

## 4. FINANCIAL CAPABILITY ANALYSIS

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## 4.1 INTRODUCTION

FAA AMS requires that awards be made to responsible contractors only (FAA AMS 3.2.2.7.2). A criterion for responsibility is that the contractor has adequate financial resources to perform the contract. SF 1407, Pre-Award Survey of Prospective Contractor Financial Capability (Appendix 4F), or an equivalent, should be completed during the Screening Information Request (SIR) process. This form summarizes contractor financial data and the conclusions found during the analysis. This chapter will explain the process to be taken during the analysis, and provide the analyst with a sound interpretation to determine financial responsibility.

Financial capability analysis is used during source selections and contract performance to determine if a company has sufficient financial resources to successfully perform on a contract. This type of analysis focuses both on the impact a given contract will have on a company's future and on how future company financial performance will affect performance on the contract under consideration. For instance, does the company have sufficient cash to support subcontractors? Will it be able to finish a long-term, high-risk project? Will the company's financial philosophy and practices be affected by changes in the political environment?

Financial capability analysis provides an understanding of a company's motivations, constraints on performance, and operational cash requirements during the contract period and may be a decisive factor in awarding contracts to small businesses. This chapter discusses the techniques of financial capability analysis and provides examples of supplementary data that are often used by analysts when evaluating a company's financial capability.

## 4.2 TYPES OF FINANCIAL STATEMENTS

In the process of financial capability analysis, a great variety of formal and informal data are normally reviewed and tested for their relevance to the specific purpose of the analysis. The most common form of basic financial information that is available for publicly held companies is the set of financial statements issued under guidelines of the Financial Accounting Standards Board (FASB) of the public accounting profession and governed by the U.S. Securities and Exchange Commission (SEC). These statements, prepared according to Generally Accepted Accounting Principles (GAAP), usually include balance sheets, income statements, and cash flow statements.

**Generally Accepted Accounting Principles (GAAP)** are the common set of standards and procedures by which audited financial statements are prepared.

To obtain a good representation of a company's performance, the analyst needs to focus on the firm's past and current financial statements. These statements report the results of financing, investing, and operating activities and serve as a basis for assessing the success of corporate strategies. These statements also show important elements such as changes in sales, inventory, and expenses over the years and also levels of accounts receivable, fixed assets, and debt.

Because financial statements are the basis for much of the analytical effort, their nature, coverage, and limitations must first be understood before the analyst can use the data and observations derived from these statements for analytical judgments.

#### 4.2.1 The Balance Sheet

The balance sheet is a snapshot of the firm. It is a convenient means of organizing and summarizing what a firm owns (assets), what a firm owes (its liabilities), and the difference between the two (equity) at a given point in time. The balance sheet reflects conditions as of the date chosen for reporting purposes. These balance sheet accounts also represent the cumulative effects of all decisions and transactions that have taken place since the inception of the business. See Appendix 4A for a balance sheet example.

Financial accounting rules require that all transactions be recorded at cost and retroactive adjustments to recorded values are made only in limited circumstances. As a consequence, balance sheets display assets and liabilities, acquired or incurred at

**Historical cost** is the amount of cash payment (or cash equivalent value of other forms of payment) made in acquiring an asset.

**Market value** is the amount the transaction will cost or the asset is worth if sold today.

different times, at the historical cost. Because the market value of assets can change, particularly in the case of longer-lived items, the costs stated on the balance sheet probably do not reflect the market value.

Some additional points regarding the balance sheet are worth noting. It is important to recognize the difference between cash and other assets. All the assets on the balance sheet are stated in terms of dollars, but only cash represents actual money. Cash is considered a current asset because it is ready immediately for payment of goods and services. The other assets listed as current on the balance sheet represent accounts that can be converted to cash quickly, usually within one year. All other assets listed on the balance sheet are considered noncash assets because they are not expected to be converted to cash within the period of one year from the date on the balance sheet.



### 4.2.2 The Income Statement

The income statement measures the results of the operating activities of a business for a specified period of time, usually one year. Simplistically represented, it is  $\text{Revenues} - \text{Expenses} = \text{Net Income}$ . It reflects the effect of management's operating decisions, as well as externalities beyond management's control, such as: changes in market demand, changes in material prices etc., and the impact these have on business performance. The income statement is presented in such a way that allows the analyst to examine profits or losses after each expense item has been deducted.

An income statement that has been prepared using GAAP will show revenue when it accrues. This may differ from the time that revenue is actually collected. Financial managers have several options when it comes to revenue recognition. However, regardless of the method used, GAAP must be followed. A company can choose to recognize revenue and expenses at different times, varying year to year results. However, when aggregated, the net effect is zero. A sample income statement is included as Appendix 4B.

### 4.2.3 The Statement of Cash Flows

The statement of cash flows summarizes the firm's sources and uses of cash over a specified period. This statement captures both the current operating results and the accompanying changes in the balance sheet. It gives the analyst a dynamic picture of the ultimate changes in cash relating to operating, investing and financing activities for a given period of time. An example is included as Appendix 4C. The statement of cash flows explains the change in cash between the beginning and end of the accounting period. Because it also explains the major investing and financing activities of the period, it helps explain changes in various items on the balance sheet. The statement of cash flows also relates to the income statement in that it shows how operations affected cash during the period.

Analyzing a contractor's cash flows is important because cash is often necessary to pay subcontractors or to maintain operations. As a result, analysts must examine and understand the difference between the accrual income reported on the income statement and the related cash flow from revenues and expenditures. Over the life of a company, in any particular year cash inflows and outflows may deviate from accruals on the income statement by a wide margin. Over a period of several years a cash-based income statement should begin to approach the true income generated by the firm. The analyst must consider a series of annual flows to obtain a meaningful image of how the firm is operating. If a firm cannot generate cash in sufficient amounts and at the right times, it faces financial difficulty and even bankruptcy! Since financ-

ing cash flows are not an indefinite source of funds, the firm must generate cash internally from operations to grow and to stay financially responsible.

The analysis and interpretation of a statement of cash flows centers on the basic question of what sources and uses of cash are likely to recur in the future. The statement of cash flows, like the balance sheet and the income statement, is historical in focus, but the analyst must attempt to use this data to predict the future cash flows of the company. Analysis of any statement of cash flows should focus on the current and projected adequacy of the **Cash Flow from Operations (CFO)**, as this is the one cash source that the firm must ultimately use to repay the principal and interest of a loan or dividends on an equity investment. A second objective should be the identification of the actual **free cash flow** for the current period and a projection of the expected future recurring free cash flows.

The first step in any cash flow analysis should involve a comparison of the CFO with the net income for the same period. The CFO is effectively a measure of the accrual net income of a company on a cash basis. This measure is of significance not only because of its relationship to dividend and debt payments, but also because it is a relatively invariant measure, far less easily manipulated by a company's executives. The CFO is a complex number and deserves detailed analysis because it can substantially differ from accrual net income.

**CFO** is the cash generated by the company's primary business, regardless of investing or financing activities.

**Free cash flow** is the firm's operating cash flows minus mandatory equity investment requirements (dividends).

After comparing CFO to net income, the analyst must relate the past, as reflected in the historical statement of cash flows, to expectations regarding the future. Some very simple rules, coupled with these classifications, can make cash flow analysis relatively straight-forward:

- Long-term cash sources should be used to fund long-term cash uses. In general, the term of cash sources should always exceed the term for the cash uses.
- Long-term cash sources may be used to fund short-term cash uses; however, short-term cash sources should never be used to fund long-term cash uses.
- Recurring cash sources should be used to fund recurring uses.
- Recurring cash sources may be used to fund nonrecurring uses; but nonrecurring sources should never be used to fund recurring uses.

These rules follow sound business logic. If, for instance, operations is truly the only source of cash flow to draw upon for loan or investment repayment, then operations must occur before payback can take place. If a company fails to follow the above rules, it may lead to a situation in which operations will be inadequate to generate needed cash flows on a timely basis, thus necessitating the acquisition of cash from other sources (e.g., investors, creditors, or via asset sale). The analyst's objective is to determine whether a firm follows these rules; and if the firm does not, estimate the impact of the risk on the firm's financial stability.

### 4.3 FINANCIAL STATEMENT REVIEW USING RATIO ANALYSIS

Although a glance at the financial statements may highlight areas of concern, it is often difficult to interpret all of the information presented on these statements. For example, knowing that there is a large amount of inventory in the warehouse is not as helpful as knowing how quickly the company is turning over its inventory compared to others in the industry (i.e., use of the inventory turnover ratio). Ratios have been developed to provide a comprehensive way to absorb the data disclosed on financial statements. Ratios, in general, involve a process of standardization. Ratios measure a firm's crucial relationships by relating inputs (costs) with outputs (benefits) and facilitate comparisons of these relationships over time and across firms. Traditional ratio analysis provides insightful information to the analyst by summarizing data from financial statements and placing it into an easily understood format.

The easiest job the analyst will have is calculating the ratios. The availability of financial analysis packages and computerized databases permit the analyst to do much of the analytical work on the computer. The important and challenging part of the analysis is the interpretation of the results. These interpretations require the analyst to understand the reason for the analysis, to identify the current conditions facing the industry, and to understand the important accounting principles underlying the financial statements.

The analyst can perform two different forms of ratio analysis: time-series analysis (comparing ratios for the same firm over time) and cross-section analysis (comparing ratios for the same period with other firms in the industry). A time series analysis of a particular firm's financial statement ratios permits a historical tracking of the trends and variability in the ratios over time. The analyst can study the impact of economic conditions (i.e., recession or inflation), industry conditions (e.g., shift in regulatory status, new technology), and firm-specific conditions (e.g., shift in corporate strategy, new management) on the time pattern of these ratios.



Using cross-sectional analysis, the analyst can make comparisons between the contractor being analyzed and other related firms. The analyst needs to be very selective when identifying the firms with which to compare. The analyst should select firms with similar products, strategies, and size. Also, the analyst must keep in mind differences in accounting methods, operations, financing, etc. Since this is often difficult, a common approach is to use average industry ratios as benchmarks.

Industry norms may be calculated directly through the use of computerized databases such as Standard & Poor's CompuStat Database (<http://mi.compustat.com/>) and D&B reports. Alternatively, industry profiles are available from sources such as Robert Morris Associates (RMA) and Dun & Bradstreet (D&B) and Gale Industrial Handbook. These sources provide common-size balance sheets, income statements, and selected ratios on an industry and company basis.

The broad categories of analysis that measure such relationships are listed below:

- **Liquidity Analysis** measures the adequacy of a firm's cash resources to meet its near-term cash obligations.

⇒ Ratios:

- Current Ratio
- Quick Ratio
- Cash Ratio
- Cash Flow From Operations Ratio
- Defensive Interval
- Net Working Capital to Total Assets Ratio

- **Asset Utilization Analysis** evaluates the levels of output generated by the assets employed by the firm.

⇒ Ratios:

- Total Asset Turnover Ratio
- Fixed Assets Turnover Ratio
- Inventory Turnover Ratio
- Average Number of days inventory in stock
- Receivables Turnover Ratio
- Average Number of days Receivables are outstanding

- **Profitability Analysis** measures the net income of the firm relative to its revenues and capital investments.

⇒ Ratios:

- Gross Profit Margin Ratio
- Net Profit Margin Ratio
- Pre-tax Margin Ratio
- Basic Earning Power Ratio
- Return on Assets Ratio
- Return on Equity Ratio

- **Debt Utilization Analysis** examines the firm's capital structure in terms of the mix of its financing sources and the ability of the firm to satisfy its longer-term debt and investment obligations.

⇒ Ratios:

- Debt to Equity Ratio
- Total Debt to Total Assets Ratio
- Times Interest Earned Ratio
- Cash Coverage Ratio
- Debt to Total Capital Ratio

As will become apparent in the discussions that follow, the categories are not distinct but rather interrelated. Thus, profitability affects solvency, and the efficiency with which assets are used (as measured by asset utilization analysis) impacts the analysis of profitability. In measuring these relationships, ratios provide a profile of a contractor. An analysis of the ratios can provide insight into a contractor's performance, economic characteristics, competitive strategies, and abilities. Formulas for ratios are included as Appendix 4D.

Ratio analysis should be fairly comprehensive. Each ratio included in this chapter will assist the analyst in focusing on a particular aspect of the firm. At times, a full analysis is not possible due to time constraints or limited information. In this case, a "condensed" ratio analysis can be applied. Appendix 4E supplies ratios that should be used when only performing a limited analysis.

#### 4.3.1 Liquidity Analysis

Liquidity analysis is used to assess the risk level and ability of a firm to meet its current obligations. Satisfying these obligations requires the use of cash resources available as of the balance sheet date and the cash generated through the operating cycle of the firm.

The concept of working capital relies on the classification of assets and liabilities into "current" and "noncurrent" categories. Current assets include cash



and other assets that the firm expects to convert to cash or consume within one year from the date of the balance sheet. Current liabilities are liabilities the firm expects to pay within one year. Net working capital is simply current assets minus current liabilities. On the typical balance sheet, there are a variety of current assets and current liabilities. The categories are shown in Table 4-1.

Table 4-1. Current Assets and Liabilities

Current Assets	Current Liabilities
<ul style="list-style-type: none"> <li>• Cash and cash equivalents</li> <li>• Marketable securities</li> <li>• Accounts receivable</li> <li>• Inventories</li> <li>• Prepaid expenses</li> </ul>	<ul style="list-style-type: none"> <li>• Short-term debt</li> <li>• Accounts payable</li> <li>• Accrued liabilities</li> </ul>

The ratios used in short term liquidity analysis evaluate the adequacy of the firm's cash resources relative to its cash obligations. Its cash resources can be measured by 1.) the firm's current cash balance and potential sources of cash or 2.) its net cash flows from operations. The firm's cash obligations can be measured by either 1.) its current obligations or 2.) the cash outflows arising from operations. Conceptually, the ratios differ in whether levels (amounts shown on the balance sheet) or flows (cash inflows and outflows) are used to gauge the relationships. It is important to distinguish between marketable securities and long-term investments. Marketable securities are securities such as stocks or bonds that are actively traded on national exchanges and have bid and ask prices (buy and sell prices). Long-term investments are investments in stocks or bonds that are either not marketable, or are not meant to serve as a cash resource.

The following three ratios compare different measures of the present level of cash resources with the present level of obligations. The current ratio uses all current assets to define cash resources as they move through the operating cycle. It indicates the firm's ability to meet its current obligations, with its current assets, and is therefore of particular interest to its creditors. The current ratio is recorded in Block 5A of Section II on SF 1407, Preaward Survey of Prospective Contractor Financial Capability.

A more conservative measure of liquidity, the **quick ratio**, excludes inventory from cash resources, recognizing that the conversion of inventory to cash is less certain both in terms of timing and amount. The other assets in the numerator are "quick assets" because they can be quickly converted to cash. The quick ratio is a variation of the current ratio. The quick ratio is recorded in Block 5B of Section III on SF 1407.

The use of the current or quick ratio implicitly assumes that the current assets will eventually be converted to cash. Realistically, however, it is not anticipated that firms will actually liquidate their current assets to pay their current liabilities. Certain levels of inventories and receivables, as well as payables and accruals (which finance inventories and receivables), are always needed to maintain operations. If all current assets and liabilities are reduced to zero, the firm will cease to operate. It is assumed that the process of generating inventories, collecting receivables, and so on is ongoing. These ratios, therefore, measure the "margin of safety" provided by the cash resources relative to obligations.

The **cash ratio** is the most conservative of these measures as it includes only actual cash and cash equivalent balances (marketable securities) to measure cash resources. It excludes possible poor receivable or inventory ratios, which will be discussed in the next section.

The **cash flow from operations ratio** addresses the issues of convertibility to cash, turnover, and the need for minimum levels of working capital (cash) to maintain operations by measuring liquidity through a comparison of actual cash flows (instead of current and potential cash resources) with current liabilities.

The **defensive interval** provides an intuitive "feel" for a firm's liquidity, albeit a most conservative one. This measure is essentially a "worst case" scenario that tells us how many days the firm could maintain its present level of operations with its present cash resources without the generation of any additional revenues. It compares the currently available "quick" sources of cash (cash, marketable securities, and accounts receivable) with the estimated outflows needed to operate the firm (projected expenditures). There are various forms of the defensive interval as well as various methods one can use to arrive at the projected expenditures. See Appendix 4D. The calculation of the defensive interval uses the current year income statement data as the estimate of projected expenditures.

The **net working capital to total assets ratio** is a good indicator of a company's liquidity. A low ratio may indicate low levels of liquidity.

Liquidity analysis is not independent of asset utilization (activity) analysis. Poor receivables or inventory turnover (how many times per year inventory is sold off) limits the usefulness of the current and quick ratios, since the reported amounts of these components of current assets may not truly represent sources of liquidity. Also, obsolete inventory or uncollectable receivables are unlikely to be sources of cash. Consequently, short-term liquidity ratios should be examined in conjunction with turnover ratios.

### 4.3.2 Asset Utilization (Activity) Analysis

To carry out operations, a firm needs to invest in both short-term (inventory and accounts receivable) and long-term (property, plant, and equipment) assets. Activity ratios describe the relationship between the firm's level of operations (usually defined as sales) and the assets needed to sustain the activity. The higher the ratio, the more efficient the firm's operations, as relatively fewer assets are required to maintain a given level of operation (sales). By monitoring the trends in these ratios, over time and comparing them to other firms in the industry, the analyst can point out potential trouble spots or opportunities. Although these ratios do not measure profitability or liquidity directly, they are ultimately an important factor affecting those performance indicators.

Activity ratios can be used to forecast a firm's capital requirements (both operating and long-term). Increases in sales may require investments in additional assets. Activity ratios enable the analyst to forecast these possible requirements and to assess the firm's ability to acquire the assets needed to sustain the forecasted growth.

An overall activity measure that relates sales to total assets is the **total asset turnover ratio**. This relationship provides a measure of overall investment efficiency by aggregating the joint impact of both short and long term assets. Lower total asset turnover ratios indicate longer shelf life for inventory and slower collection of receivables, assuming cash balances and other short term investments are not unusually high. This indicates a cutback in demand for a firm's products or sales to customers whose ability to pay is uncertain. This might signal one or more of the following:

- The firm's income is overstated,
- Future production cutbacks may be required, or
- Potential liquidity problems may exist.

The **fixed assets turnover ratio** measures the efficiency of long-term capital investment and reflects the level of sales maintained or generated by investments in productive capacity. The analyst must consider changes in its level over time. These changes can be a function of a number of subtle factors. Sales growth is normally continuous, albeit at varying rates. However, increases in capacity to meet that sales growth are discrete, depending on the addition of new factories, warehouses, stores, and so forth.

The life cycle of a company or product includes a number of stages: start-up, growth, maturity, and decline. Start-up companies' initial turnover may be low, as their level of operations (sales) is well below their productive capacity. As sales grow, however, turnover will continually improve until the lim-



its of the firm's initial capacity are reached. However, the increase in capital investment needed to maintain the growth will then impact unfavorably on that ratio until the firm's growth satisfies the new capacity. This process will continue until the firm matures and its sales and capacity level off, only to reverse when the firm enters its decline stage.

Additional problems can result from the timing of a firm's purchase of assets. Two firms with similar operating efficiencies, the same productive capacity, and the same level of sales may show differing ratios depending on when the firms' assets were acquired. The firm with the older assets would show a higher turnover ratio, as the accumulated depreciation would tend to lower the carrying value of that firm's assets. In other words, the accumulation of depreciation expense would result in improving the ratio (especially if the firm uses accelerated depreciation methods or short depreciable lives) even if actual efficiency did not change.

An offsetting and complicating factor is that the productivity of assets also depends on their acquisition date. Newer assets, while purchased at higher prices, probably operate more efficiently. The use of gross asset value (before depreciation) rather than net fixed assets would alleviate this shortcoming.

The **inventory turnover ratio** indicates the efficiency of the firm's inventory management. A higher ratio indicates that inventory does not languish in warehouses or on the shelves but rather turns over rapidly as it moves from time of acquisition to sale. Inventory turnover can be used to calculate the days' sales in inventory ratio (the average number of days that inventory is held until it is sold). The cost of goods sold is simply the cost of the inventory. The average inventory number is calculated by adding the inventory number from the balance sheet to the inventory number from the previous year's balance sheet, and dividing by two.

The **average number of days inventory are in stock (days' sales in inventory ratio)** tells the analyst how many days inventory sits before it is sold. Obviously, the shorter the time inventory sits before it is sold, the more times it can be turned over, thus resulting in more sales.

The **receivables turnover ratio** and the days' sales in receivables (the average number of days that receivables are outstanding) are calculated in a similar manner. The average accounts receivable number is calculated in the same way as average inventory, as explained above. This ratio gives an indication of how many times a firm collected on its credit sales during the year.

The **average number of days receivables are outstanding (days' sales in receivables ratio)** shows how many days on average it takes to collect from credit sales. This ratio is also called the average collection period. A large



number may indicate either poor collection policies or leeway given to customers in order to establish above average customer satisfaction.

These receivables ratios 1.) measure the effectiveness of the firm's credit policies (loans to its customers) and 2.) indicate the level of investment in receivables needed to maintain the firm's level of sales.

### 4.3.3 Profitability Analysis

Stockholders invest with the expectation that the firm will earn profits. Profits are also required to ensure the firm's long-term growth and staying power. A firm's profitability can be measured in several differing but interrelated dimensions. First, there is the relationship of a firm's profits to sales, e.g., what is the residual return to the firm per sales dollar? The second type of measure, return on investment (ROI), relates profits to the investment required to generate them. The following section briefly defines these measures and then elaborates on their use in financial statement analysis.

One measure of a firm's profitability is the relationship between the firm's costs and its sales. The greater a firm's ability to control costs in relation to its revenues, the more its earnings power is enhanced.

- The **gross profit margin ratio** captures the relationship between sales and manufacturing costs. It is a measure of the raw earning power of the firm.
- The **net profit margin ratio** shows how many dollars of bottom line net income are generated per dollar of sales. This ratio takes into account all expenses and taxes that the firm has to pay out, as well as all revenues coming in to the company.
- The **pre-tax margin ratio** is calculated after financing costs (interest) but prior to income taxes. EBT stands for earnings before taxes, and serves as the numerator in the formula.
- The **basic earning power ratio** shows the earning power of a firm's assets without regard to taxes or financing. This ratio should be examined in conjunction with turnover ratios to help pinpoint potential problems regarding asset management.
- **Return on assets (ROA)**, measures a firm's performance in using assets to generate earnings. In actuality, the number can be interpreted as profit per dollar of assets.

It should be noted that the ROA measure is sometimes computed "after interest" as either net income or earnings before taxes (EBT) over assets. Pre-interest measures of profitability facilitate the comparison of firms with different degrees of leverage. Using post-interest measures of profit negates this advantage and makes leveraged firms appear less profitable by charging

earnings for payments (interest) to some capital providers (lenders) but not others (stockholders). Ratios that use total assets in the denominator should include total earnings (before interest) in the numerator. The ROA measure can be interpreted in two different ways. First, it is an indicator of management's operating efficiency (how well management is using the assets at its disposal to generate profits). Alternatively, it can be viewed as the total return accruing to the providers of capital, independent of the source of capital.

The second commonly used ROI measure focuses on the returns accruing to the firm's common and preferred shareholders. A more general definition of this relationship computes the **return on total stockholders' equity** (ROE).

Both ROA and ROE are commonly cited numbers measuring performance over a prior period. The relationship between ROA and ROE can be understood in terms of the firm's relationship to its creditors and shareholders. The creditors and shareholders provide the capital needed by the firm to acquire the assets needed for the business. In return, they expect to be rewarded with their share in the firm's profits. The analyst should compare both ratios to the company's historical performance measures and to industry ratios to verify if there have been any substantial operating changes.

#### 4.3.4 Debt Utilization Analysis

A firm's financing is obtained from debt and equity. The greater the proportion of debt relative to equity, the greater the risk to the firm as a whole. Two important factors should be noted when analyzing the capital structure of a firm: 1.) the relative debt levels themselves and 2.) the trend over time in the proportion of debt to equity.

Total debt is simply the total liabilities account on the balance sheet. Total capital is defined as total equity + total debt. The analyst should be aware that since total assets = total liabilities + owner's equity, total capital is the same as total assets. The higher the debt ratio, the riskier the firm. As with other ratios, however, industry factors play an important role both in the level of debt as well as in the nature of the debt, whether short or long term, variable or fixed, and the relative proportion of different maturities. Capital-intensive industries tend to have high levels of debt because debt is needed to finance property, plant, and equipment. To manage the debt, the maturity of debt should match the level of the assets acquired.

**Maturity** refers to the expected date of conversion to cash for an asset or the expected date of liquidation of cash for a liability.

In addition to servicing debt, internally generated cash flows are also needed for purposes of investment. The liquidity ratios do not take this aspect into

consideration. CFO is calculated without any deduction for the cost of operating capacity. Net income, with its provision for depreciation, reflects the use of assets. However, even with minimal inflation rates, over their relatively long service life, replacement costs of these assets tend to be significantly higher, and historical cost depreciation cannot adequately account for their replacement. Neither net income nor cash from operations makes any provision for the capital required for growth. A firm's long-term solvency is a function of 1.) its ability to finance the replacement and expansion of its investment in productive capacity and 2.) the amount of cash left for debt repayment after paying for capital investments.

- The **debt to equity ratio** shows the proportion of debt (both short and long term) to equity within the capital structure of the firm. The higher this number, the riskier the firm, all else being equal. In the SF 1407, this ratio can be used in place of the total liabilities to net worth ratio.
- The **total debt to total assets ratio** takes into account all debts of all maturities to all creditors. This ratio shows how much debt a company has per dollar of assets.
- The **times interest earned ratio** is a measure of how well a company can cover its interest expense with its pre-tax and pre-interest dollars.
- The **cash coverage ratio** adds back depreciation to the numerator in the times interest earned ratio. The numerator is now earnings before interest and taxes (EBIT) + depreciation, which is a basic measure of the firm's ability to generate cash from operations. The cash flow from operations, as discussed before, is used as a measure of cash flow available that can be used to meet various obligations.
- The **debt to total capital ratio** captures the relationship between the amount of debt a firm has and the total capital of the firm.

Analysis of a firm's capital structure is essential to the evaluation of its long-term risk and return prospects. **Leveraged firms** accrue excess returns to their common shareholders so long as the rate of return on the investments financed by debt exceeds the cost of debt. The benefits of financial leverage bring additional risks, however, in the form of fixed costs that adversely affect profitability if demand declines. Since priority is given to interest and principal payments to debtholders, these claims can have a severely negative impact on a firm when adversity strikes. The inability to meet these obligations can lead to default and possibly bankruptcy. In this sense, financial leverage works in two ways: it en-

**Leveraged firm:** A firm who has debt within its capital structure.



hances the return to shareholders during profitable years, but during periods when sales are low, the leverage works the other way and produces returns that are worse than would be expected without the borrowing.

An example of how financial leverage affects a company follows:

*Current and Proposed Capital Structures for Company ABC*

	Current	Proposed
<b>Assets</b>	\$8,000,000	\$8,000,000
<b>Debt</b>	\$0	\$4,000,000
<b>Equity</b>	\$8,000,000	\$4,000,000
<b>Debt/equity ratio</b>	0	1
<b>Share price</b>	\$20	\$20
<b>Shares outstanding</b>	400,000	200,000
<b>Interest rate</b>	10%	10%

*Current Capital Structure: No Debt*

	Recession	Expected	Expansion
<b>EBIT</b>	\$500,000	\$1,000,000	\$1,500,000
<b>Interest</b>	0	0	0
<b>Net income</b>	\$500,000	\$1,000,000	\$1,500,000
<b>ROE</b>	6.25%	12.50%	18.75%
<b>EPS</b>	\$1.25	\$2.50	\$3.75

*Proposed Capital Structure: Debt = \$4,000,000*

	Recession	Expected	Expansion
<b>EBIT</b>	\$500,000	\$1,000,000	\$1,500,000
<b>Interest</b>	\$400,000	\$400,000	\$400,000
<b>Net income</b>	\$100,000	\$600,000	\$1,100,000
<b>ROE</b>	2.50%	15.00%	27.50%
<b>EPS</b>	\$.50	\$3.00	\$5.50

For ease of illustration, taxes have been ignored in this example. Currently, Company ABC has no debt in its capital structure. The company is considering a restructuring of its capital structure that would involve \$4,000,000 of debt, which would be used to repurchase 200,000 shares of stock (\$4,000,000/\$20 per share), leaving only 200,000 shares outstanding. After the restructuring, the company would now have a debt to equity ratio of 1 (50% debt and 50% equity). The interest expense at a 10% rate would now be \$400,000. The three scenarios described involve different assumptions regarding the firm's EBIT (earnings before interest and taxes). Notice the ROE and EPS numbers for the no debt capital structure compared with those of the capital structure with debt. The EBIT numbers are the same, of course, under both structures. When debt is used, the company has an interest expense to pay each year.



This lowers net income for each of the three scenarios; recession, expected, and expansion. However, because there are fewer shares outstanding, the return on equity, and the earnings per share are improved when the expected and expansion scenarios occur. Note what happens during the recession scenario--the capital structure with no debt achieves better numbers. This is because interest expense is simply too much to handle with an EBIT of \$500,000. This really brings to life leverage and the risks involved in using it. During good times, when demand is high, and revenues are large, returns are greater than without leverage. However, if the economy turns sour, and sales drop off, returns are worse than without leverage (*Fundamentals of Corporate Finance*, 1993).

### Debt Covenants

To protect themselves, long-term creditors often impose restrictions on the borrowing company's ability to incur additional debt as well as on dividend payments. The debt covenants that control these activities are often expressed in terms of working capital, cumulative profitability, and net worth. It is, therefore, important to monitor various ratios to ensure that their levels are in compliance with the debt covenant specifications. Violations of debt covenants are frequently an "event of default" under loan agreements, making the debt due immediately. When covenants are violated borrowers must either repay the debt (not usually possible) or obtain waivers from lenders. Such waivers often require additional collateral, restrictions on the firm's operations, or higher interest rates.

### The Prediction of Bond Ratings

Bond ratings are issued by bond rating agencies, the most prominent of which are Moody's and Standard & Poor's. The ratings attest to the credit-worthiness of the firm. The probability that adverse conditions will result in financial difficulties is taken into consideration in assessing the likelihood of the firm defaulting on its interest or principal payments and is, therefore, reflected in its bond ratings. In addition, the bond indentures and the degree of protection afforded in the event of bankruptcy are considered when the ratings decision is made.

The categories of ratings used by Standard & Poor's are summarized in Table 4-2 below, along with their Moody's counterparts.

Table 4-2. Bond Rating Categories

	Highest to High Quality	Upper Medium to Medium Quality	Speculative to Highly Speculative	In Default
Standard & Poor's	AAA to AA	A to BBB	BB to B CCC, CC, C	D
Moody's	Aaa to Aa	A1 to A to Baa	Ba to B to Caa	Ca to C

The ratings are further modified by "+" and "-" designations, permitting a finer gradation in the rating categories.

#### 4.3.5 Market Value Analysis

When assessing the financial capability of a publicly held company, there are two other important ratios to examine. The price/earnings ratio (PE) shows how much investors are willing to pay for a dollar of company earnings. Care is needed in the interpretation of this number. A high PE might mean: 1.) investors are willing to pay more now for future growth, or 2.) the company has very little earnings. Similarly, a low ratio may indicate an undervalued company with average earnings, or an appropriately valued company with little earnings. This is an important ratio to compare to others in the same industry.

The other market value ratio is the market/book ratio. This number compares the market value of a firm's investments to their historical costs, as shown on the balance sheet. The book value per share is simply the firm's common equity divided by the total number of shares outstanding. The market/book ratio gives a good indication of how investors regard the firm. High ratios would normally describe a company that has high returns on equity, therefore, investors are willing to pay more for these high returns.

#### 4.3.6 Accounting For The Different Reporting Periods Of Ratio Components

The analyst needs to be aware of a certain problem when using ratio analysis. When a ratio contains a numerator from the income statement and a denominator from the balance sheet, an adjustment needs to be made. The income statement measures performance over a period of time, usually one year, while the balance sheet shows results as of a particular date. The balance sheet data need to be converted to a yearly number by averaging current year data and the previous year's data. For example, the total asset turnover ratio, which was discussed earlier in the chapter, requires the conversion. It is calculated by dividing sales by average total assets. The sales number appears on the income statement, and the total asset account is on the balance sheet. To obtain an average total asset number, simply add the current year number with the previous year's total asset number, and divide by two. However, when comparing to industry averages, using the number as it appears on the balance sheet (current year) is preferred because most industry numbers are calculated in that manner. The analyst simply needs to be aware of the calculation methods used for the industry numbers, so that apples are compared with apples.

Industry norms are used to compare the ratios of a firm to the relative perfor-

mance of its competitors. However, the industry benchmark may have limited usefulness if the whole industry or major firms in that industry are doing poorly. The industry benchmark should be used only with an understanding of the industry's overall performance and potentials. The analyst compares the relationship of the ratios within the company as well as between the company and its industry over time in order to analyze occurring trends. As long as the firm continues its operations in the same manner that resulted in its financial status to date, the trends will likely illustrate the firm's future. Of course, this is also dependent upon a constant environment. If the firm's ratios are worse or deteriorating against the industry ratios, the firm may be in serious trouble. Other considerations are the specific industry's opportunities and obstacles. Even if a firm fits well within its industry, the aggregate industry must still be profitable and stable in order to provide the firm with a beneficial benchmark. Therefore, a firm's financial trends, objectives and managerial plans (how the firm plans to operate) in comparison to its industry and the economy in general, essentially determine the firm's strength and enduring capabilities.

#### 4.4 INFORMATION FOR ANALYSIS

Financial information is obtainable from a wide array of sources. Information sources can range from the daily newspaper to managed databases to the Internet. The key is to obtain the information that is most applicable and relevant to the analysis. For financial statements, ratio calculations, and industry benchmarks, a Dun and Bradstreet Financial Record Report would be beneficial. For analysis of specific corporate credit risk, the firm's specific financial statements, Securities and Exchange Commission (SEC) filings, and investment advisory services such as Moody's and Standard & Poor's are the best sources of information.

##### 4.4.1 The Securities and Exchange Commission (SEC)

The SEC has the power to regulate trading on the stock exchanges and to require corporate disclosure of information relevant to the stockholders of publicly traded companies. Furthermore, the SEC has the power to dictate accounting conventions. Information available through the SEC consists of corporate income statements, balance sheets, detailed support of accounting information, and internal data not always found in a company's annual report. In addition, companies are required to file 10-K, 8-K, and 10-Q forms with the SEC. The annual 10-K report is perhaps the most widely known and can usually be obtained free of charge directly from the company,

Report	Information Provided
10-K	Annual statements and information similar to annual report.
8-K	Changes as the result of a corporation undertaking an important event such as bankruptcy or change officer.
10-Q	Quarterly statements.



rather than paying the SEC a copying charge. This report should be read in combination with the firm's annual report, as it contains the same type of information but in greater detail. The 8-K report must be filed when the corporation undergoes some important event that stockholders should know about such as changes in control, bankruptcy, resignation of officers or directors, and other material events. 10-Q statements are filed quarterly, no later than 45 days after the end of the quarter. This report includes quarterly financial statements, changes in stockholdings, legal proceedings, and other matters. There are many other SEC reports, but these three are the most relevant.

Data used to compute ratios are available only at specific points in time, primarily when financial statements are issued. For annual reports, these points in time correspond to the end of a firm's operating cycle, and the reported levels of assets and liabilities generally do not reflect the firm's level of normal operations. As a result, certain ratios will not reflect the actual (short-term) operating relationships, especially in the case of seasonal businesses. For example, inventories and accounts payable will most likely be below the average operating levels at the end of the operating cycle. This results in firms trying to look more profitable by pumping up income over assets used. Reference to interim statements is one way of alleviating this problem.

The timing of accounting entries leads to another problem. Transactions at year end by management can lead to manipulation of the ratios to show them in a more favorable light. For example, a firm with a current ratio (current assets/current liabilities) of 1.5 (\$3 million/\$2 million) can increase it to 2.0 (\$2 million/\$1 million) by simply using cash of \$1 million to reduce accounts payable immediately prior to the end of period.

#### 4.4.2 Investment Advisory Services

The first investment information service, Moody's, is owned by Dun & Bradstreet. This service publishes several databases that analyze a variety of corporations. *Moody's Manuals* are widely used and present historical financial data on listed companies, on their officers, and on the companies' general corporate condition. The *Manuals* are divided into several categories (Banks and Finance, Industrial, Municipals and Government, Over the Counter (OTC) Industrial, Public Utility, and Transportation). *Moody's* also publishes data on corporate debt ratings. Corporate bond information includes the interest coupon, payment dates, call price, Moody's rating, yield to maturity, and other market related data.

The second major source of information is the Standard & Poor's Corporation, a subsidiary of McGraw-Hill. Standard & Poor's has comprehensive coverage of financial data. *Standard & Poor's Corporation Records* are similar to *Moody's Manuals*, except the former are organized alphabetically rather than



by trade categories. The Corporation Records publications include historical company background, financial statements, news announcements, earnings updates, and other news of general interest. Ratings for a corporation's debt are located in Standard & Poor's Bond Guide. Internet access to this and other data is available.

The financial statements are the core information source for financial analysis, but the investment services provided by Moody's and S&P are helpful for focusing the analysis. Analysts should review this information for a summary assessment of a firm before analyzing the firm's financial statements. In addition, discussions with the firm's management will provide further clarity to important issues used for assessing the managerial direction of the corporation, its goals and obstacles.

**NOTE:**

Most information, except for business-sensitive data, is available for publicly-held corporations. In the analysis of private firms, the analyst must rely more on company-provided information. The managerial interview helps appraise the objectivity of information obtained directly from the firm.

## 4.5 SUMMARY

The preceding sections covered many aspects of financial capability analysis including financial statements, formulas for ratios, and sources of financial data. Throughout the chapter, five sources of financial data were mentioned: Moody's, Standard & Poor's, Dun & Bradstreet, CompuStat, and individual firms. All of the topics covered, such as financial statements, ratio analysis, leverage, agency credit ratings, and review of any other financial/business data are interrelated and provide insight from various points of interest.

Although it utilizes many of the same tools and techniques, financial capability analysis in the acquisition environment has a focus distinct from analysis performed by a bank or a potential investor. Typical objectives of the FAA are to determine if a company has sufficient cash to support subcontractors; if it will be able to finish a long-term, high-risk project; and to improve the company/FAA working relationship through increased understanding of the company's financial philosophy and practices.

Below are concepts which should be retained from this chapter:

- The main purpose of financial capability analysis is to use the information and model tools to identify problem areas within a company that may affect its performance on a contract.

- Ratio analysis addresses managerial trends in asset management, operating strategies, and risk and assists the analyst in determining a company's solvency.
- Ratio analysis is extremely important to financial analysis. However, none of the ratios or models presented in this chapter should be used in isolation, i.e., without considering any additional information that is available.

# THE XYZ COMPANY AND SUBSIDIARIES

Consolidated Balance Sheet  
for the years ended December 31, 2008 and 2009  
(Dollars in thousands except per share data)

<b>Assets</b>	<b>2009</b>	<b>2008</b>
<u>Current</u>		
Cash and cash equivalents	\$2,994,000	\$2,868,000
Marketable securities, at cost (approximate market)	<u>\$240,000</u>	<u>\$321,000</u>
Trade accounts receivable, less allowances of \$117,000 in 2008 and \$99,000 in 2009	\$3,234,000 \$3,630,000	\$3,189,000 \$3,165,000
Finance subsidiary - receivables	\$99,000	\$93,000
Inventories	\$3,147,000	\$3,057,000
Prepaid expenses and other assets	<u>\$3,192,000</u>	<u>\$3,240,000</u>
<b>Total current assets</b>	<u>\$13,302,000</u>	<u>\$12,744,000</u>
<u>Investments and other assets</u>		
Investments		
XYZ Enterprises, Inc.	\$1,494,000	\$1,554,000
XYZ Limited	\$1,776,000	\$1,644,000
Other	\$3,375,000	\$3,291,000
Finance subsidiary - receivables	\$678,000	\$285,000
Long-term receivables and other assets	<u>\$2,604,000</u>	<u>\$1,911,000</u>
<b>Total Investments and other assets</b>	<u>\$9,927,000</u>	<u>\$8,685,000</u>
<u>Property, plant and equipment</u>		
Land	\$591,000	\$609,000
Buildings and improvements	\$4,848,000	\$4,587,000
Machinery and equipment	\$10,140,000	\$9,411,000
Containers	<u>\$1,209,000</u>	<u>\$1,122,000</u>
<b>Total Property, plant and equipment</b>	\$16,788,000	\$15,729,000
Less allowance for depreciation	<u>\$5,601,000</u>	<u>\$5,151,000</u>
Fixed assets	<u>\$11,187,000</u>	<u>\$10,578,000</u>
Goodwill and other intangible assets	<u>\$1,647,000</u>	<u>\$1,149,000</u>
<b>Total assets</b>	<u>\$36,036,000</u>	<u>\$33,156,000</u>

(balance sheet continued on next page)

**(balance sheet concluded)**

<b>Liabilities and shareholders' equity</b>	<b>2009</b>	<b>2008</b>
<u>Current liabilities</u>		
Accounts payable and accrued expenses	\$6,651,000	\$6,759,000
Loans and notes payable	\$4,227,000	\$5,901,000
Finance subsidiary	\$732,000	\$315,000
Current maturities of long-term debt	\$57,000	\$45,000
Accrued taxes	\$3,846,000	\$2,889,000
Total current liabilities	\$15,513,000	\$15,909,000
Long-term debt	\$4,284,000	\$3,360,000
Other liabilities	\$2,175,000	\$1,977,000
Deferred income taxes	\$339,000	\$246,000
<b>Total liabilities</b>	<b>\$22,311,000</b>	<b>\$21,492,000</b>
<u>Shareholders' equity</u>		
Common stock \$.75 par value-		
Authorized: 8,400,000,000 shares; Issued: 5,110,578,897		
shares in 2009; 5,088,608,520 shares in 2008	\$1,278,000	\$1,272,000
Capital surplus	\$3,258,000	\$2,613,000
Reinvested earnings	\$28,374,000	\$24,495,000
Unearned compensation related to outstanding restricted stock	(\$255,000)	(\$300,000)
Foreign currency translation adjustment	(\$1,260,000)	(\$813,000)
	\$31,395,000	\$27,267,000
Less treasury stock, at cost (1,218,218,451 common shares in 2009; 1,168,294,866 common shares in 2008)	\$17,643,000	\$15,603,000
<b>Stockholders' equity</b>	<b>\$13,752,000</b>	<b>\$11,664,000</b>
<b>Total liabilities and shareholders' equity</b>	<b>\$36,063,000</b>	<b>\$33,156,000</b>



# THE XYZ COMPANY AND SUBSIDIARIES

Consolidated Statements of Income  
for the years ended December 31, 2007, 2008, 2009  
(Dollars in thousands except per share data)

Year Ended December 31,	2009	2008	2007
Net operating revenues	\$41,871,000	\$39,222,000	\$34,716,000
Cost of goods	<u>\$15,480,000</u>	<u>\$15,165,000</u>	<u>\$13,947,000</u>
<b>Gross profit</b>	\$26,391,000	\$24,057,000	\$20,769,000
Selling, administrative, and general expenses	<u>\$17,085,000</u>	<u>\$15,747,000</u>	<u>\$13,812,000</u>
<b>Operating income</b>	\$9,306,000	\$8,310,000	\$6,957,000
Interest income	\$432,000	\$492,000	\$525,000
Interest expense	\$504,000	\$513,000	\$576,000
Equity income	\$273,000	\$195,000	\$120,000
Other income(deductions) - net	\$12,000	(\$246,000)	\$123,000
Gain on issuance of stock by subsidiaries	<u>\$36,000</u>	<u>\$0</u>	<u>\$0</u>
<b>Income before income taxes and changes in accounting principles</b>	\$9,555,000	\$8,238,000	\$7,149,000
Income taxes	<u>\$2,991,000</u>	<u>\$2,589,000</u>	<u>\$2,295,000</u>
<b>Income before changes in accounting principles</b>	\$6,564,000	\$5,649,000	\$4,854,000
Transition effects in accounting principles			
Postemployment benefits	(\$36,000)	\$0	\$0
Postretirement benefits other than pensions			
Consolidated operations	\$0	(\$438,000)	\$0
Equity Investments	<u>\$0</u>	<u>(\$219,000)</u>	<u>\$0</u>
<b>Net Income</b>	\$6,528,000	\$4,992,000	\$4,854,000
Preferred stock dividends	<u>\$0.00</u>	<u>\$0.00</u>	<u>\$3.00</u>
<b>Net income available to common shareholders</b>	<u>\$6,528,000</u>	<u>\$4,992,000</u>	<u>\$4,851,000</u>
Income (loss) per common share			
Before changes in accounting principles	\$5.04	\$4.29	\$3.63
Transition effects on changes in accounting principles			
Postemployment benefits	(\$0.03)	\$0.00	\$0.00
Postretirement benefits other than pensions			
Consolidated operations	\$0.00	(\$0.33)	\$0.00
Equity investments	<u>\$0.00</u>	<u>(\$0.18)</u>	<u>\$0.00</u>
<b>Net income per common share</b>	<u>\$5.01</u>	<u>\$3.78</u>	<u>\$3.63</u>
<b>Average common shares outstanding (in thousands)</b>	<u>3,906,000</u>	<u>3,951,000</u>	<u>3,999,000</u>

**THE XYZ COMPANY AND SUBSIDIARIES**  
**Consolidated Statements of Changes in Financial Position**  
(Dollars in thousands)

<b>Year Ended December 31,</b>	<b>2009</b>	<b>2008</b>	<b>2007</b>
<b>Operating activities:</b>			
Net income	\$6,528,000	\$4,992,000	\$4,854,000
Transition effects of changes in accounting principles	\$36,000	\$657,000	\$0
Depreciation and amortization	\$1,080,000	\$966,000	\$783,000
Deferred income taxes	(\$186,000)	(\$81,000)	(\$282,000)
Equity income, net of dividends	(\$105,000)	(\$90,000)	(\$48,000)
Foreign currency adjustments	\$27,000	\$72,000	\$198,000
Gain on sale of businesses and investments before income taxes	(\$252,000)	\$0	(\$105,000)
Other noncash items	\$234,000	\$309,000	\$99,000
Net change in operating assets and liabilities	<u>\$162,000</u>	<u>(\$129,000)</u>	<u>\$753,000</u>
<b>Net cash provided by operating activities</b>	<u>\$7,524,000</u>	<u>\$6,696,000</u>	<u>\$6,252,000</u>
<b>Investing activities:</b>			
Decrease (increase) in marketable securities	\$87,000	(\$156,000)	\$9,000
Additions to finance subsidiary receivables	(\$531,000)	(\$162,000)	(\$630,000)
Collections of finance subsidiary receivables	\$132,000	\$762,000	\$156,000
Purchases of investments and other assets	(\$2,448,000)	(\$2,151,000)	(\$1,197,000)
Proceeds from disposals of investments and other assets	\$1,863,000	\$741,000	\$540,000
Purchase of property, plant, and equipment	(\$2,400,000)	(\$3,249,000)	(\$2,376,000)
Proceeds from disposals of property, plant and equipment	\$936,000	\$141,000	\$132,000
All other investment activities	<u>(\$294,000)</u>	<u>(\$3,000)</u>	<u>(\$6,000)</u>
<b>Net cash provided by (used in) investing activities</b>	<u>(\$2,655,000)</u>	<u>(\$4,077,000)</u>	<u>(\$3,372,000)</u>
<b>Net cash provided by operations after reinvestment</b>	<u>\$4,869,000</u>	<u>\$2,619,000</u>	<u>\$2,880,000</u>
<b>Financing activities:</b>			
Issuance of debt	\$1,335,000	\$4,143,000	\$2,970,000
Payment of debt	(\$1,701,000)	(\$1,296,000)	(\$3,738,000)
Preferred stock redeemed	\$0	\$0	(\$225,000)
Common stock issued	\$435,000	\$393,000	\$117,000
Purchases of common stock for treasury	(\$2,040,000)	(\$3,777,000)	(\$1,197,000)
Dividends (common and preferred)	<u>(\$2,649,000)</u>	<u>(\$2,214,000)</u>	<u>(\$1,920,000)</u>
<b>Net cash used in financing activities</b>	<u>(\$4,620,000)</u>	<u>(\$2,751,000)</u>	<u>(\$3,993,000)</u>
Effect of exchange rate changes on cash and cash equivalents	<u>(\$123,000)</u>	<u>(\$174,000)</u>	<u>\$0</u>
Cash and Cash equivalents:			
Net increase (decrease) during the year	\$126,000	(\$306,000)	(\$1,113,000)
Balance at beginning of year	<u>\$2,868,000</u>	<u>\$3,174,000</u>	<u>\$4,287,000</u>
<b>Balance at end of year</b>	<u>\$2,994,000</u>	<u>\$2,868,000</u>	<u>\$3,174,000</u>

Liquidity Ratios	
Current Ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$
Quick Ratio	$\frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$
Cash Ratio	$\frac{\text{Cash} + \text{Marketable securities}}{\text{Current liabilities}}$
Cash Flow from Operations Ratio	$\frac{\text{Cash flow from operations}}{\text{Current liabilities}}$
Defensive Interval	$365 * \left( \frac{\text{Cash} + \text{Marketable securities} + \text{Accounts receivable}}{\text{Projected expenditures}} \right)$
Net Working Capital to Total Assets	$\frac{\text{Net working capital}}{\text{Total assets}}$
Asset - Utilization Ratios	
Total Asset Turnover Ratio	$\frac{\text{Sales}}{\text{Average total assets}}$
Fixed Asset Turnover Ratio	$\frac{\text{Sales}}{\text{Average fixed assets}}$
Inventory Turnover Ratio	$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$
Average # Days Inventory in Stock	$\frac{365}{\text{Inventory turnover ratio}}$
Receivables Turnover Ratio	$\frac{\text{Sales}}{\text{Average receivables}}$
Average # of Days Receivables are Outstanding	$\frac{365}{\text{Receivables turnover ratio}}$



Profitability Ratios	
Gross Profit Margin Ratio	$\frac{\text{Gross profit}}{\text{Sales}}$
Net Profit Margin Ratio	$\frac{\text{Net income}}{\text{Sales}}$
Pretax Margin Ratio	$\frac{\text{EBT}}{\text{Sales}}$
Basic Earning Power	$\frac{\text{EBIT}}{\text{Average total assets}}$
Return on Assets (ROA)	$\frac{\text{Net income}}{\text{Average total assets}}$
Return on Equity (ROE)	$\frac{\text{Net income}}{\text{Total equity}}$
Debt Utilization Ratios	
Debt to Equity Ratio	$\frac{\text{Total debt}}{\text{Total equity}}$
Total Debt to Total Assets Ratio or Debt to Total Capital Ratio	$\frac{\text{Total debt}}{\text{Total assets}} \text{ or } \frac{\text{Total debt}}{\text{Total debt} + \text{Total equity}}$
Times Interest Earned Ratio	$\frac{\text{EBIT}}{\text{Interest expense}}$
Cash Coverage Ratio	$\frac{\text{EBIT} + \text{Depreciation}}{\text{Interest expense}}$
Market Value	
Price/Earnings Ratio	$\frac{\text{Price per share}}{\text{Earnings per share}}$
Book Value per Share	$\frac{\text{Common equity}}{\text{Shares outstanding}}$
Market/Book Ratio	$\frac{\text{Market Price per Share}}{\text{Book Value per Share}}$

## Limited Ratio Analysis

$\frac{\text{Current assets}}{\text{Current liabilities}}$	This is simply the current ratio, and shows how well a firm's short term liabilities are covered by its short term assets.
$\frac{\text{Current assets} - \text{inventory}}{\text{Current liabilities}}$	A more conservative measure of the above ratio that includes all current assets other than inventory.
$\frac{\text{Net income}}{\text{Average total capital}}$	Indicates what percentage of the firm's capital (debt and equity) results in bottom line net profit.
$\frac{\text{Cash flow from operations}}{\text{Average total assets}}$	Shows what percentage of the firm's total assets generate cash flows from its primary business.
$\frac{\text{Sales}}{\text{Average total capital}}$	Indicates how much revenue is being generated from a firm's capital.
$\frac{\text{Cash}}{\text{Total assets}}$	Shows how much cash is on hand in proportion to the firm's total assets.
$\frac{\text{Current assets}}{\text{Total assets}}$	Shows what percentage of a firm's total assets are available for conversion to cash within one year from the date of the balance sheet.
$\frac{\text{Debt}}{\text{Equity}}$	Shows the proportion of all debt to equity within the capital structure of the firm.
$\frac{\text{Net liabilities}}{\text{Total capital}}$	Net liabilities is another term for long term debt. This ratio shows what percentage of a firm's capital is long term debt.
$\frac{\text{Inventory}}{\text{Current assets}}$	This ratio shows what percentage of current assets is represented by inventory.

<b>PREAWARD SURVEY OF PROSPECTIVE CONTRACTOR FINANCIAL CAPABILITY</b>		SERIAL NO. (For surveying activity use)	
		PROSPECTIVE CONTRACTOR	
<b>SECTION I - RECOMMENDATION</b>			
1. RECOMMENDED <input type="checkbox"/> a. Complete Award <input type="checkbox"/> b. Partial Award      _____ <input type="checkbox"/> c. No Award 2. TOTAL OFFERED PRICE			
3. NARRATIVE (Cite those sections of the report which substantiate the recommendation. Give any other backup information in this space or on an additional sheet, if necessary.)			
IF CONTINUATION SHEETS ATTACHED - MARK HERE <input type="checkbox"/>			
4. SURVEY MADE BY:	a. SIGNATURE AND OFFICE (Include typed or printed name)	b. TELEPHONE NO. (Include area code)	c. DATE SIGNED
5. SURVEY REVIEWING OFFICIAL	a. SIGNATURE AND OFFICE (Include typed or printed name)	b. TELEPHONE NO. (Include area code)	c. DATE REVIEWED



## Appendix 4F: Preaward Survey of Prospective Contractor Financial Capability

SECTION II - GENERAL					
1. TYPE OF COMPANY		<input type="checkbox"/> CORPORATION <input type="checkbox"/> PARTNERSHIP <input type="checkbox"/> PROPRIETORSHIP <input type="checkbox"/> DIVISION		<input type="checkbox"/> SUBSIDIARY <input type="checkbox"/> OTHER ( <i>Specify</i> )	
2. YEARS ESTABLISHED:					
3. NAME AND ADDRESS		NAME		ADDRESS	
3a. PARENT COMPANY					
3b. SUBSIDIARIES					
SECTION III - BALANCE SHEET/PROFIT AND LOSS STATEMENT					
Part A - Latest Balance Sheet			Part B - Latest Profit and Loss Statement		
1. DATE	2. FILED WITH		1. CURRENT PERIOD		2. FILED WITH
			A. From	B. To	
3. FINANCIAL POSITION					
a. Cash	\$		3. NET SALES	a. Current Period	\$
b. Accounts Receivable	\$			b. First prior fiscal year	\$
c. Inventory	\$			c. Second prior fiscal	\$
d. Other Current Assets	\$		4. NET PROFITS BEFORE TAXES	a. Current Period	\$
e. Total Current Assets	\$			b. First prior fiscal year	\$
f. Fixed Assets	\$			c. Second prior fiscal	\$
g. Current Liabilities	\$				
h. Long Term Liabilities	\$		Part C - Other		
i. Total Liabilities	\$		1. FISCAL YEAR ENDS (DATE)		
j. Net Worth	\$		2. BALANCE SHEETS & PROFIT AND LOSS STATEMENTS HAVE BEEN CERTIFIED		
3. WORKING CAPITAL (CURRENT ASSETS LESS CURRENT LIABILITIES)			a. Through (Date)      b. Signature		
5. RATIOS			3. OTHER PERTINENT DATA		
a. Current Assets To Current Liabilities	b. Acid Test (Cast, temporary investments held in lieu of cash and current receivables to current liabilities)	c. Total Liabilities to Net Worth			
SECTION IV - PROSPECTIVE CONTRACTOR'S FINANCIAL ARRANGEMENTS					
Yes	No	4. INDEPENDENT ANALYSIS OF FINANCIAL POSITION SUPPORTS THE STATEMENTS SHOWN IN ITEMS 1, 2,			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No ( <i>If "NO," explain</i> )			
<input type="checkbox"/>	<input type="checkbox"/>	1. USE OF OWN RESOURCE			
<input type="checkbox"/>	<input type="checkbox"/>	2. USE OF BANK CREDITS			
<input type="checkbox"/>	<input type="checkbox"/>	3. OTHER (SPECIFY AS NEEDED)			
SECTION V - GOVERNMENT FINANCIAL AID					
1. TO BE REQUESTED IN CONNECTION WITH PERFORMANCE OR PROPOSED CONTRACT			2. EXPLAIN ANY "YES" ANSWERS TO ITEMS 1A, B, AND C		
Mark "x" in appropriate column					
	Yes	No			
a. Progress Payment(s)	<input type="checkbox"/>	<input type="checkbox"/>			
b. Guaranteed Loan	<input type="checkbox"/>	<input type="checkbox"/>			
c. Advance Payments	<input type="checkbox"/>	<input type="checkbox"/>			
3. FINANCIAL AID CURRENTLY OBTAINED FROM THE GOVERNMENT					
Complete items below only if Item a., is marked "Yes."					
a. Prospective Contractor Receives Government Financing at Present  <input type="checkbox"/> Yes <input type="checkbox"/> No	b. Is Liquidation  <input type="checkbox"/> Yes <input type="checkbox"/> No	c. Amount of Unliquidated Progress Payments Outstanding  \$	Dollar Amounts	(a) Authorized	(b) In Use
			a. Guaranteed Loans	\$	\$
			b. Advance Payments	\$	\$
4. LIST OF GOVERNMENT AGENCIES INVOLVED					5. SHOW THE APPLICABLE CONTRACT
OMB Control No. 2120-0595					(SF-1407) FAA Template No. 34 (8/97)