal level of working capital investment, which changes with the variability of output and sales that a firm must maintain. For a given level of output or sales there is certain working capital level that results in the highest profit. Other factors that affect the optimality of working capital include the variability of cash flows, the degree of financial leverage and the degree of operating leverage. The issue of profitability and liquidity risk trade-off is based on the argument that short-term investment and financing have opposing effect on liquidity and profitability. Investment in current assets though useful to achieve the objectives of liquidity, but it does not generate as much profit as investing in fixed assets. Financing with current liabilities though it is cheaper and therefore more profitable it is risky because it gives less time to pay.

In order to minimise liquidity risk and maximise profitability, management can have differing risk attitudes (Van Horne and Wachowicz, 1998), by comparing the levels of current assets against volume of sales or production. These are called “conservative”, “moderate” and “aggressive”. Conservative working capital management policy implies that at the given volume of sales or output the firm has a high level of current assets. The conservative policy prepares the firm for all conceivable liquidity needs and gives the lowest liquidity risk position. However, at this level profitability will be low. Aggressive working capital management policy implies that at the given volume of sales or output the firm has the lowest current asset level. Aggressive working capital policy exposes the firm to any conceivable liquidity risk and therefore gives the highest liquidity risk position. It is the riskiest and supposedly the most profitable working capital management policy. Moderate working capital management policy is, of course in between these two extremes. If other things remain the same, decreasing the levels of current assets held will increase potential profit. However, profit increases only if the firm’s investment in current assets can be reduced if the firm is still being able to properly support output and sales while it also is able to settle its short-term debt becoming due for payment. Hence, management should search for an optimal proportion between the level of current assets and the volume of output and/or sales that results in the best optimal point in the profitability and liquidity risk trade-off. To solve the problem of profitability and liquidity risk trade off, Smith (1980a) suggests that parallel monthly forecasts of profitability and required borrowing be
made. This Smith argues will have the benefit of making trade-offs between profitability and liquidity risk objectives of the firm, estimating the impact of certain working capital policies on profitability and liquidity risk trade-offs and reflecting the uncertainty of the future.

2.2.2. Cash Management

The importance of cash management Cash management is concerned with how a firm manages its cash levels and operations (cash collections and payments), cash investments and disinvestments, and cash borrowing and lending. According to Scherr (1989), cash management deals with determining the optimal level of cash, the appropriate types and amounts of short-term investments in cash as well as the efficient methods and controls of cash collections and disbursements. Because many transactions of a company involve the receipt or disbursement of cash, its efficient management has a great significance for the management’s success in the process of achieving organisational objectives. Efficient cash management can be instrumental in preventing losses from fraud or theft, to maintain a sufficient amount of cash, to make necessary payments and to have a reasonable balance for emergencies. It also prevents unnecessarily large amounts of cash from being held idle in bank accounts that produce little or no revenues. Cash and short-term interest bearing investments are the firm’s least productive assets. Unlike the firm’s other liquid assets (inventories and accounts receivable), cash is not required for producing goods or services. When firms hold cash in currency and in non-interest bearing accounts they obtain no direct return. So, why hold cash and marketable securities at all? Couldn’t the firm’s resources be better used elsewhere? Despite the seemingly low returns, there are several good reasons why firms hold cash and marketable securities and we consider each of these motives with some detail.

The reasons for holding cash Cash normally would not be needed if it were not for the market imperfections and resulting transaction costs of urgently needing cash at short notice if the need arises and there is no enough cash (von Eije and Westerman, 2001). The reasons for holding cash are divided into four main categories, transactions, precautionary, speculative, and compensating (Van Horne and Wachowicz, 1998, Ross, Westerfield, Jaffe, 1996).

Transactions The transactions motive refers to the cash held in the form of non-interest bearing currency and checking deposits for paying bills, making changes for customers, paying for salary and other day-to-day operating activities. The transactions demand comes from the normal cash collection and disbursement activities which are not always perfectly synchronised, (Ross, Westerfield, Jaffe, 1996). Therefore, transaction demand is related to the volume of transactions. The more payment the company expects to make, the greater will be its transaction demand for cash. If the firm maintains too small cash balance it may run out of cash. In that case, it must sell marketable securities or borrow in the short-term, which both involve considerable costs. Also, liquid assets help a firm handle seasonal fluctuations in cash flows, for example a firm may keep a large amount of liquid assets during surplus months and withdraw it during deficit months. The amounts needed and the timing of payments for transaction demand may be known in advance. For example,
the payment for long-term loan principal and interest as well as periodic wages and salaries can more or less be forecasted in advance.

**Precautionary** At times, a firm’s future cash needs for transaction purposes are quite uncertain. The major causes of uncertainty about cash available for paying bills are uncertainties about the amount and timing of sales and the collections from accounts receivable. If the expected collections do not materialise, the firm will not have enough cash to pay its bills. Therefore, the firm holds additional cash for precautionary purposes in excess of its transaction needs. The size of precautionary balances is positively related to the extent of uncertainties about the timing and the amount of cash inflows and outflows. Other things remaining constant, the greater the uncertainties of cash inflows and outflows the greater would be the precautionary balances. Precautionary balances are usually held in highly liquid marketable securities, which provide interest income. The more of this precautionary balance held in near cash assets, the less cash kept and the greater the interest earned. However, there is a trade-off between the interest revenue and the transaction costs involved in purchasing and selling such near cash assets [Ross, Westerfield and Jaffe, 1996]. Therefore whether, it is economical to invest part or all of the precautionary reserve in near cash assets depends on the trade-off between these transaction costs and the related income earned.

**Speculative** Speculative cash balances are held to take advantage of yet unknown temporary investment opportunities. If firms intend to grow by acquiring other firms or to take advantage of a sudden decline in prices of raw materials they may hold cash in reserve waiting for the opportunistic condition. As with precautionary demand, cash for speculative purposes could be invested in income-earning securities.

**Compensating** Banks may require a minimum compensating balance to be kept in the firm’s bank account in order to give lending services. Therefore, another motive to keep cash is for the purpose of bank compensating balances, where cash balances are kept at commercial banks to compensate for banking services rendered to the firm.

All the four reasons of holding cash result in the costs related to liquidity. Therefore, cash decisions require managers to consider explicitly the “profitability and liquidity risk trade-off” of alternative decisions. So, in order to get the benefits of cash management, the periodic balance and flows of cash has to be properly managed and planned well in advance.

**Planning cash requirements - the cash budget** A cash forecast or cash budget is a statement of the firms expected cash inflows and outflows over a projected time period, usually a quarter, a month, a week or a day. It is primarily used to estimate a firm’s borrowing and lending needs, and as an input to prepare for the uncertainties and mismatches between cash inflows and outflows (Scherr, 1989). It can also be used for various other ways like planning the impact of reductions of short and long-term debts. A cash budget is also useful in determining the minimum balances to be maintained and to negotiate short-term financing arrangements with banks.

If a firm does not plan its cash requirements, the resulting cash deficit or surplus can be unforeseen. If there is an unexpected cash deficit, cash shortages would occur and the firm would have to slow down its cash outflows, for example by delaying payments to its suppliers or to use its cash reserves or to get emergency financing.
Delaying payments to suppliers may result in suppliers retaliating by holding the supply of critical materials and thereby cause extensive production interruptions. This may force the firm to act on an emergency basis, such as selling at rushed prices, selling fixed assets or borrowing from its bank. Under these conditions, the bank might be reluctant to grant such a loan on favourable terms and reflect this by increasing interest charges. So the firm’s relation with its suppliers and bank will be put in jeopardy. If an unexpected cash surplus occurs, the firm will have no way of knowing for how long the surplus will exist and it will not be able to make investment plans for a longer period. Thus a cash forecast is a critical tool for effective financing of temporary deficits and for investing surpluses. The types of cash forecasts are categorised on the basis of the length of the period that cash is forecasted and the approach to cash flow forecasts, (Maness and Zietlow, 2002, Scherr, 1989).

**The length of the cash forecast period** This refers to the units of time into which the cash forecast is divided. Cash forecasts can be made in terms of yearly, quarterly, monthly, weekly and even daily flows. The most popular - in particular for small firms - is the monthly cash forecast (Scherr, 1989). Because of the transaction costs involved in the short-term investment and dis-investment of near-cash assets, the length of the shortest forecast period depends critically on the volume of the firm’s cash inflows and outflows. If the timing of cash flows is frequent and the volume large, the firm can use a shorter cash forecast period. For smaller firms with a lesser amount to invest in the short-term, cash forecast on a monthly basis can suffice. Another issue related to time is the breakdown within the periods. One method is the distribution approach, which starts with yearly data and breaks them down into quarterly, monthly, weekly and even daily data. The other approach is the scheduling method, which starts with a shorter period, for example with weekly data then, aggregates it to monthly, quarterly and yearly.

**The approach used to forecast cash flows** Forecasting cash flows can have two approaches - the receipts and disbursements approach and the adjusted net income approach. The receipts and disbursements approach estimates the amounts of cash expected to be received and paid by the firm over the forecast period and traces the detailed movement of cash. This method is preferred to exercise close control over cash in the short term (daily to monthly). The adjusted net income approach (also called sources and uses) starts with projected net income on an accrual basis and adjusts it to a cash basis. The adjusted net income approach forecasts a change in assets and liability accounts and it is therefore useful to forecast cash flows over a longer period of time. However it does not trace the individual inflows and outflows for any given period.

**Cash optimality models** In order to decide whether it is worthwhile to make short-term investments of cash in marketable securities, the interest income earned is compared with related transaction costs including the out-of-pocket costs such as: commissions, postage, telephone charges, the opportunity cost of diverted management time and effort. In this case specific cash management models are used to determine the most economic amount and the appropriate time that cash will be held, invested and dis-invested. Cash management models show that transaction costs play a central role in determining the cash balance to be held. If transaction costs were zero, the firm would require no working cash balance at all; it simply would sell its
short-term income earning assets or borrow to pay every bill. There are four types of cash management models which are named after their authors – the Baumol model, the Beranek model, the Miller-Orr model, and the Stone model (see Scherr 1989, p124-144). These models deal with optimal approaches for investments and dis-investments in short-term near-cash assets. They are useful in providing with optimum strategies for a given time pattern of cash flows based on the trade-off between investment income and related transaction costs.

Hedging for uncertainties of cash levels During each cash forecast period, the firm most likely will end up with a cash deficit or a surplus, the exact timing and amount of which is uncertain. The cash level uncertainty is due to the variation between forecasted and actual factors affecting cash levels, such as the volume and rate of cash payment and collection, sales, production cost etc. If the firm gets cash inflows that are smaller than expected and reaches the maximum bank borrowing limits, it will face a number of problems discussed earlier in this chapter. Without some kind of hedge against the uncertainties of future cash flows, the firm may incur costs that could be avoided by the use of a hedging strategy. There can be a number of hedging arrangements (Scherr, 1989) that include depositing temporary extra cash surpluses in saving accounts or checking accounts, investing in near-cash assets and the arrangement of extra borrowing capacity with the bank. However, these hedging arrangements have their own costs, and there is a trade-off between the cost of the hedge and the expected cost that it avoids. Therefore, it would not be cost effective to hedge against all possible future costs if the probability of occurrence is very small.

Cash control Cash is more susceptible to misappropriation and theft because it can easily be concealed and because it is not readily identifiable. Therefore, it is essential, that firms establish procedures of cash safeguarding controls through every phase of its cash receipt and payment operations. The effective control of cash transactions begins at the moment that cash is received by the business. A basic rule of effective internal control over cash collection is that receipts are deposited in the bank, intact and on a timely basis. Other basic principles of controlling cash receipts also include separation of duties for sequential cash operations, handling and recording. In order to exercise the necessary control over cash payments, all disbursements should be made by check, with the exception of certain small payments that can be made from a petty cash fund. The functions of handling cash receipts and cash disbursements should also be separated or divided among employees to the greatest extent practical. The following are procedures that may be used to establish effective control over cash disbursements. All checks should be sequentially pre-numbered, controlled and accounted for on a regular basis. Checks that are avoided or spoiled should be retained and marked “void” or mutilated to prevent any possible unauthorised use. A voucher that has been approved properly should support each disbursement. Invoices and vouchers should be indelibly marked as “paid” or otherwise cancelled in order to prevent their use for duplicate payments. The bank statement and returned checks should be routed to the employee charged with the preparation of the bank reconciliation and this employee should be someone other than the person responsible for making the cash disbursements.
2.2.3. Inventory Management

Inventory management is the art of managing the amount of stock held in various forms of inventories within a firm in order to efficiently and economically meet the demands for products. It includes the principles and techniques for deciding what, when and how much to purchase and sell as well as how and where to store. Inventory management supports the achievement of organisational objectives by attaining the desired levels of customer service at a minimum cost of inventory carrying and ordering.

The objectives of inventory management Due to the large size of inventories maintained, firms commit a considerable amount of funds to inventories. Therefore, in order to avoid unnecessary investments it is absolutely imperative to manage inventories efficiently. Neglecting the management of inventories will jeopardise a firm’s short and long-term profitability. Inventories are the least liquid of all current assets, it should therefore provide the highest yield to justify investment (Block and Hirt, 1992). Both excessive and inadequate inventories are not desirable. Therefore, the main objective of inventory management should be to determine and maintain optimum level of inventory level that lies between these two undesirable situations related to meeting two conflicting needs. First, to maintain a large size of inventory for efficient and smooth production and sales operations. Second, to maintain a minimum investment in inventories in order to lower ordering and carrying costs and to maximise profitability. In line with these objectives Kaen, (1995) argues that each inventory type serves different purposes.

Raw material inventories are used to make production scheduling easier, to take advantage of price changes and quantity discounts, and to hedge against supply shortages. If raw material inventories were not held, purchases would have to be made continuously at the rate of production. This would not only mean high ordering costs and less quantity discounts, but also production interruptions when raw materials cannot be procured in time. Therefore, the firm has an interest in buying enough raw materials to provide an effective cushion between purchases and production, (Ben-Horim, 1987). The level of raw materials inventories would depend not only upon the level of co-ordination between the firm’s purchases and production but also between the firm and its supplier. If there is a closer link between the firm and its supplier, a small raw materials inventory could be maintained and production needs could still be met.

Work-in-process inventories are needed because there is no perfect synchronisation among production processes - they do not all produce at the same rate at all times. Each production station needs its own inventory of work-in-process. Thus work-in-process inventories like the raw materials inventories serve to make the production process smoother and more efficient - they provide buffers between the various production processes. Under normal conditions, the longer the production process and the more production stations, the higher the work-in-process inventories.

Finished goods inventory has to be held to provide immediate service to customers and to stabilise production. Production and sales are not instantaneous. Most firms cannot produce immediately when customers demand goods. Failure to supply products to customers when demanded would mean a loss of sales to competitors. The
basic objective in holding finished goods inventory is therefore to separate production and sales operations. Finished goods inventory is maintained to serve customers on a continuous basis and to meet the fluctuating demands. The level of finished goods inventories would depend upon the level of co-ordination between the firm’s sales and production as well as the efficiency of firm-customer linkages. If there is a close link between the firm and its customers, it is possible to know early when goods will be needed, therefore, a small finished goods inventory could be maintained and customers' needs could still be met.

Overall, in line with that of cash there are three motives for holding inventories – the transactions motive, the precautionary motive and the speculative motive. The transaction motive emphasises on the need to maintain inventory in order to facilitate smooth production and sales operations. Inventory held for precautionary motive guards against the risk of unpredictable changes in inventory price, demand and supply factors. The speculative motive refers to carrying inventory in order to take advantage of unpredictable changes in inventory price. To be effective, management has to apply a system to keep track of inventory on hand and on order, knowledge of lead times and its variability, a reliable forecast of inventory demand and reasonable estimates of inventory holding, ordering and shortage costs (Stevenson, 1982).

Planning inventory requirements According to Scherr, (1989), inventory planning helps to match inventory requirements to sales and production needs. It also helps to know inventory acquisition and usage during lead-time, quantity on hand and on order as well as the levels of safety stock. There are different methods of planning inventory needs including managerial opinion (or judgmental) and time series data (Stevenson, 1982). Stevenson, contends that forecasts based on opinion relies on the analysis of subjective inputs obtained from various sources, such as, opinions of sales staff, managers and executives as well as consumer surveys. Forecasts on time series data are based on observations taken at regular intervals over a period of time (daily, weekly, monthly etc) and are made on the assumption that future inventory demand can be estimated from past. The accuracy of inventory planning depends on whether the forecast is made in conditions of relative certainty or uncertainty (see Scherr, 1989).

Inventory optimality models Inventory optimality models can be used to determine the optimal, reorder and safety levels of inventory. Inventory optimality models include economic order quantity model, just-in-time inventory management and materials requirement planning (MRP). All models deal with four basic questions - (a) how much inventory to order, at any given time, (b) at what point of inventory level to order, (c) whether to hedge changes in inventory costs, and (d) to what inventory items to give special attention and selectively control. Answering these questions helps to manage the levels and costs of inventories efficiently.

Inventory costing and valuation As inventories move from storeroom to production and from production (or stores) to customers, the unit and total costs may be computed to know the cost of production and the cost of goods sold respectively. The most common methods of costing inventories assume cost flows such as, first in first out, average cost, and last in first out. Different from its costing approach, inventory can be valued at cost, or cost or market value whichever is lower. The later approach is based on the accounting principle of conservatism, which in order not to
overstate the value of the firm requires the choice of an approach that provides the lower value of an asset.

**Inventory control** No matter how perfect an inventory plan is, it can rarely be equal to the actual outcome. Therefore, there should always be a monitoring mechanism to check whether what has been expected also approximates reality. The starting point in developing a control system is an analysis of the objectives of the intended system and determining the critical activities in the operation where control can be most effective. According to Tersine (1998), effective inventory controls should (a) provide a supply of required materials for efficient and uninterrupted operation and assure adequate inventory for prompt delivery to customers. (b) Provide ample stock in periods of short supply and anticipate price changes. (c) Store inventories with a minimum cost and maximum protection from loss. (d) Keep inactive, surplus and obsolete items to a minimum by systematically reporting on product changes, which affect inventories. (e) Maintain the amount of capital invested in inventories at a level consistent with operating requirements and management plan. In order to achieve these objectives management can use alternative inventory control approaches including the quantity limit systems (periodic, perpetual optional replenishment, two bin and mini-max), money limit systems and time limit systems (Tersine, 1998).

**2.2.4. Receivable management**

**Control over credit sales and accounts receivable** Credit sales create accounts receivable because firms give more time before their customers are required to pay. Allowing credit increases sales but it has also costs of managing accounts receivable and the possibility of bad debts. Therefore, management needs to install control mechanisms over credit sale policies and credit customers. The controlling process is intended to detect deviations from policy and to provide signals of deviations from expectations. Some of the deviations may be due to uncontrollable random external factors but others may be controllable. So, the main objective of credit and accounts receivable control is to give signals when (non-random) deviations in sales, collection expenses, receivables turnover and bad debts occur (Scherr, 1989).

Firms need to compare the outcomes of credit sales policy and the trend in the balance of accounts receivable with what was estimated. In establishing policies regarding terms of sale and credit granting standards, management makes expectations on accounts receivable turnover and resulting bad debts. In order to control the collection of account receivable, the deviation from expected payment patterns has also to be observed. If expectations are not realised or there are deviations, it may signal problems like changing customer characteristics, inaccurate policy forecasts or improper policy implementations. According to Scherr (1989), common signals include receivables ageing, days sales outstanding and average collection period. When a signal is detected, it is up to the managers to investigate and to assess the reason for the deviation. Managers must then take the necessary corrective action, which will vary with the cause of the deviation and which may include applying collection efforts and changing sales policies.
Once the firm decides to sell its goods on credit it should establish control policies to check if any debtor is falling behind schedule, in which case the firm will have to make collection efforts. Collection policy refers to obtaining payments of past-due accounts. Receivable collection management begins by developing an information system for monitoring outstanding receivables in order to check if customers are taking more time. In case any credit customer is found to be overdue for more than the receivables monitoring criteria established, different types of collection efforts can be applied (Scherr 1989). A firm can use the following procedures for customers that are overdue and may refuse to grant credit in the meantime: First: send a letter informing the customer of the past due status of the account. Second: make a telephone call to the customer. Third: employ a collection agency. Fourth: take legal action against the customer.

2.3. Managing working capital finances

Any working capital investment needs to be paid at the time of acquisition (cash purchase) or at a later time (credit purchase). This ability to make cash payments or the assumption of credit is a source of financing. Due to many factors (the firm being a high liquidity risk, culture, linkages), the availability of credit as a source of financing may or may not be an alternative to the management. We consider now the financing dimensions and start with the main components.

2.3.1. Components of working capital financing

Working capital investments can be financed with internally generated or externally acquired financing alternatives. Some firms solve their financing problems by borrowing or securing their current assets (external financing) and others by selling their current assets (internal financing). When firms borrow on the strength of their current assets, the major sources of short-term finances include trade credits, accruals, short-term bank loans, collateral papers, commercial papers, and factoring accounts receivable (Van Horne, 1980).

Trade credit financing Firms would rather sell for cash than on credit, but competitive pressure forces most companies to offer trade credits. Unlike credit from financial institutions, trade credit does not rely on formal collateral but on trust and reputation (Fafchamps, 1997). Trade credits create the accounts payable. Accounts payable is a form of short-term financing common to all businesses with a credit purchase policy. It originates when buyers are not required to pay for goods upon delivery but are allowed a short deferred period before payment is due, which may or may not include discount for earlier payment. During this period the seller of the goods extends credit to the buyer. There are three types of credit: open account, promissory note payable and trade acceptance (Van Horne, 1980). The most common type is the open account arrangement, where the seller ships goods to the buyer along with an invoice that specifies the goods shipped, the price, the total amount due and the terms of sale. Promissory note payable is a statement where debtor writes a note or letter of IOU. It is required if the creditor has not yet developed full confidence on the creditworthiness of the debtor or the value of the transaction is too large for an open account and therefore the risk of loss is very large. Trade acceptance is a
supporting letter written by a bank addressed to a creditor guaranteeing a debtor’s credibility with regard to a specific transaction. It is usually used in international transactions.

**Accrual accounts** Accruals are short-term non-trade credit obligations. Accruals represent an interest free source of financing. The most common accrual accounts are wages and taxes. Firms pay employees on a weekly, bi-weekly, or monthly basis. The longer the payment interval, the greater the amount of the accrual funds. Although firms do not have much control over the frequency and magnitude; interest to be paid and taxes can also be an important source of accrual financing.

**Short-term bank loans** When the bank loan is approved, the agreement is executed by signing a promissory note specifying the amount borrowed, the interest rate, repayment schedule and any other terms or conditions. Very often the loan takes the form of line of credit or overdraft. This is an arrangement between the bank and its customers with respect to the maximum amount of unsecured credit the bank will permit the borrower firm. There are also other forms of short-term financing like collateral papers, commercial papers and factored accounts receivables.

**Collateral paper** Borrowings can be secured or unsecured. If the firm's borrowings are secured, the firm can pledge a non-cash current asset as collateral securing for borrowed fund. Borrowings can therefore be secured with marketable securities, accounts receivable or inventories as collateral. This gives the lender such as banks advantage over the unsecured lenders if the firm is forced to liquidate.

**Commercial paper** Commercial paper is usually short-term unsecured debt security sold by larger firms (Scherr, 1989). It can effectively be used to finance short-term investments. For firms with less liquidity, banks can guarantee the issue of commercial paper by allowing lines of credit or bank guaranteed letters of credit, which obliges the bank to pay if the issuing firm cannot pay.

**Factoring accounts receivable** is a form of borrowing funds from a factor. The factor takes over the firm's credit granting function and the firm sells the face value of the accounts receivable to the factor. It takes moreover not the full amount because the factor calculates a service charge and interest.

### 2.3.2. Short-term loan financing

**Current assets financing - profitability-risk trade-off** The short and long-term financing sources have differing effects on the trade-off between profitability and liquidity risk (Block and Hirt, 1992). For the purpose of working capital financing, the profitability of short and long-term debt is considered from the point of interest cost. The higher the interest cost the lesser the profitability and vice-versa. From a lenders point of view a long-term loan has in general higher interest charge compared to a short-term loan due to the risk involved in lending for a longer period of time. Short-term loans are more risky from borrowers point of view, because of the problem to get cash in the short-term, and the higher variability of interest rates compared to that of the long-term loans (Moyer, Mcguigan and Kretlow, 1998). To the borrower, long-term loans are more expensive but less risky, while short-term loans are more risky
but less expensive. Therefore, management must get an optimum point between the two. Empirically, Fisman (2001) showed short-term credit, particularly supplier credit is positively correlated with capacity utilisation because firms lacking credit face inventory shortages leading to lower capacity utilisation. Petersen and Rajan (1997) argue that even in the United States, with extremely well developed financial markets, trade credit is the largest single source of short-term financing. Fisman, particularly claims in developing countries where formal lenders are limited, trade credit plays an even more significant role in funding firm’s activities.

Short and long-term debt mix The financing logic is that, temporary current assets are financed with short-term loans and the permanent current assets with long term debt or equity capital. However, the actual investment and financing mix match-up depends on management’s approach towards risk and profitability (Van Horne and Wachowicz 1998, Moyer, Mcguigan and Kretlow 1998, Brealy and Myers, 1996). Based on the interest cost and liquidity risk, management can use maturity matching, conservative, or aggressive approaches to financing working capital investments.

Maturity matching The maturity matching approach to working capital considers the maturity structure of the firm’s assets and liabilities. The maturity structure of the firm’s liability is made to correspond exactly to the life of its assets by matching current assets life and balances it with that of current liabilities, so that each asset is offset with a financing instrument of the same maturity. Temporary current assets will be financed with current liabilities while the permanent portion of current assets and fixed assets are financed with long-term debt and equity capital. This financing approach suggests that apart from the current portion of long-term debt, a firm would need no short-term borrowings when sales are low. As the firm goes to seasonal asset needs, it borrows on the short-term and later it pays off the borrowing with the cash released by the decrease of current assets when sales are again low, (Van Horne and Wachowicz, 1998).

Aggressive approach Risk taking in search of higher profits requires an aggressive approach using the less costly but more risky short-term debt. This means financing a portion of the permanent current assets and all temporary current assets with short-term debt. This approach puts the firm at a considerable risk of technical insolvency. The frequency of refinancing the short-term debt increases the risk that the firm will be unable to obtain new financing as it is needed (Moyer, Mcguigan, Kretlow, 1998). However, there is a better chance for the firm to earn a higher rate of return, because interest on short term debt is less costly.

The Conservative approach The third option of financing working capital investment requires a conservative approach to risk and profitability. Under this approach all the fixed assets and permanent current assets as well as a certain portion of the temporary (or fluctuating) current assets are financed with long term debt and equity capital. This puts the firm at a minimum risk of not being able to reschedule its short-term debt. However, the firm will have little opportunity to earn a premium rate of return due to the excessive use of long term debt.
2.4. Managing the purchase and cash payment operations

Working capital management on operations concerns purchases, sales and related activities, namely cash payments and cash receipts. The argument here is that by managing the sales and purchase operations efficiently we can effectively increase the benefits and reduce the costs of working capital levels and maximise a firm’s value creating potential. The purchasing and sales policies, like credit purchasing and payment as well as credit selling and collection policies also have other direct effect in a firm’s external value chain. For example, a policy of speeding-up collections and slowing down payments may have negative effects in the value chain and on the confidence and trust building with transaction partners.

2.4.1. Purchase operations

Purchases affect the inventory of materials. How much and at what cost materials have to be purchased will depend on various factors like cost of purchasing the materials, the cost of transportation, the discounts and the costs of holding. So, firms have to use materials purchase budget to plan the cost, source and timing of their purchase. The materials purchase budget depends on the management’s inventory policy. The amount of materials to be purchased is based on the available inventory of materials at the beginning of each period, the production requirements and the inventory at the end of each period. Management also has to apply proper procedures of purchasing materials. It must specify who should initiate the purchase requisition and who should evaluate the purchase order and shipments. Here we give less emphasis to the discussion of purchase management because it is the other side of sales management that we discuss with more detail in section 2.5.

2.4.2. Cash payment operations

The firm has to slow-down cash disbursements and pay debts as late as it is consistent with maintaining its credit standing with suppliers so that it can make the most efficient use of the money it already has.

**Slowing down cash payments:** Some of the methods used to slow-down cash disbursements include: control of disbursements, using payable through drafts, zero base account, and managing payroll and dividend disbursements and playing the float, (Scherr 1989).

*Control of disbursements* refers to controlling the build-up of excess cash in the firm’s bank accounts. There must be control of disbursements that will slow down cash outflows and minimise the time that cash deposits are idle. If daily information is available on collections and disbursements, excess funds may be transferred to disbursement bank accounts either to pay bills or to be invested in marketable securities. One procedure for strict control for disbursements is to centralise payables into a single account so that payments are made at a time they are needed. If cash discounts are allowed on accounts payable, the firm should make payment at the end of cash discount period, otherwise the firm should not pay until the end of the due
Internal Working Capital Management

date in order to have a maximum use of the cash. *Payable through draft* requires the bank to present it to the issuer for acceptance, therefore unlike ordinary checks, payable through draft is not payable on demand. Then the issuing firm transfers the funds used to cover the payment of the draft, thereby taking time. Slowing down cash payment through *payroll and dividend disbursement* refers to maintaining separate cash accounts for disbursements of payroll and dividends in order to minimise the balance kept in these accounts. The firm has to forecast when the checks issued to these accounts will be presented for payment so that to have funds enough to cover only that period’s needs, and not to keep the entire amount of payroll or dividend for a longer period.

Under the *Zero Base Account* system agreement will be reached with the bank such that one main or master disbursing account services all other subsidiary disbursing accounts (payroll, payables etc.). When payroll is cleared at the end of each day, the bank automatically transfers just enough funds from the master account to each disbursement account to just cover the checks presented. So, a zero ending balance is kept in all accounts except for the master account. This reduces the cash balance in the master account by eliminating idle balance from all subsidiary accounts. *Overdraft* is a check written for an amount in excess of funds on deposit. The check overdraft, will be honoured by the bank according to a prearranged set of rules and credit limits (Kaen, 1995). The bank extends a loan to the writer of the check for the amount necessary to cover the payment. So, the firm does not hold cash balances; it simply borrows whatever cash it needs for transaction purposes from the bank and pays the market interest rate, as transaction costs on borrowings. *Playing the float* refers to managing the net float, (also called “play the float”), that is the difference between the firm’s bank balance and its book balance, which is a result of delays between the time checks are written and their eventual clearing by the bank. It is possible to use this net float, if a firm can have a negative cash balance on its books and a positive bank balance, because checks just written by the firm may still be outstanding. If the size of the float can be estimated, the bank balances can be reduced and the funds invested to earn a positive return.

2.5. Managing sales and cash collection operations

2.5.1. Sales operation

There is a close relationship between sales and working capital policies such as credit terms and standards, finished goods inventory levels and cash collection policies. Relaxing credit terms and standards and holding an appropriate level of finished goods inventory can enhance the possibility of more sales for the firm. A sale is made on cash or credit. When a firm sells on cash, it requires its customers to pay at the time they buy their purchases, in which case the firm will have no problem of cash collection. However, cash is limited so buyers would like to take time before they pay. Therefore, the buyers who are willing to pay cash are only those who get no alternative choice. Credit sales give more time to buyers to pay and that makes buying from a firm that extends credit interesting and sales might increase. However, it has its own costs of management and risk of making bad debts. We concentrate on the credit sales more than on buying on cash because comparatively it needs more managerial skill. Moreover,
with credit sales, management has to set alternative sales terms, standards and it has to evaluate customers’ relations.

**The case of credit sales** Like the product’s price, quality and service, credit granting policy determines the products attractiveness and affects its sales volume and profit. If credit granting is properly made it can enhance the firm’s performance, sales and profitability (Moyer, Mcguigan and Kretlow, 1998). Trade credit policies have a number of important functions (Scherr, 1989): (a) for small firms: to minimise the effects of market imperfections. (b) For sellers: to guarantee the quality of their products and to overcome information problems with a buyer. (c) For buyers: to increase and control the purchase of goods. Credit sales policy and management of accounts receivable deals with decisions related to terms of sale, credit-granting standards, credit analysis and control of accounts receivable. A term of sale is concerned with the credit period, the cash discount and type of credit instrument. Credit standards refer to the criteria used to screen credit applicants. Credit analysis is the use of a number of devices and procedures to determine the probability of a customer payment to proposed credit sales. Credit collection and control refer to the establishment of policy and control procedures for collecting the cash when the credit is due. According to Kaen, (1996), before a firm grants credit to its customers, it has to establish a credit policy, the establishment of which involves three stages. First: establishing the terms of credit sale policies. Second: formulating credit standards, which will be used to analyse and evaluate individual applicant’s credit worthiness. Third: establish accounts receivable collection and control policies (see also section 2.2.4).

**Terms of credit sale policies** A firm's credit terms specify the conditions under which the customer is required to pay for the credit extended. It includes terms related to the mode of payment and to ownership transfer (outright transfer, consignment or conditional sale).

**Mode of payment: cash and credit terms:** Cash terms refer to terms of sale where firms demand payment before or on delivery of the product sold. It is normally used when the buyer represents a high credit risk or if the product is a special order with significant asset specific expenditures. Credit terms refer to the sale of goods on the basis of an open account, promissory note or special conditions like seasonal dating. An open account is used when the buyer buys on a continuing basis from the same seller and it may also include discounts for early payment. The only formal credit instrument is the invoice - a document sent along with the shipment of the goods and which the customer signs as evidence for receiving the goods. If the order is large and the firm anticipates a problem in collections it may require the customer to sign a promissory note or IOU, in order to eliminate controversies later about the existence of a credit agreement. Within credit terms the credit period, the cash discount terms and credit instruments such as drafts and letters of credit are of prime importance (Ross, Westerfield and Jaffe, 1996).

**Analysing the credit terms and assessing the risk of credit sale:** For any firm, selling its products in a competitive situation, there is a set of optimum terms of sales, (Scherr, 1989). Decisions on terms of sale involve the setting of three parameters: the rate of discount, the discount period, and the net date. Management has to analyse the effects of changes in these parameters. If the proposed changes in these parameters
increase the value of the firm, then the change should be implemented. When changes in the terms of sale policy occur, the decision rule is made by comparing the difference between incremental profit margin of the sales and incremental carrying cost of receivables (Scherr, 1989).

Ownership transfer - consignment or conditional sales: With open account and seasonal dating (where sales is made during low sales season and collection made during or after the high sales season), ownership is transferred to the buyer at the time of sales. With consignment sales, the buyer collects and holds the cash from the sale of the goods and pays to the seller according to the pre-arranged terms, so the buyer acts as an agent to the seller. Consignment sales refer to the term of sales where ownership remains with the seller until the goods are sold to the ultimate buyer. With conditional sale or instalment loan contracts, the seller also retains ownership and the buyer signs a promissory note to make payments on an agreed-upon time. When all payments are made ownership passes to the buyer and if the buyer defaults, the seller can repossess the goods.

Credit standards and analysis Credit standards are the criteria a firm uses to screen credit applicants in order to determine which of its customers should be offered credit and how much. The process of setting credit standards helps a firm to exercise control over the quality of the accounts accepted. When granting credit, a firm evaluates the creditworthiness of customers and distinguishes between customers that may pay and the customers that may not pay.

Formulating credit standards Among the policy issues that must be addressed while formulating credit granting standards are: (Scherr, 1989): (a) How to estimate the credit related parameters of a credit applicant. (b) The amount of information that the firm should collect on each credit applicant to solve the credit investigation problem. (c) The method of analysis the firm should use in order to determine which applicants should be granted credit. Credit standards mainly focus at the establishment of policies to measure two factors (Scherr, 1989, Kaen, 1995): The time it takes a customer to repay the credit obligation and the default risk or the probability that a customer will fail to repay the credit. Based on the result of time and default risk analysis a decision will be made to accept or reject a buyers credit application. The time a customer takes to repay the credit obligation is measured by the average accounts receivable collection period which indicates the average number of days a firm must wait after making a credit sale before receiving the customers cash payment. The longer the average collection period the higher the firm’s investment in receivables and by extension, its cost of extending credit to a customer. The default risk or the probability that a customer will fail to repay the credit is measured by the bad debt to the average accounts receivable ratio. The higher a firm’s bad debt loss ratio, the greater are the costs of extending credit.

Once a firm has established its credit standards and collection policies, it can use them to evaluate a credit applicant in four steps. First: gathering relevant information on the credit applicant. Second: analysing the applicants credit worthiness using the information collected and standards established. Third: making the decision to grant or not to grant credit after determining the probability that the applicant will or will not pay. Fourth: follow-up and control its receivables. According to Kaen (1995) sources of credit information may include the seller’s and other firms’ prior payment
experience with the customer, the applicant’s financial statements, customer visits and personal contact with the applicant’s banks and other creditors. After acquiring information, the firm can use it to analyse the credit applicant and to make an informed judgement. All these sources of credit information differ in reliability and cost of acquisition. In general it is advised that credit-granting approaches be developed systematically and applied with care.

Credit analysis Ross, Westerfield and Jaffe, (1996) discuss the so called traditional approach, that is capital, character, collateral, capacity, and conditions. Capital indicates the buyer’s financial reserves and liquidity position. This approach requires computing liquidity and leverage ratios in order to know whether the applicant is stronger or weaker compared to other firms in its industry that the seller believes are creditworthy. Character refers to the customer’s willingness to pay. In order to make payments to trade creditors, an applicant must have both the funds (as measured by the capital dimension) and the willingness to pay the debt (as measured by a character dimension). The applicant’s character is assessed by answering questions on its history of payments, that is, if the applicant has defaulted before and if he or she makes efforts in good-faith to pay debts as they come due. Collateral refers to the existence of a pledged asset in case of default. If the credit applicant gets financial difficulty, it may be forced to liquidate. If the firm liquidates, the recoveries will go first to the secured debt-holders. So, the existence of earlier commitment of secured financing to others means lower credit worthiness to new creditors. Information on secured borrowings may be obtained from the applicant’s financial statements, the bank, credit reports on the applicant and directly from conversations with applicant. Capacity refers to the buyer’s managerial and production capacity, which may indicate the ability to meet credit obligations out of operating cash flows. Managerial capacity refers to management’s ability to run the firm’s business. The firm’s history of success (or failure) and the number of years that it has been in business measure managerial capacity. The value and technology of the applicant’s production and service facilities measure the firm’s plant capacity. Conditions refer to the economic situation in the applicant’s industry and the general economy. There will be a danger of non-payment if there is strong domestic and foreign competition or if the economy is undergoing a contraction. Instead of either granting or refusing to grant credit to an applicant, a firm can also grant a limited amount of credit, which is a form of line of credit or credit limit.

The costs of credit policy Van Horne and Wachowicz (1998) divide the cost of credit management into the costs of credit standards and the cost of terms of sale. The costs of credit standards arise due to enlarged credit administration, increased volume of bad debt losses and the opportunity costs of committing funds in receivables. The costs of establishing and changing the firm’s terms of sale include the cost of printing new invoices, preparing and printing manuals and price specifications, as well as the cost of notifying the firm’s customers and sales personnel about the new terms. If a firm grants credit, it will incur the costs of the credit policy and in the absence of credit there is the possibility of opportunity cost of lost sales due to refusing to offer credit. As the levels of credit increase the credit costs increase while the opportunity costs of the loss of sales decrease. Therefore, management must compare the costs of credit granting against the opportunity cost of lost sales and set an optimal credit policy.
Almost every transaction of a business enterprise will eventually result in either the receipt or disbursement of cash. A firm can create value to shareholders by managing cash collections. Managing cash collections requires speeding-up and controlling cash collections (see also section 2.2.2).

**Speeding-up cash collections** A firm has to speed-up the collection of sales so that it earns income and uses the money sooner, for investment or paying bills and save future expenses. The methods that can be used to speed up the cash collection process include earlier billing, a lock-box system and concentration banking. Earlier billing is used to expedite the preparation and mailing of sales invoices internally and shorten the processing floats. It also accelerates the mailing of payments from the customer to the firm and shorten the mail float. A lock-box system is used to reduce the time during which payments received by the firm remain uncollected and to reduce the deposit or processing float. Concentration banking refers to firms, which use one central bank account instead of many small accounts in many banks. Firms that use a lock-box networking system, and those receiving funds over the counter may normally have bank deposit balances at a number of banks. It is advantageous for the firm’s cash concentration if all of these funds are held in one central location or concentration bank.

2.6. Performance management of working capital levels and operations

Working capital management requires managers to decide what quantities of cash, near cash assets, account receivable, and inventories the firm will hold at any point in time and must decide how these current assets are financed. Managers have also to plan and evaluate whether actual performances are as per their expectations.

There are techniques of measuring and evaluating a firm's performance in managing working capital operations and levels. Some of these performance measurements relate to financial and others non-financial criteria. According to Rappaport (1986) the non-financial performance indicators include customer satisfaction and product quality, while the financial accounting related performance indicators, according to Scherr, (1989) are based on ratio analysis. For the purpose of this study we emphasise on the later because they are to be derived from the financial statements of firms and it is possible to make inter-firm comparisons. We divide the financial accounting related performance indicators into those that help us to study working capital investment composition (asset structure), financing (liquidity and leverage) and operations (efficiency of activities and overall profitability). The interpretation of the financial statement ratios can be made by comparing ratios of the same firm of different years or ratios of the same year of different firms.

2.6.1. Performance evaluation of working capital investments

We can evaluate the performance of working capital investments by analysing asset structure and working capital investment composition.
Asset structure ratios are used to investigate the composition of asset investment in terms of quality and quantity. There are three asset structure ratios which are very often used - working capital to total assets, inventory to working capital and receivables to working capital. Working capital to total assets is expressed in percentages and shows the amount of working capital in total assets. It is used to investigate whether such a composition is sound given the nature of the activities the firm is in, for example a wholesale firm should have a higher current asset composition compared to a manufacturer. The inventory to working capital ratio is expressed in a percentage and measures the composition of inventory in the current assets. A higher ratio may indicate slow moving or obsolete inventory. Receivable to working capital ratio indicates the composition of receivables in the total current assets. A higher ratio may indicate problem in credit policy or lack of collection efforts.

2.6.2. Performance evaluation of working capital financing

We can evaluate the performance of working capital financing by studying a firm’s liquidity position and short-term financing composition.

Liquidity position measures the relative degree of certainty and ease with which an asset is converted into cash at no discount from full value. A weak liquidity position shows the inability of a firm to meet its current obligation and excessive liquidity ties up funds in current assets, which earn relatively less value. Liquidity ratio analysis is one of the most important devices used to study liquidity position and short-term debt financing. Liquidity ratios measure a firm’s ability to pay its current debt by converting its most liquid or current assets into cash. It is also used to evaluate management's attitude towards liquidity risk.

Liquidity ratios include mainly current ratios and quick or acid test ratios. The current ratio measures the firm’s ability to pay its current liabilities by converting all current assets into cash, including, marketable securities, receivables and inventories. It is expressed in terms of the number of times the current assets can cover the current liabilities. A preferred current ratio is between 1 and 2 with a global norm of 2. If it is less than 1 the firm may face a high risk of technical bankruptcy and if it is more than 2, the firm will be foregoing the opportunity of investing in more productive long-term fixed assets. The problem with the current ratio is that it mixes current assets and current liabilities of different maturity period. The quick ratio is an improvement over the current ratio because it excludes the least liquid assets (the inventories) from the current assets. Inventory is excluded because it has to be converted to sales (usually very uncertain as to the occurrence and amount) to receivables and then to cash - a very long process. The preferred quick ratio is between 1 and 1.50 with a global norm of 1. We can also evaluate the performance of working capital financing by analysing leverage or short-term financing structure (short-term debt to total assets ratio) and working capital financing composition. Working capital financing composition can be evaluated by studying the composition of each short-term financing element (trade creditors, short-term bank loans, bank overdrafts and others such as accruals of taxes, salaries, interest etc.) in the total current debt.
2.6.3. Performance evaluation of working capital operations

We can evaluate the performance of working capital operations by studying the efficiency of a firm’s working capital activities (with activity ratios) and overall profitability (with profitability ratios).

Activity ratios show the efficiency of working capital activities. They give insight into how fast the receivables and inventories are converted (turned over) to cash. They are also used to analyse the operational efficiency of a firm from the point of view of sales volume, inventory, credit terms, types of assets and volume of assets used. Frequently used ratios include, inventory turnover, receivables turnover, average receivables conversion period, working capital (or current assets) turnover and overall assets turnover. Inventory turnover is expressed in terms of times, this ratio indicates the rapidity with which inventory is turned over to cash through sales, a higher turn over indicates a better efficiency, a quick moving inventory and less capital tied-up. Low inventory turnover shows slow moving inventory possibly due to inefficient working capital management and/or poor buying and selling practices. Receivables turnover is expressed in times, it measures the number of times credit sales or receivables is turned over to cash. High turnover indicates quick collection or a strict credit policy and low turnover indicates slow collection or a liberal credit policy.

Average receivables collection period is expressed in number of days. It is the inverse of receivables turnover multiplied by 365 days. It measures "every how many days" receivables are collected. The smaller the collection period the quicker the collection. The inventory conversion period is the length of time required to produce and sell the inventory. A smaller inventory conversion period means efficient and a faster sales operation. Operating period is a sum total of inventory and receivables conversion periods. It is expressed in terms of days and measures the total length of time it takes to produce the inventory as well as to turn it into credit sales and then collect cash from the receivables. A shorter operating period shows an efficient working capital management and less capital tied up. An increase in the operating cycle without a corresponding increase in the payables deferral period, lengthens the cash conversion period and creates further working capital financing needs for the firm. Payables deferral period is expressed in terms of number of days and measures the length of time the firm is able to differ payment on its various payables on purchase of materials, wages and taxes. The longer the period payables remain unpaid the better.

Cash conversion period is expressed in the number of days and represents the net time interval between the collection of cash receipts from product sales and the cash payments. The cash conversion period is the length of time that elapses from the period when the firm pays for materials it uses in its production cycle until it receives cash from the sale of its products. The length of time is important because the amount of working capital needed to finance the firm is related to the speed with which “input” is converted to “output” and payment is received from the sale of this “output” (Kaen, 1995). A shorter cash conversion period shows efficient management of the firms purchase and sales operations. Overall working capital turnover is expressed in times and it measures the capacity of working capital to generate the sales volume. A high turnover shows efficient utilisation of working capital investment, effective marketing management efforts, and favourable business conditions.
**Profitability of overall operations** Profitability ratios relate a firm’s profit to sales, costs, assets, capital invested and financing costs incurred. They interalia include: gross profit margin, operating profit margin, return on total assets and return on equity. **Gross profit margin** measures the margin at the factory level and can be refined to operating profit margin by deducting operating expenses from the gross profit and dividing by sales to measure the overall profitability of the firm. **Return on total assets** is expressed in a percentage, it measures the profitability of all assets financed by both debt and equity. The return to equity can also be computed similarly by replacing total assets with equity.

**Problems with ratio analysis** Financial performance analysis using ratios has some shortcomings. Particular problems occur on the standardisation and objectivity of the resultant information. It is difficult to make intra-firm comparisons at different periods because the information may not be comparable because ratios being exceptionally good or bad as a result of exceptionally good or bad economic condition, the firm's inter-period changes in accounting policies and seasonality of operations. Inter-firm ratios may not be comparable due to differing accounting policies and other firm specific characteristics like the types and number of products, production technology and production capacity, size in terms of number of employees and sales volume. The differences that arise as a result of differing accounting policies can be solved using cash flow based evaluation. Though there may thus be problems to use the ratios in comparisons, it may be better to use some information on the ratios than no information at all.

**Cash flow based valuation and performance analysis** Cash flow from operations reported on the statement of cash flows, indicates the excess amount of cash that a firm derives from operations after funding working capital needs and making required payment on current liabilities. The ratio used for this purpose is the **cash flow from operations to average current liabilities**, which has a global norm of 0.40 (Stickney 1996). According to Stickney (1996), cash flow based valuation gives a better picture of a firm’s operating efficiency. This is mainly because of two reasons. First, cash is the ultimate source of value, that is, when firms invest in resource they delay current consumption and it is the medium of exchange that will permit them to consume various goods and services in the future. He argues that a resource has value because of its ability to provide future cash flows. Second, cash serves as a common measuring unit of future benefits and to compare future benefits of alternative operating and investment opportunities. Therefore, cash flow accounting becomes a viable alternative to traditional historical cost statements (Rees, 1990). This is so because cash flow statement is based on matching periodic cash flows and outflows, free of credit transaction and arbitrary accounting allocations. The change in firm values is dependent on the change in actual and expected cash flows. Future firm value can best be predicted by changes in current cash flows than current earnings. By using cash flow from operations it is also possible to overcome the deficiencies in using current assets as an indication of a firm’s liquidity or ability to generate cash in the short-term.
2.7. Conclusion

Firms are created to generate revenues for their owners in the long-term. However, the long-term value is a sum-total of short-term values. Working capital management takes care of the short-term value creation. Working capital management requires managing the short-term levels of investment and financing as well as operations of purchasing and sales. Managing working capital levels refer to the investment in cash, inventories and receivables as well as short-term financing sources such as trade credits and bank loans.

Managing cash levels can assist in creating firm value because it is important for transactions, precautionary and speculative purposes as well as for controlling the costs and the physical safety of cash collections and receipts. In order to manage cash, a firm needs to plan and properly implement the above needs as well as the control mechanisms. It is only then that cash management can contribute to the creation of firm value. Materials and finished goods inventory management play similar roles. Managing materials inventory is useful to separate production and purchases so that there will be no need to purchase each time a good is produced and because it can help to hedge against supply shortages and for taking advantage of price changes and quantity discounts. Work-in-process inventory helps to make the production process smoother and more efficient by providing buffers between the various production processes. Finished goods inventory is used for two reasons. First, to provide immediate services to customers. Second, to stabilise the production process by separating production and sales. Both materials and finished goods inventory are important for purpose of transaction (for regular purchases and sales), precautionary (for unforeseen inventory shortages) and speculative (for reasons of price changes). But a firm needs to control the carrying and ordering costs of inventory as well as its physical safety. In order to manage inventory efficiently firms need to plan their needs and control mechanisms. Receivables management is, directly related to the credit sales policy. If a firm has credit sales policy it creates accounts receivables, in which case it needs efficient plans and controls using a number of alternative techniques and collection efforts.

Working capital management also includes managing short-term financing sources mainly accounts payable and bank loans. Accounts payable results due to a firm’s credit policy and bank loans mainly include overdrafts and short-term loans. Accounts payable may include the provision of discounts, in which case the firm should compare the benefit of the discount due to making early payments and the costs related to financing the payments. With regard to the bank loans, the bank service charge and interest costs of overdrafts and short-term loans have to be compared with the benefits generated by their financing.

However, liquidity and profitability management comes to the picture when a firm is faced with the dilemma of using short-term financing sources and investing in working capital levels. Liquidity and profitability management requires fine-tuning because they have offsetting risk-profit effects. The combination of liquidity and profitability depends upon management’s risk attitude, based on which it can use maturity matching, aggressive or conservative approach.
In addition to managing working capital levels a firm will also be concerned with managing working capital operations of purchases and sales. Purchase operations can be made on the basis of cash or credit. Cash purchases result in cash payments and its management is related to cash management. However, credit purchase needs a separate managerial issue, that of establishing credit terms and standards as well as credit payment policy which is considered earlier in this section. Sales can also be made on cash or credit. While credit sales requires a firm to establish credit terms and standards, cash sales results in cash collection and its management is related to cash management. Credit sales results in accounts receivable, which may include a provision for discounts to motivate customers to pay early. This needs considering the costs (or income lost) due to the discount that could be taken by customers, the costs of financing the investment in the receivables and the costs of collection efforts and/or eventual bad debts.

Overall, management should evaluate the efficiency of its internal management of working capital levels and operations. In order to do this, it can use financial and non-financial criteria. The non-financial criteria could be based on product quality and customer satisfaction. The financial criteria could include financial ratio and cash flow analysis and be used to evaluate the efficiency of managing working capital operations (activity and profitability) and levels (investment composition and liquidity).

We therefore conclude that firms create value when the objective of working capital management is tailored to taking the necessary risk in the process of aspiring for value creation. Managing working capital levels and operations can emphasise on custody or value creation. Custody management is safeguarding a firm’s assets and operations from theft and misappropriation as well as applying the operations as prescribed by control measures. Managing for value creation refers to management’s ability to use the firm’s working capital levels and operations such that they are applied in an efficient cost minimising and revenue maximising manner. Value management presumes management of working capital levels to decrease the holding costs of cash, receivables and inventories, investing any short or long-term surplus cash as long as the firm does not use it. It also requires applying appropriate measures to minimise inter-firm transaction costs of working capital operations of purchasing and selling - a topic discussed in the next chapter (chapter 3).