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College of Engineering and Technology

DEBT CAPACITY OF CONSTRUCTION COMPANIES IN EGYPT

by

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A Thesis

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ABSTRACT

The total capital structure of any construction company can be generally financed through; equity capital or debt capital, each of them has its own advantages and disadvantages that make the selection between them a more difficult task. For instance, debt capital can be considered as the cheapest source of finance, while, too excessive debt capital than necessary can materially increase the financial risk of the company.

The objective of this study is twofold. First, to check the ability of a selected sample from the Egyptian construction companies to meet their debt burden obligation. Second, to answer one important question of whether these companies can use their debt burden effectively or not. The fulfillment of this objective can easily pass through many important steps. First, a literature review covering the different aspects regarding the company's capital structure was carried out. The advantages and disadvantages of the different sources of finance, some considerations regarding capital structure decision, and financial parameters that can be considered as the analytical tools of this study were the major areas investigated in such literature review.

In the second step, a suitable sample of construction companies in Egypt was selected as a test-bed for this study. Pertinent financial data of these companies were collected using the available financial documents for the four fiscal years 2002, 2003, 2004 and 2005.

A capital structure analysis was conducted to show the relative proportion that both equity and debt sources of capital are having within the total capital structure of these companies. The percentages of both short and long term debt were also employed to check the ability of the selected companies to meet the financial obligations of their debt burden. The financial performance of these companies was also investigated. Finally, an important financial model named as Altman Z-score model was used to predict the probability that the selected companies can face the risk of financial distress and may fail to re-pay their debt burden.

To research the assumption that; the selected companies should attempt to gradually reduce their debt burden by using a suitable source of internal finance. And should attempt to maintain a balance between the use of short and long term debt.

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INTRODUCTION

1.1 GENERAL

The capital structure for any construction company mainly consists of a mix of the available sources of finance. These sources can be generally classified into common equity and debt finance. Each of the two sources has its financial arrangements that have great effect on the company financial stability. Moreover, each of the two main sources of finance can be employed in many different forms. Equity finance can be considered as the most costly source of finance. This may be attributed to the great risk inherent in it. On the other hand, debt finance represents the cheapest source of finance, this may be due to the fact that interest on debt finance is generally treated as a tax deductible expenses.

Debt finance can be generally classified into two major sources, short term debt and long term debt. The major differences between the two forms of debt are generally shown in their interest cost as well as the degree of risk associated with each of them. For instance, one can easily say that the shorter the maturity of debt finance the greater the degree of risk will be. Contrarily, the cost of interest is directly proportional to the maturity of debt.

The company capital structure decision is mainly concerned with the identification of the appropriate amount of debt versus equity, it may also include the maturity composition of the debt. Such decision can be costly, if not fatal. Too much debt than necessary may seriously increase the company's cost of interest. It may also lead to a sharp increase in the company financial risk. Hence, it is safe to say that the company debt burden has a great effect on the company's financial stability. It can also have a great effect on the expected profitability of the company.

1.2 PROBLEM STATEMENT

Heretofore, the importance of a prudent capital structure decision has been indicated. Such decision should clearly identify the suitable proportion that each source of finance can have on the company's total finance. Identifying the appropriate proportion of debt capital can be considered as an important task for a company financial management.

It is suspected that many construction companies in Egypt have a proportion of debt capital much greater than that they can safely manage. Such unbalanced debt burden can have many bad effects on the financial performance of these companies. Such bad effects can be shown in the form of a greater risk that the company may have a financial distress. In other words, such companies will have a great risk to be unable to carry the financial obligations of such debt. It can be also shown in the form of a very low profitability due to the higher interest cost associated with such unwise debt policy. Consequently, the ability of these companies to serve their debt burden must be continuously evaluated.

1.3 SCOPE AND OBJECTIVE OF THIS STUDY

The work described in this study attempt to deeply measure and evaluate the debt capacity of a selected sample of construction companies in Egypt. Debt capacity can be generally defined as the ability of these companies to serve their debt burden (33). This will be carried out through:

1. A detailed review for the theoretical background regarding the financial implications of the different sources of finance, showing the advantages and disadvantages of each of them.

2. Financial parameters that can be used as tools for evaluating the ability of these companies to serve their debt burden will be clearly identified and discussed.

3. Pertinent data of a selected sample of construction companies will be collected using the available financial records of these companies. The point to be stressed herein is that the scope of this study is mainly confined to those construction companies that are registered in the Egyptian Capital Market Authority. This is because the financial documents of these companies are readily available. The availability of financial documents for the other construction companies is more difficult, if not impossible.

4. A detailed capital structure analysis for these companies will be carried out to identify the proportion that the different sources of capital are having within the total capital structure of these companies. Special emphasis will be given to the debt capital proportion since it represents the main issue of our study.

5. The suitable financial tools will be used to evaluate the ability of these companies to serve their debt burden. The suitable tools will be also employed to check whether this debt burden lies within the safety limits or not.

6. Some selected tools will be also used to check the success of these companies in using their debt burden effectively. This can be easily done by evaluating the profitability gained by these companies.

7. Some selected financial models will be used to identify those companies that are highly expected to face a financial distress and may fail to re-pay their debt burden.

1.4 THESIS ORGANIZATION

The thesis is divided into five chapters; after the introduction in chapter I, the second chapter includes a review of literature, it provides a detailed review for the different sources of finance showing the advantages and disadvantages of each of them. Financial parameters that can be used as tools for this study will be also discussed. The selected companies and the process of data collection will be discussed in chapter III. In chapter IV, the analysis of data and the results are presented. Finally, chapter V provides the conclusions and recommendations.

CHAPTER II

" LITERATURE REVIEW "

Chapter II

LITERATURE REVIEW

2.1 INTRODUCTION

Construction companies can secure their financial requirements through different sources of finance, such sources can be generally classified into two main categories; equity and debt finance. Each of the two categories can have many different forms. Each of them has many advantages and disadvantages. Selecting the appropriate portion that each source of finance can have on the company' capital structure is an important task for a competent financial management.

Capital structure decision can have a serious effect on the company financial stability; it can also affect the company profitability. Although debt capital is considered as the cheapest source of finance, it can materially increase the financial risk of the company. The greater the portion of debt capital, the greater the probability that the company will suffer the risk of bankruptcy. Hence, it is important for the different companies to continuously check their debt capacity. Debt capacity can simply be defined as the ability of the company to meet the financial obligations of its debt burden. (33)

In the next section of this chapter the main sources of finance will be deeply discussed showing the main advantages and disadvantages of each source. The principles of the capital structure decision will be also provided. Financial parameters that can be used to check the companies debt capacity will be also discussed. Some important considerations that must be taken into account when making a capital structure decision will be also discussed. Finally, financial models that can be used to check the future ability of the company to serve it debt burden will be provided.

2.2 SOURCES OF FINANCE

2.2.1 General

The ultimate source of capital is the investor, but there are a number of ways by which a business may endeavor to obtain the required finance with the maximum degree of certainty

and the minimum level of expense. When seeking to capitalize a business, it is essential to know the amount of finance required, and the type of undertaking and its relevant circumstances. However, it is equally important that the search for funds should be made when the appeal is likely to have the desired effect. It is necessary, therefore, to consider the various methods of raising capital together with the conditions in which a business finds it expedient to apply them.

Some investors are more flexible than others because they are not locked into a few available sources of funds. Investors would like many financing alternatives in order to minimize their cost of funds at any point on time. Unfortunately, not many firms are in this enviable position through the duration of a business cycle. At the time the financing decision is being made, the investor is never sure whether it is the right one or not. Should the financing be long-term or short term, debt or equity, and so on? At each point a decision is made until a final financing method is reached. In most cases, the investor will balance short-term versus long-term considerations against a composition of the firm's assets and the firm's willingness to accept risk. The ratio of long-term financing to short-term financing at any point will be greatly influenced by the term structure of interest rates. The term structure of interest rates refers to the way in which the yield on a security varies according to the term of the borrowing that is the length of the time until the debt will be repaid. Normally, the longer the term of an asset to maturity the higher the rate of interest paid on the asset (1).

2.2.2 Classification of the sources of finance

In order to provide a framework for studying sources of finance, they must be classified in an appropriate way. There are a number of possible classifications, but for the purpose of this study three distinctions are of particular importance:

- The distinction between equity and other sources of finance.
- The sub-division of equity into internally generated and new issues.
- The division of non-equity finance into long-term, short-term and special categories.

A graphical plot for this classification is shown in Figure (2.1)

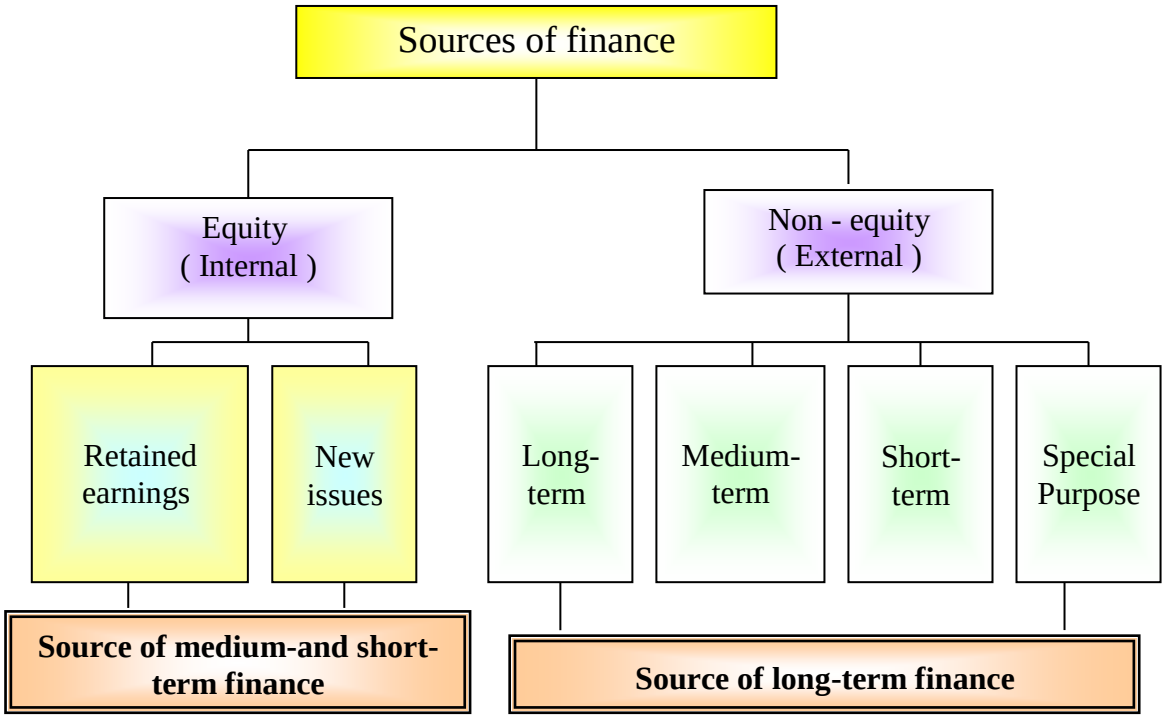

Fig. (2.1) Classification of Sources of Finance (10).

Each of these categories of finance will need to be considered in more detail as the text progresses. However, one should note that definitions of long-term, medium-term and short-term are somewhat elastic but as a rough guide the following durations can be taken.

Short-term Up to one year

Medium-term 1 year to 7years

Long-term 7 year or more

In the next section of this chapter the main sources of finance will be deeply discussed, showing their different forms. The main advantages and disadvantages will be also provided.

2.2.3 Equity finance

Equity finance can be obtained from two different sources; retained earnings or new stocks issue. Simply retaining profits, instead of paying them out in the form of dividends, offer an important, simple and low–cost source of finance, in spite of the fact that this method may not provide enough funds: For example, if the firm is seeking to grow, a new issue of shares might be made in a variety of different circumstances.

The company might want to raise more cash if it issues ordinary shares for cash, should the shares be issued pro rata to existing shareholders, so that control or ownership of the company may not be affected.

Ordinary shares are issued to the owners of a company. They have a nominal or 'face' value. The market value of a quoted company's shares bears no relationship to their nominal value, except that when ordinary shares are issued for cash, the issue price must be equal to or be more than the nominal value of the shares. Deferred ordinary shares are form of ordinary shares which are entitled to a dividend only after a certain date or if profits rise above a certain amount. Voting right might also differ from those attached to other ordinary shares. Ordinary shareholders put funds into their company by paying for a new issue of shares or through retained profits (1). The sources of equity finance will be discussed in the next section.

2.2.3.1 New shares issues

New shares issues can be considered as the most important source of equity finance. A company seeking to obtain additional equity funds may be:

a) An unquoted company wishing to obtain a Stock Exchange quotation.

b) An unquoted company wishing to issue new shares, but without obtaining a Stock Exchange quotation.

c) A company which is already listed on the Stock Exchange wishing to issue additional new shares.

The methods by which an unquoted company can obtain a quotation on the stock market are: a) an offer for sale, b) A prospectus issue, c) A placing, d) An introduction.

An offer for sale is a mean of selling the shares of a company to public. This can be done through:

a) An unquoted company may issue shares, and then sell them on the Stock Exchange, to raise cash for the company. All the s hares in the company, not just the new ones, would then become marketable.

b) Shareholders in an unquoted company may sell some of their existing shares to the general public. When this occurs, the company is not raising any new funds, but just providing a wider market for its existing shares (all of which would become marketable), and giving existing shareholders the chance to cash in some or all of their investment in their company.

When companies 'go public' for the first time, a 'large' issue will probably take the form of an offer for sale. A smaller issue more likely to be a placing, since the amount to be raised can be obtained more cheaply if the issuing house or other sponsoring firm approaches selected institutional investors privately.

A rights issue provides a way of raising new share capital by means of an offer to existing shareholders, inviting them to subscribe cash for new shares in proportion to their existing holdings. A company making a rights issue must set a price which is low enough to secure the acceptance of shareholders, who are being asked to provide extra fund, but not too low, so as to avoid excessive dilution of the earnings per share. New share issues can have two different forms; preferred stocks or common stocks (1).

Preference shares

Preference shares have a fixed percentage dividend before any dividend is paid to the ordinary shareholders. As with ordinary shares a preference dividend can be
paid if sufficient distributable profits are available, although with 'cumulative' preference shares the right to an unpaid dividend is carried forward to later years. The arrears of dividend on cumulative preference shares must be paid before any dividend is paid to the ordinary shareholders.

From the company's point of view, preference shares are advantageous in that:

* Dividends do not have to be paid in a year in which profits are poor, while this is not the case with interest payments on long term debt (loans or debentures).

* Since they do not carry voting rights, preference shares avoid diluting the control of existing shareholders while an issue of equity shares would not.

* Unless they are redeemable, issuing preference shares will lower the company's gearing. Redeemable preference shares are normally treated as debt when gearing is calculated.

* The issue of reference shares does not restrict the company's borrowing power, at least in the sense that preference share capital is not secured against assets in the business.

* The non-payment of dividend does not give the preference shareholders the right to appoint a receiver, a right which is normally given to debenture holders. However, dividend payments on preference shares are not tax deductible in the way that interest payments on debt are Furthermore, for preference shares to be attractive to investors, the level of payment needs to be higher than for interest on debt to compensate for the additional risks (10).

For the investor, preference shares are less attractive than loan stock because:

• They cannot be secured on the company's assets.

• The dividend yield traditionally offered on preference dividends has been much too low to provide an attractive investment compared with the interest yields on loan stock in view of the additional risk involved.

Advantages of common stock financing

1. Common stock does not entail fixed charges. If the company generates the earnings, it can pay common stock dividends. This is very much in contrast to interest on debt, this must be paid regardless of the level of earnings.

2. Common stock carries no fixed maturity date – it is permanent capital which does not have to be " paid back ".

3. Since common stock provides a cushion against losses to the firm's creditors, its use helps bond rating and lowers the cost of debt.

4. Common stock can - at times - be sold more easily than debt. It appeals certain investor groups because:-

(1) It typically carries a higher expected return than does preferred stock or debt,
(2) It provides investors with a better hedge against inflation than does preferred stock or bonds, and (3) returns from capital gains on common stock are not taxed until the gains realized (10).

Disadvantages of common stock financing

1. The sale of common stock normally extends voting rights or even control to the additional stock owners who are brought into the company. For this reason, additional equity

financing is often avoided by small firms whose owner-managers may be unwilling to share control of their companies with outsiders. It may be noted that, though, those firms can use special classes of common stock that do not carry voting rights.

2. The use of debt enables the firms to acquire funds at a fixed cost, whereas the use of common stock means that more stockholders will share in the firm's future profits.

3. The cost of underwriting and distributing common stock is usually higher than the costs of underwriting and distributing preferred stock or debt.

4. The sale of new common stock may be perceived by investors as a negative signal, hence may cause the stock price to fall (10).

2.2.3.2 Retained earnings

For any company, the amount of earnings retained within the business has a direct impact on the amount of dividends. Profit re-invested as retained earnings is profit that could have been paid as a dividend. The major reasons for using retained earnings to finance new investments, rather than to pay higher dividends and then raise new equity for new investments, are as follows:

a) The management of many companies believes that retained earnings are funds which do not cost anything, although this is not true. However, it is true that the use of retained earnings as a source of funds does not lead to payment of cash.

b) The dividend policy of the company is in practice determined by the directors. From their standpoint, retained earnings are an attractive source of finance because investment projects can be undertaken without involving either the shareholders or any outsiders.

c) The use of retained earnings as opposed to new shares or debentures avoids issue costs.

d) The use of retained earnings avoids the possibility of a change in control resulting from issuing of new shares.

Another factor that may be of importance is the financial and taxation position of the company's shareholders. If, for example, and because of taxation considerations, they would rather make a capital profit (which will only be taxed when shares are sold) than receive current income, then finance through retained earnings would be preferred to other methods.

A company must restrict itself-financing through retained profits because shareholders should be paid a reasonable dividend, in line with realistic expectations, even if the directors would rather keep the funds for re-investing. At the same time, a company that is looking for extra funds will not be expected by investors (such as banks) to pay generous dividends, nor over-generous salaries to owner-directors.

In theory, corporate directors should ask, how can the best use of funds be made? The rate of return that the corporation can achieve on retained earnings for the benefit of stockholders must be compared to what stockholders could earn if the funds were paid to them in dividends. This is known as the marginal principle of retained earnings. Each potential project to be financed by internally generated funds must provide a higher rate of return than the stockholder could achieve in other investments. We speak of this as the opportunity cost of using stockholder funds (10).

2.2.4 Debt Capital

The Expanding Role of Debt:

Corporate debt has increased dramatically since War II. This growth is related to rapid business expansion, the inflationary impact on the economy, and at times, inadequate funds generated from the internal operations of business firms. In 1977 the average manufacturing corporation had its interest payments covered by operating earning at a rate of eight times (operating earnings were eight times as great as interest). By the early 1990s the ratio had diminished to less than three times. Nor has this been a short-term, cyclical phenomenon, but rather a long-term process of deterioration, with the declining interest-paying capabilities. Corporations, the debt contract between corporate borrowers and lenders has become increasingly important (10).

Now, let's refer to the other main source of finance. It is the matter of debt (external) source of finance. Debt capital can be considered as the cheapest source of finance. Debt capital can be generally classified into short term, intermediate term and long term debt. In the next section the main features of each type will be clearly discussed.

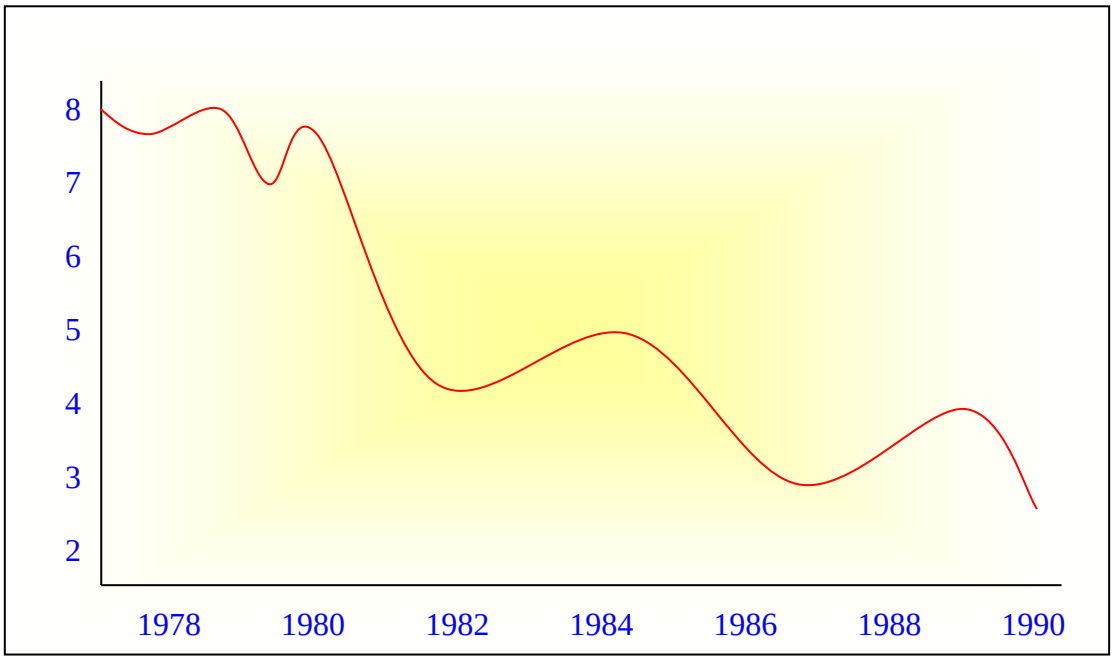

Fig. (2.2) Times interest earned for Standard & Poor's industrials (21).

2.2.4.1 Short- Term Finance

Short term debt can be generally defined as the debt that has a maturity of less than one year. According to Figure (2.3) short term debt can have many forms. In the next section the financial arrangements of the different forms will be discussed.

The use of accounts receivables form the standpoint of a firm offering credit to its customers to increase sales, most firms both offer credit and receive credit. Credit offered by suppliers and used by firms that sell products or services is known as trade credit. Trade credit can be a significant source of capital for many firms. In some cases it is very simple to obtain by placing an order for goods that will be delivered before payment is expected. A firm obtains a short-term loan in the business world, most goods are sold in this manner.

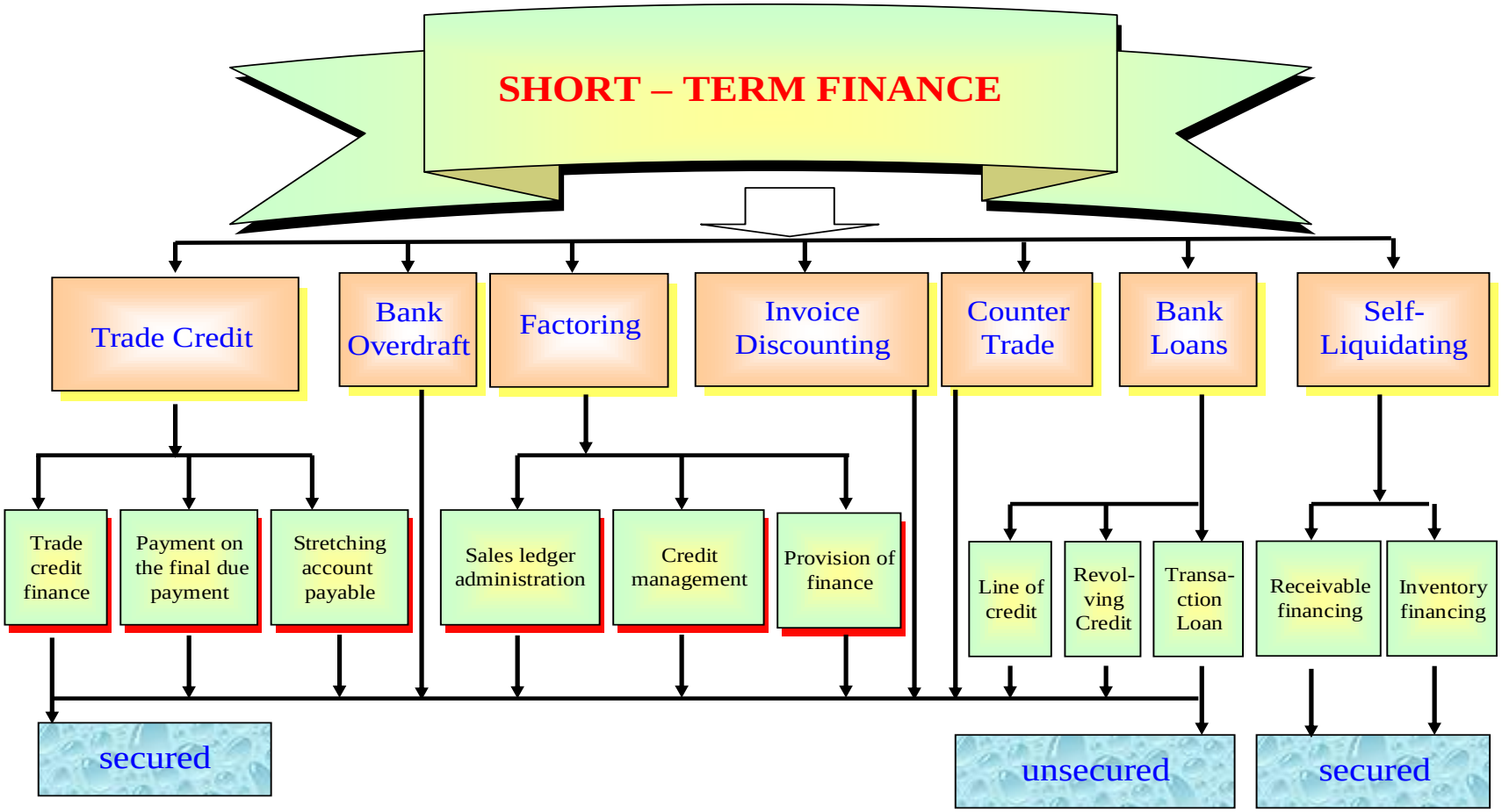

Fig. (2 . 3) Types of short term debt finance.

This is the basic source of finance and many entrepreneurs do not realize that by acquiring items on credit they are obtaining short term finance. Credit just like any other source of finance has interest element hidden which most are not able to recognize. The discount may be offered to encourage early payment and the receiving company may not take advantage of the discount the cost arises.

Therefore it is not a cheap source of finance. On occasions, trade credit is used because the buyer is not aware of the real costs involved- if he were, he might turn to other sources of trade finance. However, other forms of capital are not always available, and for a company that has borrowed as much as possible trade credit may be the only choice left. This is an important source of capital for many small companies. A company which provides credit to another is in fact putting itself in the position of a banker whose advance takes the form not of goods for which payment will be deferred. This use of trade credit between companies is extremely important from both an industrial and a national point of view. Trade credit from suppliers is normally the most available form of short-term financing.

Trade Credit

Terms of credit vary considerably from industry to industry. Theoretically, three main factors determine the length of credit allowed.

The economic nature of the product: Products with a high sales turnover are sold on short credit terms. If the seller is relying on a low profit margin and a high sales turnover, he cannot afford to offer customers a long time to pay.

The financial circumstances of the seller: If the seller's liquidity position is weak he will find it difficult to allow very much credit and will prefer an early cash settlement. If the credit term is used as part of sales promotion then, he may allow more credit days and use other means for improving liquidity position.

The financial position of the buyer: If the buyer is in weak liquidity position he may take long time to settle the balance.

The seller may not be willing to trade with such customers, but when competition is stiff there is no choice other than accepting such risk to improve on sales levels.

As a firm establishes a relationship with a supplier the amount of trade credit usually increases, additionally trade credit is included in the negotiations for goods and services. It is important that the cost of trade credit be fully understood. Discounts given for paying within a limited time period actually represent price increase charged for paying after the discount period. The cost of this is very high compared virtually with another source of short – term financing. Typically, it should be used only if no other option available. When cash discounts are taken into account, the cost of capital can be surprisingly high. The higher the cash discount being offered the smaller is the period of trade discount likely to be taken.

Trade credit is also used as signaling effect on the performance of both the buyer and the seller. Where the days allowed to customers are increasing it may indicate that the company is slipping in its debt collection and very soon may encounter cash flow problem. More days to the customers also increase the risk of bad debts which will reduce the profit levels of the company. On the other hand, reducing credit days to customers may result in loss of some customers as they will always seek a supplier willing to offer more credit days. For a company, as a buyer having increased credit days may indicate that the enterprise is facing cash problems and is unable to settle their balance in good time, and this may result in loss of business. Allowing cash discounts to pass is also a cost to the business as outlined above. However, reducing the day's payment to the supplier may also indicate that company is not trusted by its suppliers. A company with a poor track record will always face difficulties in negotiating for more days, hence the short payment period (29).

Bank Overdraft

One of the most common used sources of short term finance because of its cost and flexibility. When borrowed funds are no longer required they can quickly and easily be paid. It is also comparatively cheap because the risks to the lender are less than on the long – term loans, and all the loan interests are allowable tax expenses. The bank issue overdrafts with the right to call them in at short notice. Bank advances are in fact payable on demand. Normally the bank assures the borrower that he can rely on the overdraft not being recalled for a certain period of time.

The borrower is required to use the overdraft to supplement the working capital shortfall. As the bank overdraft is payable on demand it s not wise to use the money in purchasing non current assets like machine. Financing of such assets should be made using long – term

finance such as finance lease and loans. Any plans that involve an overdraft or short term loan should therefore be close to the company's cash flow analysis so that it is quite clear how long the funds will be needed and when they can be repaid (16).

Another purpose for which bank overdraft might be typically important to iron out seasonal fluctuations in trade. The banks assist in providing temporary funds to finance production on the assumption that the goods or products will be sold in a later season.

Factoring

Factoring involves raising funds on the security of the company's debts, so that cash is received earlier than if the company waited for the debtors to pay. Most factoring companies offer these three services:

- Sales ledger accounting, dispatching invoices and making sure bills are paid.
- Credit management, including guarantees against bad debts.
- The provision of finance, advancing clients up to 80% of the value of the debts that they are collecting (16).

Sales ledger administration

The factoring company will take over the administration of receivable department, maintaining the sales records, credit control and the collection of receivables. It is claimed that the factor will be able to obtain payment from customers more quickly than if the company was to make collection on its own. The cost of this administrative service is a fee based on total value of debts assigned to the factor. The fee rate is based on work which is to be done and the risk level of bad debts (16).

Credit management

For a fee the factor can provide up to 100% protection against non payment of approved sales. The factoring company will always assess the credit profile of an enterprise before entering into such an agreement. As outlined above the risk level of the company's debts will be the main factor in determining the fee charge (16).

Provision of finance

This is the main product which most factoring companies offer. Factor companies provide finance which is used to boost the working capital of the business. The factoring is not as cheap as may be the bank overdrafts and because the bank borrowing is also flexible it is imperative that the company should approach the bank first. However, factoring can be particularly useful when a company has exhausted its overdraft and is not yet in position to raise new equity (16).

Invoice Discounting

This is purely a financial arrangement which benefits the liquidity position of the enterprise. Invoice discounting is the transferring of invoice to a finance house in exchange with immediate cash. The company makes an offer to the finance house by sending it the respective invoices and agreeing to guarantee payment of any debts that are purchased. If the finance house accepts the offer, it makes immediate cash payment of about 75%, which means that at a specified future date, say 90 days, the loan must be repaid. The company is responsible for collecting the debt and for returning the amount advanced, whenever the debt is collected (16).

Counter Trade

Counter trade is a method of financing trade, but goods rather than money are used to fund the transaction. It is a form of barter. Goods are exchanged for the other goods. This form of business for private enterprises is diminishing in local trading but for international trade is still a popular way of funding the business activities (16).

Bank Loans

Many businesses use banks to supply short – term funds needed for the firms operation banks tend to specialize in customizing short – term loans in fact these short – term business loans are the bread and butter for most banks. The advantage to the bank is that it can charge fees every time a new loan is made. The advantage to the firm is that the bank can be much more flexible in its terms and conditions than is possible with publicly issued debt.

Bank loans are usually short term in nature and should be paid off from the normal operations of the firm (29).

Bank loans can be used in the form of line of credit or revolving credit. Each of the two forms will be discussed in the following sections.

Lines of credit

Firms often reach an agreement with banks regarding how much credit the bank will extend. The total amount that can be borrowed is the firm's line of credit. Usually once the credit has been established little effort is required by the firm to obtain a disbursement of funds. Loan secured by accounts receivable can often be obtained almost immediately and financial statements be submitted to the bank. The banks loan officers occasionally visit the firm. At least once a year the bank and the firm review the line of credit to see whether it is adequately serving the company (29).

Revolving Credit Agreement

As a general rule, the rate of interest on "revolvers" is pegged to the prime rate, so the cost of the loan varies over time as interest rates change. Note that a revolving credit agreement is very similar to a regular line of credit. However, there is an important distinguishing feature: the bank has a legal obligation to honor a revolving credit agreement, and it receives a commitment fee. Neither the legal obligation nor the fee exists under the typical line of credit (29).

Self – liquidating (Collateralized loans):

Short – term bank loans are often self – liquidating meaning that the loan is made to finance an asset that will pay off the loans for example, a bank may make a loan to finance accounts receivable. When the receivables are paid, the proceed is given to the bank to retire the debt. It may also use to finance inventory.

Receivable financing usually requires that the firm pledges its accounts receivable to the bank as collateral for the loan. The bank will lend the firm no more than 80% of the book value of receivables. Additionally, accounts that are past due are often excluded from

financing if the firm defaults on its loan, the bank can notify those who the firm money that all payments are to be made to the bank (29).

Inventory financing is also a very common type of short – term financing. The firm borrows a portion of the value of its inventory and pays off the loan from the process generated by selling the inventory. For example an auto dealer may borrow money to pay for its inventory of cars. Each time a car is sold the car dealer must pay an agreed upon amount to the bank.

Bank often requires that the firm completely pay off its short – term loans every year this is to keep the short – term money from becoming used to finance long – term assets (29).

Advantages and Disadvantages of Short –term Financing

Advantages of short – term Financing

Speed

A short – term loan can be obtained much faster than long- term credit. Lenders will insist on a more thorough financial examination before extending long –term credit, and the loan agreement will have to be spelled out in considerable detail because a lot can happen during the life of a 10- or 20- year loan. Therefore, if funds are needed in a hurry, the firm should look to the short – term markets (10).

Flexibility

If its needs for funds are seasonal or cyclical, a firm may not want to commit itself to long – term debt for three reasons:

(1) Flotation cost are generally high when raising long – term debt but trivial for short – term credit.

(2) Although long - term debt can be repaid early, provided the loan agreement includes a prepayment provision, prepayment penalties can be expensive.

Accordingly, if a firm thinks its need for funds will diminish in the near future, it should choose short – term debt for the flexibility it provides.

(3) Long – term loan agreements always contain provisions, or covenants, which constrain the firms future actions. Short – term credit agreements are generally much less onerous in this regard (10).

Cost of long – term versus short – term debt

The yield curve is normally upward sloping, indicating that interest rates are generally lower on short –term than on long – term debt. Thus, under normal conditions, interest costs at the time funds are obtained will be lower if the firm borrows on a short – term rather than on a long – term basis (10).

Disadvantages of short – term Financing

Risk of long – term versus short – term debt

Even though short – term debt is often less expensive than long – term debt, short – term credit subjects the firm to more risk than does long – term financing. This occurs for two reasons:

(1) If firm to borrow on a long – term basic, its interest costs will be relatively stable over time, but if it uses short – term credit, its interest costs expense will fluctuate widely, at times going quite high. Many firms that had borrowed heavily on a short – term basic simply could not meet their rising interest costs, and as a result bankruptcies hit record levels during that period.

(2) If a firm borrows heavily on a short – term basic, it may find itself unable to repay this debt, and it may be in such a weak financial position that the lender will not extend the loan; this too could force a firm into bankruptcy (10).

2.2.4.2 Medium Term Financing

Leasing

A lease is an agreement between two parties, the " lessor " and the " lessee ". The lessor owns a capital asset, but allows the lessee to use it. The lessee makes payments under the terms of the lease to the lessee for a specified period of time.

Leasing is, therefore, a form of rental. Leased assets have usually been plant and machinery, cars and commercial vehicles, but might also be computers and office equipment. There are two basic forms of lease: " operating leases " and " finance leases ".

Operating leases

Operating leases are rental agreements between the lessor and the lessee whereby:

a) The lessor supplies the equipment to the lessee

b) The lessor is responsible for servicing and maintaining the leased equipment

c) The period of the lease is fairly short, less than the economic life of the assets, so that the end of the lease agreement, the lessor can either.

The equipment is leased for a shorter period than its expected useful life. In the case of high-technology equipment, if the equipment becomes out-of-date before the end of its expected life, the lessee does not have to keep on using it, and it is the lessor who must bear the risk of having to sell obsolete equipment secondhand. The lessee will be able to deduct the lease payments in computing his taxable profits (10).

Capital leases:

A lease is regarded as a capital lease if it meets any one of the following conditions:

1 – The lease transfers title of the asset to the lessee by the lease period.

2 – The lease contains an option to purchase the asset at a bargain price.

3 – The lease period is equal to or greater than, 75 percent of the estimated economic life of the asset.

4 – At the beginning of the lease the present value of the minimum lease payments equals or exceeds 80 percent to the fair value of the leased property to the lessor.

If any of these conditions is met, the lessee is said to have acquired most of the economic benefits and risks associated with the leased property; therefore, a capital lease is involved. On the other hand, operating lease gives the lessee the right to use the leased property over a period of time, but they don't give the lessee all the benefits and risks that are associated with the asset (10).

Advantages and Disadvantages of Leases

Advantages of Leases

1- Because the entire lease payment is deductible, in effect, land becomes tax deductible.

2- Leasing provides 100% financing because no down payment is required in a case, would not have to pledge other assets as security, and leaving them available as security should need a loan in the future.

3- If the equipment becomes obsolete by the time the lease matures, rather than purechasing the assets can let them revert to the lessor.

4- The terms of most lease agreements are less restrictive than those of many long-term loans.

5- Many operating leases have cancellation clauses that allow the lessee to get out of the contract if the equipment is no longer needed (29).

Disadvantages of Leases

1- Leases do not usually state the interest cost and many provide for a high rate of return to the lessor.

2- The assets revert to the lessor unless they are purchased when the lease matures this purchase requires that either cash or alternative financing be arranged at that time.

3- Because the property is not owned by the lessee, material changes or alterations cannot be made without the approval of the lessor (29).

2.2.4.3 Long-term financing

Long-term loans

Long-term capital is now being used to finance fixed assets, permanent current assets, and part of temporary current assets.

By using long-term capital to cover part of short-term needs, the firm virtually assures itself of having adequate capital at all times. The firm may prefer to borrow a million unit of money for 10 years rather than attempt to borrow a million unit of money at the beginning of each year for 10 years and paying it back at the end of each year (10) & (31).

BONDS

A bond is a type of debt or long – term promissory note, issued by the borrower, promising to pay its holder a predetermined and fixed amount of interest per year (3).

However, there is a wide variety of such creatures. The following section provides a brief review for the different types of bond.

Debentures Any unsecured long – term

The term debenture applies to any unsecured long-term debt. Because these bonds are unsecured, the earning ability of the corporation is of great concern to the bondholder. They are also viewed as being riskier than secured bonds and as a result must provide investors with a higher yield than secured bonds provide. Often, the issuing firm attempts to provide some protection to the holder of the bond by prohibiting the firm from issuing more secured long – term debt that would further tie up the firm's assets and leave the bondholders less protected. To the issuing firm, the major advantage of debentures is that no property has to be secured by them. This allows the firm to issue debt and still preserve some future borrowing power (3).

Subordinated debentures A debenture that is subordinated to other debentures in being paid in the case of insolvency. Many firms have more than one issue of debentures outstanding. In this case a hierarchy may be specified, in which some debentures are given subordinated standing in case of insolvency. The claims of the subordinated debentures are honored only after the claims of secured debt and unsubordinated debentures have been satisfied (3).

Mortgage bonds

A mortgage bond is a bond secured by a lien on real property. Typically, the value of the real property is greater than that of the mortgage bonds issued. This provides the mortgage bondholders with a margin of safety in the event the market value of the secured property declines. In the case of foreclosure, the trustees have the power to sell the secured property and use the proceeds to pay the bondholders. In the event that the proceeds from this sale do not cover the bonds, the bondholders become general creditors, similar to debenture bondholders, for the unpaid portion of the debt (3).

Advantages and disadvantages of long term debt

The financial manager must consider whether debt will contribute to or detract from the firm's operation. In certain industries, such as airlines, very heavy debt utilization is a way of life, whereas in other industries (drugs, photographic equipment) reliance is placed on other forms of capital (10).

Advantages of long term debt

1- Interest payment is tax deductible. Because the maximum corporate tax rate is in the mid- 20-40 percent range, the effective after-tax cost of interest.

2- The financial obligation is clearly specified and of a fixed nature (the exception of floating rate bonds). Contrast this with selling an ownership interest in which stockholders have open-ended participation in the sharing of profits.

3- In an inflationary economy, debt may be paid back with "cheaper unit of money. A bond obligation may be repaid in 10 or 20 years with unit of money that have shrunk in value by 50 or 60 percent. In terms of " real unit of money " or purchasing power equivalents, one might argue that the corporation should be asked to repay something in excess. Presumably, high interest rates in inflationary periods compensate the lender for loss in purchasing power, but this is not always the case.

4- The use of debt, up to a prudent point, may lower the cost of capital to the firm to the extent that the debt does not strain the risk position of the firm, its low after-tax. Cost may help reducing the weighted overall cost of financing to the firm (10).

Disadvantages of long term debt

1- Interest and principal payment obligation are set by contract and must be met, regardless of the economic position of the firm.

2- Both indenture agreements may place burdensome restriction on the firm, such as maintenance of working capital at a given level, limits on future debt offerings, and guidelines for dividend policy. Although bondholders generally do not have the right to vote, they may take virtual control of the firm if important indenture provisions are not met.

3- Utilized beyond a given point, debt may depress outstanding common stock values.

2.2.5 Choosing between sources of finance

A vast range of funding alternatives is open to companies and new developments occur every day. There are many important considerations that must be taken into account when selecting a suitable source of finance.

(a) Cost – The higher the cost of funding, the lower the firm's profit. Costs of finance will be examined later. For now it is sufficient to appreciate that debt finance tends to be cheaper than equity. This is because providers of debt take less risk than providers of equity and therefore earn less return.

(b) Duration – As noted above finance can be arranged for various time periods. Normally, but not invariably, long term finance is more expensive than short-term finance. This is because lenders normally perceive the risk as begin higher on long-term finance can often be withdrawn at short notice. One should remember the 'rule of thumb' that says: long – term assets should be financed by long- term funds and short – term assets by short – term funds. Thus we would expect to see working capital financed by short–term facilities such as overdraft whilst fixed assets should be funded by long-term funds. This rule is commonly broken to gain access to cheap short – term funds but the risks involved should be appreciated (1).

(c) Gearing (Leverage) – This refers to the ratio of debt to equity finance. Gearing has already been touched on and it will be investigated in depth later, but for now we should appreciate that although high gearing involves the use of cheap debt finance it does bring with it the risk of having to meet regular repayments of interest and principal on the loans. If these are not met the company could end up in liquidation. On the other hand, too little debt could result in earnings per share despite an increase in total earnings (1).

(d) Size of the company – Note all companies have access to sources of finance. Small companies traditionally have problems in raising equity and long– term debt finance. These problems are investigated later but remember that many firms do not have an unlimited choice of funding arrangements.

A quoted company is one whose shares are dealt in on a recognized stock exchange or on the Alternative Investment Market (AIM) the effect is that shares in such a company represent a highly liquid asset. This, in turn, makes it much easier to attract new investors to buy new shares issued by the company because these investors know that they can always sell their shares if they wish to realize their investment.

The section which follows relates to both quoted and unquoted companies, however, their different positions always need to be taken into consideration.

(e) Term structure of interest rates – In point (b) it was noted that short – term funds are usually cheaper than long–term funds. However, this situation is sometimes revered and interest rates should be carefully checked.

Imagine the situation where the money markets expected interest rates to fall in the long term but remain high in the short term. In this situation borrowing short term could prove quite expensive (21).

2.2.6 Judging Credit worthiness

The repayment term of short term financing is usually shorter than one year. Credit worthiness is an important aspect which the entrepreneur or the venture must satisfy before any short term financing will be granted. The following aspects are considered when assessing credit worthiness.

Once the firm has made the decision to extend credit it must decide to whom credit will be extended and how much credit will be allowed. Some firms use complex computer programs to analyze credit applications. Many others rely on less sophisticated methods. Because firm managers often do not know nearly as much about the finances of customers as they might like, they must find alternative methods for judging credit worthiness. The classic approach is to use the five Cs of credit (29).

Character:

The reputation of honesty and reliability.

The willingness of the borrower to obligations owed.

Capacity:

The business sense of the borrower, the level of experience and business history.

The ability of the borrower to pay. If the capacity to pay is not present, the best intentions of the borrower are of little use.

Circumstances: (capital)

The general business circumstances in the industry and the economy.

The financial reserves of the firm. The more capital the firm has at its disposal, the more likely is repayment.

Conditions: (Insurance Cover)

The extent of the cover of insurable risks tasks taken out by the borrower.

The general economic and business climate. Favorable conditions increase the probability of repayment.

Collateral : (Guarantees)

The lender may require the borrower to use assets to guarantee the loan. The value of the assets that could be seized if the customer does not pay on the debt. If all else fail, the customer may be forced to liquidate to pay debts. The lender has priority of payment in the event of liquidation and the value of the assets affect the likelihood of repayments (29).

A variety of sources of information are available to the firm considering offering a customer credit. The best information may be from the firm's own prior experience with the customer.

2.3 CAPITAL STRUCTURE DECISION

2.3.1 Gearing

Sourcing money may be done for a variety of reasons. Traditional areas of need may be for capital asset acquirement – new machinery or the construction of a new building of depot. The development of new products can be enormously costly and here again capital may be required. Normally, such developments are financed internally, whereas capital for the acquisition of machinery may come from external sources. Nowadays in the age of tight liquidity, many organization have to look for short term capital in the way of overdraft or loans in order to provide a cash flow cushion. Interest rates can vary from organization and also according to purpose.

Financial gearing (or leverage) means borrowing to finance part of a business, rather than using only equity capital (both issued share capital and retained profits).
Financial gearing (financial risk) refers to the sources of a company's finance;
Operational gearing (business risk) refers to the nature of the business and how a firm has used its funds. How a firm invests funds is probably far more important than its sources of finance. This is because most financial markets are more competitive, with better information, than most factor markets dealing in 'real' good and services. So in general, financing decisions provide fewer chances of large profits or losses.

Financial leverage is increased by having greater amounts of debt in the capital structure of the firm. In fact, there are different types of leverage, another type of leverage is called operating leverage.

Operational gearing sometimes refers to the level of fixed expenses as a proportion of total expenses. Where most expenses are fixed, the amount of profit is very sensitive to the level of sales revenue. (The marginal cost of supplying one more student in a school is normally very small; so almost all that student's tuition fee represents profit)
The degree of operating leverage (DOL) is computed by Equation (2.1) (29):

$$DOL = \frac{\text{Percent change in EBIT}}{\text{Percent change in sales}} \qquad \text{Equ. (2.1)}$$

If the rate of return on assets financed by debt exceeds the cost of borrowing, the extra profit increases equity earnings. Conversely a company must legally pay debt interest even if its rate of return on assets is lower than the rate of interest on borrowing. Thus when profit is high, gearing will benefit shareholders, and vice versa

Risk (such as a utility) might be able to take on quite high levels of gearing without increasing in the Weighted Average Cost of Capital (WACC).

Operating leverage increases with the level of fixed assets. Total leverage is the product of financial leverage. The total risk of the firm is determined by total leverage.

The degree of financial leverage (DFL) is computed by Equation (2.2) (29):

$$DFL = \frac{\text{Percent change in EPS}}{\text{Percent change in EBIT}} \qquad \text{Equ. (2.2)}$$

A firm gets money from three main sources:

1. Owners (shareholders), who start the business with equity share capital (and sometimes contribute further share capital later).

2. Lenders (banks and others), who provide long – term or short – term funds.

3. Customers, in respect of goods or services sold to them.

Funds deriving from sales to customers are sometimes referred to as internal finance, directly from owners or lenders as external finance.

A business spends money on four main categories:

1. Long – term ('fixed') assets, such as buildings and equipment.
2. Short – term ('current') assets, such as stocks of goods.
3. Wages, overheads, and other current expenses.
4. Taxes paid to government.

Shows the sources and uses of funds in business, including the payment of interest to lenders and dividends to shareholders (29).

2.3.2 Considerations in the Capital Structure Decision

One of the most important considerations in any financing decision is the relationship between the firm's actual capital structure and its target capital structure. Remember that firm establishes, an optimal, or target capital structure (or at least a range) and, over time, finance in accordance with this target. Of course, in any one year, few firms finance exactly in accordance with their target capital structure, primarily because of flotation costs, so firms tend to issue common stock and long – term debt sporadically, retained earnings are generated continuously.

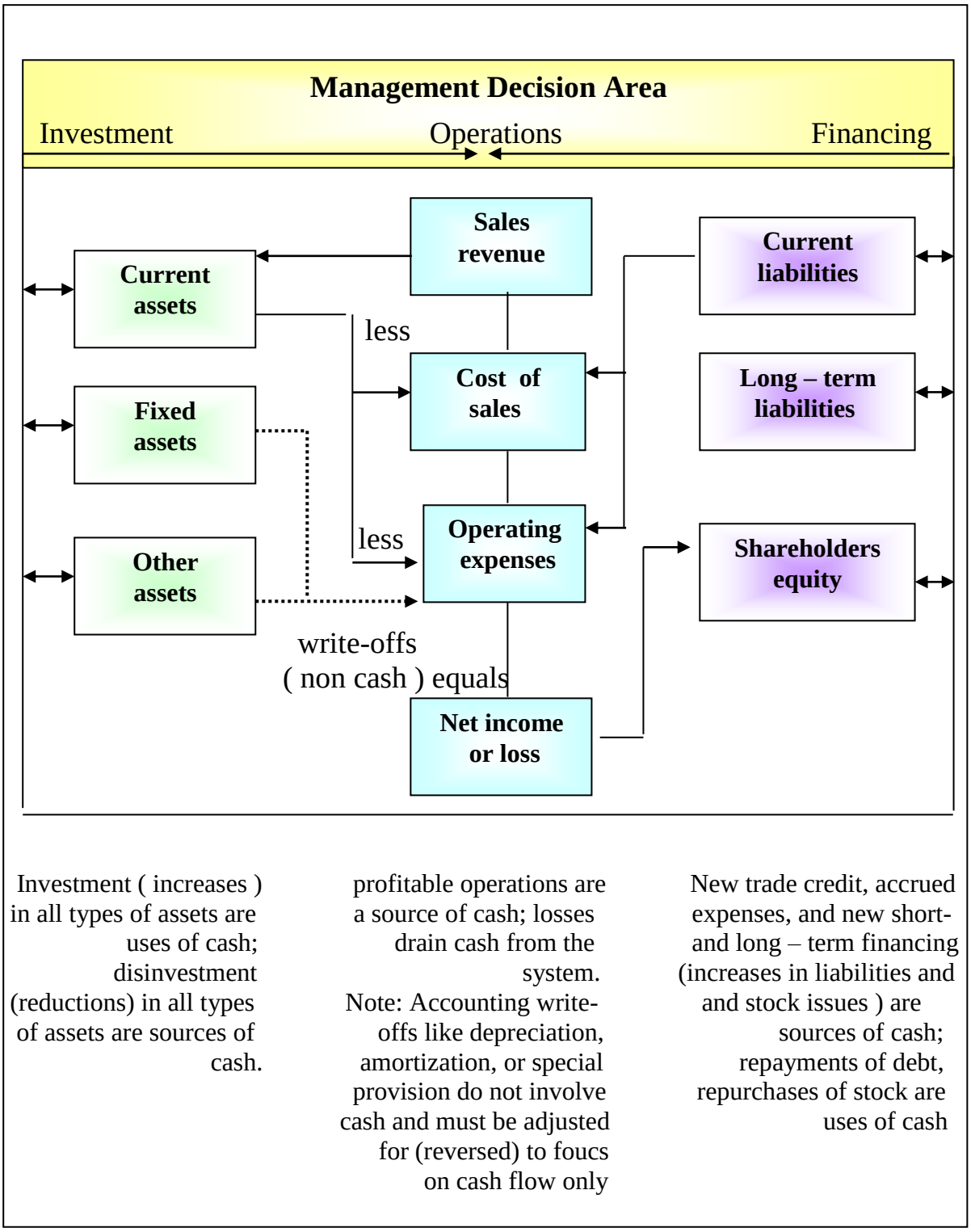

Fig. (2.4) Framework of Financial Management Decision (12).

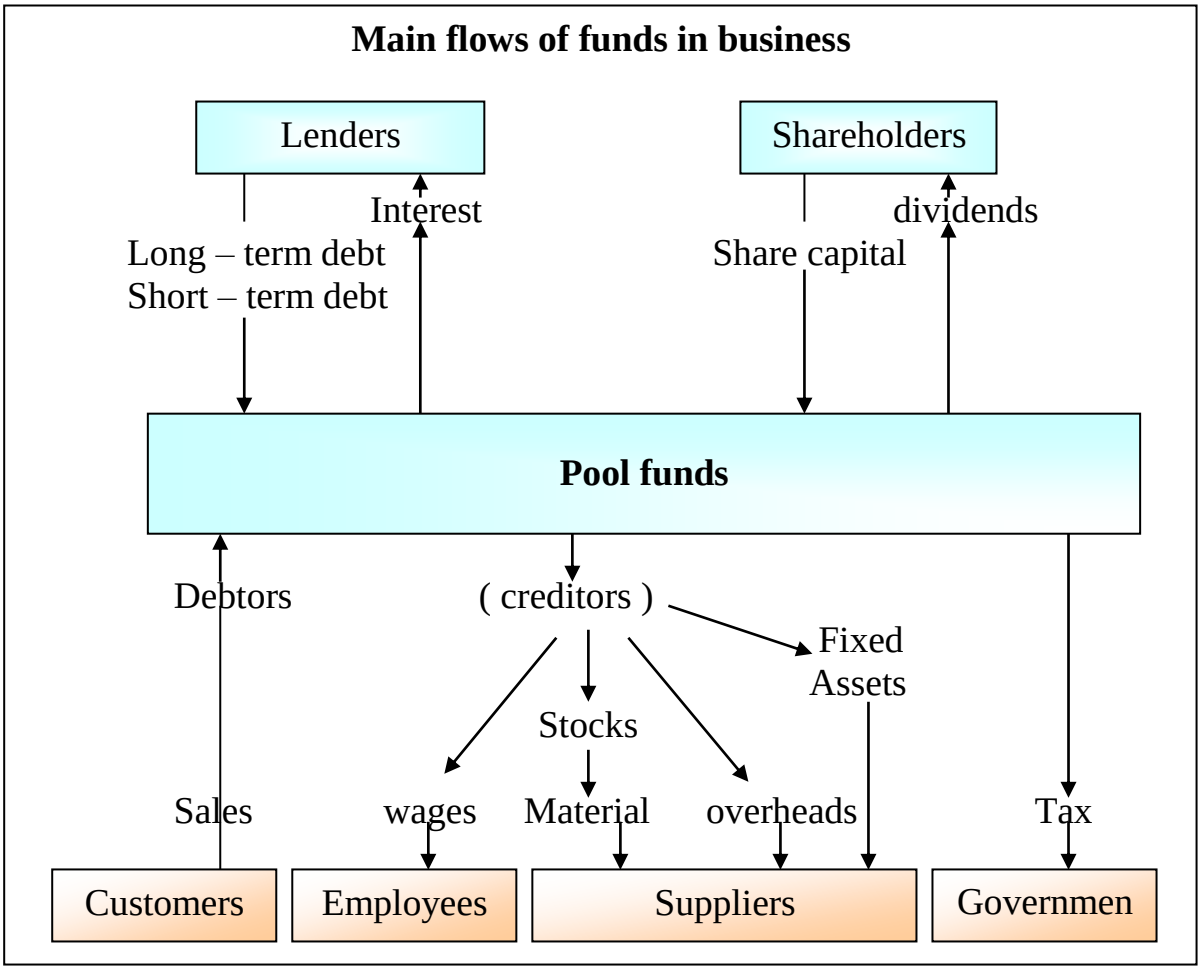

Fig. (2.5) Main Flows of Funds in Business (9).

Note that making fewer, but lager, security offerings causes a firm's capital structure to fluctuate about its optimal level rather than stay on target. However, (1) small fluctuations about the optimal capital structure have little effect on a firm's weighted average cost of capital, (2) investors recognize that this action is prudent, and (3) the firm saves substantial amounts of flotation costs by financing in this manner. So, firms tend, over the long haul, to finance in accordance with their target capital structures, but flotation costs plus the factors discussed in the following sections do influence the specific financing decisions in any given year (5).

It may be noted that some of the new capital for the machinery will come from common and perhaps preferred stock, both of which are generally considered to be permanent capital.

Of course, preferred stock can have a sinking fund or be redeemable, and common stock can always be repurchased on the open market or by a tender offer, so the effective maturity of preferred and common stock can be reduced significantly.

On the other hand, debt maturities can be specified at the time of issue. If consolidation financed its capital budget with 10-year sinking fund bonds, it would be matching assets and liability maturities. The cash flows resulting from the new machinery could be used to make the interest and sinking fund payments on the issue, so the bonds would be retired as the machinery wore out if consolidation had used one – year debt, it would have to pay off its debt with cash flows derived assets other than the machinery in question. Conversely, if it used 20– year or 30– year debt, it would have to service the debt long after the assets that were purchased with the funds raised, had been scrapped and had ceased providing cash flows. This would worry the lenders.

Of course, the one – year debt could probably be rolled over year after year, out to the 10-year asset maturity. However, if interest rate rose, consolidated would have to pay a higher rate when it rolled over its debts, or if the company experienced difficulties, it might not able to refund the debt at any reasonable rate. On the other hand, if consolidated financed 10-year assets with 20-year or 30-year bonds, it would still have (1) a liability after the 10-year life of the assets, but (2) it would have generated some excess cash from the assets over their 10- year life. The question then would be this: can we reinvest the accumulated cash flows at a rate which will enable us to pay off the bonds over their remaining 20-year or 30-year life? This strategy clearly imposes uncertainty on the firm, since it cannot know at the time it sells the bonds if profitable capital investment opportunities will be available 10 years later. For all these reasons, the best all-around financing strategy is to match debt maturities with asset maturities. In recognition of this fact, firms generally do place great emphasis on maturity matching, and this factor often dominates the debt portion of the financing decision (5).

Since one cannot determine a precise optimal capital structure, managers must apply judgment to their quantitative analyses. The judgmental analysis involves several different factors, and in one situation a particular factor might have great importance, while the same factor might be relatively unimportant in another situation. Some of the more important judgmental issues that should be taken into account are:

2.3.2.1 Long – Run Viability

Managers of large firms, especially those providing vital services, have a responsibility to provide continuous service, so they must refrain from using leverage to the point where the firm's long – run viability is endangered. Long – run viability may conflict with stock price maximization and cost of capital minimization.

2.3.2.2 Growth and Stability of Sales

Where growth rates are high, equity is likely to be relatively cheap because of the attractiveness of the company. On the other hand, the cost of debt finance can easily be sustained, and the gearing effect will maximize the gain for equity. If growth is stable, the ability to sustain high gearing levels increases. Competitive structure of the industry – Sales is only one factor in determining profits. Another is the degree of competition and the profit margins in the industry (1).

2.3.2.3 Managerial Conservatism

Management attitudes since no one can prove that one capital structure will lead to higher stock prices than another, management can exercise its own judgment about the proper capital structure. Some management tends to be more conservative than others and thus use less debt than the average firm in their industry, whereas other managements use more debt in the quest for higher profits. Well – diversified investors have eliminated most, if not all, of the diversifiable risk from their portfolios. Therefore, the typical investor can tolerate some chance of financial distress, because a loss on one stock would probably be offset by random gains on other stock in his portfolio. However, managers often view financial distress with more concern-they are typically not well diversified, and their careers, and thus the present value of their expected earnings, can be seriously affected by the onset of financial distress. Thus, it is not difficult to imagine that managers might be more "conservative" in their use of leverage than the average stockholder would desire. If this is true, then managers would set somewhat lower target capital structures than the ones which maximize expected stock prices. The managers of a publicly owned firm would ever admit this, because unless they owned voting control, they would quickly be removed from office. However, in view of the uncertainties about what constitutes the value-maximizing structure,

management could always say that the target capital structure employed is, in its judgment the value-maximizing structure, and it would be difficult to prove otherwise (10).

2.3.2.4 Lender and rating Agency Attitudes

Regardless of a manager's own analysis of the proper leverage for his firm, there is no question but that lender's and rating agencies attitudes are frequently important determinants of financial structures. Generally, management will discuss the firm's financial structure with lenders and rating agencies and give much weight to their advice. However, if a particular firm's management is so confident of the future that it seeks to use leverage beyond the norm for its industry, its lenders may be unwilling to accept such debt increases, or so only at high price (10).

2.3.2.5 Reserve Borrowing Capacity and Financing Flexibility

Firms should maintain a borrowing capacity reserve to enable them to issue debt on favorable terms. The new earnings are not anticipated by investors, and so not reflected in the price of its stock. It would be rather better to finance with debt until the higher earnings are materialized and reflected in the stock price. A that time it could sell and issue common stock, retire the debt, and return to its target capital structure.

Similarly, if the financial manager felt that interest rates were temporarily low, but were likely to rise fairly soon, he might want to issue long – term bonds and thus " lock in " the low rates for many years. To maintain this reserve borrowing capacity, firms generally use less debt under " normal " conditions, thus presenting a stronger financial picture than they otherwise would. This is not suboptimal from a long – run standpoint, although it might appear so if viewed strictly on a short – run basis.

The firm's debt contracts often specify that no new debt can be issued unless certain ratios exceed minimum levels very frequently. The (Time Interest Earned) ratio is required to exceed 2 or 2.5 times as a condition for the issuance of additional debt (10).

If the firm sets a relatively high target debt ratio, its financing flexibility would be reduced in the sense that it could not count on using what-ever type of capital it wanted to use at all times.

Our company can earn a lot more money from good capital budgeting and operating decisions than from good financing decisions. Financing decisions surly affect our stock price, but we know for sure that if funds are not available it will reduce our long – run profitability. For this reason, my primary goal as treasurer is to always be in a position to raise the capital needed to support operations.

We also know that in good times, we can raise capital with either stocks or bonds, but in bad time, suppliers of capital are much more willing to make funds available if we give them a secured position, and this means bonds. Further, when we sell a new issue of stock, this sends a negative "signal" to investors, so stock sales by a mature company such as ours is not generally desirable.

Putting these thoughts together gives rise to the goal maintaining financial flexibility, which, means maintaining adequate reserve borrowing capacity. Determining an "adequate" reserve borrowing capacity is judgmental, but it clearly depends on the firm's forecasted need for funds, predicted capital market conditions, management's confidence in its forecasts, and the consequences of a capital shortage (29).

2.3.2.6 Control

The effect of its choice of securities on a management's control position may also influence the capital structure decision. If a firm's management just barely has majority control (Just over 50 percent of the stock), but it is not in a position to buy any more stock, debt may be the choice for new financings. On the other hand, a management group that is not concerned about voting control may decide to use equity rather than debt if the firm's financial situation is so weak that the use of debt might subject the company to serious risk of default. If the firm gets into serious difficulties, the creditors (through covenants in the debt agreements) may assume control and perhaps force management change. However, if too little debt is used, management runs the risk of a takeover, where some other company or management group tries to persuade stockholders to turn over control to the new group, which may plan to boost earnings and stock prices by using financial leverage. In general, control considerations do not necessarily suggest the use of debt or of equity, but if management does have majority control, the effects of capital structure on control will certainly be taken into account (10).

2.3.2.7 Asset Structure

Firms whose assets are suitable as security for loans tend to use debt rather heavily. Thus, real estate companies tend to be highly leveraged. However, companies involved in technological research employ relatively little debt. Also, if the firm's assets are subject to high business risk, then the firm will be less able to use financial leverage than a firm with low business risk. Accordingly, factors such as sales stability and operating leverage, which influence business risk, also influence firms' optimal capital structures (29).

2.3.2.8 Growth Rate

Other factors being the same, faster- growing firms must rely more heavily on external capital-slow growth and can be financed with retained earning, but rapid growth generally requires the use of external funds. For reasons set forth in our discussion of information asymmetry theory, and also because the flotation costs involved in selling common stock exceed those incurred when selling debt, firms first turn to debt financing to meet external funding needs. Thus rapidly growing firms tend to use somewhat more debt than slower-growth companies.

2.3.2.9 Profitability

One often observes that firms with very high rates of return on investment use relatively little debt. This behavior is consistent with the information asymmetry theory, and the practical reason to be that highly profitable firms simply do not need to do much debt financing-their high rates of return enable them to do most of their financing with retained earnings.

2.3.2.10 Taxes

Interest is a deductible expense, while dividends are not deductible, so the higher a firm's corporate tax rate, the greater the advantage of using corporate debt (29).

2.3.2.11 The firm's internal condition

A firm's own internal condition can also have a bearing on its target capital structure. For example, suppose a firm has just successfully completed an R&D program, and it projects higher earnings in the immediate future. However, the new earnings are not yet anticipated by investors and hence are not reflected in the price of stock. This company would not want to issue stock – it would prefer to finance with the debt until the higher earnings materialized and are reflected in the stock price. Then it could sell an issue of common stock, retire the debt, and return to its target capital structure.

2.3.2.12 Risk

We have discussed at some length the increase in risk that results from additional debt. The capital structure decision process must carefully evaluate the effect of any restructuring on the risk of the firm. Is the change in risk consistent with the desires of the shareholders? Will it cause an increase in the cost of financing? Is the probability of bankruptcy being substantially increased? Recognize that the answers to these questions depend on the business risk of the firm, its industry, its operating leverage, and its growth rate.

2.3.2.13 Income

Does the firm have the income to support the proposed debt? If this income stable and predictable? Firms that have wide variations in their year-to-year income cannot support as much debt as firms with very stable cash flows. Even if long-term earning are sufficient to make the principal and interest payments, there must be sufficient funds available every period or its creditors may force the firm into bankrupt (29).

2.3.2.14 Timing

In addition to considering market conditions, firms must consider their internal conditions. For example, managers will not issue stock if they feel the market undervalue the firm's stock because the market does not yet know about the success of an R & D project. Alternatively, the firm is much more likely to issue stock if the market is overvaluing the firm (29).

2.3.3 Financial tools to evaluate company's debt capacity

In the previous sections of this chapter, the different sources of finance were deeply investigated. The main advantages and disadvantages of each of them were clearly provided. Some considerations that should be taken into account when making a capital structure decision were also provided. Now, it is a good time to turn our attention to financial parameters that can be used as tools for evaluating the company's debt capacity. Debt capacity can be generally defined as the ability of the company to meet the financial obligations of its debt burden. Such tools can effectively help lenders to evaluate the credit worthiness of their debtors. Although the main orientation of management and owners is towards the business as a going concern, the lender-of necessity- has to be of two minds. Lenders are interested in finding the needs of a successful business that will perform as expected. At the same time, they must consider the possible negative consequences of default and liquidation. Sharing of the rewards of success other than receiving regular payments of interest and principal, the lender must carefully assess the risk involved in recovering the original funds extended-particularly if they have been provided for a long period of time. Part of this assessment must be the ultimate value of the lender's claim in case of serious difficulty (29).

The claims of a general creditor rank behind tax obligations, accrued wages, and the claims of secured creditors, who lend against a specific asset, such as a building or equipment. This caution often dictates lenders look for a margin of safety in the assets held by the company, a cushion against default.

Several ratios are used to assess this protection by testing the liquidity of the business. Another set of ratios tests the relative debt exposure, or leverage of the business, in order to weigh the position of lenders versus owners. Finally there is so-called coverage ratios relation to the company's ability to provide service from funds generated by ongoing operations (29).

2.3.3.1 Liquidity

One way to test the degree of protection afforded lenders focuses on the short-term credit extended to a business for funding its operations. It involves the liquid assets of a business

that is those current assets that can be readily converted into cash, on the assumption that they form a cushion against default.

Current Ratio

The ratio most commonly used to appraise the debt exposure represented on the balance sheet is the current ratio. This relationship of current assets to current liabilities is an attempt to show the safety of current debt holder's claims in case of default as Equation (2.3) (12).

$$\textbf{Current ratio} = \frac{\textbf{Current assets}}{\textbf{Current liabilities}} \qquad \text{Equ. (2.3)}$$

Presumably, the larger this ratio, the better the position of the debt holders. From the lender's point of view, a higher ratio would certainly appear to provide a cushion against drastic losses of value in case of business failure. A large excess of current assets over current liabilities seems to help protect claims, should inventories have to be liquidated at a forced sale and should accounts receivable involve sizable collection problems.

Seen from another angle, however, an excessively high current ratio might signal slack management practices. It could indicate idle cash balances, high inventory levels that have become unnecessary when compared to current needs, and poor credit management that results in overextended accounts receivable. At the same time, the business might not be making full use of its short-term borrowing power:

A very common rule of thumb suggests that a current ratio of 2:1 is about right for most businesses, this proportion appears to permit shrinkage of up to 50 percent in the value of current assets, while still providing enough cushion to cover all current liabilities. The problem with this concept is that the current ratio measures an essentially static condition and assesses a business as if it were on the brink of liquidation. The ratio does not reflect the dynamics of a going concern, which should be the top priority of management. A lender or creditor looking for future business with a successful client should bear this in mind, and will likely turn to the type of cash flow analysis described judge the viability of the business as a client. The rise in the short-term portion of financing of over related to the imminent repayment of some long-term debt caused a temporary decline in the ratio, with no implication about any liquidity issues (12) & (14).

2.3.3.2 Acid Test

An even more stringent test, although again on a static basis, is the acid test or quick ratio, which is calculated using only a portion of current assets including cash, cash marketable securities (cash equivalents), and accounts receivables to be divided on current liabilities as shown in the following Equation (2.4):

$$\textbf{Acid test} = \frac{\textbf{Cash + cash equivalents + receivables}}{\textbf{Current liabilities}} \qquad \text{Equ. (2.4)}$$

The key concept here is to test the collectibles of current liabilities in the case of a real crisis, on the assumption that inventories would have no value at all. As drastic tests of the ability to pay in the face of disaster, both the current ratio and acid test are helpful.

From an operational standpoint, however, it is better to analyze a business in terms of the expected total future cash flow pattern, which project inflows and out flow over the period for which credit is extended. The proportion of current assets to current liabilities normally covers only a small part of this picture. However, an average quick ratio of 1.40 is generally accepted (12) & (14).

2.3.3.3 Financial Leverage

Successful use of debt enhances earning for the owners of the business, because the returns earned on these funds are over and above the interest paid by the owners to the lenders, and thus will increase the return on owner’s equity. Form the lender's viewpoint, however, when earning does not exceed or even fall short of the interest cost, fixed interest and principal commitments must still be met. The owners must fulfill these claims, which might severely affect the value of owners'. The positive and negative effects of leverage increase with the proportion of debt in a business with higher leverage, the risk exposure of the providers of debt grows, as does the risk exposure of the owners.

From the lender's point of view, a variety of ratios that deal with total debt or long-term debt only, in relation to various parts of the balance sheet, are more inclusive measures of risk than leverage alone. These ratios measure the risk exposure of the lenders in relation to the available asset values against which all claims are held.

Debt to Assets

The first and broadest test is the proportion of total debt, both current and long—term, to total assets, which is calculated as follows as Equation (2.5):

$$\text{Debt to assets} = \frac{\text{Total debt}}{\text{Total assets}} \qquad \text{Equ. (2.5)}$$

Note that the whole category of other liabilities are included which contains pension and postretirement benefits obligations that could be considered a set-aside of shareholders' equity, given that such benefits are paid as a matter of course from ongoing operations, and deferred income taxes, which are differences arising from tax accounting that are continuously adjusted and cannot be considered debt in the full sense of term. Some analysts choose to leave these elements out when calculating the ratio.

Debt to assets is used to describe the proportion of " other people's money " to the total claims against the assets of the business. The higher the ratio, the greater the risk for the lender. This is not necessarily a true test of the ability of the business to cover its debts, however. As we've already observed, the asset amounts recorded on the balance sheet are generally not indicative of current economic values, or even liquidation values. Nor does the ratio give any clues as to likely earnings and cash flow fluctuations that might affect current interest and principal payments. Generally, such ratio can tell us whether the debt burden of the companies within the safety limits or not. An average value of 0.40 can be generally accepted as the maximum safety limit of this ratio (12).

Debt to Capitalization

A more refined version of the debt proportion analysis involves the ratios of long-term debt to capitalization (total invested capital). The latter is again defined as the sum of the long-term claims against the business, both debt and owners' equity, but doesn't include short-term (current) liabilities. This total also corresponds to net assets, unless some adjustments were made, such as ignoring deferred taxes. The calculation appears as follow, when the current portion of long-term debt and other liabilities are included in the debt total as Equation (2.6):

$$\textbf{Debt to Capitalization} = \frac{\textbf{Long-term debt}}{\textbf{Capitalization (net assets)}} \qquad \text{Equ. (2.6)}$$

The ratio is one of the elements that rating companies such as Moody's take into account when classifying the relative safety of debt.

Another definition of debt is sometimes used, which included (1) short-term debt (other than trade credit), (2) the current portion of long-term debt, and (3) all long-term debt in the form of contractual obligations. In this case, long-term liabilities like set-asides representing potential employee benefit claims and deferred taxes are not counted as part of the capitalization of the company, which is (1) the sum of debt as defined above, plus (2) minority interests, and (3) shareholders' equity. as is apparent, the greater the uncounted portion of the capital structure, the less this version of the debt ratios represents the full balance of the various elements of the capital base of a company.

A great deal of emphasis is placed on the ratio of debt to capitalization, carefully defined for any particular company, because many lending agreements of both publicly held and private corporations contain covenants regulating maximum debt exposure expressed in terms of debt to capitalization proportions. There remains an issue of how to classify different liabilities, and how to deal with accounting changes, because most companies, experienced establishment of long-term liabilities for future employee benefits. There is growing emphasis on a more relevant aspect of debt exposure, namely, the ability to service the debt from ongoing funds flows, a much more dynamic view of lender relationships (12).

Debt to Equity

A third version of the analysis of debt proportion involves The ratio of total debt, frequently defined as the sum of current liabilities and all types of long-term debt, to total owners' equity, or shareholders' equity. The debt to equity ratio is an attempt to show, in another format, the relative proportions of all lenders' claims to ownership claims, and it is used as a measure of debt exposure. The measure is expressed as either a percentage or as a proportion as Equation (2.7) (12).

$$\text{Debt to equity} = \frac{\text{Total debt}}{\text{shareholders' equity}} \qquad \text{Equ. (2.7)}$$

In preparing these ratios, as in some earlier instances, the question of deferred income taxes and other estimated long-term liabilities is often sidestepped by leaving these potential long-term claims out of the debt and capitalization figures altogether. We have included all of these elements here. One specific refinement of this formula uses only long-term debt, including the current portion during the year, as related to shareholders' equity, ignoring long-term obligations and deferred taxes as Equation (2.8) (12) & (5).

$$\text{Debt to equity (alternate)} = \frac{\text{Long – term debt}}{\text{Shareholder's equity}} \qquad \text{Equ. (2.8)}$$

The various formats of these relationships suggest the great care with which the ground rules must be defined for any particular analysis, and for testing compliance with the covenants governing specific lending agreements. They only hint at the risk/reward trade off implicit in the use of debt. Since owner equity represents the permanent capital of the company, a debt to equity ratio greater than unity leaves a grout deal of doubt regarding the adequacy of this permanent capital (12).

2.3.3.4 Debt Service

Regardless of the specific choice from among the several ratios just discussed, the analysis of debt proportions is by nature a static view, and does not take into account the operating dynamics and economic values of the business. The analysis is totally derived from the balance sheet, which in itself is a static snapshot of the financial condition of the business at single point in time.

Nonetheless, the relative ease with which these ratios are calculated probably accounts for their popularity. Such ratios are useful as indicators of trends when they are applied over a period of time. However, they still don't get the heart of an analysis of credit worthiness, which involves a company's ability to pay both interest and principal on schedule as contractually agreed upon, that is, to service its debt over time.

Interest Coverage

One very frequently encountered ratio reflecting a company's debt service uses the relationship of net profit (earnings) before interest and taxes (EBIT) to the amount of the interest payments for the period. This ratio is developed with the expectation that annual operating earnings can be considered the basic source of funds for debt service, and that any significant change in this relationship might signal difficulties. Major earnings fluctuations are one type of risk considered.

No hard and fast standard for the ratio itself exist ; rather, the prospective debt holders often require covenants in the loan agreement spelling out the number of times the business is expected to cover its debt service obligations. The ratio is simple to calculate, and we can employ the EBIT figure developed earlier in the management section as Equation (2.9) (12).

Interest coverage =

$$\frac{\textbf{Net profit before interest and taxes (EBIT)}}{\textbf{Interest expense}} \qquad \text{Equ. (2.9)}$$

The specifics are based on judgment, often involving a detailed analysis of a company's past, current, and prospective conditions.

Burden coverage

A somewhat more refined analysis of debt coverage relates the net profit of the business, before interest and taxes, to the sum of current interest and principal repayments, in an attempt to indicate the company's ability to service the burden of its debt in all aspects. A problem arises with his particular analysis, because interest payments are tax deductible.

The first format expresses the coverage in pretax profit terms, utilizing the EBIT figure we developed earlier. For comparability, the principal repayments are then converted into an equivalent pretax amount, because they have to be paid with after-tax. This adjustment is done by dividing the principal repayment by the factor " 1 minus the effective tax rate " as Equation (2.10) (12).

Burden Coverage =

$$\frac{\text{Net profit before interest and taxes (EBIT)}}{\text{Interest expense} + \dfrac{\text{Principal repayments}}{(1 - \text{Tax rate})}}$$

Equ. (2.10)

An alternate approach expresses the burden coverage in after-tax cash flow terms, It uses operating cash flow (net profit after taxes plus write-offs), to which after-tax interest has been added back. This amount is then compared to the sum of after-tax interest and principal repayment. By beginning with income before taxes, develop operating cash flow. Then subtract the provision, which happens to be identical to income before taxes – because by chance the provision for taxes and the sum of depreciation and amortization turned out to be the same amounts. The result of the alternative calculation is much more favorable, of course, because it is based on after-tax cash flow, a higher figure than net profit because of the add-back of non-cash items as Equation (2.11):

Burden coverage =

$$\frac{\text{Operating cash flow} + \text{interest expense}\,(1 - \text{Tax rate})}{\text{Interest expense}\,(1 - \text{Tax rate}) + \text{Principal repayments}}$$

Equ. (2.11)

Again, more exact coverage calculations would require access to internal information, and judgment has to be used in interpreting these results (12).

Fixed charges coverage

A more inclusive concept is the combination of interest and rental expenses into a fixed charges amount, which is then compared to earnings to which these fixed charges are added back. Such a calculation depends on the availability of detailed information on leasing and rental charges, and be appropriately performed by internal analysis.

2.3.3.5 Cash Flow Analysis

Determining a company's ability to meet its debt obligations is most meaningful when a review of past profit and cash flow patterns is made over a long enough period of time to indicate the major operational and cyclical fluctuations that are normal for the company and its industry. This might involve financial statements covering several years or several seasonal swings, as appropriate, in an attempt to identify characteristic high and low points in earnings and funds needs. The pattern of conditions must then be projected into the future to see what margin of safety remains to cover interest, principal repayments, and other fixed payments, such as major lease obligations. These techniques will be discussed.

If a business is subject to sizable fluctuations in after-tax cash flow, lenders might be reluctant to extend credit when the debt service cannot be covered several times at the low point in the operational pattern. In contrast, a very stable business would encounter less-stringent coverage demands. The type of dynamic analysis involved is a form of financial modeling that can be greatly enhanced both in scope and in the number of possible alternative conditions explored by using spreadsheets or full-fledged corporate planning models (12).

2.3.3.6 Ratios as a System

The ratios discussed have many elements in common, because they are derived from key components of the same financial statements. In fact, they're often interrelated and can be viewed as a system. The analysis can turn a series of ratios into a dynamic display highlighting the elements that are the most important levers used by management to affect operating performance.

In internal analysis, many companies employ a variety of systems of ratios and standards that segregate into components the impact of decisions affecting operating performance, overall returns, and shareholder expectations. DuPont was one of the first to do so early in the last century. The company published a chart showing the effects and interrelationships of decisions in these areas, which focused on the linkages to return on equity as the key result and represented a first 'model' of its business. The DuPont system was built on accounting relationships only, because cash flow concepts and measures were not in vogue at that time companies that engage in value-based management, develop relationships in their planning

models and operational systems that focus on value drivers and shareholder value creation, using a mix of cash flow measures and appropriate physical and accounting ratios.

For purposes of illustrating the basic principles here we'll demonstrate the relationships between major accounting ratios discussed earlier, using two key parameters segregated into their elements: return on assets, which is of major importance for judging management performance, and return on equity, which server as the key measure from the owners' viewpoint. Leaving aside the refinements applicable to each to concentrate on the linkages. It’s possible to model the performance of a given company by expanding and relating these ratios. Needless to say, careful attention must be paid to the exact definition of the elements entering into the ratios for a particular company to achieve internal consistency Also, it's important to ensure that the ratios are interpreted in ways that faster economic trade-offs and decisions in support of shareholder value creation (12).

2.3.3.7 Effectiveness of Using the Company's Debt

The effective use of the company's debt burden is an important concept that should have the importance that deserve. Since, the successful use of the company debt will generate sufficient return that can adequately cover the debt interest and principal payments. It can also provide excess return for stockholders'. This can simply show in the form of an enhanced stockholders equity. Two major financial tools can be used to check whether the company can effectively allocate its debt burden or not. It is the matter of ROA and ROE

Elements of Return on Assets (ROA)

Earlier the basic formula established for return on assets (ROA) was a simple ratio, into which different versions of the elements can be inserted as Equation (2.12) (12) & (5):

$$\textbf{Return on Assets} = \frac{\textbf{Net profit}}{\textbf{Assets}} \qquad \text{Equ. (2.12)}$$

Also the net profit was related both to asset turnover and to sales as Equation (2.13).

$$\textbf{Return on Assets} = \frac{\textbf{Net profit}}{\textbf{sales}} \times \frac{\textbf{sales}}{\textbf{Assets}} \qquad \text{Equ. (2.13)}$$

Note that the element of sales cancels out in the second formula, resulting in the original expression. But the relationship expands even further by submitting several more basic elements for the terms in the Equation (2.14):

$$\text{ROA} = \frac{\text{(Gross margin – Expenses) (1 – Tax rate)}}{\text{Price} \times \text{Volume}} \times \frac{\text{Price} \times \text{Volume}}{\text{Fixed assets + Current assets + Other assets}} \qquad \text{Equ. (2.14)}$$

The relationships expressed here serve as a simple model of the key drivers on which management can focus to improve return on assets. For example, improvement in gross margin is important, as is control of expenses. Price\volume relationships are canceled out, but they are essential factors in arriving at a satisfactory gross margin, as is the management of gross margin via pricing and cost of goods sold. (substituting the " price times volume less cost of goods sold" for the term " gross margin " in the first part of the equation).

All along the asset management is very important. This simple model shows that the return on assets will rise if fewer assets are employed and if all the measures of effective management of working capital are applied. Minimizing taxes within the legal option available to management also will improve the return.

Elements of Return on Equity (ROE)

A similar approach can be taken with the basic formula for return on owners' equity (ROE), which relates profit and the amounts of recorded equity as Equation (2.15):

$$\text{Return on Equity} = \frac{\text{Net profit}}{\text{Equity}} \qquad \text{Equ. (2.15)}$$

If some of the basic profit and turnover relationships to expand the expression, the following formula emerges as Equation (2.16):

$$\text{Return on equity} = \frac{\text{Net profit}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}} \qquad \text{Equ. (2.16)}$$

Note that, in effect, the formula states that return on equity (ROE) consists of two elements: The net profit achieved on the asset base.

The degree of leverage or debt capital used in the business " Assets to equity " is a way of describing the leverage proportion. The formula can expanded even more to include the key components of return on assets as Equation (2.17):

$$\mathbf{ROE} = \frac{\textbf{Net profit}}{\textbf{Sales}} \times \frac{\textbf{Sales}}{\textbf{Assets}} \times \frac{\textbf{Assets}}{\textbf{Assets - Liabilities}} \qquad \text{Equ. (2.17)}$$

Once again looking for the key drivers management should use to raise the return on owner's equity. It's not a surprise that improving profitability of sales (operations) comes first, combined with effective use of the assets that generate sales. An added factor is the boosting effect from successful use of debt in the capital structure. The greater the liabilities, the greater the improvement in return on equity – assuming, of course, that the business in profitable to begin with and at a minimum continues to earn more on its investments than the cost debt. Of course, value creation depends on overall returns above the cost of capital, which is not expressed in this particular formula (12).

2.3.3.8 Prediction of Distress and Turnaround

The task in credit analysis is assessing the probability that a firm will face financial distress and fail to repay a loan. A related analysis, relevant once a firm begins to face distress, involves considering whether it can be turned around.

The prediction of either distress or turnaround is a complex, difficult, and subjective task that involves all the steps of financial analysis, and prospective analysis. Purely quantitative models of the process can rarely serve as substitutes for the hard work the analysis involves. However, research on such models does offer some insight into which financial indicators are most useful in the task. Moreover, there are some settings where extensive credit checks are too costly to justify, and where quantitative distress prediction models are useful. For example, the commercially available " Zeta " model is used by some manufacturers and other firms to assess the credit-worthiness of their customers (21).

Several distress prediction models have been developed over the years. They are similar to the debt rating models, but instead of predicting ratings, they predict whether a firm will face some state of distress within one year, typically defined as bankruptcy. One study suggests that the factors most useful (on a stand-alone basis) in predicting bankruptcy one year in advance are (21):

1. Profitability $= \dfrac{\text{Net income}}{\text{Net worth}}$ Equ. (2.18)

2. Volatility $= [\text{standard deviation of } (\dfrac{\text{Net income}}{\text{Net worth}})]$ Equ. (2.19)

3. Financial leverage $= \left[\dfrac{\text{market value of equity}}{\text{(Market value of equity + Book value of debt)}}\right]$

Equ. (2.20)

The evidence indicates that the key to whether a firm will face distress is its level of profitability, the volatility of that profitability, and how much leverage it faces. Interestingly, liquidity measures turn out to be much less important. Current liquidity won't save an unhealthy firm if it is losing money at a fast pace.

Of course if one was interested in predicting distress, there would be no need to restrict attention to one variable at a time. A number of multi-factor models have been designed to predict financial distress. One of such models, the Altman Z-score model, weights five variables to compute a bankruptcy score. For public companies the model is as follows as Equation (2.21) (21)&(33):

$$\mathbf{Z = 1.2 (X1) + 1.4 (X2) + 3.3 (X3) + 0.6 (X4) + 1.0 (X5)} \qquad \text{Equ. (2.21)}$$

Where

X1 = net working capital / total assets

X2 = retained earnings / total assets

X3 = EBIT / total assets

X4 = market value of equity / book value of total liabilities

X5 = sales / total assets

EBIT = Earning Before Interest and Tax.

The model predicts bankruptcy when Z < 1.81. The range between 1.81 and 2.67 is labeled the " grey area. "

CHAPTER III

" METHODOLOGY "

Chapter III

METHODOLOGY

3.1 INTRODUCTION

The objective of this study is to evaluate the ability of construction companies in Egypt to serve their debt burden .This can be actually done through several steps; such steps virtually include a detailed capital structure analysis. This analysis tends to identify the proportion that each source of finance represents within the company total finance. Some financial parameters will be used as tools to evaluate the ability of construction companies to serve their debt burden. The calculated values of these parameters well be compared with their corresponding standard values. A sample of the Egyptian construction companies was selected as a test-bed for this study. In the next section of this chapter the selected companies will be clearly identified. The main data items that should be collected will be also discussed. Financial parameters that will be used as tools for our study will be also identified.

3.2 DATA COLLECTION

3.2.1 Selected companies

To give the discussion some reality a selected sample of construction companies in Egypt was selected as a test-bed of this study. The selected sample includes sixteen companies covering a wide range of the Egyptian companies. Seven of these companies are public construction companies, about 44 %, while the other nine companies represent the private sector companies, about 56 %. Again, it should be recalled that the selected companies represent those construction that are registered in the Egyptian Capital Market Authority. This can be attributed to the fact that the financial documents of these companies are obligatory available.

The selected companies were classified according to the value of their total assets. According to this classification, three of these companies, about 18.75 % have total assets of more than 500 million L,E. Six of these companies about 37.5 % have assets volume between 500 – 250 million L.E.

Five of these companies about 31.25 % have assets volume between 250 – 50 million L.E. Finally, two companies, about 12.5 % were found to have total assets less than 50 million L.E. It has to be noted that the total assets were used as a mean of classification since fixed assets generally represent the borrowing power of any company. Moreover, the companies' current assets generally reflect their ability to meet their short term debt. However, a list of these companies is shown in Table (3.1).

Table (3.1) List of the Selected Companies

No.	Isin Code	Reuters Code	Companies
1	EGS21331C011	PSCD.CA	Port said construction Development
2	EGS21201C016	MCNG.CA	Mediterranean Constructing
3	EGS21271C019	YITC,CA	Yasmine Int'l for Trade & Constructing
4	EGS21541C015	GGCC.CA	Giza General constructing & Real Estate Investment
5	EGS21171C011	ZMID.CA	Zahraa Maadi Investment & Development
6	EGS21051C011	MDNT.CA	Misr Development
7	EGS21451C017	DCRC.CA	Delta Construction & Development
8	EGS21071C021	SMCS.CA	Engineers & Constructors – Sami Saad & Co. / Samcrete-Egypt
9	EGS21251C011	FCCO.CA	Fadco for investment Projects
10	EGS22151C012	NPUI.CA	El Nasr Utilities
11	EGS23111C015	NCCW.CA	Nasr Company for Civil…….
12	EGS22161C011	MEBH.CA	Beheira Joint Stock
13	EGS21131C015	DENG.CA	Developing Engineers
14	EGS210I1C015	HREI.CA	Alhalawani for Real Estate Investment
15	EGS21291C017	EEHP.CA	Egyption Engineering for Developing Projects
16	EGS22181C019	ECMI.CA	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim

3.2.2 Collected data

Having identified the selected companies that represent the practical field of our study, now it’s a good time to turn our attention to the data collection process.

The required data were collected using the available financial documents of the selected companies. Such financial documents generally include two main documents; balance sheet and income statements. One must keep in mind that balance sheet is a financial document that reflects the company financial status at a certain point in time. It can give us a broader picture regarding the company's assets, liabilities and owner equity. On the other hand, income statement provides us information regarding the revenue and expenses generated during a certain time period. It can also tell us whether the company generates profit or losses during that period. It has to be noted that the collected data covers four fiscal years started in 2002 and ended 2005. These data items were collected from Cairo Stock Exchange.

Using the available financial documents, the collected data items generally include:

- Current assets
- Fixed assets
- Total assets
- Current short term liabilities
- Long term liabilities
- Shareholders equity
- Net sales
- Cost of sales
- Net operating profit
- Interest
- Net profit after tax

The collected data are summarized in the appendix at the end of this study.

3.3 ANALYSIS OF DATA

In the previous steps the process of data collection has been clearly discussed. Now, let us discuss how these data will be analyzed. Such analysis includes many important steps that can be summarized as follows:

1. A comprehensive capital structure analysis will be first conducted. Such analysis tends to accurately identify the proportion that both internal (equity) capital and external (debt) capital are having within the total capital structure of the selected companies.

A great deal of light will be shed on the proportion of debt capital since it represents the main issue of our study. Consequently, the proportion of debt capital will be again investigated to show the relative weights that both short term and long term debt will have within the total proportion of debt capital.

2. Having identified the proportion that the different sources of finance can have on the capital structure of the selected companies, some financial parameters will be employed to check the ability of the selected companies to meet their debt burden. The current and quick ratios will be used to evaluate the ability of these companies to cover the obligations of their short term debt. The calculated values of these ratios will be compared with their standard values. Debt to equity ratio will be also used to measure the adequacy of the company's permanent capital to cover the company's debt. Such ratio can be considered as a good indicator regarding the ability of the selected companies to maintain a sound financial position through a long period of time. In addition, two other financial tools will be employed to check whether the debt burden of the selected companies lies within their safety limits or not. The two financial tools named as debt to assets ratio and equity multiplier ratio.

3. In addition, two financial tools will be employed to check the ability of the selected companies to use their debt burden effectively. It is the matter of the return on assets ratio (ROA) and the return on equity ratio (ROE). The first ratio relates the company net profit to the company's total assets while the second ratio measure the company's net profit as a percentage of the company's owner equity. The calculated values of the two ratios will be compared with their suggested standard values.

4. Finally, Altman Z score model will be used to identify those companies that are highly expected to face a financial distress and may fail to re-pay their debt burden.

CHAPTER IV

" ANALYSIS AND RESULTS "

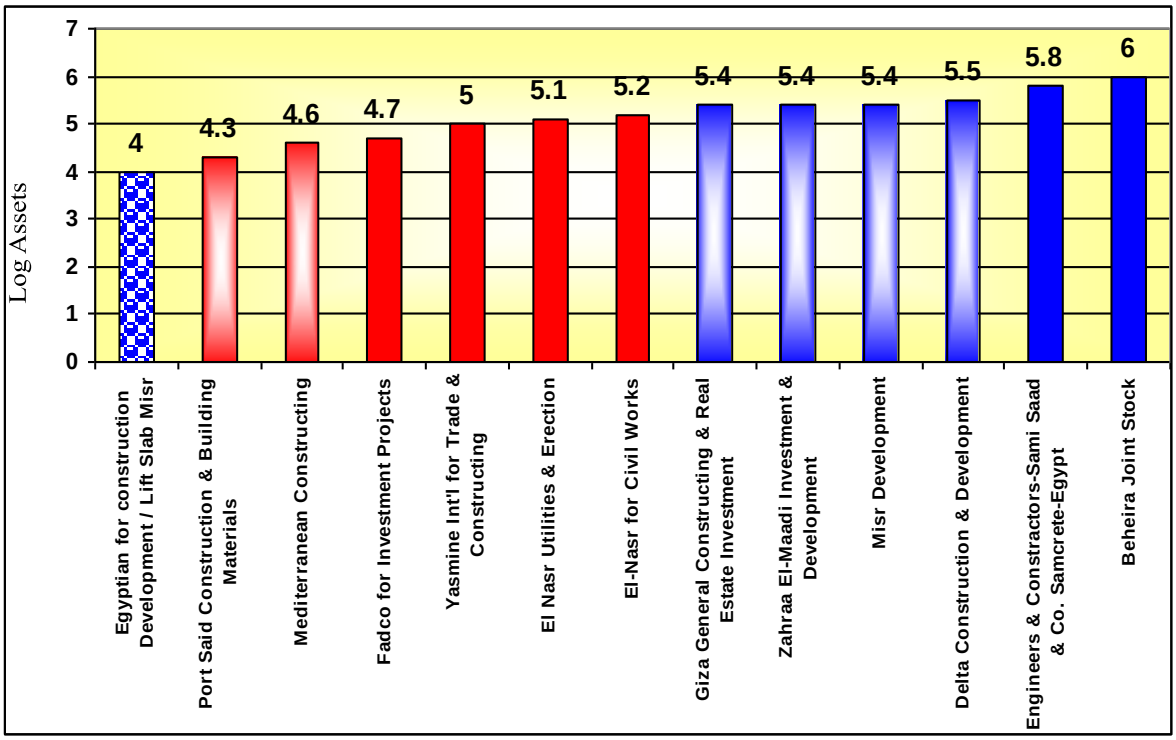

Fig. (4.1) Companies Categories According to Their Total Assets (2002)

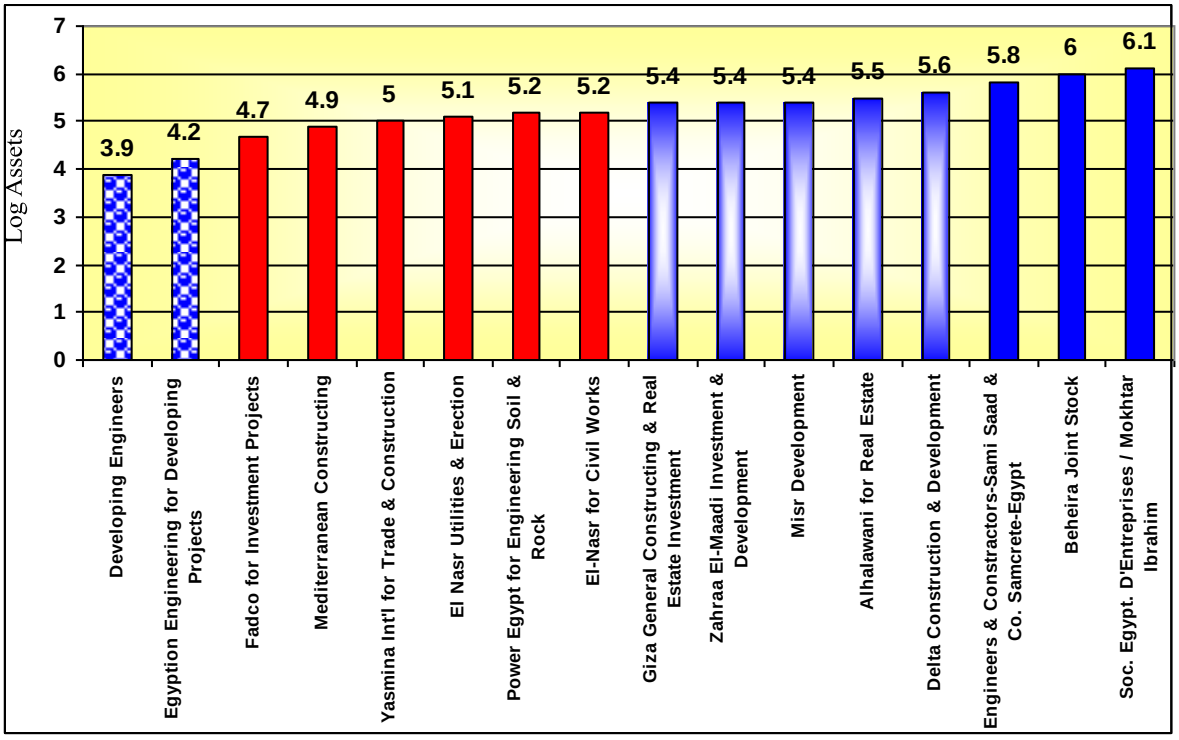

Fig. (4.2) Companies Categories According to Their Total Assets (2003)

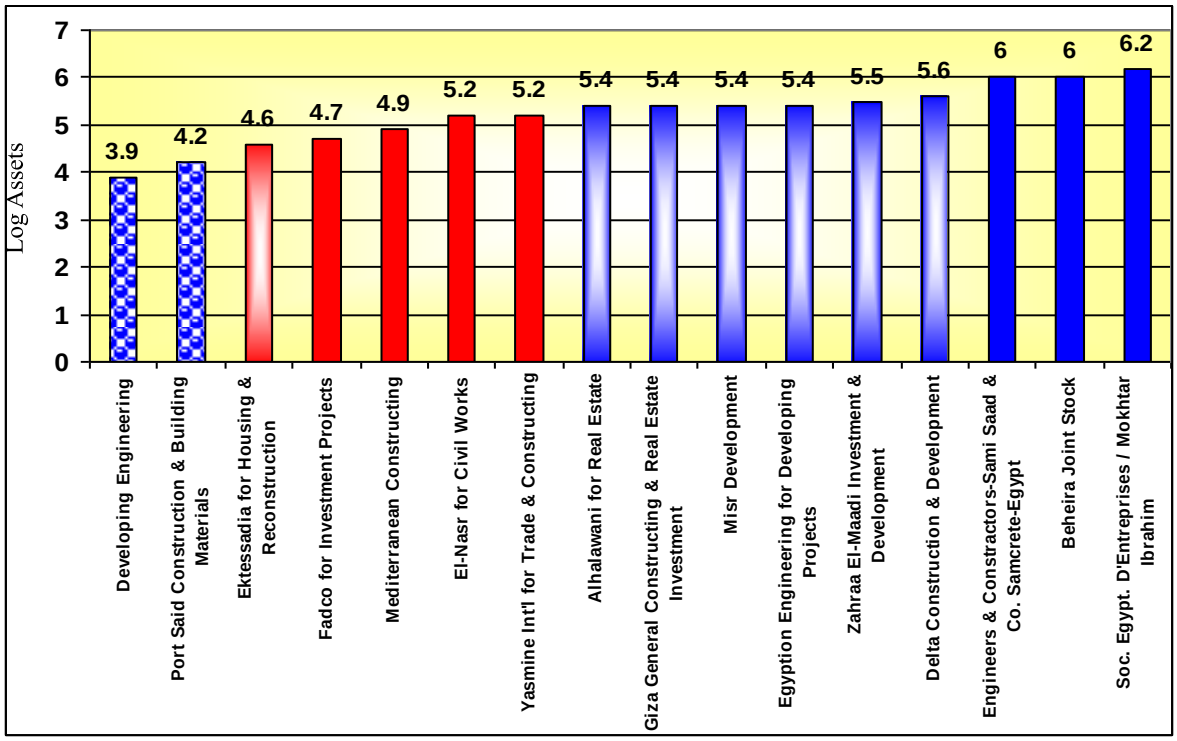

Fig. (4.3) Companies Categories According to Their Total Assets (2004)

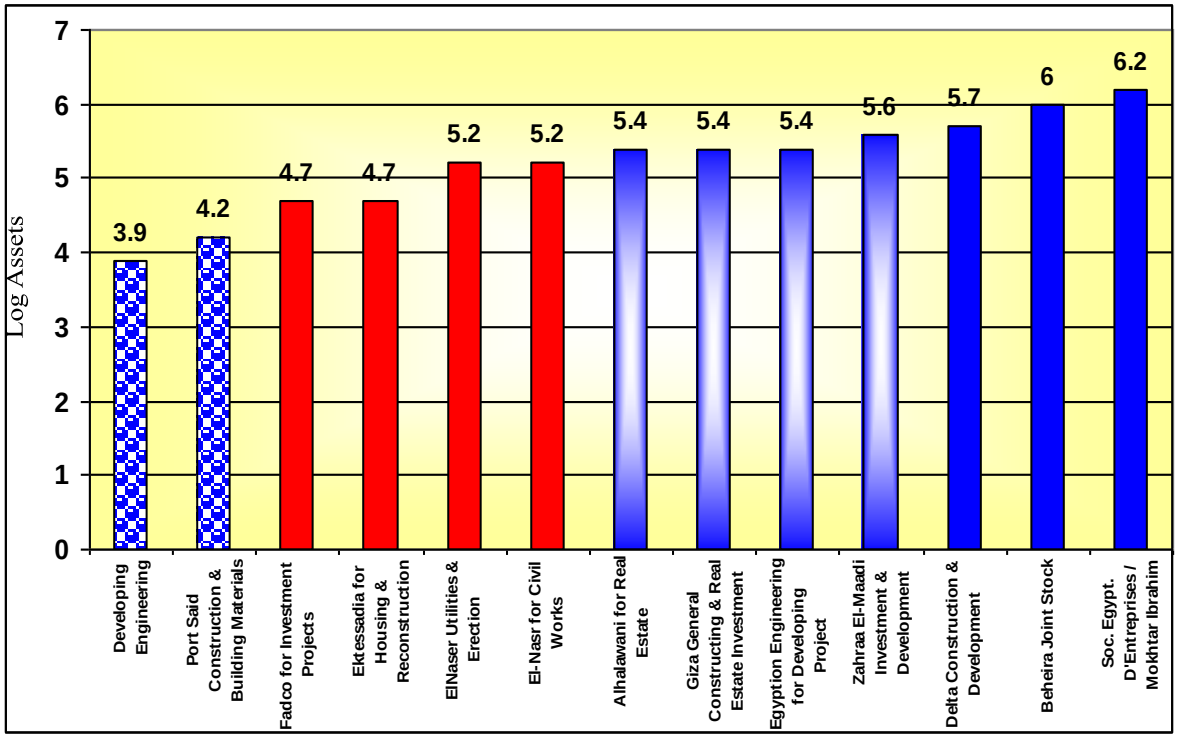

Fig. (4.4) Companies Categories According to their Total Assets (2005)

A careful review to the provided figures clearly shows that the total assets of the selected companies have log values ranged from a maximum value of 6 to a minimum log value of 4. Hence, it seems prudent to classify the selected companies into three main categories. The first category has a log an asset varies between 6 to 5.30. The companies within the second category were found to have a log asset between 5.30 to 4.6. In addition, the last category of the selected companies may have a log assets smaller than 4.6.

A cursory look to Figure (4.1) can easily show that the majority of the selected companies is included within the first and second categories, about 85 %, one can also see that a small percentage of these companies lies within the third categories about 15 %. The same is approximately true of the other three fiscal years started 2003 and ended 2005.

4.3 Capital Structure of the Selected Companies:

4.3.1 General

In order to check the ability of the selected companies to serve their debt burden one should first identify the proportion that such debt or external finance represent within the capital structure of these companies. This can be accurately done by making a comprehensive analysis for the capital structure of these companies. This analysis tends to identify the expected share that the different sources of capital may have within the total capital of these companies. In other words, the relative weights of the different sources of finance should be clearly identified.

To make this task easy, the different sources of capital are generally classified into two main components; internal and external finance. Internal finance mainly includes stockholders equity and retained earnings. On the other hand, external finance or debt finance, as it is usually known, is mainly divided into long term debt and short term debt. Each of the two categories of debt finance can have different forms.

4.3.2 Debt and Equity Capital

The results of such capital structure analysis are shown through Table (4.1) to Table (4.4). Each of these tables provides detailed information regarding the relative weights of the different sources of finance within the capital structure of the selected companies.

Four fiscal years were considered started 2002 and ended 2005. Table (4.5) provide a summary for the results shown on the previous tables. A careful review to Table (4.5) clearly shows some interesting findings.

For the fiscal year, 2002, the proportion of internal (equity) finance ranged from a minimum value of 14.4 % to a maximum of 60.1 % at an average value of 32.2 %. On the other hand, the percentage of external finance varies greatly with two extreme points of 39.7 % and 85.6 % respectively. One can also see that the average percentage of the external finance is 67.8%. It is clearly discernable that the average percentage of external (debt) finance is much greater than that of the internal (equity) finance. The same is also true for the other three fiscal years 2003, 2004, and 2005. For instance, the average percentage of internal finance of these years was found to be 31.6 %, 31.7 % and 34.6 % respectively. Contrarily, the proportions of debt finance were found to have an average value of 68.4%, 68.3%, and 65.4 % for the three corresponding years respectively. The results of such capital structure analysis clearly show the relative importance that debt capital can have on the capital structure of these companies. Finally, it has to be noted that the fourth company in Table (4.5) was excluded when calculating these average values due its abnormal proportion of capital structure.

Table (4.1) Capital Structure of Companies, 2002

2002		Giza General Constructing & Real Estate Investment	Soc. Egypt. DEntreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	El-Nasr for Civil Works
Total Finance %		100	100	100	100	100	100	100	100	100	100	100	100	100
Internal Finance %		18.3	18.1	38.2	99.7	51.7	34.3	35.1	14.4	60.1	36.3	21.3	17.7	40.3
Retained Earning %		0.61	2.32	1.47	0.01	0.81	11	-7.5	0.08	4.96	0	0.44	0	0
Equity Finance	Equity %	8.6	4.72	27.5	9.06	1.42	11.4	14.6	0.75	11.6	5.64	3.74	0.44	23.6
	Paid in capital %	6.55	4.84	4.14	90.7	45.3	11.4	22.4	13.5	33	19.7	5.81	17.3	11.4
	Total %	15.2	9.56	31.7	99.7	46.7	22.8	37	14.3	44.6	25.3	9.55	17.7	35
Provision %		2.52	6.22	5.07	0	4.16	0.5	5.71	0.04	10.7	11	11.3	0	5.39
External Finance %		81.7	81.9	61.8	0.28	48.3	65.7	64.9	85.6	39.7	63.7	78.7	82.3	59.7
Long Term Finance %		0	2.43	0	0	29.3	0	0	13.3	0	41.1	12.5	48.8	0
Debt %		0	2.43	0	0	29.3	0	0	11.5	0	1.99	3.38	48.8	0
Foreign Loans %		0	0	0	0	0	0	0	1.56	0	0	0	0	0
Finance Lease %		0	0	0	0	0	0	0	0	0	27.1	0	0	0
Other Sources %		0	0	0	0	0	0	0	0.22	0	12.1	9.14	0	0
Short Term Finance %		81.7	79.5	61.8	0.28	19	65.7	64.9	72.3	39.7	22.6	66.2	33.5	59.7
Debt %		8.38	9.26	7.83	0	2.07	12.5	51.8	42.8	34.1	5.41	30.1	1.39	2.8
Other Creditors %		73.3	70.2	54	0.28	16.9	53.3	13.1	29.5	5.58	17.2	36.1	32.1	56.9

Table (4.2) Capital Structure of Companies, 2003

2003		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Developing Project
Total Finance %		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Internal Finance %		11	18	33	100	47	26	32	14	56	36	21	34	16	39	70	21
Retained Earning %		0.7	0	0.8	-2.4	0.5	7.7	-4.4	0.1	3.8	0	-1.8	0.3	0	0	1.4	0.7
Equity Finance	Equity %	5.2	7.9	25	1.8	2	11	7.3	0.8	14	4.5	3.6	0	0.6	23	6.8	0.3
	Paid in capital %	3.8	4.3	3.6	100	41	6.3	23	13	27	19	6.5	33	16	12	62	20
	Total %	9	12	29	102	43	18	31	14	41	24	10	33	16	34	69	20
Provision %		1.2	5.5	3.3	0	3	0.2	5.7	0	11	12	13	0	0	4.3	0	0
External Finance %		89	82	68	0.4	53	74	68	87	44	64	79	66	84	62	30	80
Long Term Finance %		0	0	0	0	27	0	0	9.6	0	41	11	0	51	0	0	32
Debt %		0	0	0	0	27	0	0	8	0	1.3	4.8	0	51	0	0	32
Foreign Loans %		0	0	0	0	0	0	0	1.4	0	0	0	0	0	0	0	0
Finance Lease %		0	0	0	0	0	0	0	0	0	27	0	0	0	0	0	0
Other Sources %		0	0	0	0	0	0	0	0.2	0	12	5.8	0	0	0	0	0
Short Term Finance %		89	82	68	0.4	26	74	68	77	44	23	69	66	33	62	30	48
Debt %		51	15	14	0	1.6	29	60	43	25	0	34	18	1	5.4	17	6.7
Other Creditors %		39	67	53	0.4	24	46	8.2	34	19	23	35	49	32	56	13	41

Table (4.3) Capital Structure of Companies, 2004

2004		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Developing Project
Total Finance %		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Internal Finance %		8.9	19	99	40	16	26	33	61	33	16	44	13	42	74	18
Retained Earning %		0	0	-1.1	1.7	6.9	-5.4	0	2.3	0	-2.9	3.4	0	0	1.2	-2
Equity Finance	Equity %	4.5	9.1	-0.6	2.2	1.9	2.9	0.5	19	4.3	3	0.3	0.6	24	8.5	0.9
	Paid in capital %	3.6	3.9	101	35	6.7	23	31	30	17	6	40	12	14	64	19
	Total %	8	13	100	37	8.6	26	32	49	21	9	40	13	38	73	20
Provision %		0.9	5.8	0	2.1	0.2	5.5	0.8	10	12	9.8	0	0	4	0	0
External Finance %		91	81	1	60	84	74	67	39	67	84	56	87	58	26	82
Long Term Finance %		0	0	0	16	0	0	5.5	0	46	11	0	57	0	0	34
Debt %		0	0	0	16	0	0	3.6	0	0.6	3.8	0	57	0	0	34
Foreign Loans %		0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0
Finance Lease %		0	0	0	0	0	0	0	0	34	0	0	0	0	0	0
Other Sources %		0	0	0	0	0	0	1.4	0	12	7.7	0	0	0	0	0
Short Term Finance %		91	81	1	44	84	74	62	39	21	73	56	30	58	26	48
Debt %		53	17	0	0	15	66	34	18	0	35	20	0.7	5.8	11	3.5
Other Creditors %		38	64	1	44	70	8.2	27	21	21	37	37	30	52	15	45

Table (4.4) Capital Structure of Companies, 2005

2005		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Developing Project
Total Finance %		100	100	100	100	100	100	100	100	100	100	100	100
Internal Finance %		8.73	17.4	28	97.4	38.8	65.8	32.6	12.7	49	39.9	71.6	16.5
Retained Earning %		0.03	0	-2.4	-1.6	2.61	4.81	10.6	-5	0.83	0	-0.5	0.05
Equity Finance	Equity %	4.39	8.79	24.2	-1	3.6	21.9	3.2	3.48	7.94	23	9.47	-1.4
	Paid in capital %	3.48	3.71	3.47	100	31.9	30.6	12.5	6.3	40.2	13.4	62.7	17.8
	Total %	7.87	12.5	27.7	99	35.5	52.5	15.7	9.78	48.1	36.4	72.1	16.5
Provision %		0.83	4.93	2.68	0	0.69	8.55	6.24	7.88	0	3.56	0	0
External Finance %		91.3	82.6	72	2.62	61.2	34.2	67.5	87.3	51	60.1	28.4	83.5
Long Term Finance %		0	0	0	0	15.2	0	51.2	10.3	0	0	0	37.7
Debt %		0	0	0	0	15.2	0	0	3.1	0	0	0	37.7
Foreign Loans %		0	0	0	0	0	0	0	0	0	0	0	0
Finance Lease %		0	0	0	0	0	0	39.7	0	0	0	0	0
Other Sources %		0	0	0	0	0	0	11.5	7.2	0	0	0	0
Short Term Finance %		91.3	82.6	72	2.62	46	34.2	16.3	77	51	60.1	28.4	45.8
Debt %		51.9	18.2	22.5	0	0	14.9	0	36.3	7.59	5.68	4.27	3.84
Other Creditors %		39.4	64.3	49.5	2.62	46	19.4	16.3	40.8	43.4	54.4	24.1	41.9

Table (4.5) Proportion of Equity and Debt Finance

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Devloping Project		Average	Standard Deviation
2002	**Internal (Equity)%**	18.2	18.1	38.2	99.7	51.7	34.3	35.1	14.4	60.1	36.3	21.3	17.7		40.3				32.2	14.55
	External (Debt)%	81.7	81.9	61.8	0.28	48.3	65.7	64.9	85.6	39.7	63.7	78.7	82.3		59.7				67.8	14.58
2003	**Internal (Equity)%**	11	18	33	99.6	47	26	32	14	56	36	21	34	16	39	70	21		31.6	16.47
	External (Debt)%	89	82	67	0.4	53	74	68	86	44	64	79	66	84	61	30	79		68.4	16.49
2004	**Internal (Equity)%**	8.9	19		99	40	16	26	33	61	33	16	44	13	42	74	18		31.7	19.05
	External (Debt)%	91	81		1	60	84	74	67	39	67	84	56	87	58	26	82		68.3	19.04
2005	**Internal (Equity)%**	8.73	17.4	28	97.4	38.8				65.8	32.6	12.7	49		39.9	71.6	16.5		34.6	21.01
	External (Debt)%	91.3	82.6	72	2.62	61.2				34.2	67.5	87.3	51		60.1	28.4	83.5		65.4	21.01

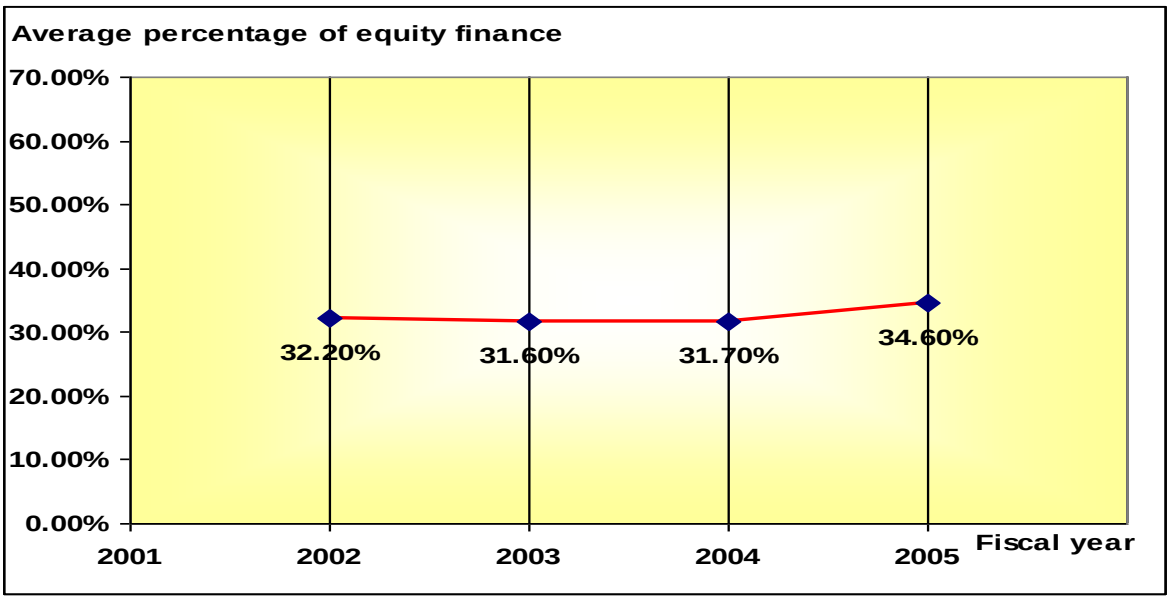

Fig. (4.5) : Average Percentage of Equity Finance

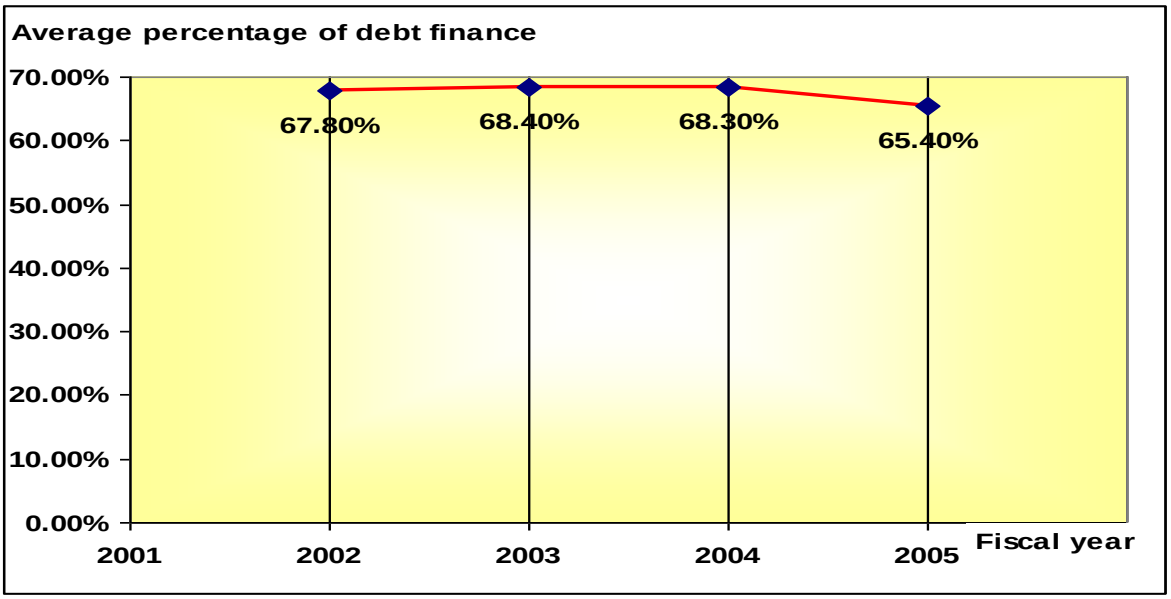

Fig. (4.6) : Average Percentage of Debt Finance

The results of the previous capital structure analysis were summarized in Figure (4.5) and Figure (4.6). Figure (4.5) presents the change in the average percentage of equity finance through the four fiscal years. On the other hand, Figure (4.6) is a graphical plot for the variation in the average percentage of external, debt, finance, for the same fiscal years.

A review of the two figures clearly shows that the two percentages don't vary greatly through the four years period. It has been found that the external, debt, is about twice the equity financed portion. In other words, one can honestly say that the proportion of debt finance is about two thirds of the total capital structure of the selected companies. This may indicate that these companies have a considerable debt burden. Consequently, the ability of those companies to serve this debt burden should be deeply evaluated.

4.3.3 Long and Short Term Debt

Now, let's refer to another important element that should be carefully discussed. It is the matter of the relative weights that both short and long term debt finance can have within the total debt finance of the selected companies. The importance of such element may be attributed to its intimate relationship to the financial risk of the company. It is readily known that the shorter the maturity of debt finance, the greater the financial risk that the company will be unable to meet the obligations of its debt finance. On the other hand, long term debt may have a greater interest cost compared with the interest paid on short term debt. The results of such analysis are summarized in Table (4.6).

A careful review to Table (4.6) clearly shows that the major portion of the selected companies don't employ long term debt at all. The percentages of these companies are 53.4 %, 62.5 %, 60 % and 66.6 % through the four years period. In consonance with such results, the percentage of long term debt of the first fiscal year ranged from a minimum value of 0.0 to a maximum value of 64.5 % at an average value of 16.8 %. Contradictory, the corresponding percentage of short term debt were found to be greatly varying between two extreme points of 100 % and 39.4 % at an average value of 83.2 %.

Figure (4.7) and Figure (4.8) illustrate the change in the average percentage of both long and short term debt through the four fiscal years. A closer inspection to Figures (4.7) and (4.8) easily shows a gradual decrease in the long term debt percentage from a maximum value of 16.81 to a minimum value of 13.1. This is accompanied by a corresponding increase in the proportion of short term debt from a minimum value of 83.2 to a maximum value of 86.9 %. Keeping in mind, the financial risk associated with the short

Table (4.6) Proportion of Long Term and Short Term Debt.

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Devloping Project		Average	Standard Deviation
2002	**Long - Term %**	0	3	0	0	60.6	0	0	15.5	0	64.5	15.8	59.3		0				16.8	26
	Short - Term %	100	97	100	100	39.4	100	100	84.5	100	35.5	84.2	40.7		100				83.2	26
2003	**Long - Term %**	0	0	0	0	50.9	0	0	11	0	64	13	0	60.7	0	0	40		15	24.04
	Short - Term %	100	100	100	100	49.1	100	100	89	100	36	87	100	39.3	100	100	60		85	24.04
2004	**Long - Term %**	0	0		0	26.6	0	0	7.5	0	68.6	13	0	65.5	0	0	41.5		14.8	24.4
	Short - Term %	100	100		100	73.4	100	100	92.5	100	31.4	87	100	34.5	100	100	58.5		85.2	24.4
2005	**Long - Term %**	0	0	0	0	24.8				0	75.8	11.8	0		0	0	45.1		13.1	24.24
	Short - Term %	100	100	100	100	75.2				100	24.2	88.2	100		100	100	54.9		86.9	24.24

term debt, this situation reflects a gradual increase in the financial risk of the selected companies. Moreover, a careful review of Table (4.6) should indicate the great dispersion around these average values that can be shown in the form of a greater standard deviation. However, keeping in mind that the degree of financial risk associated with the short term debt is much greater than that of the long term. These results may provide red light regarding the degree of financial risk of the selected companies.

4.3.4 Effect on the Company Size

To investigate the effect that the company assets size can have on its capital structure, three companies were selected as a base of comparison. The three companies were selected according to the previous classification of the companies. The first company, Port Said, is a sample of small volume of assets. The second company, El-Nasr for Civil Works, is a sample of medium volume of assets. Finally, the third company, Behira Joint Stock, is a sample of large assets volume. The detailed capital structure of the three companies are shown in Figures (4.9) to Figure (4.11).

Table (4.7) Comparison Between Different Categories of Companies.

	Port Said Company				**El-Nasr for Civil Works**				**Behira Joint Stock**			
	Source of Finance		Debt capital		Source of Finance		Debt capital		Source of Finance		Debt capital	
	Internal	External	L.T. Debt	S.T. Debt	Internal	External	L.T. Debt	S.T. Debt	Internal	External	L.T. Debt	S.T. Debt
2002	60.32	39.68	0	100	40.3	59.7	0	100	21.3	78.70	15.8	84.2
2003	55.54	44.46	0	100	39	61	0	100	21.0	79.0	13.0	87.0
2004	61.19	38.81	0	100	42	58	0	100	15.88	84.12	13.0	87.0
2005	65.81	34.19	0	100	39.9	60.1	0	100	12.67	87.33	11.8	88.2
Average	65.72	34.28	0	100	40.3	59.7	0	100	17.71	82.29	13.4	86.6

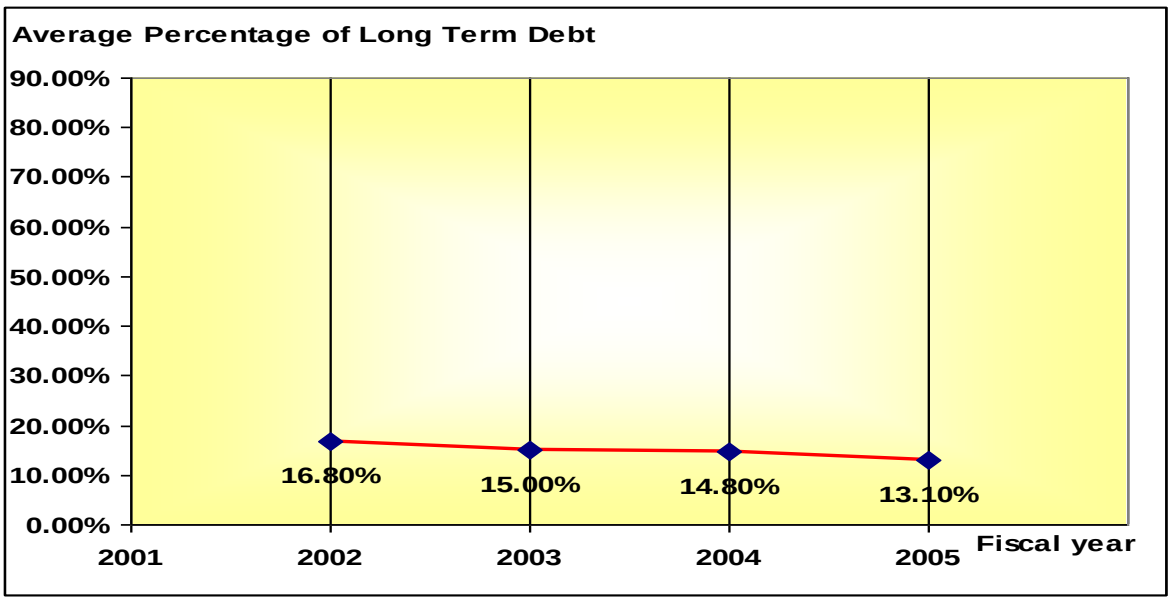

Fig. (4.7) : Average Percentage of Long Term Debt

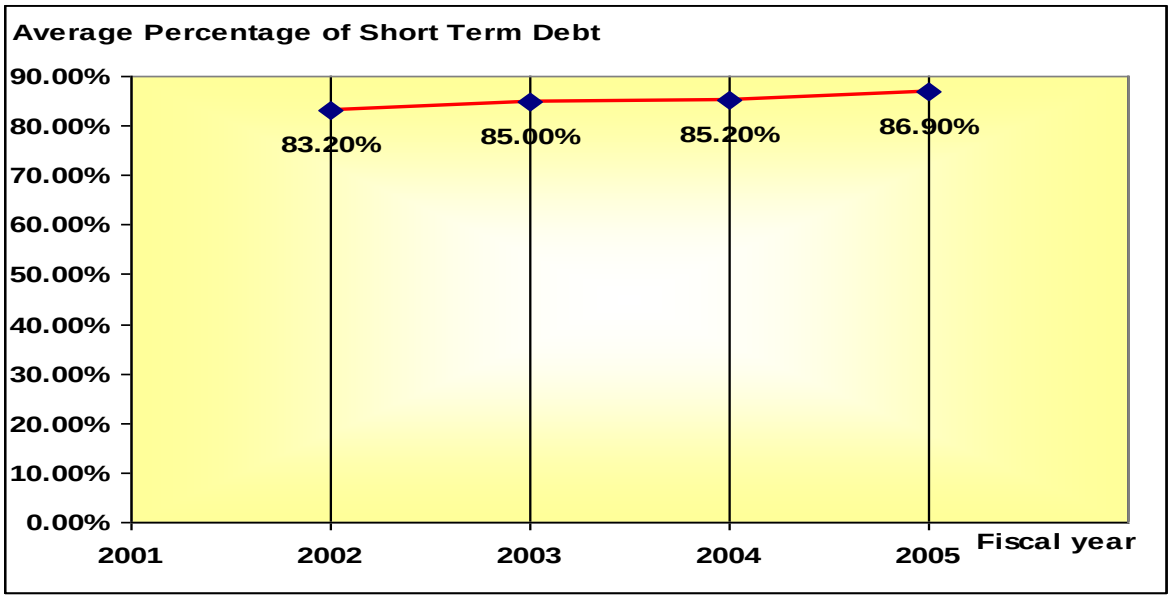

Fig. (4.8) : Average Percentage of Short Term Debt

Table (4.7) summarized a comparison among the capital structure of the selected companies. A careful review to this table clearly shows that the smaller the volume of the company assets the greater the proportion of internal, equity, finance. For instance, the company that has the smallest volume of assets has a percentage of internal finance ranged from a minimum value of 55.54 % to a maximum value of 65.81 %. On the other hand, the company that has the greatest assets volume has a corresponding percentage of internal finance ranged from 12.67 % to 21.3 %. The same is also true for the medium assets company that was found to have a proportion of internal finance varied from 39 % to 42 %. The reverse is also true for the percentage of the external finance, debt that was found to be directly proportional to the asset volume. Such results seem to be logically accepted, since it intuitively sounds for any company to finance its assets through the use of debt capital. This is because debt capital represents the least costly source of finance.

Again looking at Table (4.7) long enough, one can easily see that the small and medium assets companies don't use long term debt at all, while the largest assets company has a considerable proportion of long term debt ranged from 11.87 % to 15.8 %. It was suspected that the largest assets company may use long term debt to finance its fixed assets, especially construction equipment. However, the point to be stressed herein is that the expanded use of short term debt may considerably increase the financial risk of these companies.

External	Internal				2002
	Equity Finance		Retained	Provision	
Short	Paid in Capital	Equity			
40%	33%	12%	5%	11%	

External	Internal				2003
	Equity Finance		Retained	Provision	
Short	Paid in Capital	Equity			
45%	27%	14%	3.80%	11%	

External	Internal				2004
	Equity Finance		Retained	Provision	
Short	Paid in Capital	Equity			
39%	30%	19%	###	10%	

External	Internal				2005
	Equity Finance		Retained	Provision	
Short	Paid in Capital	Equity			
34%	31%	22%	4.80%	8.60%	

Figure (4.9) Capital Structure of Port Said Company

External	Internal			2002
	Equity Finance		Provision	
Short	Paid in Capital	Equity		
59.70%	11.40%	23.60%	5.39%	

External	Internal			2003
	Equity Finance		Provision	
Short	Paid in Capital	Equity		
62%	12%	23%	4.30%	

External	Internal			2004
	Equity Finance		Provision	
Short	Paid in Capital	Equity		
58%	14%	23.60%	4%	

External	Internal			2005
	Equity Finance		Provision	
Short	Paid in Capital	Equity		
59.70%	13.40%	23%	3.56%	

Figure (4.10) Capital Structure of El-Nasr for Civil Works Company

External		Internal			2002
		Equity Finance		Others	
Short	Long	Paid in Capital	Equity		
66%	13%	6%	4%	12%	

External		Internal			2003
		Equity Finance		Others	
Short	Long	Paid in Capital	Equity		
69%	11%	7%	3.60%	11%	

External		Internal			2004
		Equity Finance		Others	
Short	Long	Paid in Capital	Equity		
73%	11%	6%	3%	6.90%	

External		Internal			2005
		Equity Finance		Others	
Short	Long	Paid in Capital	Equity		
77%	10%	6.30%	3.50%	2.90%	

Figure (4.11) Capital Structure of Beheira Company

4.4 EVALUATION OF THE COMPANIES " DEBT CAPACITY "

4.4.1 Current ratio:

Current ratio is generally defined as the relationship of current assets to current liabilities. It can be considered as a good indicator for the adequacy of the company current assets to cover the required short term liabilities. In other words, it measures the company's ability to meet its short term debt. Current ratios were calculated for the selected companies through the four years period 2002, to 2005. The details of such calculations are shown in the appendix at the end of this study. Table (4.8) summarizes the results of these calculations. Keeping in mind that a minimum current ratio of 2, can be generally accepted for most companies (7).

A deep investigation to Table (4.8) clearly shows that the majority of the selected companies has current ratio smaller than 2. For instance, the ratio of the companies that have unacceptable current ratio was found to be 80 % in the first and the second years. This percentage slightly increases to 85 % and 82 % in the third and fourth years respectively.

To elaborate more, the calculated current ratio in the first fiscal year, 2002, varies gradually from a minimum value of 0.88 to a maximum value of 3.16 at an average value of 1.63. The second year ratios were found to be slightly different. They vary from a minimum value of 0.87 to a maximum value of 3.23 at an average value of 1.55. The third year current ratio was found to have two extreme points of 0.89 and 2.84 with an average value of 1.48. The same is also true for the last year current ratio that was found to be varied between 1.01 and 2.72 at an average value of 1.52.

To recapitulate what was elaborated before, Figure (4.12) is a graphical plot for the change in the average current ratio through the different fiscal years. A cursory look to Figure (4.12) clearly shows that the average current ratio gradually decreases from a maximum value of 1.63 in the first fiscal year 2002, to a minimum value of 1.48 in the third year. One can also observe a slight improvement in the average current ratio in the fourth fiscal year. Moreover, it is clearly discernable that the average current ratio in the four fiscal years under discussion is much smaller than that should be expected; this may be considered as a bad financial indictor regarding the ability of the selected companies to meet their short term debt obligations. This may be attributed to the excessive use of the short term debt.

Table (4.8) Current Ratio and Quick Ratio.

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Devloping Project		Average	Standard Deviation
2002	**Current Ratio**			1.47		3.16	1.32	1.4	1.06	1.57	0.88	1.04		2.92	1.49				1.63	0.777
	Quick Ratio			1.29		3.16	1.32	1.4	0.36	0.62	0.88	0.98		2.92	1.34				1.43	0.916
2003	**Current Ratio**	1.08	1.08	1.39		2.18	1.2	1.34	1.05	1.71	0.87	1	1.51	3.23	1.47	2.96	1.2		1.55	0.707
	Quick Ratio	0.92	0.94	1.25		2.18	1.2	1	0.27	1.18	0.85	0.93	1.51	3.23	1.31	2.96	1.2		1.39	0.798
2004	**Current Ratio**	1.07	1.08			1.31	1.08	1.25	1.21	1.91	0.89	1	1.78	2.51	1.55	2.84	1.22		1.48	0.586
	Quick Ratio	0.91	0.96			1.31	1.08	1.06	0.24	1.9	0.86	0.87	1.78	2.51	1.36	2.84	1.22		1.35	0.695
2005	**Current Ratio**	1.07	1.08	1.32		1.34		1.2		2.16	1.47	1.01	1.96		1.43	2.72			1.52	0.537
	Quick Ratio	0.95	0.96	1.17		1.34		1.05		2.15	1.42	0.86	1.96		1.25	2.72			1.44	0.59

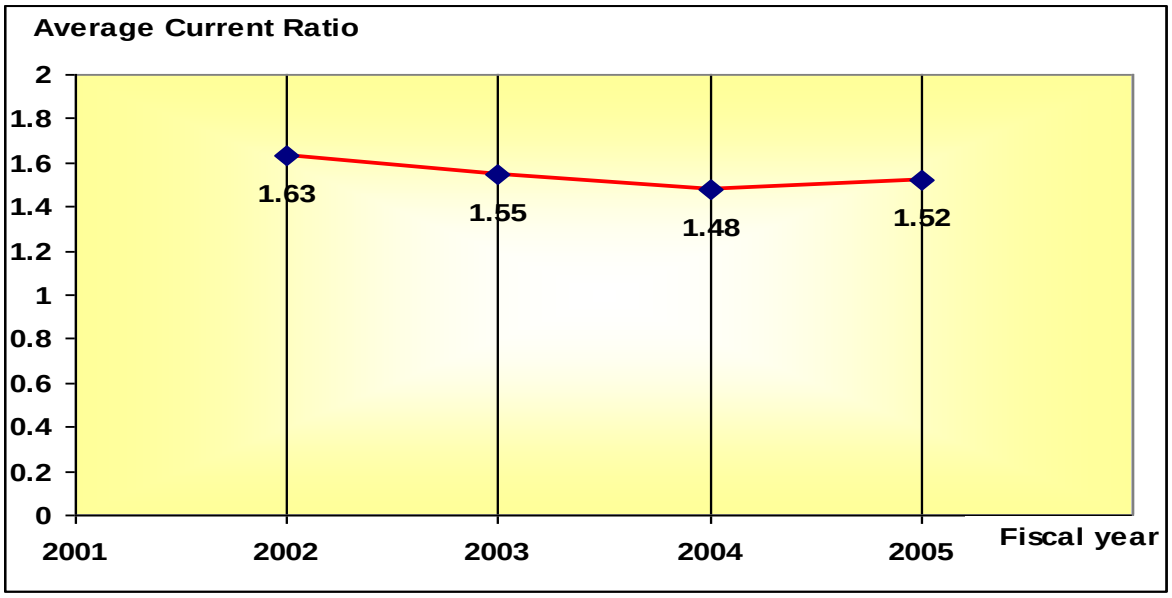

Fig. (4.12) : Variation in the Average Current Ratio

4.4.2 Quick Ratio:

Let's refer to another financial parameter that can be considered as a more reliable measure for the company ability to meet its short term debt, it is the matter of quick ratio or acid test, as it is usually known. Quick ratio is generally defined as the ratio of cash and accounts receivable to the short term liabilities. Cash and accounts receivable are selected since they can be converted into cash easier and faster. It has to be known that a minimum quick ratio of 1.4 is generally accepted (7).

Table (4.8) summarizes the results of the quick ratio calculation. A closer inspection to Table (4.8) clearly shows that the majority of the companies have quick ratio smaller than its acceptable value. The percentage of these companies was found to be 70 %, 73 %, 71 % and 63 % for the four fiscal years respectively. One can also see that the average quick ratio for the four years was found to be 1.42, 1.39, 1.35, and 1.44. This can be easily shown in Figure (4.13).

A careful review to Figure (4.13) clearly shows that the average quick ratio for the second and third years can't be accepted. On the other hand, quick ratio of the first and fourth years can be barely accepted. The point to be stressed herein is that such results provide a bad indicator regarding the ability of the selected company to serve their short term debt. However, the results of the current and quick ratio analysis are seemed to be consistent with the great tendency of these companies to use short term debt in an excessive munner. Such tendency seems to have a very bad effect on the ability of these companies to meet the financial obligations of their short term debt.

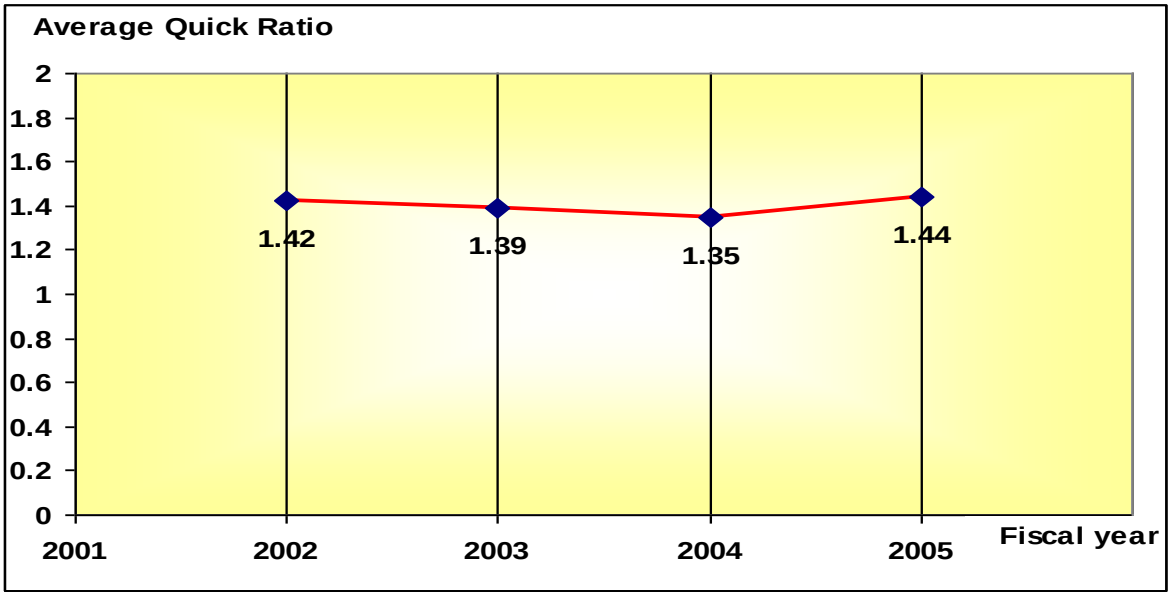

Fig. (4.13) : Variation in the Average Quick Ratio

4.4.3 Effect of the Company Size on Current / Quick Ratio

To investigate the effect that the company assets size can have on its ability to meet short term debt, Table (4.9) provides a comparison among the current and quick ratios of three different size companies. Such comparison tends to show that the current and quick ratios are generally declined with the gradual increase in the company's volume of assets. However, such results seem to be compatible with the results shown in Table (4.7). Such table shows that the percentage of debt, external, capital increase with the increase in the company's assets. This may result in a corresponding decrease in the company's ability to meet its short term liabilities. This may also mean that the rate of growth in the company's assets is much smaller than the rate of growth in the company's debt burden. In other words, one can easily say that the gradual increase the companies' debt burden, isn't accompanied by a similar increase in the companies assets, especially current assets. This results in a gradual decline in the company's current / quick ratio as shown in Table (4.9).

Table (4.9) Current / Quick Ratio for Different Size of Companies.

	Port Said Company		**El-Nasr for Civil Works**		**Behira Joint Stock**	
	Current ratio	Quick ratio	Current ratio	Quick ratio	Current ratio	Quick ratio
2002	1.57	0.62	1.49	1.34	1.04	0.98
2003	1.71	1.18	1.47	1.31	1	0.93
2004	1.91	1.9	1.55	1.36	1	0.87
2005	2.16	2.5	1.43	1.25	1.01	0.86
Average	1.84	1.55	1.49	1.32	1.01	0.91

4.4.4 Debt to Equity Ratio:

Debt to equity ratio generally relates the amount of total debt to the shareholders' equity. Total debt frequently defined as the sum of current liabilities and all types of long term debt. Since equity capital is generally known as the permanent capital of the company, such ratio can be considered as a good indicator regarding the adequacy of this permanent capital to cover the company's debt.

Such ratio can be considered as a measure for the company long term liquidity. Keeping in mind that the greater this ratio than unity, the greater the financial risk of the company.

Debt to equity ratio was calculated for the selected companies through the four fiscal years under discussion, 2002 to 2005. The detailed calculations are shown in the appendix at the end of this study. A summary of this calculations is shown in Table (4.10). A review of Table (4.10) clearly shows that a considerable number of the selected companies has a debt to equity ratio greater than unity. The percentages of these companies are 91.6 %, 87.5 %, 80 % and 69.2 % respectively. However, this may be considered as a bad indicator regarding the ability of these companies to meet their debt obligations.

For more elaboration, the calculated debt to equity ratio for the first fiscal year 2002, was found to vary between 0.0 and 8.09 at an average value of 2.72. The second year's ratio has two extreme points of 10.8 and 0.0 at an average value of 3.77. Moreover, the average value of this ratio for third and fourth years was found to be 4.05 and 4.33. Figure (4.14) is a graphical presentation for the change in this average value. A review of this figure clearly shows that this average value starts low at a small value of 2.72 at the first year and builds up to a maximum value of 4.33 at the fourth year. This may indicate a gradual increase in the debt burden of the selected companies.

It may also show an obvious deterioration in the ability of these companies to serve their debt burden. This result may indicate the tendency of these companies to finance the increase in their total assets through the use of more debt capital. It may also indicate the lower profitability of these companies that doesn't provide additional retained earnings to the equity capital of these companies.

4.4.5 Debt to Assets Ratio:

This ratio represents the relationship of the total debt to the assets. The total assets can generally represent what the company owns. The total debt is the claim of external creditors on these total assets. On the other hand, shareholders' equity represents the claim of the shareholders on the company's total assets. Keeping in mind that the value of the company's total assets is equal to the summation of the total liabilities and the shareholders' equity. This means that the higher the debt to assets ratio the lower the shareholders' equity will be.

The debt to assets ratio was calculated for the selected companies. The results are shown in Table (4.10). The table clearly shows that this ratio has an average value of 0.56, 0.64, 0.63 and 0.6 for the four years under discussion. It is obvious that such average value doesn't greatly vary through the four years period. It must be recalled that an average value of 0.40 is generally accepted as the maximum safety limit of this ratio (5). A careful review to Table (4.10) clearly shows that the major portion of the selected companies has a debt to assets ratio greater than the accepted safety limits.

The observed percentage of the risky companies that has a debt to assets ratio greater than the acceptable average value is 75 %, 81.25 %, 80%, and 76.9 % through the four years respectively. Hence, it is easy to discern that the share of external creditors on these total assets is much greater than that of the stockholders. This may clearly indicate the great tendency of these companies to use debt capital improperly. It may also indicate that the debt burden of these companies lies out of the appropriate safety limits.

4.4.6 Equity Multiplier Ratio:

Using this ratio, one can easily measure the company total asset as a ratio of the total shareholders' equity. It has to be noted that the greater the value of this ratio, the smaller the value of the shareholders' equity will be. In other words, a high equity multiplier ratio may be considered as an indicator for a lower shareholders' equity and a corresponding higher debt burden of these companies.

Table (4.10) (Debt/Assets) Ratio, (Debt / Equity) Ration and Equity Multipier Ratios.

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Devloping Project		Average	Standard deviation
2002	Debt Ratio	0.091		0.669	0	0.52	0.66	0.71	0.86	0.6	0.36	0.81		0.823	0.65				0.56	0.278
	Debt / Equity	1.1		2.02	0	1.1	1.96	3	5.96	1.49	1.4	8.09		4.65	1.86				2.72	2.351
	Equity Multiplier	12		3.02	1	2.1	2.96	3.4	6.96	2.49	3.95	10		5.65	2.86				4.7	3.36
2003	Debt Ratio	0.91	0.88	0.71	0	0.56	0.75	0.74	0.87	0.46	0.37	0.86	0.66	0.83	0.66	0.3	0.8		0.64	0.252
	Debt / Equity	10.8	7.18	2.42	0	1.29	2.93	2.83	6.39	1.39	1.54	10.4	1.97	4.95	1.93	0.42	3.87		3.77	3.32
	Equity Multiplier	11.9	8.18	3.42	1	2.29	3.93	3.83	7.39	2.55	4.19	12.1	2.97	5.95	2.93	1.42	4.87		4.9	3.376
2004	Debt Ratio	0.92	0.87		0	0.62	0.79	0.79	0.68	0.49	0.33	0.86	0.56	0.87	0.62	0.26	0.82		0.63	2.66
	Debt / Equity	11.5	6.68		0	1.6	3.81	3.82	2.16	0.95	1.59	14.2	1.28	6.69	1.63	0.35	4.61		4.05	4.15
	Equity Multiplier	12.5	7.68		1.01	2.61	4.81	4.82	3.16	1.95	4.79	16.5	2.28	7.69	2.63	1.35	5.61		5.3	4.33
2005	Debt Ratio	0.92	0.88	0.75	0	0.62		0.83		0.43	0.23	0.88	0.51		0.64	0.28	0.84		0.6	0.293
	Debt / Equity	11.7	7	2.96	0	1.62		4.77		0.75	0.85	18.4	1.04		1.75	0.4	5.06		4.33	5.36
	Equity Multiplier	12.7	8	3.96	1.03	2.62		5.77		1.75	3.8	20.9	2.04		2.75	1.4	6.06		5.6	5.75

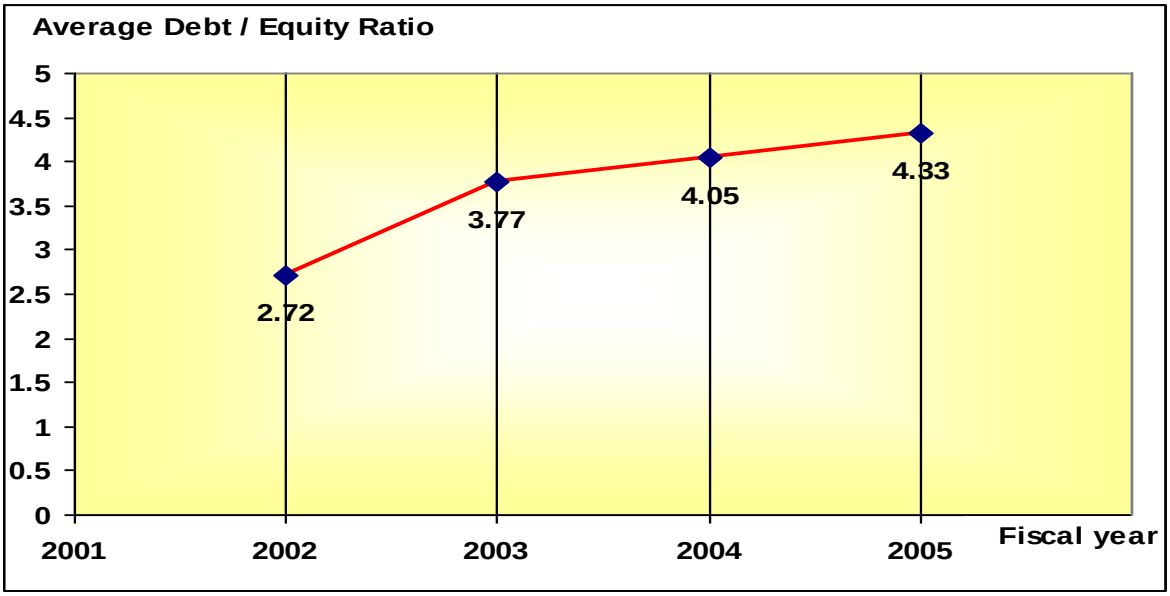

Fig. (4.14) : Variation in the Average (Debt / Equity) Ratio

The results of equity multiplier calculations are summarized in Table (4.10). A closer inspection to this table clearly shows that the average value of this ratio was 4.7, 4.9, 5.3 and 5.6 respectively. Such results obviously indicate a gradual increase in this average value. This may indicate a gradual increase in the total assets of these companies compared to the total shareholders' equity, this can be considered as an obvious indicator regarding the gradual increase in the debt burden of these companies, accompanied by a corresponding decrease in the shareholders' equity of these companies. This can be shown as equation (4.1):

$$\text{Assets} = \text{liabilities} + \text{Owner's Equity}$$

$$\frac{\text{Assets}}{\text{Owner's Equity}} = \frac{\text{liabilities (debt)}}{\text{Owner's Equity}} + 1 \qquad \text{Equ. (4.1)}$$

Hence, the greater the equity multiplier ratio, the greater the debt / equity ratio will be.

4.4.7 Effect of the Company Size on Three Ratios:

To show how the company's debt burden can vary according to the company size, Table (4.11) is a comparison between the calculated ratios for three different size companies. These companies were selected according to the log assets classification that was previously discussed. A careful review to this table clearly indicates an obvious increase in the calculated ratio with the company's size. This may indicate a gradual growth for the company debt burden with the company size. The table also shows a very high debt to equity ratio for the largest company, Behira Joint Stock Company. This ratio has a value of 8.09, 10.4, 14.2 and 18.4 for the four years, respectively. Keeping in mind that these ratios are much greater than unity. This may indicate a very bad debt situation for this company. One of the reasons of increasing the financial risk as the company size increases is mainly due to depending on the external sources of finance.

Table (4.11) Effect of the Company Size on the Calculated Ratios.

	Port Said Company			**El-Nasr for Civil Works**			**Behira Joint Stock**		
	Debt / Asset	Debt / Equity	Equity Multiplier	Debt / Asset	Debt / Equity	Equity Multiplier	Debt / Asset	Debt / Equity	Equity Multiplier
2002	0.6	1.49	2.49	0.669	2.02	3.02	0.81	8.09	10
2003	0.46	1.39	2.53	0.71	2.42	3.42	0.86	10.4	12.1
2004	0.49	0.95	1.95	-	-	-	0.86	14.2	16.5
2005	0.43	0.75	1.75	0.75	2.96	3.96	0.88	18.4	20.9
Average	0.5	1.15	2.18	0.71	2.47	3.47	0.85	12.77	14.88

4.5 EFFECT ON THE COMPANY PERFORMANCE

Two important financial parameters were selected to show whether these companies can successfully use their high debt burden or not. The two parameters are return on assets (ROA) and return on equity (ROE). Return on assets measures the company's net profit as a percentage of the company's total assets. It can be considered as a good indicator regarding the effectiveness of using the company's assets. Keeping in mind that such assets are generally financed using the available sources of finance. The previous results clearly show that the proportion of debt finance is much greater than that of the equity financed portion.

Hence, the return on assets can be considered as a good indicator regarding the effectiveness of using the company's debt.

The return on assets was calculated for the selected companies using the available data records. Such results are tabulated in Table (4.12). A review of the table clearly shows that some companies have net losses in some fiscal years. The percentage of these companies is 16.7 %, 12.5 %, 26.6 % and 30 % for the four years period respectively. Figure (4.15) is a graphical presentation for the change in the average ROA and ROE for the four years under discussion. A cursory look to Figure (4.15) clearly shows that the average ROA is slightly declining through the four years periods. For instance it has a value of 1.38 %, 1.37 %, 1.16 % and 1.03 % for the four years respectively. The literature survey shows that an average value of 10 % can be generally considered as an acceptable standard for ROA (5). Hence, it is clearly obvious that the ROA of the selected companies is much smaller than what should be expected. For instance, A careful review to Table (4.12) clearly shows that only two companies reached this minimum goal in the first and the fourth years. This may be considered as a very bad indicator regarding the financial performance of these companies.

Now, let's refer to another important financial parameter, it is the matter of the return on equity (ROE). ROE relates the company's net profit to the company shareholder's equity. As can be seen in Figure (4.15), one can easily observe that the ROE has an average value of 5.47 %,5.25 %,6.20 % and 4.52 %. Keeping in mind that an average value of 15 % can be considered as an acceptable value (5). However, such acceptable value may vary from country to another according to the commonly used interest rate in the local market. It may be also affected by the degree of risk under the local market conditions. Generally, one can say that the calculated ROE for the selected companies is much smaller than that would be expected. For instance, a careful review to Table (4.12) clearly shows that the percentage of companies that could achieve the goal of the minimum accepted ROE was found to be 16.6 %, 18.75 %, 21.4 % and 8.3 % through the four years under discussion. Another thing shown rather clearly is that the calculated ROE has greater values than that of the calculated ROA. This may be attributed to the fact that the share of the stockholders equity within the total assets is much smaller than that of the external creditors. Hence, the company net profit seems to be relatively high when compared with the shareholders equity rather than the total assets.

Table (4.12) ROA and ROE

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Devloping Project		Average	Standard Deviation
2002	**ROA %**	0.3		1.47	0.01	0.81	11	-7.54	0.08	-4.01	7.5	0.44		1.99	4.41				1.38	4.8
	ROE %	4.17		4.45	0.01	1.71	32.5	-25.6	0.56	-10	29.6	4.44		11.2	12.6				5.47	15.58
2003	**ROA %**	0.68	0.94	0.76	-2.4	0.46	7.71	-4.4	0.11	3.81	7.57	-1.8	0.3	3.14	2.95	1.41	0.7		1.37	3.19
	ROE %	8.07	7.7	2.61	-2.4	1.04	30.3	-17	0.79	9.63	31.7	-22	0.9	18.7	8.65	2.01	3.39		5.25	13.96
2004	**ROA %**	0.02	1.02		-1.1	1.72	6.44	-5.4	0.03	2.27	7.65	-2.9	3.44	3.57	1.48	1.17	-2		1.16	3.37
	ROE %	0.2	7.82		-1.1	4.49	31	-26	0.1	4.44	36.6		7.85	27.5	3.89	1.58	-11		6.2	16.4
2005	**ROA %**	0.03	0.9	2.37	-1.6	2.61		-4.36		4.81	10.6	-4.99	0.83		2.7	-0.53	0.05		1.03	3.97
	ROE %	0.34	7.23	9.38	-1.64	6.84		-25.2		8.4	40.2		1.7		7.42	-0.73	0.3		4.52	14.53

Finally, it is safe to say that the two financial parameters ROA and ROE provide red flag regarding the financial performance of the selected companies. This may alleged to be a direct result for the greater debt burden of these companies. It may be also attributed to the great tendency to use greater portion of short term debt. This may increase the financial risk of the company. This may also indicate an obvious failure of these companies to use their debt finance effectively.

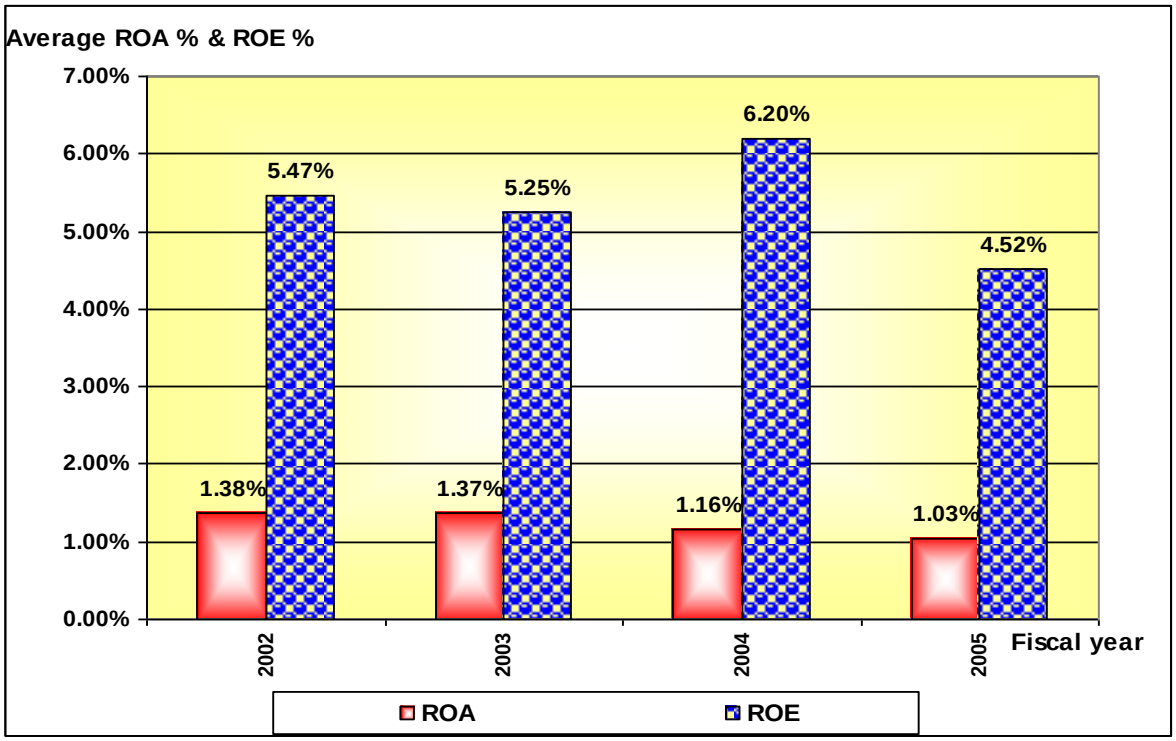

Fig. (4.15) : Average ROA and ROE

4.6 PREDICTING FINANCIAL DISTRESS (Z – SCORE MODEL)

The Altman – Z score model was employed to assess the credit-worthiness of the selected companies. Credit worthiness generally means the ability of these companies to repay the interest and principal of their loans. Here is a different approach for debt capacity evaluation that interweaves the effect of the different factors instead of investigating them on a stand-alone basis. Again, we should remember that the model identify the company as a highly candidate to face a financial distress based on a Z score smaller than 1.81 (21) & (33).

The range of Z between 1.81 and 2.67 is labeled the " grey area ". A company with a Z score greater than 2.67 is in the green area. The Z score model was used to check the financial stability of the selected companies through the four fiscal years under discussion. The detailed calculations are shown in the appendix at the end of this study. The results of such analysis are summarized in Table (4.13).

A careful review of Table (4.13) can easily confirm the results of the previous ratio analysis. For instance, for the first fiscal year 2002, four companies only were found to be in the green area, about 30 %. Contrarily, nine companies about 70 % are mostly candidates to face a financial distress. The same is also true for the other three years where the percentage of failed companies was found to be 81.25 %, 73.4 % and 76.9 %, respectively. Failed companies mean companies that are highly expected to face a financial distress. Another issue shown rather clearly is that the percentage of companies that lie within the green area is 12.5 %, 6.6 %, and 7.7 % for the three years 2003, 2004, and 2005, respectively. One can also see that a small portion of the companies located within the grey area at a percentage of 6.25 %, 20 % and 15.4 %, respectively. A graphical presentation of these results is shown in Figure (4.16). Finally, a closer inspection to Table (4.13) clearly indicates the gradual decline in the calculated Z score for the major portion of the selected companies, about 75%.

This can be considered as obvious evidence regarding the continuous deterioration in the financial status of these companies. These may also leave a great deal of doubt regarding the period of time through which these companies can survive in the construction market.

However, the results of such analysis may be attributed to the poor financial management of these companies. This can be shown in the form of a lower profitability, improper use of debt, especially short term debt, inadequate liquity, and insufficient assets' turnover. Finally, it is clearly discernable that the results of such analysis provide a red-light regarding the credit-worthiness of these companies.

Table (4.13) Altman Z - score model

Altman Z - score model

$$Z = 1.2 (X1) + 1.4 (X2) + 3.3 (X3) + 0.6 (X4) + 1.0 (X5)$$

Year	Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineering	Egyption Engineering for Developing Project
2002	**1.413**	**1.03**	**1**	**130.096**	**1.491**	**6.57**	**0.538**	**22.435**	**0.912**	**2.82**	**0.345**		**0.934**	1.064		
2003	**1.21**	**1.069**	**0.839**	**92.985**	**1.004**	**1.176**	**0.773**	**0.288**	**1.645**	**2.792**	**0.131**	**0.708**	**1.007**	1.045	2.262	0.298
2004	**1.052**	**1.116**		**39.775**	**0.952**	**2.064**	**0.544**	**0.368**	**1.395**	**2.621**	**-0.021**	**1.608**	**0.756**	1.031	2.202	0.171
2005	**0.594**	**0.601**	**0.58**	**8.8**	**1.049**		**0.477**		**2.08**	**1.117**	**-0.017**	**1.332**		1.168	1.907	0.536

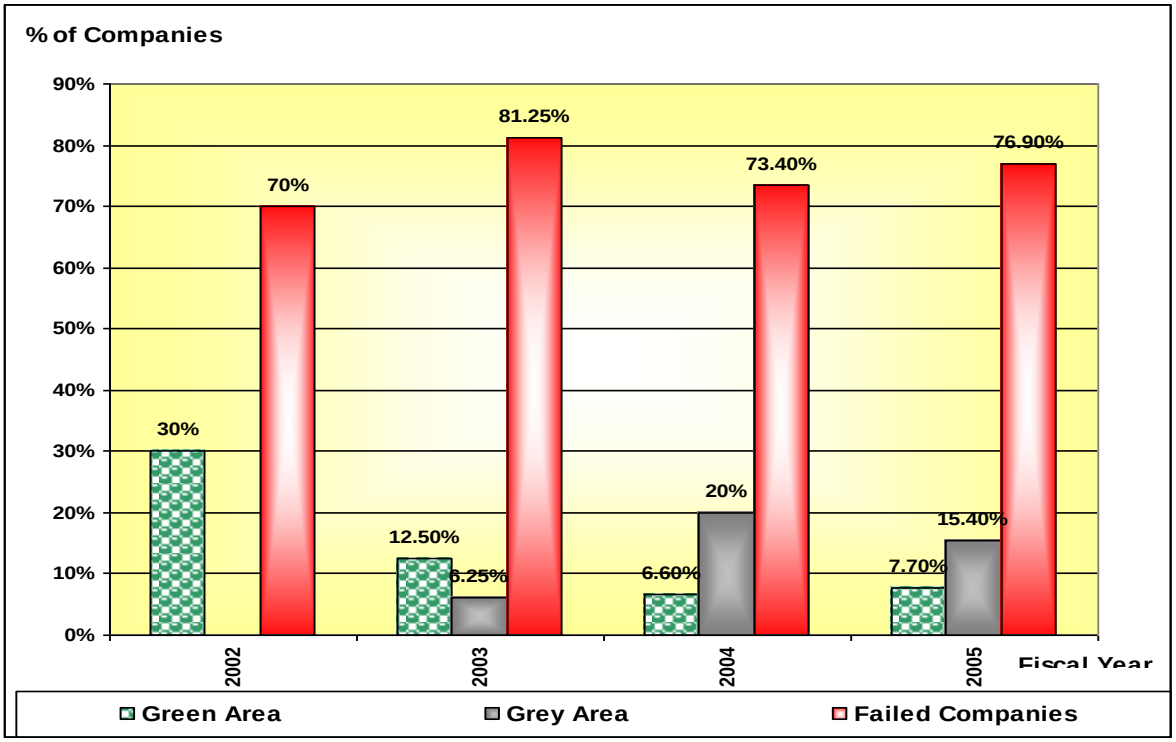

Fig. (4.16) : Results of Z-Score Analysis.

CHAPTER V

" SUMMARY, CONCLUSION AND RECOMMENDATIONS "

Chapter V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The total capital structure of any construction company can be generally financed through two main sources of capital; equity capital and debt capital. Each of the two sources has its own advantages and disadvantages that make the selection between the two sources a more difficult task. For instance, debt capital can be considered as the cheapest source of finance. On the other hand, too excessive debt capital than necessary can materially increase the financial risk of the company. Stated differently, a great debt burden may increase the probability that the company will be unable to meet its debt burden obligations. To elaborate more, the company may face a financial distress that makes it unable to re-pay its debt burden. Hence, it is safe to say that the company's ability to meet its debt burden obligations must be continuously evaluated. Moreover, the company must be sure that the debt financed portion of its capital structure can be effectively allocated.

The objective of this study is twofold. First, to check the ability of a selected sample of the Egyptian construction companies to meet their debt burden obligation. Second, to answer the important question of whether these companies can use their debt burden effectively or not. The fulfillment of this objective can easily pass through many important steps. First, a literature review for the different aspects regarding the company's capital structure was carried out. The advantages and disadvantages of the different sources of finance, some considerations regarding capital structure decision, and financial parameters that can be considered as the analytical tools for this study were the major areas investigated in such literature review.

In the second step, a suitable sample of construction companies in Egypt was selected as a test-bed for this study. The selected sample includes sixteen construction companies covering a suitable sector of the Egyptian construction companies. Pertinent financial data of these companies were collected using the available financial documents for the four fiscal years 2002, 2003, 2004, and 2005.

The analysis of data generally incorporates many relevant steps. A capital structure analysis was conducted to show the relative proportion that both equity and debt sources of capital are having within the total capital structure of these companies. The percentage of both short and long term debt were also identified. The suitable financial tools were employed to check the ability of the selected companies to successfully meet the financial obligations of their debt burden. The ability of these companies to allocate their debt capital effectively were also investigated. Finally, an important financial model named as Altman Z-score model was used to predict the probability that the selected companies can face the risk of financial distress and may fail to re-pay their debt burden.

5.2 CONCLUSION

On the light of the results obtained from the analysis of data, the following can be concluded:

1. Debt, external, source of finance was found to have the lion share within the total capital structure of the selected companies at an average percentage of 67.8 %, 68.4 %, 68.3 %, and 65.4 %, respectively, for four years 2002 - 2005. On the other hand, the average proportion of equity finance was found to be 32.2 %, 31.6 %, 31.7 %, and 34.6 %.

2. The proportion of short term debt was found to be excessively higher than that of the long term debt within the debt financed portion of the selected companies. For instance, the average percentage of short term debt was found to be 83.2 %, 85%, 85.2 % and 86.9 %. Contrarily, long term debt has a relative percentage of 16.8 %, 15%, 14.8 % and 13.1 %. This may provide an alarm-bell regarding the financial risk of these companies.

3. The results of the current and quick ratio calculations were found to be smaller than supposed to be for safety limits. This can be considered as a bad indicator regarding the ability of the selected companies to re-pay their debt burden, especially through the short period of time.

4. The results of the debt to equity ratio were found to be out of their appropriate safety limits. This may provide red flag regarding the adequacy of the company’s permenant capital to meet their debt burden. The same is also true for both the debt to assets ratio and the equity multiplier ratio.

5. The calculated return on equity and return on assets clearly indicates that the profitability of the selected companies is much smaller than that would be accepted. This may obviously indicate that the high debt burden of these companies is not effectively employed.

6. The results of the Altman Z-score model clearly show that the major portion of the selected companies are highly expected to face a financial distress and may fail to re-pay their debt burden. The percentages of these companies were found to be 70 %, 81.25 %, 73.4 %, and 76.9 % through the four years respectively.

5.3 RECOMMENDATIONS

In view of the previous analysis and conclusion, the following can be recommended:

1. The selected companies should attempt to gradually reduce their debt burden, especially short term debt. This should be virtually done by using a suitable source of internal finance. A new share issue isn't suggested since it may have a very bad effect under the present financial conditions.

2. The studied companies should attempt to maintain a balance between the use of short and long term debt to keep their financial risk at an appropriate level.

5.4 RECOMMENDATIONS FOR FUTURE RESEARCHES

1. The effect of the capital structure of these companies on their average cost of capital is highly recommended as an important area of considerable importance for future study.

2. More research should be carried out regarding the very low profitability of these companies. The main causes of such results should be deeply investigated.

3. The main causes that make these companies highly expected to face a financial distress can be considered as a good area for a more detailed inspection in a future study.

4. Finally, It is worthy of note that the selected companies in this study can't adequately represent the Egyptian construction companies. To increase confidence, more research works are recommended in this area using a suitable sample size. Such sample should cover a wide range of the different construction companies in Egypt.

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" APPENDIX A "

APPENDIX " A "

WACC Weighted Average Cost of Capital

CAPM Capital Asset Pricing Model

EBIT Earnings before Interest & Taxes

GAAP Generally Accepted Accounting Principles

SEC The Securities & Exchange Commission

AICPA American Institute of Certified Public Accountants

IASC International Accounting Standards Committee

FASB Financial Accounting Standards Board

CFMA Construction Financial Management Association

LBO Potential Leveraged Bay Out

CFO Chief Financial Officer

RONA Return on Net Assets

RF Risk-Free Rate of Return

FCC Fixed Charge Coverage

APT Arbitrage Pricing Theory

FSA Financial Services Authority

FIFO First IN, First Out

IPO Initial Public Offering

IRR International Rate of Return

AIM Alternative investment Market

TIE Times Interest Earned

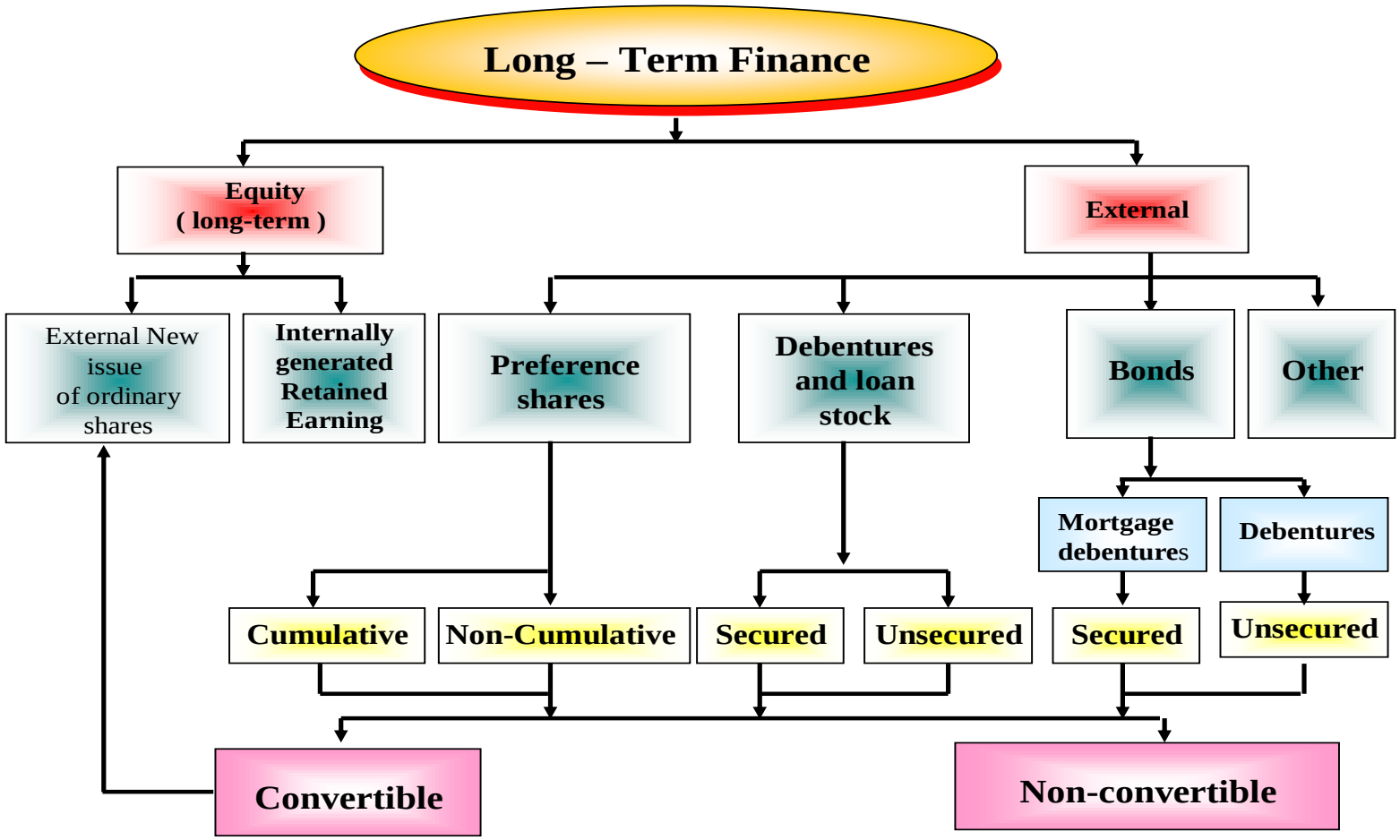

Fig. (A . 1) Long-term finance-capital structure

The capital structure of a company is the relationship between the different sources of its long-term finance.

Table (A . 1) Summary of financial parameters.

	Ratio	Ratio Symbol	Basic Computation	Equation Symbol
Profitability Ratios	**Net Profit Margin**		Net Income After Tax / Sales	N. I / S
	Basic Earning Power		Earning Before Interest and Taxes / Total Assets	EBIT / T. A
	Return On Assets	**ROA**	Net income after tax / T. Assets = N. I / Sales x Sale / T. Assets	N. I / T. A
	Return On Equity	**ROE**	Net Income after Tax / Common Equity = N. I / Sales X Sales / T. A X T. A / Equity = Margin Ratio X Assets Turn Over X Equity Multiplier	N. I / E
	Gross Profit Margin		(Sales – Cost of Goods Sold) / Sales = Gross Profit / Sales	
	Operating Profit Margin		Operating Profit / Sales	
Liquidty Rations	**Current ratio**		Current Assets / Current Liabilities	C. A / C. L
	Quick ratio		(Current Assets – Inventory) / Current Liabilities	
	Net Working Capital		= Current Assets - Current Liabilities	
Financing (Leverage)	**Debt Ratio**		Total Liabilities / Total Assets	T. L / T. A
	Debt equity ratio		Short Term + Long-Term Debt / Stockholders' Equity	
	Equity Multiplier		T. Assets / Equities	T. A / E
Marketing Ratios	**Earnings Per Share**	**EPS**	Net Income / Number of Shares Outstanding	
	Market-To-Book Ratio		Market Value Per Share / Book Value Per Share	
	Price / earning ratio	**P / E**	Market Price of Common Stock / Earnings Per Share	
	Retained Earning Ratio		R. Earning / N. I	
	Growth Rate		= R. E X ROE	

Table (A . 1) Summary of financial parameters.

	Ratio	Ratio Symbol	Basic Computation	Equation Symbol
Asset Management Ratio Working Capital Ratio Activity Ratios	**Inventory Turnover**		Cost of Goods Sold / Inventory	
	Fixed Assets Turnover		Sales / Fixed Assets	S / F. A
	Total Assets Turnover		Sales / Total Assets	S / T. A
	Receivables Turnover		Sales / Accounts Receivable	
	Average Collection Period		365 days / Receivables turnover	
	Average Payment Period		Account Payable / Average Purchases Per Day	
	Average Payment Period		Account Payable / Average Purchases / 365	

Where:

ROA = Return On Assets

ROE = Return On Equity

N. I = Net Income after Tax

T. A = Total Assets

T. L = Total Liabilities

C. A = Current Assets

T. L = Current Liabilities

F. A = Fixed Assets

S = Sales

E = Equities

D = Debt

EPIT = Earning Before Interest and Taxes

EPS =Earning Per Shares

Table (A . 2) Financial Ratios, 2002

	Yasmine Int'l for Trade & constructing	Fadco for nuvestment Projects	Giza General Constructing & Real Estate Investment	El-Nasr for Civil Works	El Nasr Utilities & Erection	Beheira Joint Stock	Mediterranean Constracting	Zahraa El-Maadi Investment & Development	Port Said Construction & Builiding Materials	Engineers & Constractors- Sami Saad & Co./ Samcrete-Egypt	Misr Development	Delta Construction & Development
Current Assets	101786	53786	234745	170011	118537	834314	38221	75352	17596	481583	264826	244820
Inventory	0	0	31804	17181	14286	53861	0	0	10669	317915	149	0
Long Term Assets	2426	2126	5154	5464	2106	198549	5630	178719	1131	146149	3205	89345
Total Assets	104212	55912	239899	175475	120643	1032863	43851	254071	18727	627732	268031	334165
Long Term Debt	50896	0	0	0	0	34890	0	5049	0	83324	0	97839
Current Liabilities	34860	158	21909	114158	80676	800302	29039	85215	11218	454247	189188	77390
Total Liabilities	85756	158	21909	114158	80676	835192	29039	90264	11218	537571	189188	175229
Capital	18000	50685	9000	20000	5000	60000	5000	50000	5000	85000	60000	151458
Shareholders Equity	18456	55754	19977	61318	39966	103259	14812	64333	7509	90161	78844	158936
Net Sales		1141	119613	46008	30962	249726	39568	23731	1236	93595	23377	
Cost of Sales		696	110034	39772	27324	226208	31938	5849	689	87564	20967	
Net Operating Profit	2065	445	9579	6236	3638	23518	7630	21380	547	6031	2410	431
Interest	0	0	156	0	752	1591	128	304	0	471	33	
Net Profit After Tax	2073	6	833	7738	1778	4589	4811	19043	-751	504	-20208	2718
Earnings Per Share												0.18
Efficiency Analysis												
Cost of Sales/ Net Sales (%)		61	92	86.4	88.3	90.6	80.7	24.6	55.7	93.6	89.7	
Total Asset Turnover (×)	0	0.02	0.5	0.26	0.26	0.24	0.9	0.09	0.07	0.15	0.09	0
Liquidity Analysis												
Current Ratio (×)	2.92		10.7	1.49	1.47	1.04	1.32	0.88	1.57	1.06	1.4	3.16
Quick Ratio (×)	2.92		9.26	1.34	1.29	0.98	1.32	0.88	0.62	0.36	1.4	3.16
Capital Structure Analysis												
Long-Term Liab./ Total Assets (%)	48.8	0	0	0	0	3.38	0	1.99	0	13.3	0	29.3
Short-Term Liab./ Total Assets (%)	33.5	0.28	9.13	65.1	66.9	77.5	66.2	33.5	59.9	72.4	70.6	23.2
Equity / Total Assets (%)	17.7	99.7	8.33	34.9	33.1	10	33.8	25.3	40.1	14.4	29.4	47.6
debt Analysis												
Debt Ratio (%)	82.3	0.28	9.13	65.1	66.9	80.9	66.2	35.5	59.9	85.6	70.6	52.4
Equity Multiplier (×)	5.65	1	12	2.86	3.02	10	2.96	3.95	2.49	6.96	3.4	2.1
Debt-to-Equity	4.65	0	1.1	1.86	2.02	8.09	1.96	1.4	1.49	5.96	3	1.1
Times Interest Coverage (×)			61.4		4.84	14.8	59.6	70.3		12.8	73	
Profitability Analysis												
Net Profit Margin (%)		0.53	0.7	16.8	5.74	1.84	12.2	80.2		0.54		
Operating Profit Margin (%)		39	8.01	13.6	11.7	9.42	19.3	90.1	44.3	6.44	10.3	
ROA (%)	1.99	0.01	0.35	4.41	1.47	0.44	11	7.5	-4.01	0.08	-7.54	0.81
ROE (%)	11.2	0.01	4.17	12.6	4.45	4.44	32.5	29.6	-10	0.56	-25.6	1.71
Basic Earning Power (%)	1.98	0.8	3.99	3.55	3.02	2.28	17.4	8.41	2.92	0.96	0.9	0.13

Table (A . 3) Financial Ratios, 2003

	Yasmine Int'l for Trade & constructing	El-Nasr for Civil Works	Alhalawani for Real Estate	El Nasr Utilities & Erection	Beheira Joint Stock	Egyption Engineering for Developing Projects	Giza General Constructing & Real Estate Investment	Developing Engineers	Fadco for nuvestment Projects	Mediterranean Constracting	Zahraa El-Maadi Investment & Development	Port Said Construction & Builiding Materials	Engineers & Constractors- Sami Saad & Co./ Samcrete-Egypt	Misr Developmemt	Delta Construction & Development	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim
Current Assets	108645	165204	302209	137227	752908	146585	232271	7083	50276	71429	80046	17102	532808	255239	230798	1317120
Inventory	0	17832	0	14381	54848	0	33595	0	0	0	1911	5308	393288	64865	0	1637115
Long Term Assets	2192	5559	179	2013	176690	109154	5051	979	353	8118	178121	1113	138613	3008	136281	77268
Total Assets	110837	170763	302388	139240	929598	255739	237322	8062	50629	79547	258167	18215	671421	258244	367076	1394388
Long Term Debt	58548	0	0	0	45027	80995	0	0	0	0	3366	0	72674	0	100636	0
Current Liabilities	33658	112396	200702	98523	754220	122250	215811	2396	220	59308	91776	10012	507866	190839	105836	1224007
Total Liabilities	92206	112396	200702	98523	799247	203245	215811	2396	220	59308	95142	10012	580540	190839	206472	1224007
Capital	18000	20000	100758	5000	60000	50000	9000	5000	50685	5000	50000	5000	85000	60000	151459	60000
Shareholders Equity	18631	58367	101686	40717	76592	52494	19904	5665	50409	20239	61584	7204	90880	67406	160608	170381
Net Sales		47404	14393	31465	159207	798	117979	1980	2323	45935	23416	7715	97040	56497		485702
Cost of Sales		40337	12555	28154	152901	164	110206	1749	1363	36608	6257	5094	819014	50046		440235
Net Operating Profit	3485	7067	1838	3311	6306	634	7773	231	960	9327	17159	2000	15136	6451	9986	45467
Interest	0	0	0	559	1708	0	108	0	0	92	411	0	67	0	0	0
Net Profit After Tax	3485	5046	918	1062	-16536	1781	1606	114	-1210	6133	19550	694	420	-11438	1672	13115
Earnings Per Share															0.11	
Efficiency Analysis																
Cost of Sales/ Net Sales (%)		85.1	87.2	89.5	96	20.6	93.4	88.3	58.7	79.7	26.7	65.4	84.4	88.6		90.6
Total Asset Turnover (×)	0	0.28	0.05	0.23	0.17	0	0.5	0.25	0.05	0.58	0.09	0.42	0.14	0.22	0	0.35
Liquidity Analysis																
Current Ratio (×)	3.23	1.47	1.51	1.39	1	1.2	1.08	2.96		1.2	0.87	1.71	1.05	1.34	2.18	1.08
Quick Ratio (×)	3.23	1.31	1.51	1.25	0.93	1.2	0.92	2.96		1.2	0.85	1.18	0.27	1	2.18	0.94
Capital Structure Analysis																
Long-Term Liab./ Total Assets (%)	52.8	0	0	0	4.84	31.7	0	0	0	0	1.3	0	10.8	0	27.4	0
Short-Term Liab./ Total Assets (%)	30.4	65.8	66.4	70.8	81.1	47.8	90.9	29.7	0.43	74.6	35.5	46	75.6	73.9	28.8	87.8
Equity / Total Assets (%)	16.8	34.2	33.6	29.2	8.24	20.5	8.39	70.3	99.6	25.4	23.9	39.5	13.5	26.1	43.8	12.2
debt Analysis																
Debt Ratio (%)	83.2	65.8	66.4	70.8	86	79.5	90.9	29.7	0.43	74.6	36.9	46	86.5	73.9	56.2	87.8
Equity Multiplier (×)	5.95	2.93	2.97	3.42	12.1	4.87	11.9	1.42	1	3.93	4.19	2.53	7.39	3.83	2.29	8.18
Debt-to-Equity	4.95	1.93	1.97	2.42	10.4	3.87	10.8	0.42	0	2.93	1.54	1.39	6.39	2.83	1.29	7.18
Times Interest Coverage (×)				5.92	3.69		72				41.7					
Profitability Analysis																
Net Profit Margin (%)		10.6	6.38	3.38	-10		1.36	5.76	-52	13.4	83.5	9	0.74	-20		2.7
Operating Profit Margin (%)		14.9	12.8	10.5	3.96	79.4	6.59	11.7	41.3	20.3	73.3	34.6	15.6	11.4		9.36
ROA (%)	3.14	2.95	0.3	0.76	-1.8	0.7	0.68	1.41	-2.4	7.71	7.57	3.81	0.11	-4.4	0.46	0.94
ROE (%)	18.7	8.65	0.9	2.61	-22	3.39	8.07	2.01	-2.4	30.3	31.7	9.63	0.79	-17	1.04	7.7
Basic Earning Power (%)	3.14	4.14	0.61	2.38	0.68	0.25	3.28	2.87	1.9	11.7	6.65	14.6	2.25	2.5	2.72	3.26

Table (A . 4) Financial Ratios, 2004

	Alhalawani for Real Estate	Egyption Engineering for Developing Projects	Yasmine Int'l for Trade & constructing	El-Nasr for Civil Works	Beheira Joint Stock	Giza General Constructing & Real Estate Investment	Developing Engineers	Fadco for nuvestment Projects	Mediterranean Constracting	Zahraa El-Maadi Investment & Development	Port Said Construction & Builiding Materials	Engineers & Constractors- Sami Saad & Co./ Samcrete-Egypt	Misr Development	Delta Construction & Development	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim
Current Assets	251588	155351	111129	136843	818000	247055	5764	50072	67606	87769	15644	731379	255675	262870	1453134
Inventory	0	0	0	17320	100448	37120	0	0	0	3708	89	585227	39025	0	168961
Long Term Assets	117	108969	34109	5278	179149	4839	2025	328	11790	212790	1113	232889	2441	176411	86736
Total Assets	251705	264320	145238	142121	997149	251894	7786	50400	79396	300559	16757	964268	258116	439281	1539870
Long Term Debt	0	89572	82119	0	37377	0	0	0	0	1683	0	53509	0	69497	0
Current Liabilities	141541	127621	44230	88125	822067	231684	2033	523	62884	98089	8172	605269	204573	200911	1339328
Total Liabilities	141541	217193	126346	88125	854444	231648	2033	523	62884	99772	8172	658778	204573	270408	1339328
Capital	100758	50000	18000	20000	60000	9000	5000	50685	10000	50000	5000	300000	60000	151458	60000
Shareholders Equity	110164	47147	18890	53996	60579	20170	5756	49877	16512	62766	8585	305490	53544	168514	200542
Net Sales	124493	561		32221	106159	119244	750	0	130172	37481	3393	120278	32787	109839	480002
Cost of Sales	115132	164		28634	123640	112483	697	0	121564	8469	1798	98154	28470	85556	432985
Net Operating Profit	9361	397	5093	3587	-17481	6761	53	0	8608	29012	1595	22124	4317	24283	47017
Interest	0	0	0	0	0	146	93	0	109	357	0	0	0	0	0
Net Profit After Tax	8647	-5348	5186	2100	-29217	40	91	-531	5111	22986	381	313	-13862	7565	15674
Earnings Per Share										4.5				0.5	
Efficiency Analysis															
Cost of Sales/ Net Sales (%)	92.5	29.2		88.9		94.3	92.9		93.4	22.6	53	81.6	86.8	77.9	90.2
Total Asset Turnover (×)	0.49	0	0	0.23	0.11	0.47	0.1	0	1.64	0.12	0.2	0.12	0.13	0.25	0.31
Liquidity Analysis															
Current Ratio (×)	1.78	1.22	2.51	1.55	1	1.07	2.84		1.08	0.89	1.91	1.21	1.25	1.31	1.08
Quick Ratio (×)	1.78	1.22	2.51	1.36	0.87	0.91	2.84		1.08	0.86	1.9	0.24	1.06	1.31	0.96
Capital Structure Analysis															
Long-Term Liab./ Total Assets (%)	0	33.9	56.5	0	3.75	0	0	0	0	0.56	0	5.55	0	15.8	0
Short-Term Liab./ Total Assets (%)	56.2	48.3	30.5	62	82.4	92	26.1	1.04	79.2	32.6	48.8	62.8	79.3	45.7	87
Equity / Total Assets (%)	43.8	17.8	13	38	6.08	8.01	73.9	99	20.8	20.9	51.2	31.7	20.7	38.4	13
debt Analysis															
Debt Ratio (%)	56.2	82.2	87	62	86.2	92	26.1	1.04	79.2	33.2	48.8	68.3	79.3	61.6	87
Equity Multiplier (×)	2.28	5.61	7.69	2.63	16.5	12.5	1.35	1.01	4.81	4.79	1.95	3.16	4.82	2.61	7.68
Debt-to-Equity	1.28	4.61	6.69	1.63	14.2	11.5	0.35	0.01	3.81	1.59	0.95	2.16	3.82	1.6	6.68
Times Interest Coverage (×)						46.3	0.57		79	81.3					
Profitability Analysis															
Net Profit Margin (%)	6.95			6.52	-28	0.03	12.1		3.93	61.3	11.2	0.26		6.89	3.27
Operating Profit Margin (%)	7.52	70.8		11.1	-16	5.67	7.07		6.61	77.4	47	18.4	13.2	22.1	9.8
ROA (%)	3.44	-2	3.57	1.48	-2.9	0.02	1.17	-1.1	6.44	7.65	2.27	0.03	-5.4	1.72	1.02
ROE (%)	7.85	-11	27.5	3.89		0.2	1.58	-1.1	31	36.6	4.44	0.1	-26	4.49	7.82
Basic Earning Power (%)	3.72	0.15	3.51	2.52	-1.8	2.68	0.68	0	10.8	9.65	9.52	2.29	1.67	5.53	3.05

Table (A . 5) Financial Ratios, 2005

	Alhalawani for Real Estate	El-Nasr for Civil Works	Upper Egypte Construction	El Nasr Utilities & Erection	Beheira Joint Stock	Egyption Engineering for Developing Projects	Giza General Constructing & Real Estate Investment	Developing Engineers	Fadco for nuvestment Projects	Zahraa El-Maadi Investment & Development	Egyptian for Contraction Development / Lift Slab Misr	Port Said Construction & Buiilding Materials	Misr Developmemt	Delta Construction & Development	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim
Current Assets	250562	136105	84743	142364	815363	223324	254506	6162	49774	132013	27920	15127	144456	297619	1533243
Inventory	0	17002	41922	16104	121599	0	28178	0	0	4854	2665	89	31844	0	173982
Long Term Assets	75	13170	4103	1832	136811	57013	3740	1820	627	266786	11592	1244	1466	176584	83388
Total Assets	250637	149275	88846	144196	952174	280337	258246	7982	50401	398799	39512	16371	245922	474203	1616631
Long Term Debt	0	0	39657	0	29491	105773	0	0	0	0	1199	0	0	70991	0
Current Liabilities	127883	94973	42692	107738	808495	128283	237897	2267	1330	89698	14381	6997	203321	221364	1414591
Total Liabilities	127883	94973	82349	107738	837986	234056	237897	2267	1330	89698	15580	6997	203321	292355	1414591
Capital	100758	20000	5000	5000	60000	50000	9000	5000	50685	50000	9000	5000	60000	151458	60000
Shareholders Equity	122754	54302	46154	36458	45627	46282	20281	5715	49071	104920	23933	9372	42600	180881	202040
Net Sales	55769	40233	18153	15361	63131	0	89191	45	0	63458	30133	6685	52164	59154	434888
Cost of Sales	52983	33552	15936	15547	80409	0	80175	46	0	10144	25169	4872	43410	27563	384813
Net Operating Profit	2786	6681	2217	-186	-17278	0	9016	-1	0	53314	4964	1813	8754	31591	50075
Interest	0	0	0	686	1657	0	224	10	0	1078	30	22	0	0	0
Net Profit After Tax	2091	4029	491	3419	47546	138	68	-42	-806	42154	1333	787	-10731	12367	14614
Earnings Per Share										8.4				0.82	
Efficiency Analysis															
Cost of Sales/ Net Sales (%)	95	83.4	87.8	101			89.9	102		16	83.5	72.9	83.2	46.6	88.5
Total Asset Turnover (×)	0.22	0.27	0.2	0.11	0.07	0	0.35	0.01	0	0.16	0.76	0.41	0.21	0.12	0.27
Liquidity Analysis															
Current Ratio (×)	1.96	1.43	1.98	1.32	1.01		1.07	2.72		1.47	1.94	2.16	1.2	1.34	1.08
Quick Ratio (×)	1.96	1.25	1	1.17	0.86		0.95	2.72		1.42	1.56	2.15	1.05	1.34	0.96
Capital Structure Analysis															
Long-Term Liab./ Total Assets (%)	0	0	44.6	0	3.1	37.7	0	0	0	0	3.03	0	0	15	0
Short-Term Liab./ Total Assets (%)	51	63.6	48.1	74.7	84.9	45.8	92.1	28.4	2.64	22.5	36.4	42.7	82.7	46.7	87.5
Equity / Total Assets (%)	49	36.4	51.9	25.3	4.79	16.5	7.85	71.6	97.4	26.3	60.6	57.2	17.3	38.1	12.5
debt Analysis															
Debt Ratio (%)	51	63.6	92.7	74.7	88	83.5	92.1	28.4	2.64	22.5	39.4	42.7	82.7	61.7	87.5
Equity Multiplier (×)	2.04	2.75	1.92	3.96	20.9	6.06	12.7	1.4	1.03	3.8	1.65	1.75	5.77	2.62	8
Debt-to-Equity	1.04	1.75	1.78	2.96	18.4	5.06	11.7	0.4	0.03	0.85	0.65	0.75	4.77	1.62	7
Times Interest Coverage (×)							40.3			49.5		82.4			
Profitability Analysis															
Net Profit Margin (%)	3.75	10	2.7	22.3	75.3		0.08			66.4	4.42	11.8	-21	20.9	3.36
Operating Profit Margin (%)	5	16.6	12.2	-1.2	-27		10.1	-2.2		84	16.5	27.1	16.8	53.4	11.5
ROA (%)	0.83	2.7	0.55	2.37	4.99	0.05	0.03	-0.5	-1.6	10.6	3.37	4.81	-4.4	2.61	0.9
ROE (%)	1.7	7.42	1.06	9.38		0.3	0.34	-0.7	-1.6	40.2	5.57	8.4	-25	6.84	7.23
Basic Earning Power (%)	1.11	4.48	2.5	-0.1	-1.8	0	3.49	-0	0	13.4	12.6	11.1	3.56	6.66	3.1

Table (A . 6) Altman Z - score model 2002

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works
1	Net Working Capital	**17075**	**102526**	**37861**	**53628**	**167431**	**9182**	**75638**	**3821**	**6378**	**-9863**	**34012**	**66926**	55853
2	Total Assets	**241785**	**1240593**	**120643**	**55912**	**334164**	**43851**	**268031**	**9606**	**18727**	**254071**	**1032863**	**104212**	17547
3	Retained Earnings	**2789**	**28782**	**1778**	**6**	**2718**	**4811**	**-20208**	**478**	**751**	**0**	**4589**	**0**	0
4	EBIT	**4132**	**36222**	**1778**	**6**	**-6341**	**4811**	**-20208**	**447**	**-751**	**19043**	**4589**	**2073**	7738
5	Market Value of Equity	**8496**	**126120**	**40000**	**33950**	**209469**	**5250**	**147150**	**92694**	**9600**	**380000**	**60000**	**14000**	52160
6	Book Value of Total Liabilities	**219043**	**1093210**	**80676**	**158**	**175228**	**29039**	**189188**	**2622**	**11218**	**90264**	**835192**	**85756**	11415
7	Sales	**297900**	**909355**	**30962**	**1141**	**75806**	**249726**	**23377**	**5027**	**1236**	**23731**	**249726**	**0**	46008
X1 = (1 / 2)		**0.070621**	**0.082643**	**0.313827**	**0.95915**	**0.501044**	**0.209391**	**0.282199**	**0.397772**	**0.340578**	**-0.03882**	**0.03293**	**0.64221**	**0.3182**
X2 = (3 / 2)		**0.011535**	**0.0232**	**0.014738**	**0.000107**	**0.008134**	**0.109712**	**-0.07539**	**0.049761**	**0.040103**	**0**	**0.004443**	**0**	**0**
X3 = (4 / 2)		**0.01709**	**0.029197**	**0.014738**	**0.000107**	**-0.01898**	**0.109712**	**-0.07539**	**0.046533**	**-0.0401**	**0.074951**	**0.004443**	**0.019892**	**0.0440**
X4 = (5 / 6)		**0.038787**	**0.115367**	**0.49581**	**214.8734**	**1.195408**	**0.180791**	**0.777798**	**35.3524**	**0.855768**	**4.209873**	**0.07184**	**0.163254**	**0.4569**
X5 = (7 / 2)		**1.232086**	**0.733**	**0.256641**	**0.020407**	**0.226853**	**5.694876**	**0.087218**	**0.523319**	**0.066001**	**0.093403**	**0.24178**	**0**	**0.2621**
Z = 1.2 (X1) + 1.4 (X2) + 3.3 (X3) + 0.6 (X4) + 1.0 (X5)		**1.412648**	**1.030223**	**0.999987**	**130.0959**	**1.494118**	**6.570268**	**0.538182**	**22.43531**	**0.91196**	**2.820083**	**0.345282**	**0.934249**	**1.0638**

Table (A . 7) Altman Z - score model 2003

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineers	Egyption Engineering for Developing Projects
1	Net Working Capital	**16230**	**77418**	**38704**	**50056**	**103962**	**12121**	**64400**	**24942**	**7090**	**11730**	**-1312**	**101507**	**74987**	52808	4687	24335
2	Total Assets	**224558**	**1245647**	**139240**	**50629**	**398879**	**79547**	**258244**	**671421**	**18215**	**258167**	**929598**	**302288**	**110837**	170763	8062	255739
3	Retained Earnings	**1070**	**38906**	**1062**	**-1210**	**1672**	**6133**	**-11438**	**684**	**694**	**0**	**-16536**	**918**	**0**	0	114	1781
4	EBIT	**-331**	**42906**	**1062**	**-1210**	**1686**	**6133**	**-11438**	**420**	**694**	**19550**	**-16536**	**918**	**3485**	5046	114	1781
5	Market Value of Equity	**8046**	**159000**	**40000**	**33684**	**209469**	**5250**	**147150**	**92694**	**9600**	**380000**	**60000**	**81279**	**14000**	55880	5000	50000
6	Book Value of Total Liabilities	**203488**	**1088380**	**98523**	**220**	**238272**	**59308**	**190839**	**580540**	**10012**	**95142**	**799247**	**200702**	**92206**	112396	2396	203245
7	Sales	**246448**	**933728**	**31465**	**2323**	**57429**	**45935**	**56497**	**97040**	**7715**	**23416**	**159207**	**14393**		47404	1980	798
X1 = (1 / 2)		**0.07228**	**0.06215**	**0.27797**	**0.98868**	**0.26064**	**0.15238**	**0.24938**	**0.03715**	**0.38924**	**0.04544**	**-0.0014**	**0.3358**	**0.67655**	**0.30925**	**0.58137**	**0.09516**
X2 = (3 / 2)		**0.00476**	**0.03123**	**0.00763**	**-0.0239**	**0.00419**	**0.0771**	**-0.0443**	**0.00102**	**0.0381**	**0**	**-0.0178**	**0.00304**	**0**	**0**	**0.01414**	**0.00696**
X3 = (4 / 2)		**-0.0015**	**0.03444**	**0.00763**	**-0.0239**	**0.00423**	**0.0771**	**-0.0443**	**0.00063**	**0.0381**	**0.07573**	**-0.0178**	**0.00304**	**0.03144**	**0.02955**	**0.01414**	**0.00696**
X4 = (5 / 6)		**0.03954**	**0.14609**	**0.406**	**153.109**	**0.87912**	**0.08852**	**0.77107**	**0.15967**	**0.95885**	**3.99403**	**0.07507**	**0.40497**	**0.15183**	**0.49717**	**2.08681**	**0.24601**
X5 = (7 / 2)		**1.09748**	**0.74959**	**0.22598**	**0.04588**	**0.14398**	**0.57746**	**0.21877**	**0.14453**	**0.42355**	**0.0907**	**0.17126**	**0.04761**	**0**	**0.2776**	**0.2456**	**0.00312**
Z = 1.2 (X1) + 1.4 (X2) + 3.3 (X3) + 0.6 (X4) + 1.0 (X5)		**1.20974**	**1.06922**	**0.83898**	**92.9854**	**1.00403**	**1.17579**	**0.7725**	**0.2884**	**1.64502**	**2.79154**	**0.13101**	**0.70783**	**1.00672**	**1.04451**	**2.26179**	**0.29764**

Table (A . 8) Altman Z - score model 2004

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	Fadco for Investment Projects	Delta Construction & Development	Mediterranean Constructing	Misr Development	Engineers & Constractors-Sami Saad & Co. Samcrete-Egypt	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	Yasmine Int'l for Trade & Constructing	El-Nasr for Civil Works	Developing Engineers	Egyption Engineering for Developing Projects
1	Net Working Capital	**16024**	**97033**	**49549**	**63119**	**4722**	**51102**	**126110**	**7472**	**-10320**	**4067**	**110047**	**66899**	48718	3731	27730
2	Total Assets	**236807**	**1352846**	**50400**	**438921**	**79396**	**258116**	**964268**	**16757**	**300559**	**997149**	**251705**	**145238**	142121	7786	264320
3	Retained Earnings	**840**	**31849**	**-531**	**2253**	**5111**	**-13862**	**297**	**381**	**0**	**-29217**	**8647**	**0**	0	91	-5348
4	EBIT	**-955**	**39846**	**-531**	**7544**	**5111**	**-13862**	**313**	**381**	**22986**	**-39217**	**8647**	**5186**	2100	91	-5348
5	Market Value of Equity	**7740**	**215280**	**33685**	**209469**	**5250**	**147150**	**92694**	**7500**	**380000**	**54600**	**100758**	**18000**	50520	5000	50000
6	Book Value of Total Liabilities	**215842**	**1166452**	**523**	**270408**	**62884**	**204573**	**658778**	**8172**	**99772**	**854444**	**141541**	**126346**	88125	2033	217193
7	Sales	**226861**	**1067934**		**109839**	**130172**	**32787**	**120278**	**3393**	**37481**	**106159**	**124493**		32221	750	561
X1 = (1 / 2)		**0.06767**	**0.07173**	**0.98312**	**0.1438**	**0.05947**	**0.19798**	**0.13078**	**0.4459**	**-0.0343**	**0.00408**	**0.43721**	**0.46062**	**0.34279**	**0.47919**	**0.10491**
X2 = (3 / 2)		**0.00355**	**0.02354**	**-0.0105**	**0.00513**	**0.06437**	**-0.0537**	**0.00031**	**0.02274**	**0**	**-0.0293**	**0.03435**	**0**	**0**	**0.01169**	**-0.0202**
X3 = (4 / 2)		**-0.004**	**0.02945**	**-0.0105**	**0.01719**	**0.06437**	**-0.0537**	**0.00032**	**0.0227**	**0.07648**	**-0.0393**	**0.03435**	**0.03571**	**0.01478**	**0.01169**	**-0.0202**
X4 = (5 / 6)		**0.03586**	**0.18456**	**64.4073**	**0.77464**	**0.08349**	**0.7193**	**0.14071**	**0.91777**	**3.80868**	**0.0639**	**0.71186**	**0.14247**	**0.57328**	**2.45942**	**0.23021**
X5 = (7 / 2)		**0.958**	**0.7894**	**0**	**0.25025**	**1.63953**	**0.12702**	**0.12474**	**0.20248**	**0.1247**	**0.10646**	**0.4946**	**0**	**0.22672**	**0.09633**	**0.00212**
Z = 1.2 (X1) + 1.4 (X2) + 3.3 (X3) + 0.6 (X4) + 1.0 (X5)		**1.05237**	**1.11636**	**39.7746**	**0.9515**	**2.06355**	**0.54377**	**0.3676**	**1.39509**	**2.62109**	**-0.0211**	**1.60783**	**0.75605**	**1.03079**	**2.20194**	**0.17105**

Table (A . 9) Altman Z - score model 2005

		Giza General Constructing & Real Estate Investment	Soc. Egypt. D'Entreprises / Mokhtar Ibrahim	El Nasr Utilities & Erection	Fadco for Investment Projects	Delta Construction & Development	Misr Development	Port Said Construction & Building Materials	Zahraa El-Maadi Investment & Development	Beheira Joint Stock	Alhalawani for Real Estate	El-Nasr for Civil Works	Developing Engineers	Egyption Engineering for Developing Projects
1	Net Working Capital	**16609**	**118652**	**34626**	**48444**	**76255**	**-58865**	**8130**	**42315**	**6868**	**122883**	41132	3895	95041
2	Total Assets	**258246**	**1616631**	**144196**	**50401**	**474203**	**245922**	**16371**	**398799**	**952174**	**250637**	149275	7982	280337
3	Retained Earnings	**68**	**0**	**-3419**	**-806**	**12367**		**787**	**42154**	**-47546**	**2091**	0	-42	138
4	EBIT	**9016**	**50075**	**-186**	**0**	**31591**	**8754**	**1813**	**53314**	**-17278**	**2786**	6681	-1	0
5	Market Value of Equity	**22176**	**334560**	**40000**	**17000**	**231277**	**147150**	**7500**	**36100**	**52860**	**100758**	66520	5000	50000
6	Book Value of Total Liabilities	**237897**	**1414591**	**107738**	**1330**	**292355**	**203321**	**6997**	**89698**	**837986**	**127883**	94973	2267	234056
7	Sales	**89191**	**434888**	**15361**	**0**	**59154**	**52164**	**6685**	**63458**	**63131**	**55769**	40233	45	0
X1 = (1 / 2)		**0.064315**	**0.073395**	**0.240131**	**0.961171**	**0.160807**	**-0.23936**	**0.49661**	**0.106106**	**0.007213**	**0.490283**	**0.275545**	**0.487973**	**0.339024**
X2 = (3 / 2)		**0.000263**	**0**	**-0.02371**	**-0.01599**	**0.02608**	**0**	**0.048073**	**0.105702**	**-0.04993**	**0.008343**	**0**	**-0.00526**	**0.000492**
X3 = (4 / 2)		**0.034912**	**0.030975**	**-0.00129**	**0**	**0.066619**	**0.035597**	**0.1107**	**0.133686**	**-0.01815**	**0.011116**	**0.044756**	**-0.00013**	**0**
X4 = (5 / 6)		**0.093217**	**0.236507**	**0.371271**	**12.78195**	**0.791083**	**0.723732**	**1.071888**	**0.402462**	**0.06308**	**0.787892**	**0.70041**	**2.205558**	**0.213624**
X5 = (7 / 2)		**0.345372**	**0.269009**	**0.106529**	**0**	**0.124744**	**0.212116**	**0.408344**	**0.159123**	**0.066302**	**0.222509**	**0.269523**	**0.005638**	**0**
Z = 1.2 (X1) + 1.4 (X2) + 3.3 (X3) + 0.6 (X4) + 1.0 (X5)		**0.59406**	**0.601203**	**0.579997**	**8.80019**	**1.048716**	**0.476587**	**2.080168**	**1.117075**	**-0.01698**	**1.331945**	**1.168118**	**1.90676**	**0.535693**

ملخص عربى

يمكن بصفة عامة تمويل أى شركة من خلال الملكية أو بالديون ، وكل منهما له مزاياه وعيوبه مما يجعل من الصعب الإختيار بينهما **0** فعلى سبيل المثال يعتبر هيكل الديون أرخص مصادر التمويل فى حين أن الإفراط فيه أكثر من اللازم يمكن أن يتسبب فى زيادة المخاطر المالية للشركة **0**

نحاول من خلال هذه الدراسة تحقيق هدفين رئيسيين :

أولهما هو قدرة مجموعة مختارة من شركات الإنشاءات والتشييد المصرية على التمشى والتوافق مع سياسة الديون ، والثانى هو الإجابة على سؤال هام يتمثل فى مدى قدرة هذه الشركات على إستخدام هذه الديون بشكل فعال **0**

ويمكن التوصل إلى هذا الهدف بقدر من السهولة من خلال الخطوات التالية :

1 – إجراء مراجعة تشمل كافة النواحى الخاصة بحماية الهيكل التمويلى للشركة **0** المزايا والعيوب الخاصة بمختلف المصادر المالية ، بعض الإعتبارات الخاصة بقرارات الهيكل التمويلى والمقاييس المالية التى يمكن إعتبارها أدوات تحليلية لهذه الدراسة **0**

2 – تم إختيار مجموعة مناسبة من شركات الإنشاءات فى مصر كعينة إختبار لهذه الدراسة **0** تم تجميع المعلومات المالية لهذه الشركات من واقع المراجع المالية المتاحة للسنوات الأربعة **2002** ، **2003** ، **2004** و **2005** م **0**

3 – تمت عملية تحليل الهيكل التمويلى لبيان الجوانب المختلفة لمصادر الملكية ومصادر الديون وذلك من خلال الهيكل التمويلى لهذه الشركات **0** كما تم توضيح النسب المئوية للديون طويلة الأجل وقصيرة الأجل **0**

وأخيرا : تم إستخدام نموذج مالى هام أطلق عليه أو سمى (Altman Z – score Model) للتنبؤ بقدرة الشركات المختارة على مواجهة المخاطر المالية وإحتمال فشلها فى تسديد ديونها **0**

مع بحث فرضية أنه : ينبغى على الشركات المختارة أن تحاول تدريجيا تخفيض أعباء ديونها من خلال مصدر تمويل داخلى مناسب **0** وعليها أن تحاول الإحتفاظ بالتوازن بين إستخدام الديون قصيرة الأجل والديون طويلة الأجل **0 0**

الأكاديمية العربية للعلوم والتكنولوجيا والنقل البحرى

كلية الهندسة والتكنولوجيا

DEBT CAPACITY OF CONSTRUCTION COMPANIES IN EGYPT

مقدمه

أشرف محمد صبرى محمد محمد

(بكالوريوس الهندسة المدنية 1985 م جامعة عين شمس)
(بكالوريوس الدراسات التجارية والتمويل 2004 م جامعة القاهرة)

رسالة مقدمة للحصول على
درجة الماجستير فى
هندسة التشييد وإدارة المشروعات

أ 0 د 0 محمد إمام عبد الرازق مشرف رئيس قسم هندسة التشييد والبناء بالأكاديمية البحرية فرع القاهرة	**د 0 حسام الدين حسنى محمد** مشرف مدرس بقسم هندسة التشييد جامعة الزقازيق
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أ 0 د 0 ممتحن	**أ 0 د 0** ممتحن
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نوفمبر 2007