PN-ABX-840

Deloitte Touche Tohmatsu

Slovak Republic Restructuring for Privatization Course

Module I: Introduction to Cash Flow

Delivery Order No. 40
Contract No. EUR-0014-I-00-1056-00
Eastern Europe Enterprise Restructuring and Privatization Project

USAID

U.S. Agency for International Development
ENI/EUR

Bratislava, Slovak Republic
July 27 - 28, 1995
July 31 - August 1, 1995
August 2 - 3, 1995

Deloitte Touche Tohmatsu International

Deloitte & Touche LLP

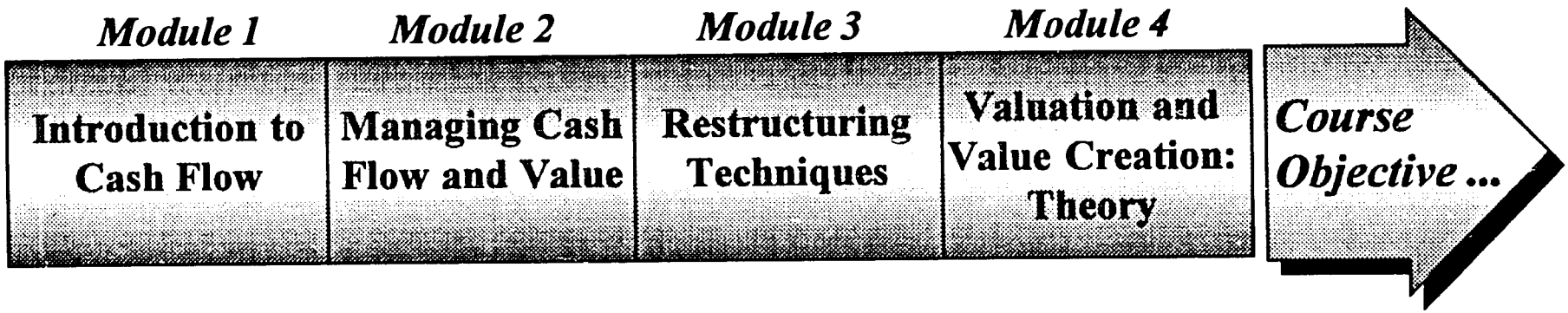
Restructuring for Privatization:
Module I: Introduction to Cash Flow

Sponsored by the U.S. Agency for International Development

Bratislava, Slovak Republic

July 27-28, 1995
July 31-August 1, 1995
August 2-3, 1995

Restructuring for Privatization - Courses Offered



.... to provide an understanding of the importance of managing cash flow and its impact on value, value creation and restructuring alternatives...

Modules 2 through 4 will be held in the fall

Module 1

Introduction to Cash Flow

Module Objective:

... to provide participants with an understanding of the basic concept of cash flow and the elements that drive cash flow. Specific goals include understanding why managing cash flow is important, learning about cash flow components, learning to use the discounted cash flow (DCF) method, and learning to use a simulation DCF model.

Major Topics Covered

- ✓ **Understanding Cash Flow**
- ✓ **Understanding and Utilizing the Discounted Cash Flow (DCF) as a Management Planning Tool**
- ✓ **Applying the DCF Model**
- ✓ **Case Study - Application of the DCF Model to Value a Company**

Module 2

Managing Cash Flow and Value

Module Objective:

... to provide participants with an understanding of how to manage for and maximize cash flow and how management of cash flows impacts the value of a company. Through simulation models and exercises, participants will learn how each of the cash flow components can be impacted and how to weigh alternative financial and operating strategies.

Major Topics Covered

- ✓ **Managing Cash Flow and its Impact on Value**
- ✓ **Becoming a Value Manager**
- ✓ **Creating Value in a Company**
- ✓ **Case Study - Application of the Internal Value Creation Strategy Using the DCF Model**

Module 3

Restructuring Techniques for Companies

Module Objective:

... to provide participants with an understanding of turnaround techniques and how to apply them. The techniques cover financial restructuring, operational restructuring, asset dispositions, mergers/joint ventures as well as developing a turnaround plan, and negotiating with borrowers and creditors.

Major Topics Covered

- ✓ **Motives for Restructuring**
- ✓ **Recognizing and Analyzing Distressed Companies**
- ✓ **Restructuring Techniques**
- ✓ **Other Aspects of Implementing Changes**
- ✓ **Case Studies - Capital Structure, Asset and Business Dispositions, Acquisitions and Joint Ventures**

Module 4

Valuation and Value Creation

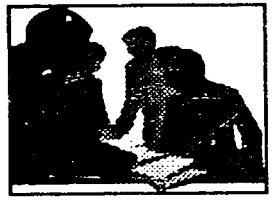
Module Objective:

... to provide participants with an understanding of general business valuation theory and concepts as well as how financial and operating decisions can create or destroy value. This module also analyzes and evaluates alternative privatization strategies.

Major Topics Covered

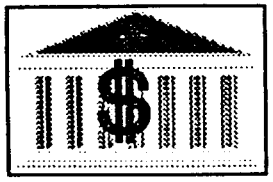
- ✓ **Valuation Theory and Concepts**
- ✓ **Business Enterprise Valuation Theory**
- ✓ **Reaching a Valuation Conclusion**
- ✓ **Analysis and Evaluation of Alternative Privatization Strategies**
- ✓ **Case Study - Using 3 Valuation Approaches to Value a Company for Privatization**

Why is understanding and managing cash flow important?



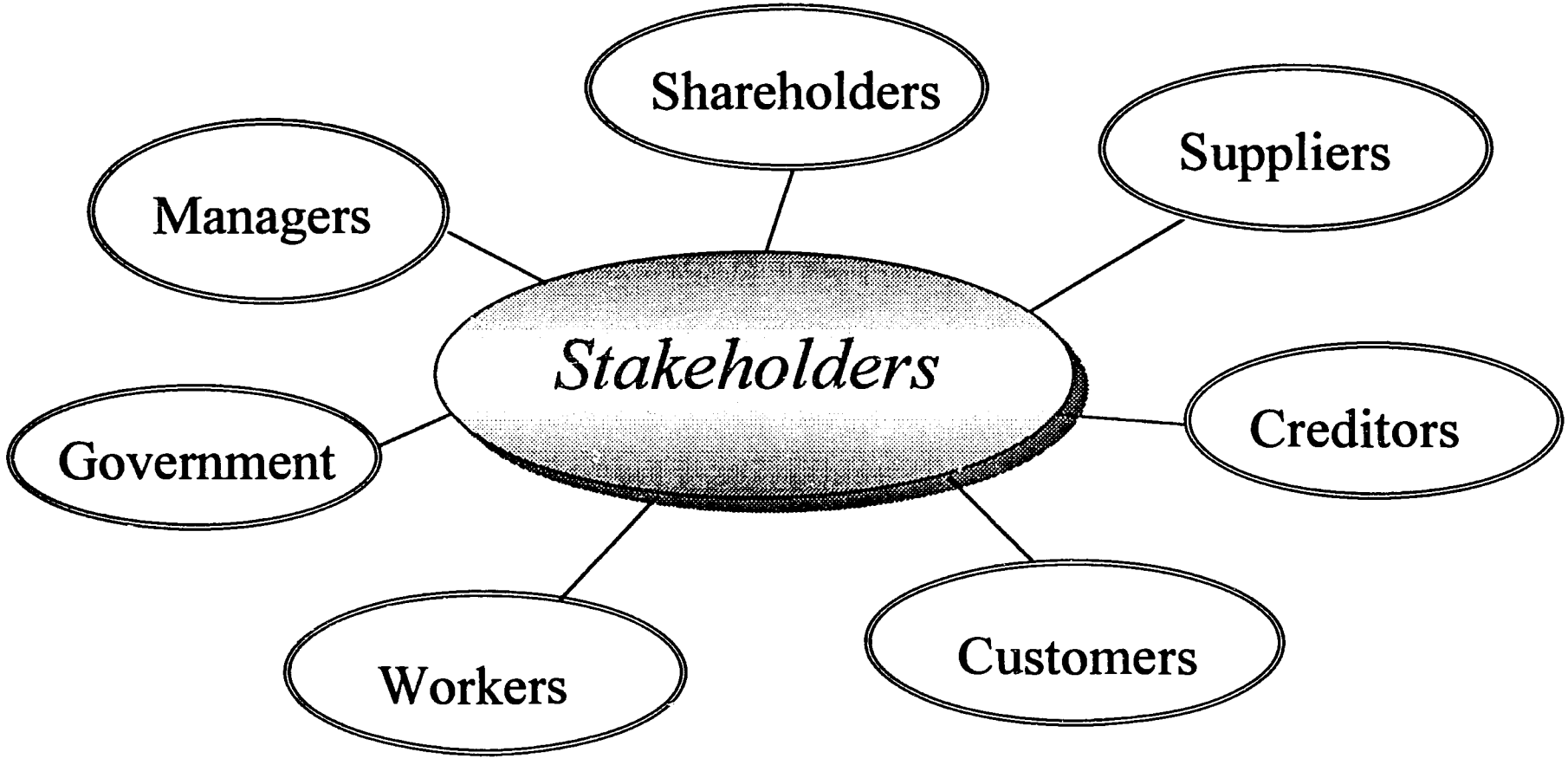
Importance to company stakeholders

To improve the planning process



To improve financial flexibility

To manage, measure and create value


Shareholders
Suppliers
Managers
Stakeholders
Government
Creditors
Workers
Customers

Understanding Cash Flow

Importance to Company Stakeholders

Importance to Managers

- Incentive-based compensation
- Responsibility to shareholders/owners
- Job security

Importance to Shareholders

- Evaluating management skills
- Monitoring the company's financial strength
- Monitoring return on investment (value creation)

Importance to Suppliers

- Can the company pay its obligations on time?
- Will the company continue to be a customer?

Importance to Creditors

- Can the company service its debt?
- Can the company pay its rental and lease obligations?
- Can the company maintain operating capability without financial strain?

Understanding Cash Flow

Importance to Company Stakeholders

Importance to Customers

- Availability of goods and services
- Quality of goods and services
- Protection of long-term supply agreements

Importance to Workers

- Job security
- Compensation
- Employee ownership

Understanding Cash Flow

Importance to Company Stakeholders

Importance to Government

- Tax revenues
- Employee security
- Enhancement of value for privatization

Conclusion:

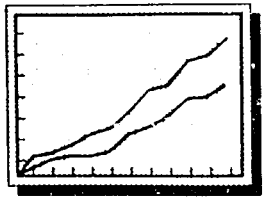
- There are a number of different groups with diverse interests that have a vested stake in the ability of the company to produce positive cash flow

Why is understanding and managing cash flow important?

Importance to company stakeholders

To improve the planning process

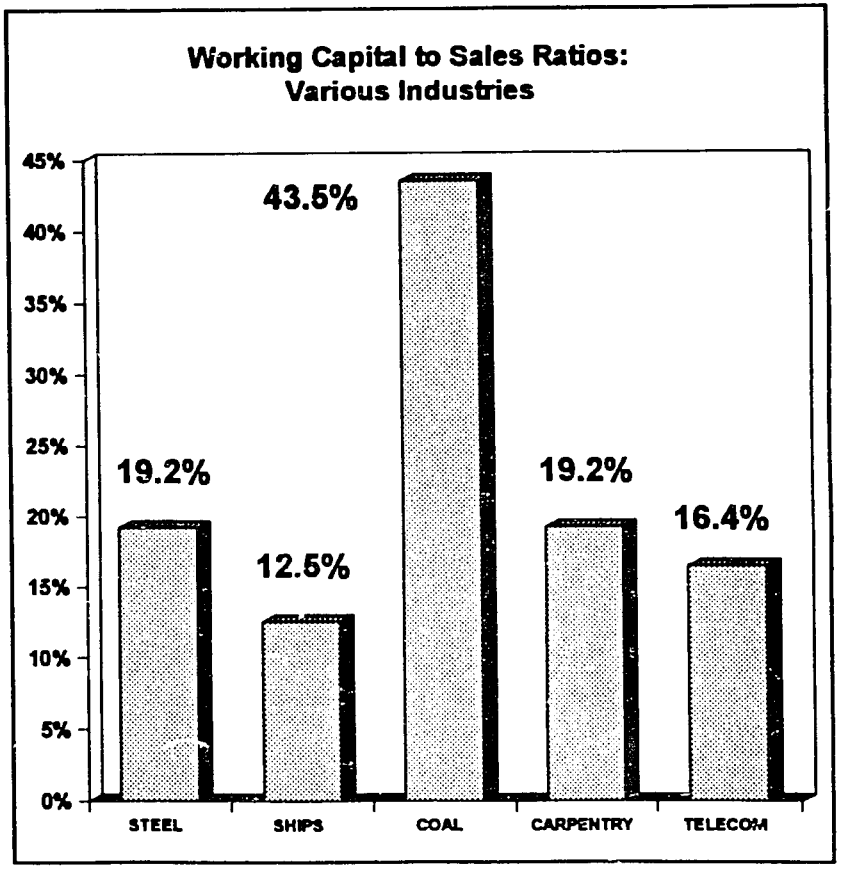
To improve financial flexibility



To manage, measure and create value

- ***Managing working capital***
  - ✓ estimating short-term cash requirements
  - ✓ managing inventory
- ***Timing capital expenditures***
- ***Managing capital needs (bank and equity financing)***
- ***Managing costs***
- ***Managing growth***

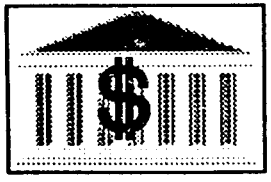
The graph at the right shows that different industries have different working capital requirements based on the unique characteristics of that industry.



Why is understanding and managing cash flow important?

Importance to company stakeholders

To improve the planning process



To improve financial flexibility

To manage, measure and create value

Understanding Cash Flow

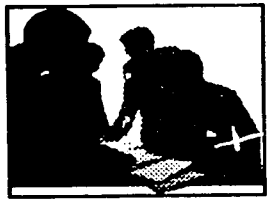
Importance to Improving Financial Flexibility

Short-term financing

Long-term financing

- *Obtaining credit - demonstrating creditworthiness and payback terms*
- *Managing debt levels - scheduling debt inflow/outflow*
- *Reducing interest costs - by managing debt levels*
- *Negotiating terms with lenders*
- *Negotiating terms with suppliers*
- *Analyzing financial restructuring alternatives*

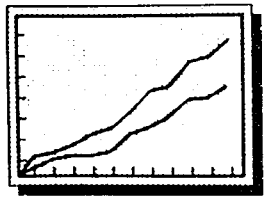
Why is understanding and managing cash flow important?



Importance to company stakeholders

To improve the planning process

To improve financial flexibility



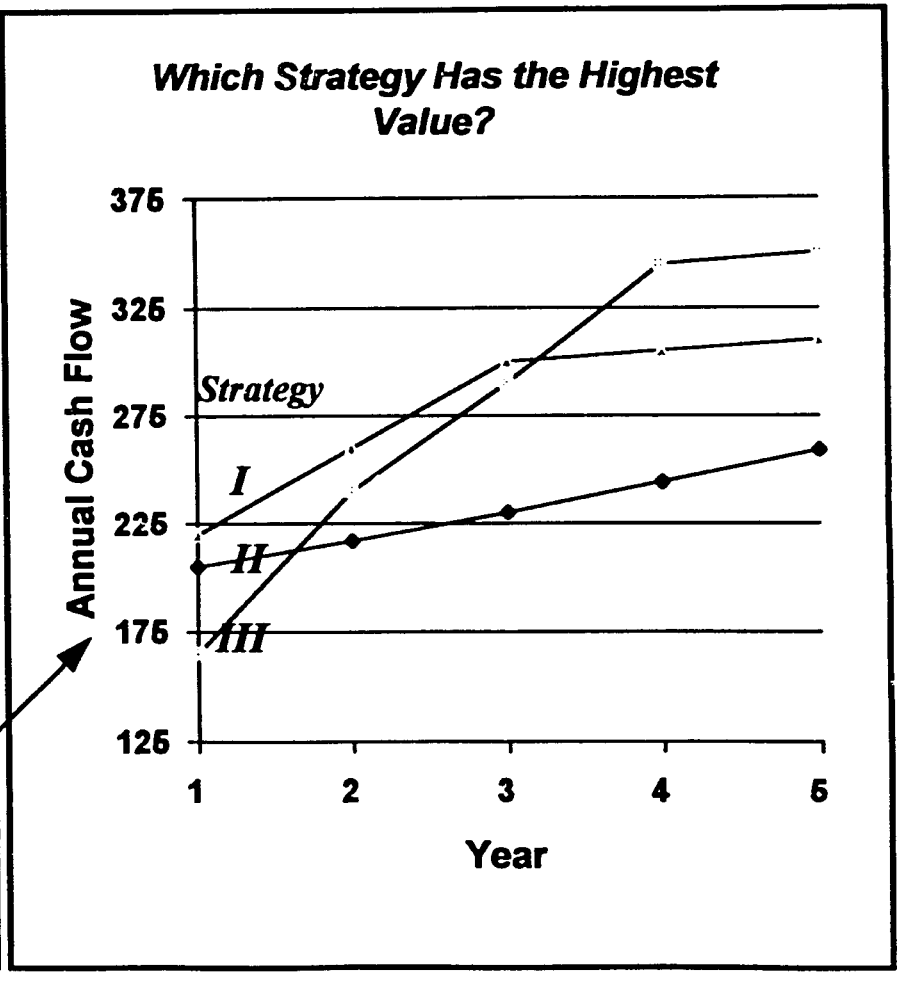
To manage, measure and create value

Understanding Cash Flow

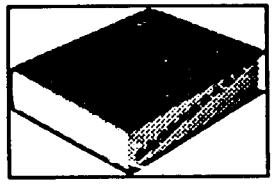
Importance to Managing, Measuring and Creating Value

- ☑ **Value can be measured through forecasted cash flows.**
- ☑ **Value can be managed by analyzing the impact on cash flow (and hence value) of management decisions.**
- ☑ **Value can be created by analyzing different strategies and determining which strategy has the greatest impact on value.**

Present value of each strategy:	
I	*1,163*
II	*963*
III	*1,158*

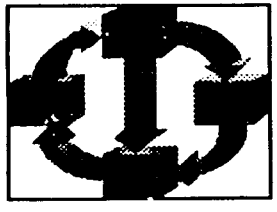


What are the components of cash flow?

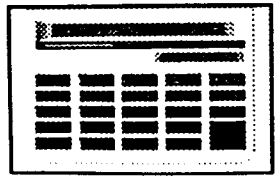


Definition and calculation of cash flow

Discussion of the components of cash flow



Reconciliation of earnings and cash flow



Exercise: calculating equity cash flow

- *For the purposes of our presentation, cash flow is defined as the amount of cash available to the investors/owners of a company after allowing for the company's financing, investment and working capital needs.*
- *This definition of cash flow is often referred to as "free cash flow."*
- *Cash flow can be calculated as "equity" or "debt free" cash flow.*
- *Equity cash flow is most often used by company management, lenders and owners since it takes into account the financing needs of the business.*
- *Debt free cash flow is often used by investors analyzing a purchase or merger with the company to determine the "debt capacity" of the business for the purposes of financing the acquisition with new debt.*

Throughout this course, we will focus on equity cash flow

Understanding Cash Flow

From net profit to cash flow...

Income Statement	
	Revenues
Less:	Cost of goods sold
Equals:	Gross margin
Less:	Operating expenses
Less:	Depreciation & amortization
Equals:	Profit before interest & taxes
Less:	Interest expense
Equals:	Profit before tax
Less:	Tax
Equals:	Net profit

Equity Cash Flow	
	Net profit
Plus:	Depreciation & amortization
	New debt
Minus:	Working capital requirements
	Capital expenditures
	Payments on debt
Equals:	Equity cash flow

Income Statement - based on accrual accounting:

- *Recognizes revenue in the period it is earned, regardless of when the cash is received.*
- *Recognizes expenses when they are incurred, not when the cash is paid.*
- *Capital expenditures and increases/decreases in debt are ignored.*

Understanding Cash Flow

How does cash flow differ from profits?

Cash flow attempts to match cash inflows and outflows by taking into account cash items that are excluded from profits.

- Capital expenditures
- Working capital
- New debt and debt payments

Profits attempt to match revenues earned during a specific period with the expenses incurred, without regard to actual cash receipts or disbursements.

Advantages of analyzing cash flow vs. profits

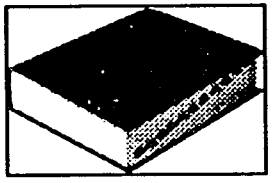
- ☑ Cash flows are not as volatile as profits.
- ☑ Stakeholders would rather be affiliated with a company that has cash to pay for its services than a profitable company that has used its cash and is not liquid.
- ☑ Cash flow includes capital expenditures and working capital needs, whereas profits include neither.

Managing profits vs. cash flow...

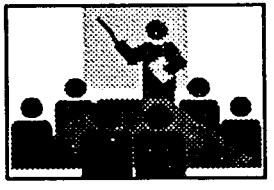
Profits are an *Opinion*	**Cash is a** *Fact*

Further discussion and exercises relating to managing profits versus cash flow will be provided in Module II.

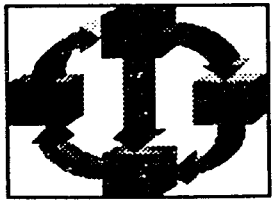
What are the components of cash flow?



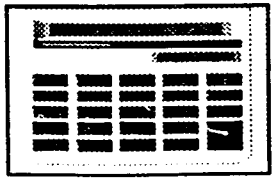
Definition and calculation of cash flow



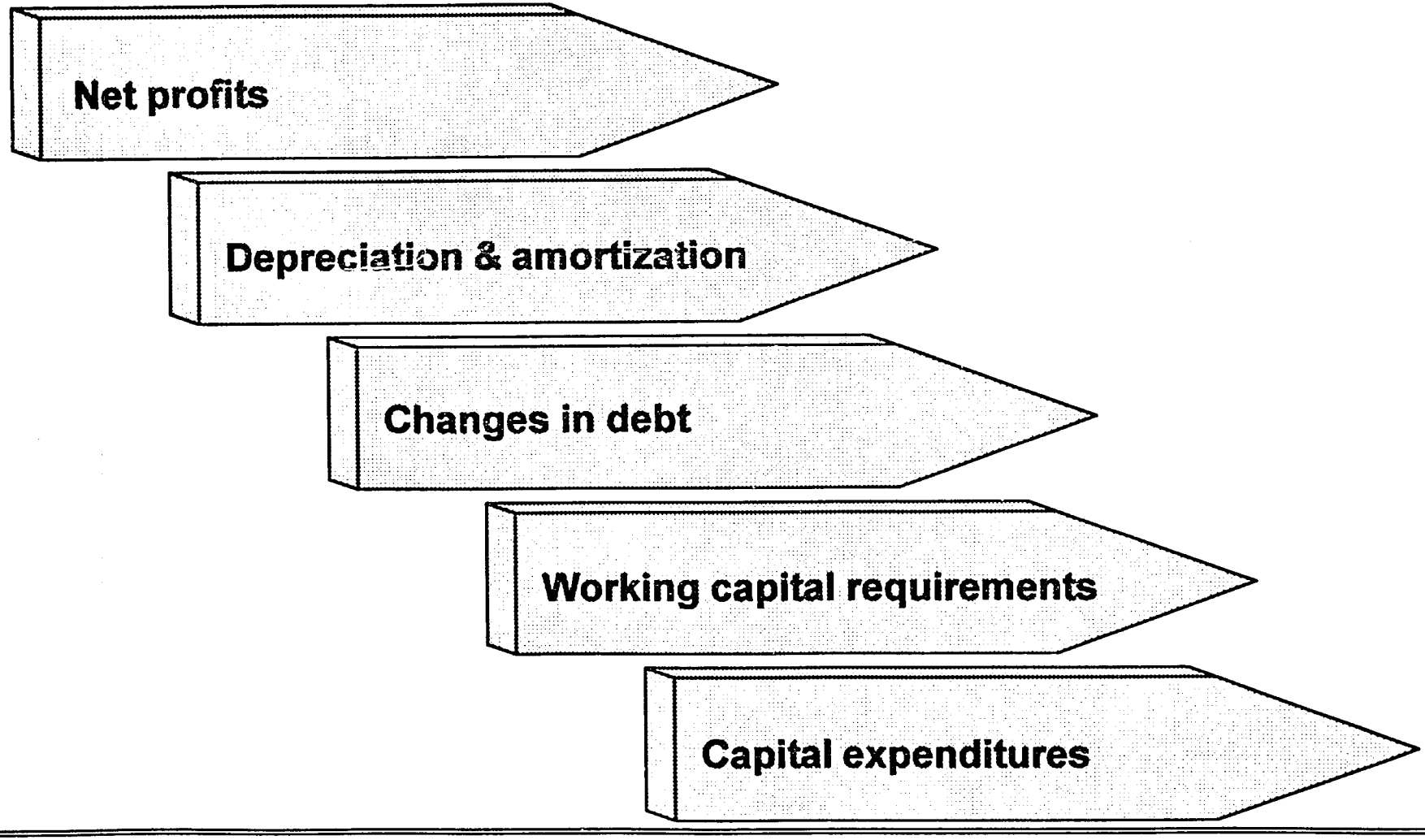
Discussion of the components of cash flow



Reconciliation of earnings and cash flow

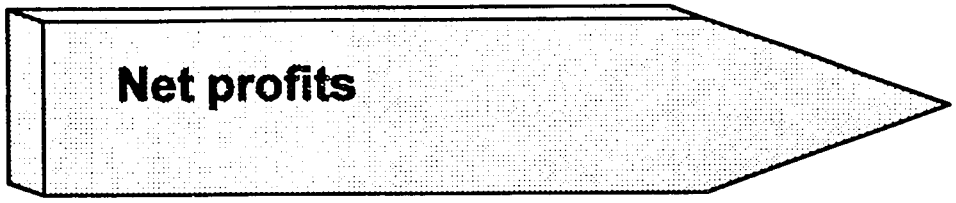


Exercise: calculating equity cash flow

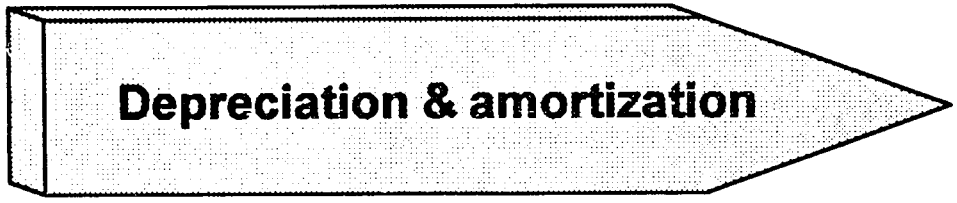

Net profits
Depreciation & amortization
Changes in debt
Working capital requirements
Capital expenditures

Understanding Cash Flow

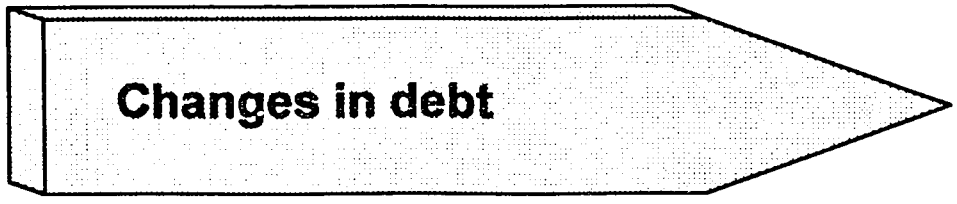
Discussion of the Components of Cash Flow



The starting point based on the accrual accounting system



Represents the non-cash expense items on the income statement



Based on new loans and the payments on existing loans during the period

Working capital requirements

The amount of cash withheld from cash flow to fund investment in receivables and inventory as a business grows

Current assets:
Those assets that can be converted readily into cash within a year

Cash, receivables, inventory

Current liabilities:
Those liabilities which generally are payable within a year

Short-term bank debts, current portion of long-term debt, accounts payable

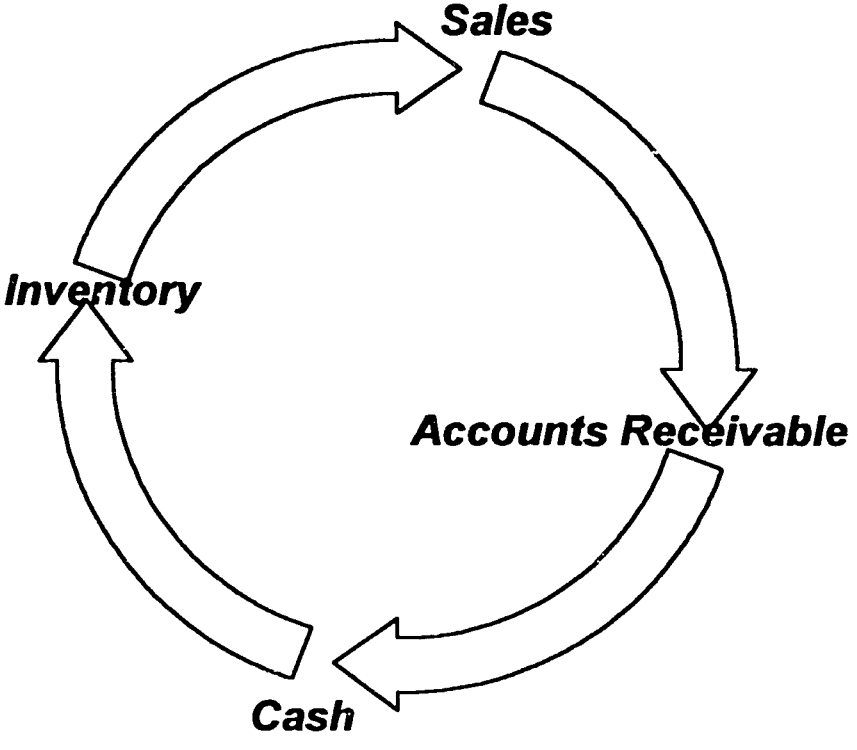
Working capital = current assets minus current liabilities

Working capital requirements (Continued)

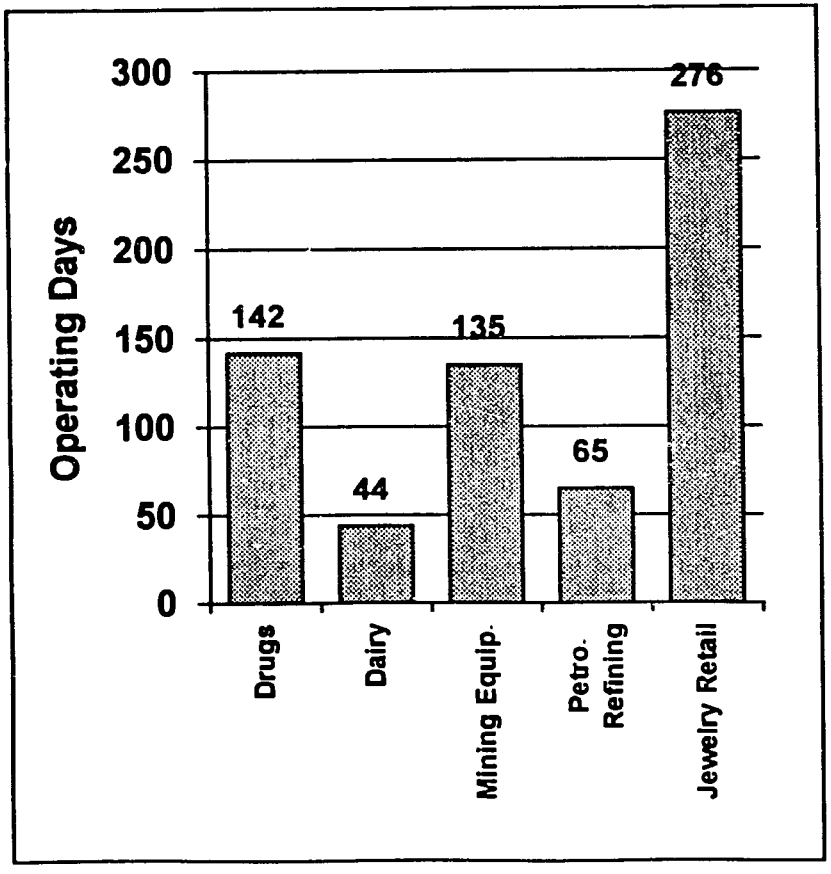
Working capital is a measure of a firm's liquidity

- The operating cycle is important in determining a company's liquidity.
- It represents the number of days from the purchase of inventory for cash, to the selling of the inventory on account, to the collection of the cash.
- It is equal to the average collection period of accounts receivable, plus the average age of the inventory.

The Operating Cycle:



Operating cycles for different industries...



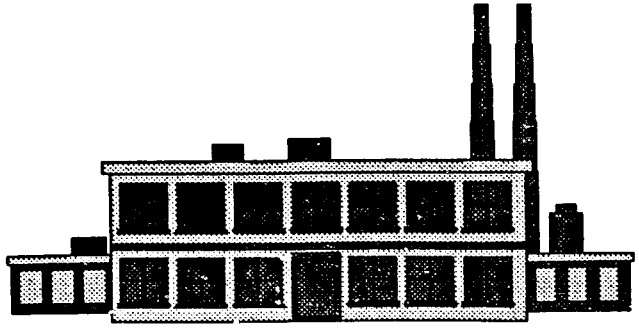
- *The chart to the left indicates that different industries have substantially different operating cycles.*
- *Shortening the operating cycle, through better working capital management, will increase profitability and thus cash flow.*

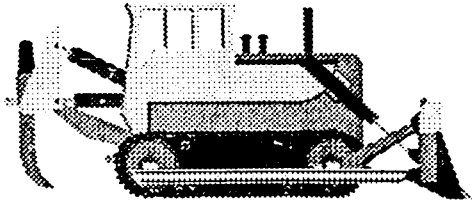
Capital expenditures

Represent investments made into plant and equipment

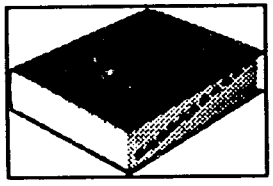
Includes investments to:

- ***expand production capacity***
- ***replace existing assets as they deteriorate or become obsolete***

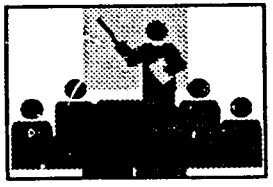




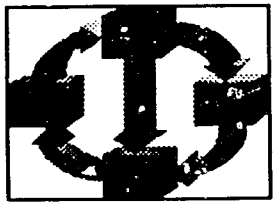
What are the components of cash flow?



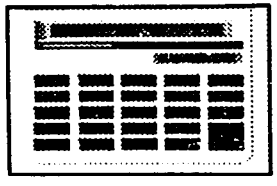
Definition and calculation of cash flow



Discussion of the components of cash flow



Reconciliation of earnings and cash flow



Exercise: calculating equity cash flow

Converting net income to cash flow is a three step process that involves accounting for the:

1. *Impact of changes in the working capital accounts*
2. *Impact of investment in fixed assets*
3. *Impact of financing activities*

1 ***Impact of changes in the working capital accounts...***

Account	Change	Effect on Cash Flow
Current assets	Increase	Decrease
Current assets	Decrease	Increase
Current liabilities	Increase	Increase
Current liabilities	Decrease	Decrease
Working capital	Increase	Decrease
Working capital	Decrease	Increase

This chart shows how changes in the working capital accounts during a period affect cash flow.

Examples:
- ***Receivables increase***
- ***Inventories increase***
- ***Payables increase***

Example: receivables increase...

An increase in receivables during a period means that cash flow from revenues is less than the revenue figure shown in the income statement.

Beginning receivables	***$ 800,000***
Revenues	***9,000,000***
	9,800,000
Ending receivables	***1,000,000***
Cash flow realized	***$8,800,000***

Thus cash flow from revenues is calculated as revenues from the income statement less the increase in accounts receivable. This is because sales were recorded during the period for which the cash will be collected in a later period.

Example: inventories increase...

- *An increase in the level of inventory involves cash payments for materials, labor and overhead.*
- *However, for accrual accounting purposes, the investment in additional inventory is recorded as an asset on the balance sheet and not included in the cost of goods sold figure as an expense until sold.*
- *Thus, if inventory increases, cash was spent that was not recorded on the income statement, and cost of goods sold must be adjusted to a cash basis by increasing this expense category.*

Cost of sales, per the income statement	*$6,500,000*
Plus: increase in inventory during the period	*900,000*
Cost of sales on a cash basis	*$7,400,000*

This example shows an increase in inventory increases expenses and lowers operating earnings on a cash basis.

Example: payables increase...

Accounts payable and accrued liabilities represents unpaid invoices for items already included as expenses on the income statement, or for increases in inventory on the balance sheet.

Thus the costs of sales, or general and administrative expenses in the income statement overstate the cash outflow by the amount of increase in the payables accounts.

Stated another way, cash is paid after the expense is recognized.

General & administrative expenses	***$500,000***
Less: increase in accounts payable	***100,000***
General & administrative on a cash basis	***$400,000***

Expenses are lower on a cash basis when payables have increased...thus earnings on a cash basis are higher.

2 *Impact of investment in fixed assets...*

- ***Depreciation***

  Depreciation is an expense recorded on the income statement and represents an allocation of the cost of assets purchased in the current and prior years.

  Thus it is not a cash outlay and must be added back to net income to calculate cash flow.

- ***Capital expenditures***

  Capital expenditures are not expensed when acquired, but rather through the depreciation expense over the life of the asset.

  Thus the cash outlay for capital expenditures must be deducted in calculating cash flow.

  Sales of fixed assets also represent cash flow not recorded on the income statement.

3 *Impact of financing activities...*

- ***Represents transactions with the company's shareholders or long-term creditors.***

Sources of cash from financing activities include:	**Uses of cash from financing activities include:**
Issuing shares **Borrowing long-term funds**	**Reacquiring shares** **Repaying long-term loans** **Paying dividends**

Reconciliation of Earnings and Cash Flow

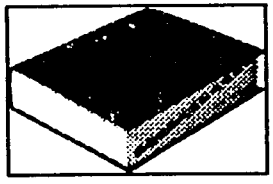
	Earnings	Adjustment	Cash Flow
Sales	$10,000,000		
- increase in accounts receivable		$200,000	$9,800,000
Cost of sales	8,000,000		
+ increase in inventories		300,000	
- increase in payables		50,000	8,250,000
General & administrative expenses	1,000,000		
- increase in payables		10,000	990,000
Net increase in working capital		440,000	
Depreciation expense	100,000		
Capital expenditures			150,000
Income before tax	900,000		
Income taxes (accrued)	400,000		
Net income	*500,000*		
Loan proceeds			30,000
Cash flow			40,000

Calculating cash flow from net income...

Net income	$500,000
Plus: depreciation	100,000
Plus: loan proceeds	30,000
Minus: increase in working capital	(440,000)
Minus: capital expenditures	(150,000)
Equity cash flow	$ 40,000

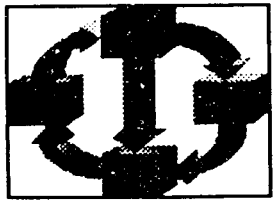
...gives the same results found on the previous page.

What are the components of cash flow?

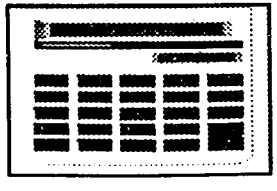


Definition and calculation of cash flow

Discussion of the components of cash flow



Reconciliation of earnings and cash flow



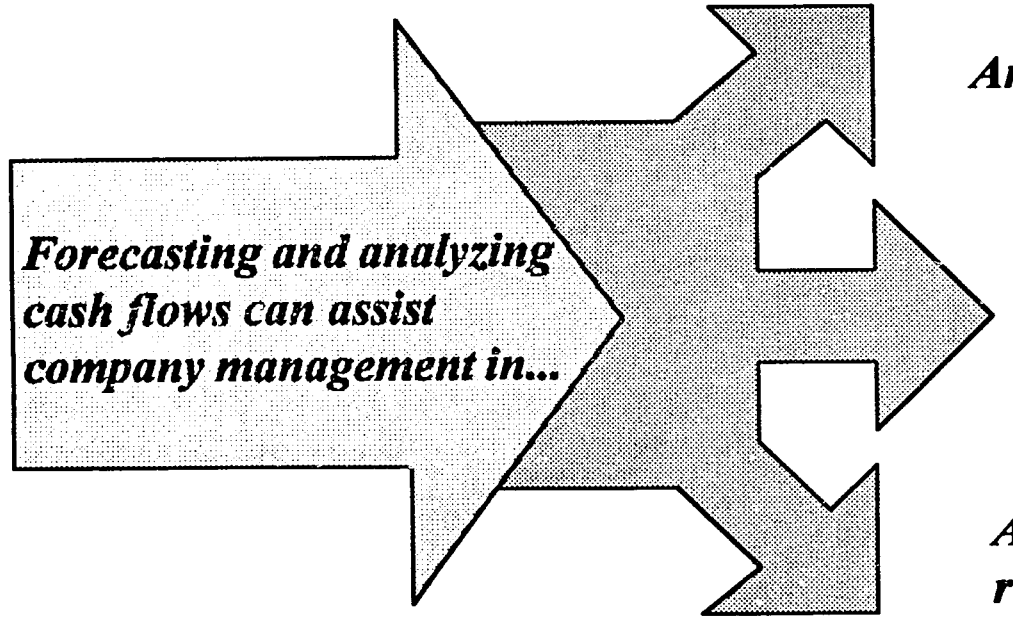
Exercise: calculating equity cash flow

Exercise: Calculating Equity Cash Flow

See Handout

Utilizing Discounted Cash Flow as a Management Planning Tool

The Importance of Forecasting Cash Flows



- Managing operations
- Analyzing strategic plans
- Analyzing capital budgeting decisions
- Analyzing operational restructuring alternatives
- Analyzing financial restructuring alternatives
- Managing shareholder value

The Importance of Financial Analysis in Forecasting Cash Flows

➔ ***Importance to diagnosing the financial condition of the company.***

- ☞ *identify areas of weakness to focus on in strategic planning.*
- ☞ *analyze trends and identify problem areas for strategic focus.*
- ☞ *provide a basis for assessing the risk of investment in your company.*

➔ ***Importance to forecasting cash flow components.***

- ☞ *growth*
- ☞ *costs & margins*
- ☞ *working capital requirements*
- ☞ *capital investment*
- ☞ *optimum debt levels*
- ☞ *the discount rate*

Financial Analysis - The Process

1. **Transformation of the accounts.**
2. **Financial statement adjustments to normalize operations.**
3. **Ratio analysis: liquidity, leverage and operating ratios and common size balance sheets and income statements.**
4. **Comparable company financial analysis.**
5. **Analysis of trends and unusual items.**

Financial Analysis - The Process

1 Transformation of the accounts.

- ➢ involves restating or reformatting the accounts from the local accounting standard to an internationally acceptable accounting format or standard.
- ➢ Common adjustments include: fixed assets and depreciation, revenue recognition, inventory and receivable adjustments.
- ➢ Provides a better basis of comparison when comparing the subject company's financial data to companies in other countries.
- ➢ Investors often ask that a transformation be performed to improve the quality of the data.

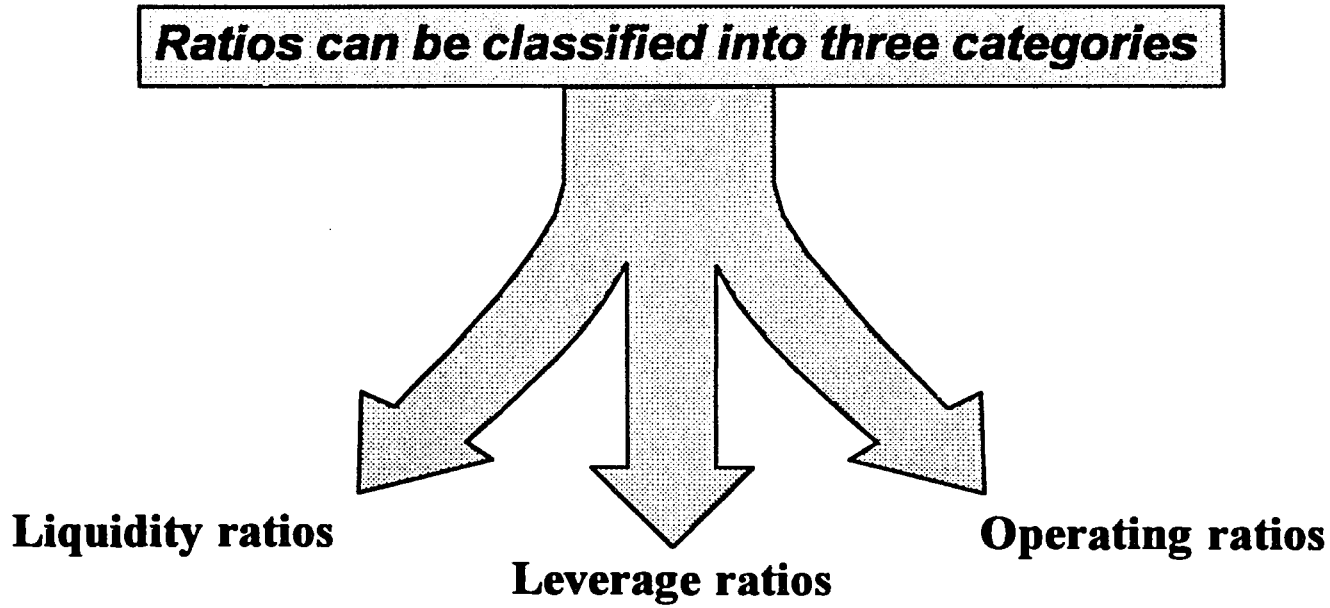
Financial Analysis - The Process

2 **Financial statement adjustments to normalize operations.**

- ➢ These adjustments differ from a transformation.
- ➢ They are based on adjustments to "normalize" operations so that a true level of operating income can be analyzed.
- ➢ Examples of adjustments include:
  - ✓ non-recurring income and expenses
  - ✓ income and expenses relating to excess assets and non-operating assets.
  - ✓ related party (or company) revenue or expenses.

Financial Analysis - The Process

❸ Ratio analysis and commons size financial statements



Financial Analysis - The Process

❸ Ratio analysis - liquidity ratios

- *Liquidity ratios provide the following information:*
  - *the ability of the company to pay its current obligations.*
  - *how well the company is managing inventory and receivables.*
  - *whether the company has excess or deficient working capital.*
  - *the working capital component of the cash flow forecast.*

- *Liquidity ratios include the following:*
  - *current ratio*
  - *quick ratio*
  - *days' receivables*
  - *days' inventory*
  - *days' payables*
  - *working capital to sales*

Financial Analysis - The Process

❸ Ratio analysis - leverage ratios

- *Leverage ratios provide the following information:*
  - *the ability of the company to pay its long-term obligations.*
  - *the level of financial risk in the company.*
  - *whether there is any "debt capacity" (to finance capital investment), or if the company has too much debt.*

- *Leverage ratios include the following:*
  - *interest coverage ratio*
  - *long-term debt to total capital*
  - *interest expense to revenue*

Financial Analysis - The Process

❸ Ratio analysis - operating ratios

- ***Operating ratios provide the following information:***
  - ***a measure of how efficiently assets are being utilized.***
  - ***the return provided the investors on their capital.***
  - ***the return provided on assets.***
  - ***how efficiently assets are being utilized.***

- ***Operating ratios include the following:***
  - ***return on equity***
  - ***return on assets***
  - ***sales to assets***
  - ***sales to fixed assets***
  - ***return on sales***

See ratio handout for definition, calculation and interpretation of these financial ratios...

Financial Analysis - The Process

3 **Ratio analysis: common size balance sheets and income statements.**

Common size balance sheets are simply all asset accounts expressed as a percent of total assets

Common size income statements are simply all revenue and expense account expressed as a percent of revenues

Common size balance sheets and income statements provide:

- ***a basis for trend and comparative analysis***
- ***analysis of balance sheet structure, and***
- ***analysis of income statement margins.***

Financial Analysis - The Process

4 Comparable company financial analysis.

- ☞ *Comparative analysis is used to measure how well the company compares to similar companies in the areas of liquidity, leverage, utilization and returns.*
- ☞ *It is an important factor in assessing the risk of the business, which in turn affects the discount rate selection.*
- ☞ *The company can be compared to individual similar companies, or to an average for the industry.*
- ☞ *The comparison is based on the ratios and common size financial statements.*

Financial Analysis - The Process

❺ Analysis of trends and unusual items.

- ***Trend analysis focuses on examining how accounts have changed over time.***
  - ***For example, examining the operating income margin to determine if it has been stable, or if it has varied significantly, why.***
- ***Unusual items that seem out of place compared to other years or compared to industry averages should be investigated to determine why. These items could provide the basis for adjustments to normalize income.***

Financial analysis - key factors to consider in forecasting cash flows...

- ☑ **Does the company have adequate liquidity? Is there excess or deficiency in working capital? What is the required working capital as a percent of sales?**
- ☑ **Does the company have too much debt? Does the company have the ability to borrow in the future if needed? Does the company have debt capacity?**
- ☑ **Are the margins for the company acceptable? Are they improving, declining or stable?**
- ☑ **Are there any non-operating assets not contributing to the production of cash flow?**

Financial analysis - key factors to consider in forecasting cash flows...

- ☑ **Is the overall trend in the business (sales, profits, etc.) improving, stable or getting worse?**
- ☑ **How does the company compare with its competitors in terms of liquidity, margins, debt structure, etc.?**
- ☑ **Based on your financial analysis of the company would you say that the company had below average, average, or above average risk?**

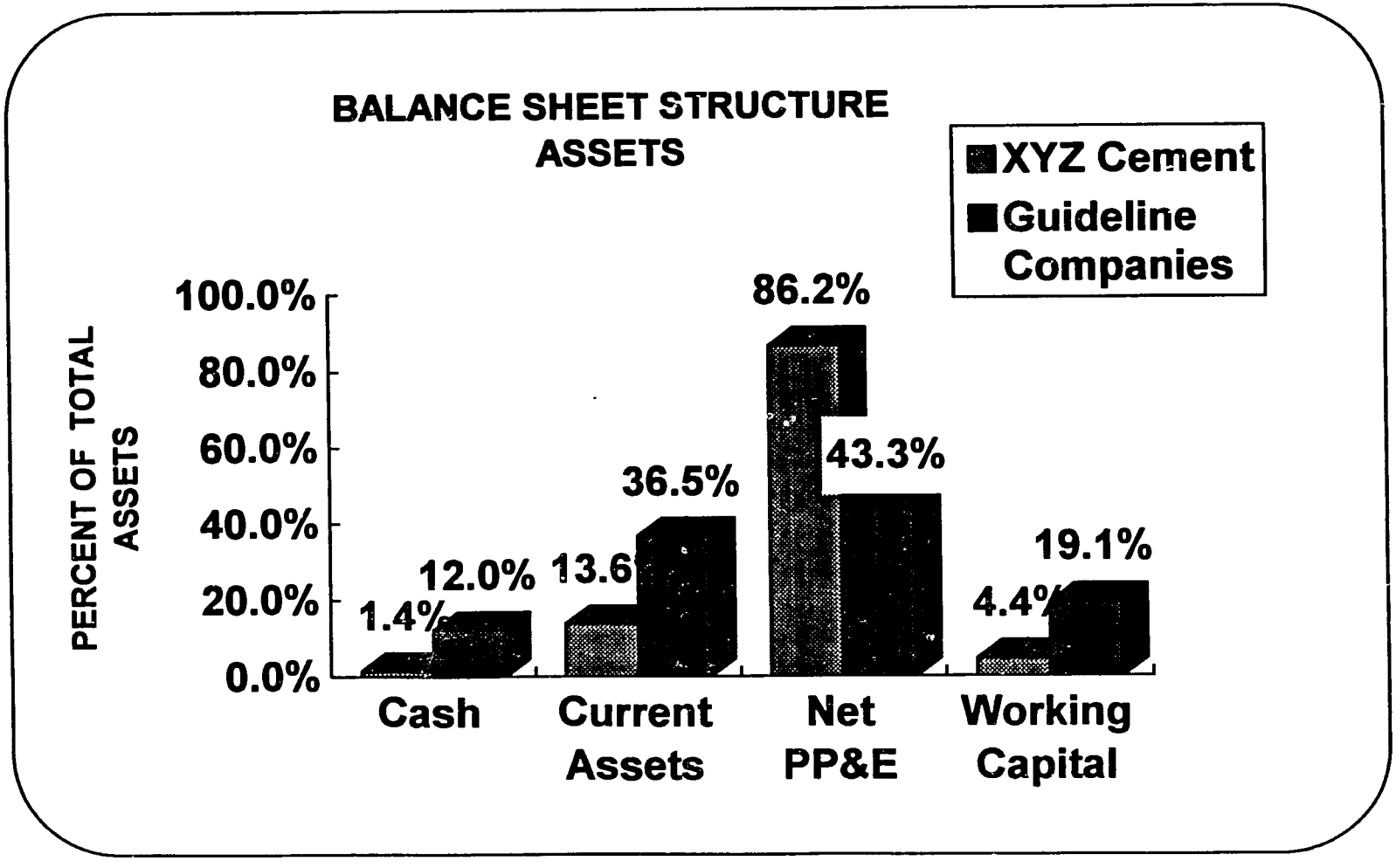
The results of the financial analysis should be one of the key factors in determining:

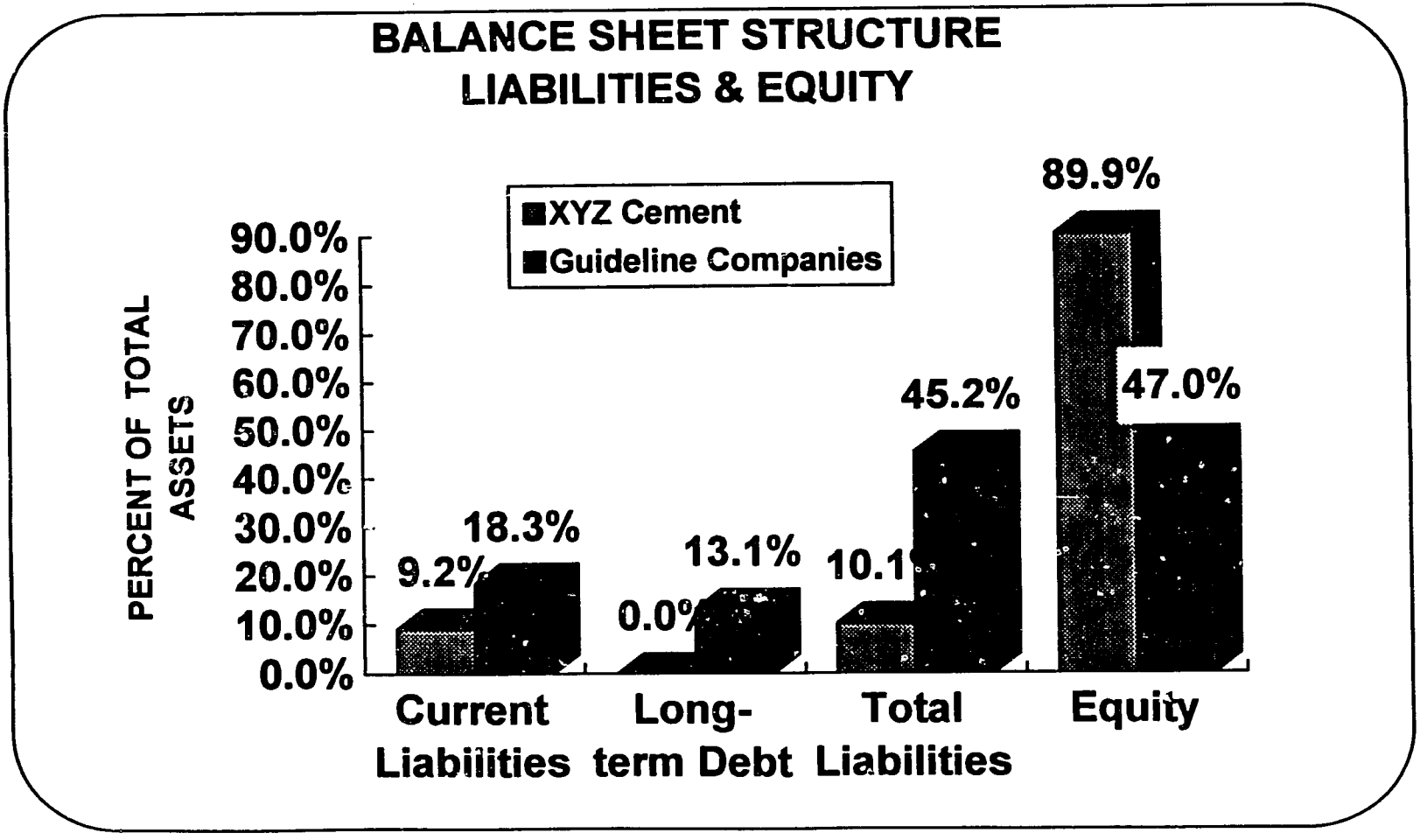
The variables used in preparing the discounted cash flow forecast.

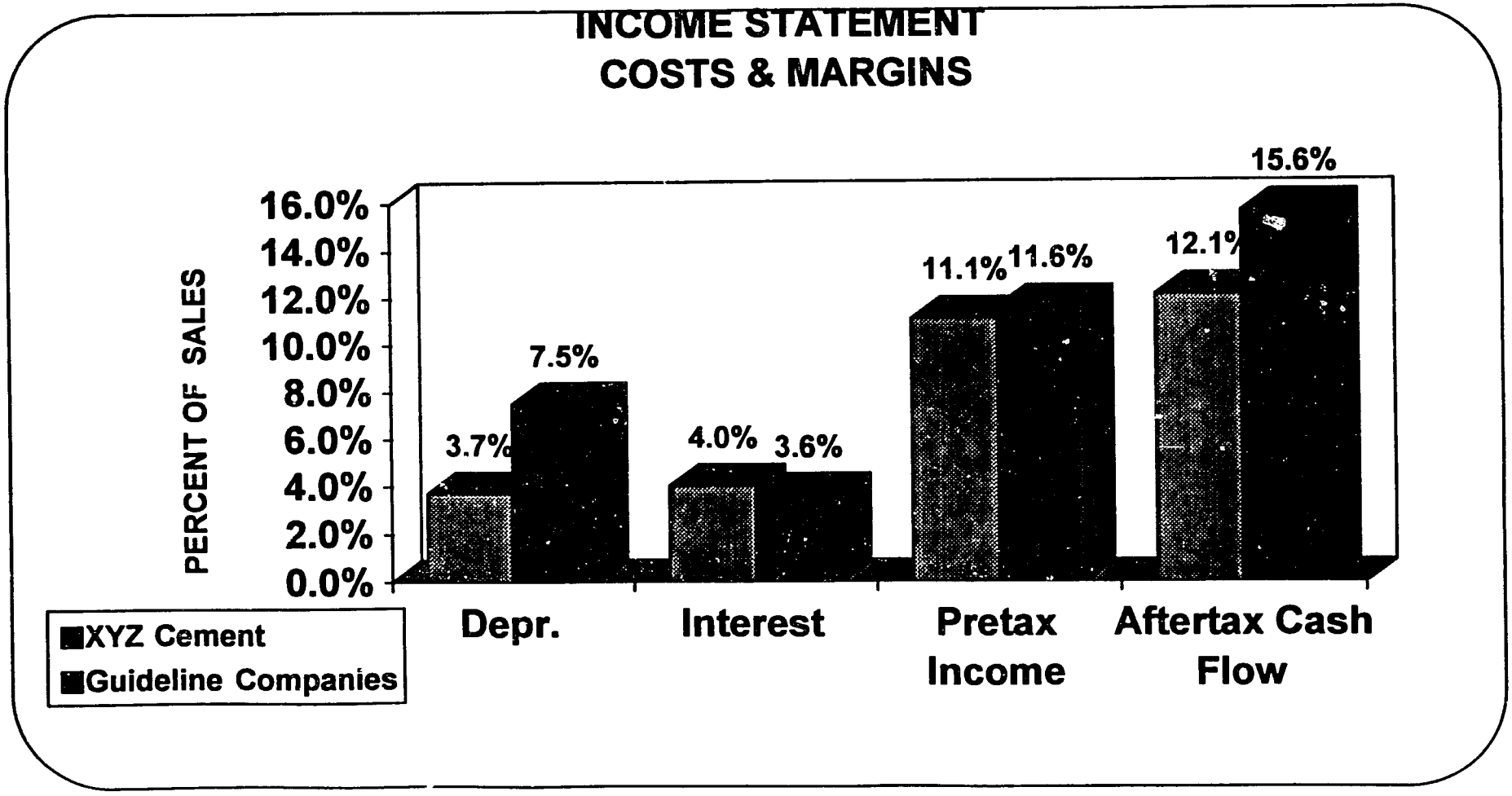
The discount rate to be applied to determine the present value of future cash flows.

Exercise: Financial Analysis

See Handout


BALANCE SHEET STRUCTURE
ASSETS
XYZ Cement
Guideline Companies
PERCENT OF TOTAL ASSETS
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
1.4%
12.0%
13.6
36.5%
86.2%
43.3%
4.4%
19.1%
Cash
Current Assets
Net PP&E
Working Capital


BALANCE SHEET STRUCTURE
LIABILITIES & EQUITY
XYZ Cement
Guideline Companies
PERCENT OF TOTAL ASSETS
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
9.2%
18.3%
0.0%
13.1%
10.1%
45.2%
89.9%
47.0%
Current Liabilities
Long-term Debt
Total Liabilities
Equity


INCOME STATEMENT
COSTS & MARGINS
PERCENT OF SALES
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
3.7%
7.5%
4.0%
3.6%
11.1%
11.6%
12.1%
15.6%
Depr.
Interest
Pretax Income
Aftertax Cash Flow
XYZ Cement
Guideline Companies

SELECTED FINANCIAL RATIOS

Ratio	XYZ Cement	Guideline Companies
Working Capital/Sales	11.4%	28.4%
Current Ratio	1.48	2.14
Interest Coverage	3.4	4.1
Pretax Return on Assets	4.3%	8.7%
Pretax Return on Equity	4.8%	17.3%
Asset Turnover	.39	.57

Framework of the Discounted Cash Flow (DCF) Model

The DCF model is the most commonly used method to determine the value of a company...

...throughout the 4 modules in this course, we will use the DCF model to estimate company value, analyze the impact of management decisions on value, and study the impact on company value of different restructuring alternatives...

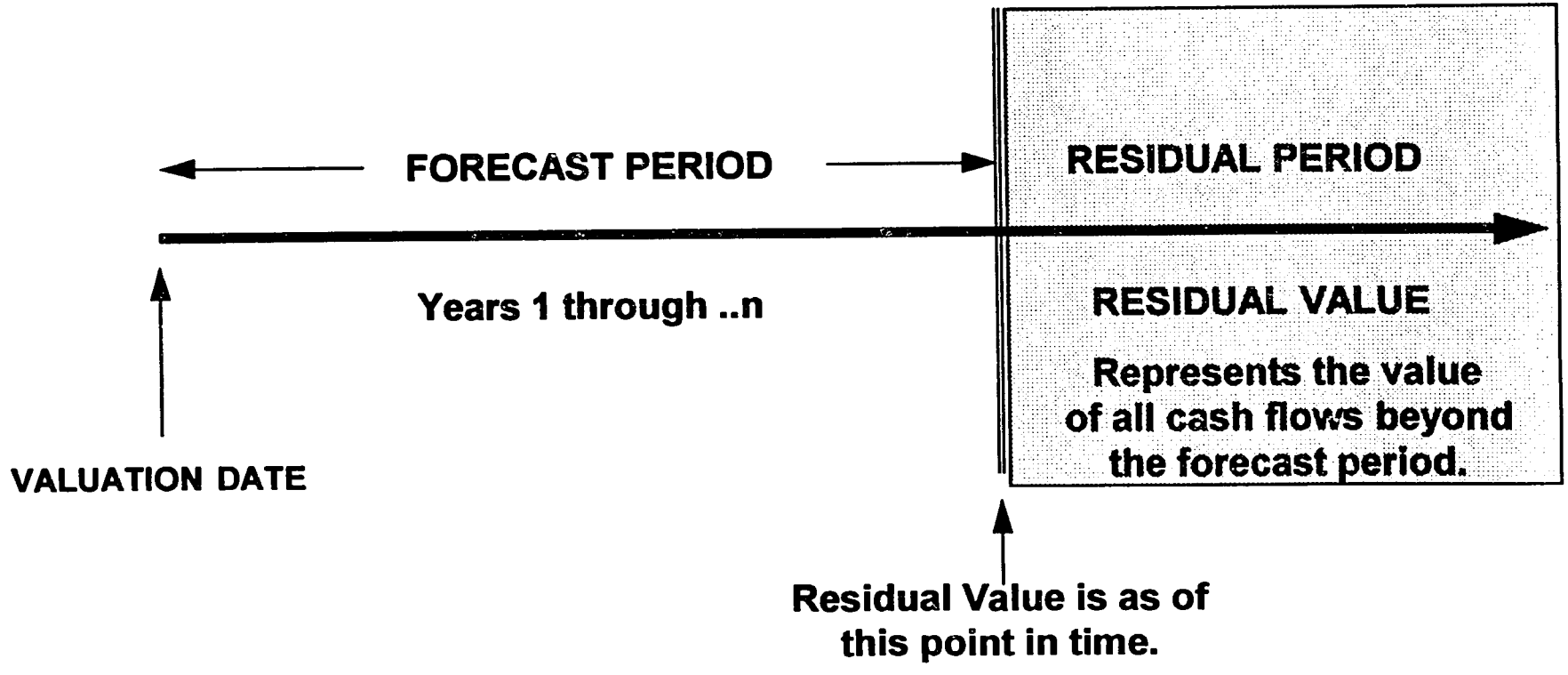
Framework of the Discounted Cash Flow (DCF) Model

Theory

- ***This valuation method is based on the theory that the value of an investment in a business depends on the future benefits (e.g., cash flow) that will accrue to the owner or investor in that business.***
- ***These future cash flows are then discounted back to their present value equivalent using a discount rate that matches the investor's required rate of return.***
- ***The investor's required rate of return is based on his analysis of the risk of investing in the business and in the risk of receiving the expected future cash flow.***

Framework of the Discounted Cash Flow (DCF) Model

DCF model components...



Steps to prepare the DCF Model...

1. Select the definition of cash flow to be used.
2. Analyze revenues and prepare the revenue forecast.
3. Analyze expenses and prepare an expense forecast.
4. Analyze investments and prepare an investment forecast.
5. Calculate cash flow for each year.
6. Calculate the residual value.
7. Determine the appropriate discount rate.
8. Calculate the present value of the future cash flows and residual value and sum both values.
9. Make any final adjustments.
10. Perform review procedures.

❶ Select the definition of cash flow to be used.

As stated earlier, the definition of cash flow is as follows:

EQUITY CASH FLOW

equals

NET INCOME

PLUS

NON-CASH ITEMS
(DEPRECIATION, AMORTIZATION)
INCREASES IN LONG-TERM DEBT

MINUS

INCREMENTAL WORKING CAPITAL
CAPITAL INVESTMENT
DECREASES IN LONG-TERM DEBT

❷ Analyze revenues and prepare the revenue forecast.

- **Revenue forecast analysis considerations:**
  - ☞ Forecast units and prices, or overall growth in revenues
  - ☞ Consider of export versus domestic sales
  - ☞ Capacity to produce
  - ☞ Impact of capital investment
  - ☞ Long-term growth in the residual period

- **Consideration should also be given to:**
  - ☞ Historical growth
  - ☞ The economic outlook
  - ☞ The outlook for the industry, including competition
  - ☞ Demand for the product
  - ☞ Expected product price increases
  - ☞ Product mix

...over what period should cash flows be forecasted in estimating the value of a company?

❸ Analyze expenses and prepare an expense forecast.

- *Expense Analysis:*
  - ☞ Consider historical relationships and trends.
  - ☞ Examine fixed versus variable costs.
  - ☞ Inflation considerations for each category.
  - ☞ Examine unusual and non-recurring expenses that may be included in historical figures, but will not occur in the future.
  - ☞ Depreciation should be based on existing levels plus an analysis of additions and retirements of equipment in the future.
  - ☞ Interest expense should be based on the forecasted debt levels.
  - ☞ Compare forecasted margins to competitors or to industry guideline data for reasonableness.

❹ Analyze investments and prepare an investment forecast.

Analysis of investments consists of three components:

Working Capital:	Capital Investment:	Financing Needs:
Analysis of working capital includes: Examining the adequacy of the beginning amounts; and The incremental amounts needed to fund future growth in the business.	Represents the investment needed to: Replace existing assets as they wear out; and To purchase or build new assets to increase production capacity in the future.	Represents borrowings and repayments of long term debt; and Issuance of shares
• *Based on forecasting the individual components of working capital, or* • *Based on a percent of change in sales.*	• *Based on the estimated remaining useful lives of the assets; and* • *Based on new equipment for replacement and expansion.*	• *Based on financing requirements and existing debt levels and repayment schedules.*

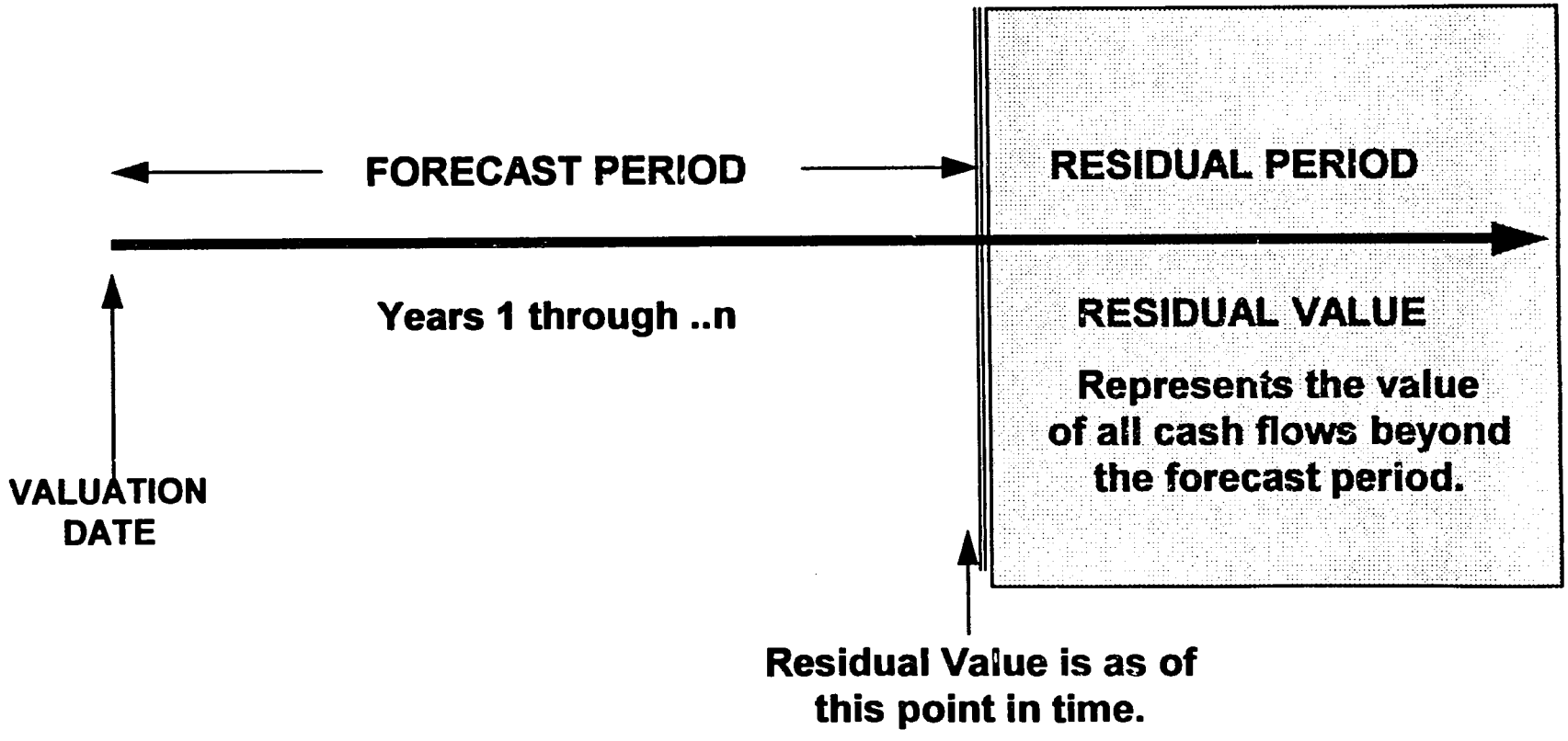
Exercise: Forecasting Working Capital

❺ Calculate cash flow for each year.

Once revenues and expenses, working capital requirements, capital investment and financing requirements have been forecasted, future cash flows during the forecast period can be calculated based on the equity cash flow model.

The next step is to determine the value of the cash flows for the period beyond the forecast period...

❻ Calculate the residual value.



❻ Calculate the residual value.

- Methods of calculation
  - Gordon Model
  - Assumed sale
  - Net asset value
  - Liquidation value

- Gordon Model assumes continued ownership of business.
- The "assumed sale" method is based on some multiple of cash flow or earnings at the end of the forecast.
- Key assumptions for both the Gordon Model and "assumed sale" methods:
  - Depreciation and capital expenditures should be equal in the residual period.
  - Length of forecast period must be until a stable level of growth is achieved; the residual period must assume a long-term stable growth rate.

❻ Calculate the residual value.

Methods - continued...

- Net Asset Value - projected remaining book value of assets is used as the residual value. Not a good approach for a going concern, profitable business.
- Liquidation Value - projected liquidation value of the assets is used as the residual value. Again, not a good approach for a going concern, profitable business.
- Example of the Gordon Model.

❻ Calculate the residual value.

The Gordon Model

- **COMMENTS:**
  - This formula represents the value of all cash flows remaining beyond the end of the forecast period.
  - The value is as of the end of the forecast period, thus the residual value must be discounted to arrive at its present value.
  - The model assumes a constant growth in cash flow.
  - The conclusion provided by the Gordon Model should be close to the same answer as if continuing the cash flow model into infinity.

- **FORMULA:**

$$\frac{\text{CASH FLOW IN THE RESIDUAL PERIOD}}{\text{(DISCOUNT RATE -- LONG-TERM GROWTH RATE*)}}$$

* represents the long-term growth rate in cash flow.

❻ Calculate the residual value.

The Gordon Model - example

- Cash flow in year 5 equals 1,000.
- Expected long-term growth in cash flow is 3%.
- The equity discount rate is 20%.
- Residual value calculation:

$$\frac{(1{,}000 * 1.03)}{(.20-.03)} = 6{,}059$$

❼ Determine the appropriate discount rate.

Definition

The term "discount rate" has been defined by the American Society of Appraisers as:

> ***a rate of return used to convert a monetary sum, payable or receivable in the future, into present value.***

❼ Determine the appropriate discount rate.

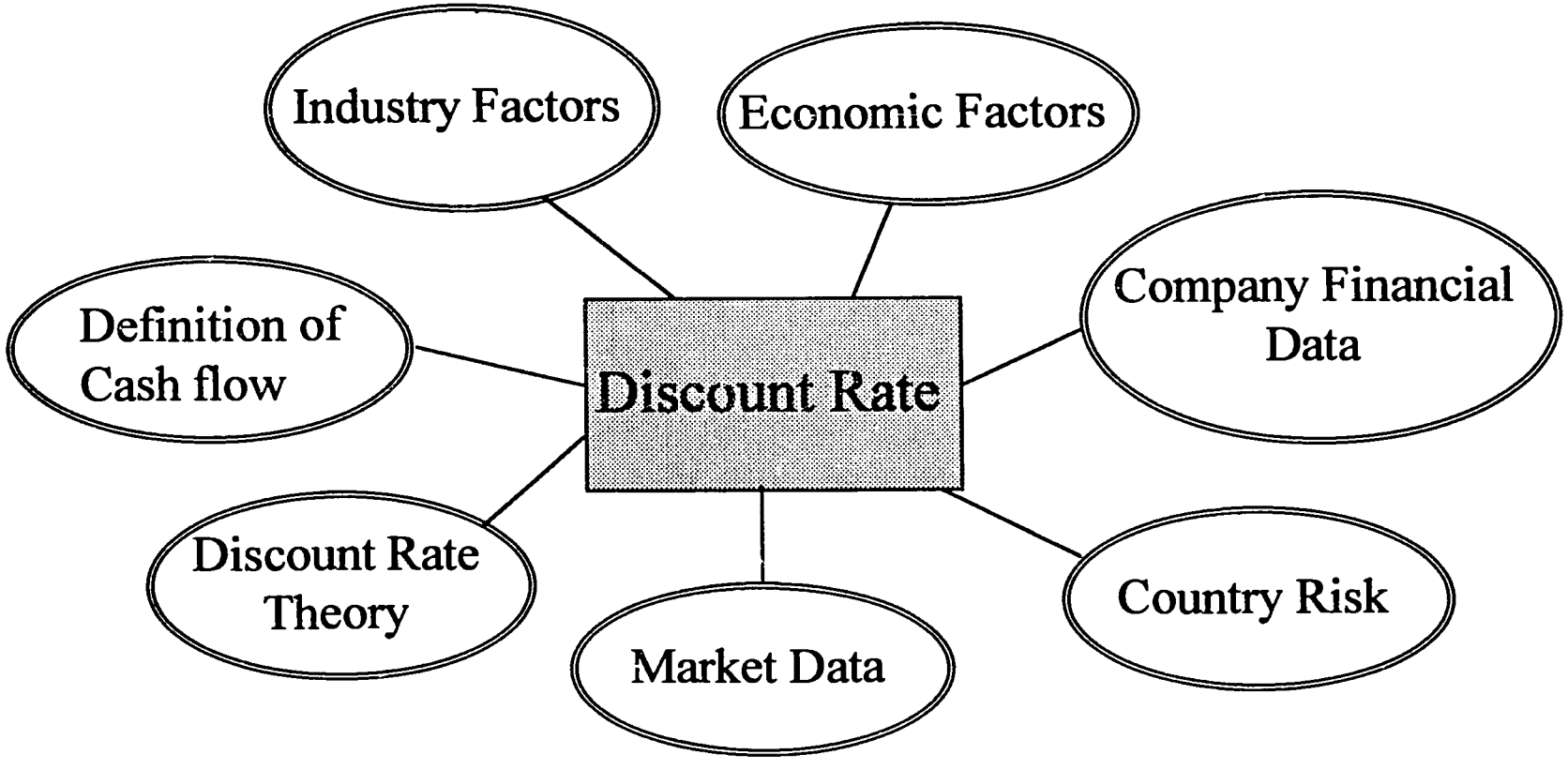
Definition - continued

- ***Thus the discount rate is used to determine the amount an investor would pay today (present value) for the right to receive an anticipated stream of payments (e.g., cash flows) in the future.***

- ***Generally, in the context of a business valuation, the discount rate is the rate of return that would be required by an investor to purchase the stream of expected benefits (e.g., future cash flows), given the risk of achieving those benefits.***

❼ Determine the appropriate discount rate.

Factors to consider in selecting the rate...



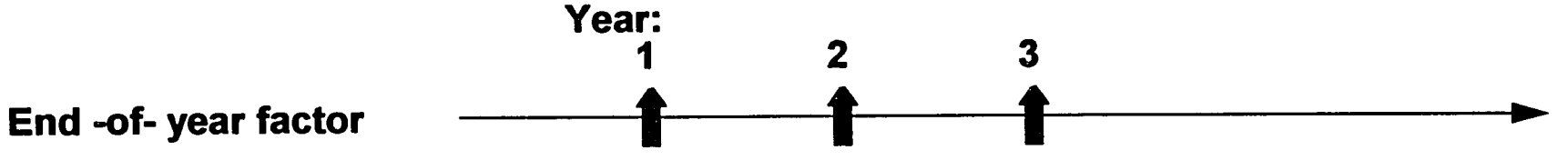
❽ Calculate the present value of the future cash flows and residual value.

Present value theory

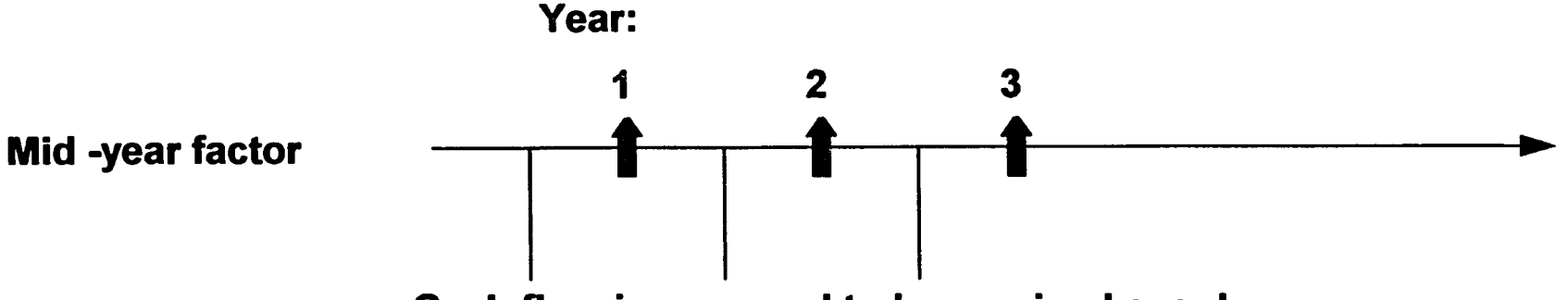
- Is based on the fact that one can invest $1 today and, through investment return on that $1, receive more than $1 in the future.
- Example: if you invested $1 today to earn 10%, in one year your investment would be worth $1.10. The *future value* in this case would be $1.10 and the *present value* is $1.00
- Conversely, if you knew that you would receive $1.10 in the future, and your required rate of return was 10%, what amount would that future $1.10 be worth to you today?

❽ Calculate the present value of the future cash flows and residual value.

Time value of money - timeline



Cash flow is received at the end of each period.



Cash flow is assumed to be received evenly during the year. For calculation purposes cash flow is assumed to be distributed at the mid-point of the year.

❽ Calculate the present value of the future cash flows and residual value.

End-of-year & mid-year factors

End-of-year formula:

$$PVF = \frac{1}{(1+r)^{n}}$$

Mid-year formula:

$$PVF = \frac{1}{(1+r)^{(n-.5)}}$$

Where: PVF = present value factor
r = discount rate n = number of periods

Example calculations:

- **End-of-year**
- **Mid-year**
- **Beginning period is less than 1 year**

Deloitte & Touche LLP

DISCOUNT RATE TABLES
END-OF-YEAR AND MID-YEAR FACTORS

END -OF-YEAR FACTORS

RATE	YEAR: 1	2	3	4	5
15.0%	0.870	0.756	0.658	0.572	0.497
16.0%	0.862	0.743	0.641	0.552	0.476
17.0%	0.855	0.731	0.624	0.534	0.456
18.0%	0.847	0.718	0.609	0.516	0.437
19.0%	0.840	0.706	0.593	0.499	0.419
20.0%	0.833	0.694	0.579	0.482	0.402
21.0%	0.826	0.683	0.564	0.467	0.386
22.0%	0.820	0.672	0.551	0.451	0.370
23.0%	0.813	0.661	0.537	0.437	0.355
24.0%	0.806	0.650	0.524	0.423	0.341
25.0%	0.800	0.640	0.512	0.410	0.328

MID-YEAR FACTORS

RATE	YEAR: 1	2	3	4	5
15.0%	0.933	0.811	0.705	0.613	0.533
16.0%	0.928	0.800	0.690	0.595	0.513
17.0%	0.925	0.790	0.675	0.577	0.493
18.0%	0.921	0.780	0.661	0.560	0.475
19.0%	0.917	0.770	0.647	0.544	0.457
20.0%	0.913	0.761	0.634	0.528	0.440
21.0%	0.909	0.751	0.621	0.513	0.424
22.0%	0.905	0.742	0.608	0.499	0.409
23.0%	0.902	0.733	0.596	0.485	0.394
24.0%	0.898	0.724	0.584	0.471	0.380
25.0%	0.894	0.716	0.572	0.458	0.366

❾ Make any final adjustments

- After summing the present values of the future cash flows and residual value, that figure represents the value of the operations of the business.
  - It does not include the value of "excess assets" or non-operating assets that did not contribute to producing the cash flow.
  - These assets must be separately valued and added to the value resulting from the business cash flow.
- If the company has excess working capital, this amount should be added to the value of the business operations (a working capital deficiency would be deducted).
- Social assets: assumptions regarding the sale of these assets, the use of the proceeds and the resulting impact on the labor force must be carefully considered. In some cases the value of the social assets is added, in others it is not.

⑩ Perform review procedures.

- Consider forecast in units compared to available capacity.
- Consider the price forecast compared to prices for the product from competitors.
- Compare forecasted margins to historical.
- Compare forecasted margins to similar companies.
- Compare old forecasts to actual results.
- Compare old forecasts to current forecasts for the same period.

See the DCF review form handout

DCF case study

Applying the DCF Model

Presentation of the DCF model

Training

Case study: Using the DCF model to value a company

Restructuring for Privatization
Module 1

Handout Number	Name of Exercise/Handout	File Name
1	Calculating Equity Cash Flow	cashflow.doc cashflow.xls
2	Ratio Analysis - Definitions of Common Ratios	ratioanl.xls
3	Financial Ratio Exercise - XYZ Cement Co	cemfaexp.xls
4	Forecasting Net Working Capital	nwc-exer.xls nwcexer.doc
5	Present Value Theory	pvexws0.xls
6	Discounted Cash Flow Analysis	dcftrain.xls
7	Discounted Cash Flow Analysis Review Form	forrevv2.xls
8	Data Sheet for XYZ Corp	eqscedc2.xls

HANDOUT #1

TO BE DISCUSSED

AFTER

PAGE 42

EXERCISE

CALCULATING EQUITY CASH FLOW

In this exercise, you will calculate equity cash flow using two methods: (1) reconcile earnings and cash flow for changes in working capital accounts (accounts receivable, inventory, and accounts payable), investment accounts (depreciation and capital expenditures), and financing accounts (loan proceeds) and (2) calculating cash flow from earnings.

METHOD 1

1. Adjust the sales figure for changes in accounts receivable.
2. Adjust cost of sales for changes in inventory.
3. Adjust general and administrative expenses for changes in trades payable.
4. Calculate the net change in working capital.
5. Record the impact of financing decisions (interest expense & loan proceeds).
6. Record the impact of investment decisions (depreciation and capital expenditures). Capital expenditures equal 50,000.
7. Record the impact of the payment of taxes.
8. Based on the above adjustments to earnings, calculate equity cash flow.

METHOD 2

1. Begin with earnings.
2. Add all non-cash expenses to earnings.
3. Add loan proceeds (financing) to earnings.
4. Subtract the year to year increase in working capital.
5. Subtract capital expenditures (investing) from earnings. Capital expenditures equal 50,000.
6. Based on the above adjustments to earnings, calculate equity cash flow.

Exercise 1
ABC Company

Financial Statements

BALANCE SHEET		
Fiscal year ended December 31,	**1993**	**1994**
ASSETS		
Current assets:		
Cash	10,000	85,000
Accounts receivable	30,000	50,000
Inventories	100,000	90,000
Total current assets	140,000	225,000
Fixed assets, net of depreciation	300,000	320,000
TOTAL ASSETS	440,000	545,000
LIABILITIES & STOCKHOLDERS' EQUITY		
Current Liabilities:		
Taxes payables	0	0
Trade payables	60,000	50,000
Interest payables	30,000	30,000
Total current liabilities:	90,000	80,000
Long Term Debt	200,000	260,000
Total Liabilities	290,000	340,000
Net Worth	150,000	205,000
TOTAL LIABILITIES & STOCKHOLDERS' EQUITY	440,000	545,000

INCOME STATEMENT	
Fiscal year ended December 31,	**1994**
Sales	500,000
Cost of sales	300,000
Gross Profit	200,000
Selling, general & administrative	50,000
Depreciation	30,000
	80,000
Operating income	120,000
Interest expense	25,000
Profit before tax	95,000
Income tax	40,000
Profit after tax	55,000

As part of this valuation assignment, Deloitte & Touche LLP has not audited, reviewed or compiled these data. We therefore express no opinion or any other form of assurance on them.

Module 1
Exercise 1
ABC Company

Two Methods to Calcuate Equity Cash Flow

METHOD 1	Earnings	Adjustment	Cash Flow
Sales	500,000		
Change in accounts receivable			
Cost of sales	(300,000)		
Change in inventories			
General & administrative expenses	(50,000)		
Change in trades payable			
Net change in working capital			
Interest expense	(25,000)		
Depreciation expense	(30,000)		
Capital expenditures			
Income before tax	95,000		
Income taxes	(40,000)		
Net income	55,000		
Loan proceeds			
Equity Cash flow			

METHOD 2

Profit after tax	
Plus: depreciation	
Plus: loan proceeds	
Minus: increase in working capital	
Minus: capital expenditures	
Equity cash flow	

Module 1
Exercise 1
ABC Company

Two Methods to Calcuate Equity Cash Flow

METHOD 1	Earnings	Adjustment	Cash Flow
Sales	500,000		
Change in accounts receivable		(20,000)	480,000
Cost of sales	(300,000)		
Change in inventories		10,000	(290,000)
General & administrative expenses	(50,000)		
Change in trades payable		(10,000)	(60,000)
Net change in working capital		(20,000)	
Interest expense	(25,000)	0	(25,000)
Depreciation expense	(30,000)	30,000	0
Capital expenditures		(50,000)	(50,000)
Income before tax	95,000		
Income taxes	(40,000)	0	(40,000)
Net income	55,000		
Loan proceeds		60,000	60,000
Equity Cash flow			75,000

METHOD 2

Profit after tax	55,000
Plus: depreciation	30,000
Plus: loan proceeds	60,000
Minus: increase in working capital	(20,000)
Minus: capital expenditures	(50,000)
Equity cash flow	75,000

ANSWER SHEET FOR INSTRUCTOR

HANDOUT #2

TO BE DISCUSSED

AFTER

PAGE 56

RATIO ANALYSIS
DEFINITIONS OF COMMON RATIOS

CATEGORY	RATIO	COMMENTS	CALCULATION
LIQUIDITY	CURRENT RATIO	AN INDICATION OF A FIRM'S ABILITY TO PAY ITS CURRENT OBLIGATIONS. HOWEVER, THE COMPOSITION AND QUALITY OF CURRENT ASSETS IS CRITICAL.	TOTAL CURRENT ASSETS / TOTAL CURRENT LIAB.
	QUICK RATIO	A MORE CONSERVATIVE MEASURE OF LIQUIDITY. EXPRESSES THE DEGREE TO WHICH CURRENT LIAB. ARE COVERED BY THE MOST "LIQUID" ASSETS.	CASH (& EQUIV.) + TRADE REC. / TOTAL CURRENT LIAB.
	DAYS' RECEIVABLE	EXPRESSES THE AVERAGE TIME IN DAYS THAT RECEIVABLES ARE UNCOLLECTED. IF HIGHER THAN THE INDUSTRY, THE QUALITY OF THE COMPANY'S RECEIVABLES SHOULD BE EXAMINED.	365 / SALES/TRADE RECEIVABLES
	DAYS' INVENTORY	REPRESENTS THE AVERAGE LENGTH OF TIME UNITS ARE IN INVENTORY. A HIGH FIGURE CAN INDICATE SLOW MOVING OR OBSOLETE INVENTORY OR EXCESS INVENTORY. A LOW RATIO CAN INDICATE BETTER MANAGEMENT OR MARKETING. HOWEVER, IT COULD ALSO MEAN A SHORTAGE OF INVENTORY.	365 / COST OF SALES/INVENTORY
	DAYS' PAYABLES	REPRESENTS THE NUMBER OF DAYS BEFORE THE COMPANY PAYS ITS TRADE PAYABLES. A HIGH FIGURE COULD INDICATE CASH FLOW PROBLEMS.	365 / COST OF SALES/TRADE PAYABLES
	WORKING CAPITAL TO SALES	MEASURES THE AMOUNT OF WORKING CAPITAL INVESTMENT REQUIRED TO SUPPORT THE LEVEL OF SALES.	CURRENT ASSETS - CURRENT LIAB. / ANNUAL SALES

RATIO ANALYSIS (CONTINUED)
DEFINITIONS OF COMMON RATIOS

CATEGORY	RATIO	COMMENTS	CALCULATION
LEVERAGE	INTEREST COVERAGE	MEASURES THE COMPANY'S ABILITY TO MEET INTEREST PAYMENTS. MAY INDICATE THE ABILITY TO INCREASE BORROWINGS.	EARNINGS BEFORE INTEREST & TAX / INTEREST EXP.
	LONG-TERM DEBT TO TOTAL CAPITAL	MEASURES THE AMOUNT OF DEBT FINANCING USED BY THE COMPANY COMPARED TO ITS TOTAL CAPITAL INVESTMENT. A HIGH RATIO COULD INDICATE HIGHER RISK DUE TO INTEREST COSTS AND DEBT PAYMENTS. A LOW RATIO COULD INDICATE THE COMPANY HAS THE ABILITY TO BORROW FUNDS IF NECESSARY.	LONG-TERM DEBT / LONG-TERM DEBT + EQUITY NOTE: DEBT/EQUITY IS SOMETIMES USED TO MEASURE LEVERAGE.
	TOTAL LIAB. TO TOTAL ASSETS	MEASURES THE TOTAL LIABILITIES FOR THE COMPANY INCLUDING BOTH THE CURRENT AND LONG TERM PORTIONS.	TOTAL LIABILITIES / TOTAL ASSETS

CATEGORY	RATIO	COMMENTS	CALCULATION
OPERATING	RETURN ON EQUITY (ROE)	MEASURES THE RATE OF RETURN TO THE EQUITY INVESTORS IN THE BUSINESS. CAN ALSO BE MEASURED ON A PRETAX OR CASH FLOW BASIS.	NET INCOME / EQUITY OR: EBT/EQUITY; CF/EQUITY
	RETURN ON ASSETS (ROA)	MEASURES THE RATE OF RETURN PROVIDED BY THE ASSETS OF THE BUSINESS. CAN ALSO BE MEASURED ON A PRETAX OR CASH FLOW BASIS.	NET INCOME / TOTAL ASSETS OR: EBT/TOTAL ASSETS; CF/TOT. ASSETS
	SALES TO ASSETS	MEASURES THE AMOUNT OF SALES PRODUCED IN RELATION TO TOTAL ASSETS. A MEASURE OF ASSET UTILIZATION.	NET SALES / TOTAL ASSETS
	SALES TO FIXED ASSETS	MEASURES THE AMOUNT OF SALES PRODUCED IN RELATION TO THE INVESTMENT IN FIXED ASSETS. SOMETIMES CALCULATED BASED ON NET FIXED ASSETS (AFTER DEPR.)	NET SALES / TOTAL FIXED ASSETS

HANDOUT #3

TO BE DISCUSSED

AFTER

PAGE 57

qb

FINANCIAL RATIO EXERCISE PAGE 1

XYZ CEMENT
HISTORICAL BALANCE SHEET (UNAUDITED)
IN THOUSANDS OF LEI

ASSETS	SEPT. 30, '92	COMMON SIZE	GUIDELINE CO'S	DUNS
CURRENT ASSETS:				
CASH	914,342	1.4%	12.0%	2.3%
ACCOUNTS RECEIVABLE	2,234,132	3.3%	13.1%	13.8%
INVENTORIES	5,438,080	8.1%	8.1%	10.5%
OTHER RECEIVABLES	120,794	0.2%		
LETTERS OF CREDIT	86,664	0.1%		
PREPAYMENTS	334,953	0.5%		
TOTAL CURRENT ASSETS	9,128,965	13.6%	36.5%	32.9%
PROPERTY, PLANT & EQUIPMENT				
LAND	0	0.0%		
CONSTRUCTION IN PROGRESS	400,094	0.6%		
BUILDINGS	42,343,559	63.0%		
MACHINERY & EQUIPMENT	33,749,561	50.2%		
TOTAL FIXED ASSETS	76,493,214	113.8%	95.8%	
LESS: ACCUMULATED DEPRECIATION	18,588,282	27.7%	52.5%	
NET PROPERTY, PLANT & EQUIPMENT	57,904,932	86.2%	43.3%	26.0%
OTHER ASSETS	154,403	0.2%		
TOTAL ASSETS	67,188,300	100.0%	100.0%	100.0%
LIAB. & EQUITY				
CURRENT LIABILITIES:				
ACCOUNTS PAYABLE	3,766,633	5.6%	6.4%	5.9%
CURRENT PORTION OF LONG-TERM DEBT		0.0%	2.7%	2.7%
BANK LOANS	1,560,694	2.3%		
OTHER CREDITORS	835,932	1.2%		
MISCELLANEOUS	8,994	0.0%		
TOTAL CURRENT LIABILITIES	6,172,253	9.2%	18.3%	18.2%
LONG-TERM DEBT	0	0.0%	13.1%	31.0%
OTHER LONG-TERM OBLIGATIONS:				
NON DISTRIBUTABLE RETAINED EARNINGS	307,993	0.5%		
FUNDS	285,820	0.4%		
RES. SHUT DOWN EXPENSES	34,093	0.1%		
TOTAL OTHER LONG-TERM OBLIGATIONS	627,906	0.9%		
TOTAL LIABILITIES	6,800,159	10.1%	45.2%	52.9%
EQUITY	60,388,141	89.9%	47.0%	47.1%
TOTAL LIABILITIES & EQUITY	67,188,300	100.0%	100.0%	100.0%

FINANCIAL RATIO EXERCISE PAGE 2

XYZ CEMENT

HISTORICAL INCOME STATEMENT (UNAUDITED)
IN THOUSANDS OF LEI

	9 MONTHS ENDED SEPT. 30, '92	YEAR ENDED SEPT. 30, 92	COMMON SIZE	UIDELINE CO'S	DUNS
NET SALES		26,006,261	100.0%	100.0%	100.0%
DIRECT COSTS		13,344,608	51.3%		
DIRECT MARGIN		12,661,653	48.7%		
INDIRECT COSTS:					
HANDLING COSTS		3,660,520	14.1%		
MAINTENANCE		1,759,636	6.8%		
SALARIES		781,8[illegible]3	3.0%		
OTHER		959,547	3.7%		
TOTAL INDIRECT COSTS		7,161,516	27.5%		
DEPRECIATION EXPENSE		962,111	3.7%	7.5%	
RESEARCH & DEVELOPMENT		7,059	0.0%		
OPERATING MARGIN		4,530,968	17.4%	22.4%	23.7%
ADMINISTRATIVE EXPENSES:					
AMORTIZATION		24,060	0.1%		
SALARIES		330,835	1.3%		
OTHER		524,175	2.0%		
TOTAL ADMINISTRATIVE		879,069	3.4%		
MISCELLANEOUS EXPENSE		98,628	0.4%		
OPERATING INCOME		3,553,271	13.7%		
INTEREST EXPENSE		1,031,143	4.0%	3.6%	
INTEREST INCOME		(361,085)	-1.4%		
PROFIT BEFORE TAX		2,883,213	11.1%	11.6%	
CORPORATE INCOME TAX		727,485	2.8%		
NET INCOME		2,155,728	8.3%	7.8%	5.0%
EBDIT		4,539,441	17.5%	24.3%	
EBIT		3,553,271	13.7%	18.0%	
PRETAX CASH FLOW		3,869,384	14.9%	18.8%	
AFTER TAX CASH FLOW		3,141,899	12.1%	15.6%	

FINANCIAL RATIO EXERCISE PAGE 3
XYZ CEMENT

RATIO ANALYSIS

	SEPT. 30, '92	GUIDELINE CO'S	DUNS
LIQUIDITY:			
CURRENT RATIO		2.14	2.20
WORKING CAPITAL/SALES		28.4%	18.9%
DAYS RECEIVABLES		84	48
DAYS INVENTORY		74	60
WORKING CAPITAL/TOTAL ASSETS		19.1%	14.7%
LEVERAGE:			
LONG-TERM DEBT/TOTAL CAPITAL		22.6%	39.7%
INTEREST COVERAGE		4.1	
RETURNS:			
CASH ROA	4.7%	10.0%	
CASH ROE	5.2%	20.7%	
PRETAX ROA	4.3%	8.7%	
PRETAX ROE	4.8%	17.3%	
NET ROA		5.3%	5.5%
NET ROE		11.3%	7.2%
EFFICIENCY:			
ASSET TURNOVER		0.57	0.56
FIXED ASSET TURNOVER	0.34	0.64	
SALES/EMPLOYEE (US$)	11,148	230,146	

FINANCIAL RATIO EXERCISE PAGE 3
XYZ CEMENT

RATIO ANALYSIS

	SEPT. 30, '92	GUIDELINE CO'S	DUNS
LIQUIDITY:			
CURRENT RATIO	1.48	2.14	2.20
WORKING CAPITAL/SALES	11.4%	28.4%	18.9%
DAYS RECEIVABLES	31	84	48
DAYS INVENTORY	149	74	60
WORKING CAPITAL/TOTAL ASSETS	4.4%	19.1%	14.7%
LEVERAGE:			
LONG-TERM DEBT/TOTAL CAPITAL	0.0%	22.6%	39.7%
INTEREST COVERAGE	3.4	4.1	
RETURNS:			
CASH ROA	4.7%	10.0%	
CASH ROE	5.2%	20.7%	
PRETAX ROA	4.3%	8.7%	
PRETAX ROE	4.8%	17.3%	
NET ROA	3.2%	5.3%	5.5%
NET ROE	3.6%	11.3%	7.2%
EFFICIENCY:			
ASSET TURNOVER	0.39	0.57	0.56
FIXED ASSET TURNOVER	0.34	0.64	
SALES/EMPLOYEE (US$)	11,148	230,146	

ANSWER SHEET FOR INSTRUCTOR

HANDOUT #4

TO BE DISCUSSED

AFTER

PAGE 70

EXERCISE

FORECASTING NET WORKING CAPITAL

In this exercise, you will forecast net working capital for two years (1995 and 1996) using two methods: (1) forecasting individual working capital components by analyzing various working capital ratios and (2) forecasting working capital by analyzing the net working capital to sales ratio.

METHOD 1 - ASSUMPTIONS

Cash is assumed to stay constant at 10,000 in 1995 and 1996.

Forecast accounts receivable by using the 3 year historical average accounts receivable turnover ratio.

Forecast inventory by using the 3 year historical average inventory turnover ratio.

Prepaid expenses are assumed to remain constant in the future (1995 and 1996) at 2,900.

Forecast accounts payable by using the 3 year historical average payables turnover ratio.

Forecast accrued expenses by using the 3 year historical average accrued expenses/total sales ratio.

METHOD 2 - ASSUMPTIONS

Estimate net working capital by analyzing the historical net working capital to sales ratio as well as the industry average working capital to sales ratio. Apply this industry ratio to the sales figure for 1995 and 1996.

XYZ Company

Net Working Capital Analysis

For the periods ended December 31,	Historical 1992	1993	1994	3 Year Avg	Forecasted 1995	1996
Sales	130,853	166,897	138,767		150,000	160,000
	100.0%	100.0%	100.0%		100.0%	100.0%
Cost of goods sold	68,812	86,839	70,979		80,000	90,000
	52.6%	52.0%	51.1%	51.9%	53.3%	56.3%
Current Assets						
Cash	7,559	8,197	8,595			
Accounts receivable	17,465	34,724	24,553			
Inventory	21,757	20,477	23,896			
Prepaid expenses	2,273	2,085	2,853			
Total Current Assets	49,054	65,483	59,897			
Current Liabilities						
Accounts payable	11,151	7,705	16,900			
Accrued expenses	16,109	18,927	21,665			
Total Current Liabilities	27,260	26,632	38,565			
Net Working Capital	21,794	38,851	21,332			
Net Working Capital/Sales	16.7%	23.3%	15.4%	18.4%		

Ratios					Assumptions
Cash					Constant
Receivable turnover	7.49	6.40	4.68	6.19	6.19
Avg Collection Period	48.05	56.29	76.89	60.41	
Inventory turnover	3.16	4.11	3.20	3.49	3.49
Prepaid expenses/Total sales	1.7%	1.2%	2.1%	1.7%	
Payables turnover	6.17	9.21	5.77	7.05	7.05
Payables period	58.34	39.09	62.40	53.27	
Accrued expenses/Total sales	12.3%	11.3%	15.6%	13.1%	13.1%

NET WORKING CAPITAL - CONCLUSION

METHOD	1995	1996
RATIOS		
% OF SALES		

MANUFACTURERS - VALVES & PIPE FITTINGS, EXCEPT PLUMBERS' BRASS GOODS. SIC# 3494

Comparative Historical Data				Current Data Sorted By Sales					
4		9	# Postretirement Benefits	1	1		1	3	3
			Type of Statement						
28	30	31	Unqualified	2		3	7	7	12
21	22	27	Reviewed		10	5	5	7	
11	18	12	Compiled	2	5	2		3	
		1	Tax Returns	1					
21	17	21	Other	2	5	1	2	5	6
4/1/91-3/31/92 ALL	4/1/92-3/31/93 ALL	4/1/93-3/31/94 ALL			35(4/1-9/30/93)			57(10/1/93-3/31/94)	
81	87	82	NUMBER OF STATEMENTS	7	20	11	14	22	18
%	%	%	ASSETS	%	%	%	%	%	%
8.3	6.7	7.2	Cash & Equivalents		8.6	5.0	5.5	8.2	4.4
26.7	26.2	26.4	Trade Receivables - (net)		26.2	34.9	28.3	31.0	22.8
32.3	33.5	34.0	Inventory		36.7	38.2	34.7	33.1	30.5
1.9	1.3	1.2	All Other Current		.7	.7	.2	2.6	.9
67.2	67.7	70.8	Total Current		72.2	78.8	68.8	74.9	58.5
22.8	23.3	20.5	Fixed Assets (net)		18.2	17.7	23.4	18.7	27.9
2.[illegible]	3.5	2.5	Intangibles (net)		8.3	.5	.1	.5	2.3
[illegible]	5.5	6.1	All Other Non-Current		1.3	3.0	7.7	5.9	11.3
100.0	100.0	100.0	Total		100.0	100.0	100.0	100.0	100.0
			LIABILITIES						
9.2	9.3	9.6	Notes Payable-Short Term		8.0	9.9	10.6	13.2	7.4
3.4	3.4	2.4	Cur. Mat.-L/T/D		2.4	2.6	2.6	1.5	3.8
12.2	13.1	13.4	Trade Payables		10.7	16.3	13.0	16.2	9.5
.8	.8	1.4	Income Taxes Payable		2.4	.2	1.0	.7	1.4
10.4	8.4	8.9	All Other Current		10.5	8.5	7.4	7.7	8.7
36.0	35.0	35.5	Total Current		34.1	38.7	34.5	41.3	30.7
11.7	13.1	10.8	Long Term Debt		14.0	13.8	9.5	8.1	9.5
.8	.7	.5	Deferred Taxes		.2	.7	.3	.4	1.2
1.3	2.0	3.2	All Other Non-Current		5.2	1.8	4.4	2.3	3.5
50.2	48.2	50.2	Net Worth		46.5	47.5	51.3	48.0	55.2
100.0	100.0	100.0	Total Liabilities & Net Worth		100.0	100.0	100.0	100.0	100.0
			INCOME DATA						
100.0	100.0	100.0	Net Sales		100.0	100.0	100.0	100.0	100.0
30.1	32.1	31.0	Gross Profit		35.3	33.1	24.2	30.2	27.6
25.1	25.8	24.8	Operating Expenses		28.1	25.8	22.5	20.8	25.0
5.0	6.5	6.1	Operating Profit		7.3	7.3	1.7	9.4	2.6
.8	1.3	1.5	All Other Expenses (net)		2.0	2.8	.1	1.7	1.5
4.2	5.2	4.7	Profit Before Taxes		5.2	4.7	1.8	7.8	1.2
			RATIOS						
3.0	3.5	3.8			8.1	2.9	3.8	3.6	3.1
1.9	2.2	1.8	Current		2.2	2.5	1.8	1.8	1.8
1.4	1.3	1.4			1.3	1.8	1.5	1.2	1.4
1.5	1.8	1.9			2.1	1.8	1.8	2.0	1.7
.8	1.0	1.1	Quick		1.1	1.3	.9	.8	.9
.6	.6	.7			.7	.7	.7	.5	.7
40 8.2	40 9.2	41 8.8		37	9.8	46 8.0	31 11.9	45 8.1	47 7.8
48 7.5	48 7.6	51 7.1	Sales/Receivables	44	8.3	56 6.5	42 8.8	54 6.8	59 6.2
62 5.9	58 6.3	66 5.6		60	7.3	69 4.1	55 6.6	64 5.7	69 5.3
62 5.9	61 6.0	63 5.8		43	8.5	74 4.9	63 5.9	46 7.9	69 4.1
83 4.4	99 3.7	101 3.6	Cost of Sales/Inventory	114	3.2	114 3.2	87 4.2	89 4.1	114 3.2
135 2.7	135 2.7	140 2.6		166	2.2	152 2.4	114 3.2	118 3.1	146 2.5
18 20.8	21 17.5	18 20.3		11	32.6	15 23.9	19 19.0	26 14.0	18 19.0
28 13.1	30 12.0	30 12.0	Cost of Sales/Payables	25	14.4	39 9.4	28 13.0	41 9.0	28 13.1
41 8.8	44 8.3	50 7.3		39	9.4	65 5.6	37 9.8	56 6.6	47 7.7
4.0	3.8	3.2			3.0	4.3	3.4	4.0	2.9
6.9	5.8	5.6	Sales/Working Capital		4.8	5.9	7.6	6.0	5.0
11.1	10.8	9.7			23.8	8.6	10.3	15.1	7.5
12.1	13.2	12.9			9.9	19.7	13.5	16.3	13.3
(76) 3.8	(74) 3.9	(78) 3.9	EBIT/Interest	(17)	4.1	3.5 (11)	3.1	(16) 4.9	(17) 4.9
1.2	1.7	1.8			1.4	2.1	1.7	2.2	1.3
11.0	5.4	11.4							17.5
(43) 3.2	(48) 2.2	(44) 3.2	Net Profit + Depr., Dep., Amort./Cur. Mat. L/T/D						(14) 4.5
1.3	.8	1.3							1.9
.3	.2	.2			.1	.1	.2	.2	.4
.4	.5	.4	Fixed/Worth		.4	.2	.5	.3	.6
.9	.7	.8			1.2	1.5	1.0	.8	.8
.4	.5	.4			.4	.5	.3	.5	.3
1.0	1.1	1.0	Debt/Worth		1.0	1.2	.8	1.3	.9
2.3	2.4	2.5			4.7	3.8	2.6	2.8	1.5
24.7	29.0	28.2			65.0	24.0	27.5	38.3	25.8
(77) 16.7	(82) 16.1	(87) 16.3	% Profit Before Taxes/Tangible Net Worth	(16)	11.6	8.4	13.2	24.2	(17) 18.2
-.8	8.1	7.8			5.6	7.3	7.4	15.9	.7
14.5	14.8	14.2			14.7	7.1	10.8	19.8	12.9
8.6	7.4	8.8	% Profit Before Taxes/Total Assets		5.8	4.1	5.5	12.7	8.5
1.2	2.7	2.8			1.7	3.2	3.1	4.5	.5
18.5	20.0	25.2			39.1	45.3	19.2	21.1	7.0
8.5	8.3	10.9	Sales/Net Fixed Assets		16.8	13.8	10.4	15.3	5.2
4.8	4.4	5.2			7.5	4.5	5.5	6.8	3.1
2.6	2.4	2.4			2.8	2.7	2.8	2.5	1.6
1.9	1.9	1.8	Sales/Total Assets		2.1	2.0	2.0	2.0	1.3
1.4	1.5	1.4			1.6	1.6	1.[illegible]	1.7	1.1
1.2	.8	.9			.8	.8	1.[illegible]	.8	2.1
(66) 2.4	(77) 2.1	(66) 2.0	% Depr., Dep., Amort./Sales	(16)	1.3	(10) 1.2	(13) 2.1	1.5	(16) 3.5
3.8	3.8	3.1			2.7	1.9	3.2	2.3	4.7
3.0	2.8	2.3							
(23) 5.8	(33) 6.1	(29) 4.8	% Officers', Directors', Owners' Comp/Sales						
11.1	9.6	7.5							
2565068M	2174088M	1015281M	Net Sales ($)	3044M	41408M	42718M	97314M	346044M	1383932M
1782087M	1529978M	1328637M	Total Assets ($)	2418M	21116M	23018M	51170M	179731M	1061084M

M = thousand MM = million

See Pages 1 through 15 for Explanation of Notes and Data

XYZ Company

Net Working Capital Analysis

For the periods ended December 31,	Historical 1992	1993	1994	3 Year Avg	Forecasted 1995	1996
Sales	130,853	166,897	138,767		150,000	160,000
	100.0%	100.0%	100.0%		100.0%	100.0%
Cost of goods sold	68,812	86,830	70,979		80,000	90,000
	52.6%	52.0%	51.1%	51.9%	53.3%	56.3%
Current Assets						
Cash	7,559	8,197	8,595		10,000	10,000
Accounts receivable	17,465	34,724	24,553		24,232	25,848
Inventory	21,757	20,477	23,896		22,923	25,788
Prepaid expenses	2,273	2,085	2,853		2,900	2,900
Total Current Assets	49,054	65,483	59,897		60,055	64,536
Current Liabilities						
Accounts payable	11,151	7,705	16,900		11,347	12,766
Accrued expenses	16,109	18,927	21,665		19,650	20,960
Total Current Liabilities	27,260	26,632	38,565		30,997	33,726
Net Working Capital	21,794	38,851	21,332		29,058	30,810
Net Working Capital/Sales	16.7%	23.3%	15.4%	18.4%		

Ratios					Assumptions
Cash					Constant
Receivable turnover	7.49	6.40	4.68	6.19	6.19
Avg Collection Period	48.05	56.29	76.89	60.41	
Inventory turnover	3.16	4.11	3.20	3.49	3.49
Prepaid expenses/Total sales	1.7%	1.2%	2.1%	1.7%	
Payables turnover	6.17	9.21	5.77	7.05	7.05
Payables period	58.34	39.09	62.40	53.27	
Accrued expenses/Total sales	12.3%	11.3%	15.6%	13.1%	13.1%

NET WORKING CAPITAL - CONCLUSION

METHOD	1995	1996
RATIOS	29,058	30,810
% OF SALES	31,500	33,600
21.0%		

ANSWER SHEET FOR INSTRUCTOR

HANDOUT #5

TO BE DISCUSSED

AFTER

PAGE 83

PRESENT VALUE THEORY

EXAMPLE CALCULATIONS

CASE 1 - END OF YEAR FACTOR

DISCOUNT RATE	20.0%		
YEARS	3		
CASH FLOW PER YEAR	100		
YEAR	1	2	3
CASH FLOW	100	100	100
PRESENT VALUE FACTOR			
PV OF CASH FLOW			
SUM OF PV'S			

CASE 2 - MID YEAR FACTOR

DISCOUNT RATE	20.0%		
YEARS	3		
CASH FLOW PER YEAR	100		
YEAR	1	2	3
CASH FLOW	100	100	100
PRESENT VALUE FACTOR			
PV OF CASH FLOW			
SUM OF PV'S			

CASE 3 - SINGLE FUTURE CASH FLOW (END OF YEAR)

DISCOUNT RATE	15.0%
YEAR	3
CASH FLOW IN YEAR 3	125
YEAR	3
CASH FLOW	125
PRESENT VALUE FACTOR	
PV OF CASH FLOW	

PRESENT VALUE THEORY

EXAMPLE CALCULATIONS

CASE 1 - END OF YEAR FACTOR				
DISCOUNT RATE	20.0%			
YEARS	3			
CASH FLOW PER YEAR	100			
YEAR		1	2	3
CASH FLOW		100	100	100
PRESENT VALUE FACTOR		0.833	0.694	0.579
PV OF CASH FLOW		83.33	69.44	57.87
SUM OF PV'S	210.65			

CASE 2 - MID YEAR FACTOR				
DISCOUNT RATE	20.0%			
YEARS	3			
CASH FLOW PER YEAR	100			
YEAR		1	2	3
CASH FLOW		100	100	100
PRESENT VALUE FACTOR		0.913	0.761	0.634
PV OF CASH FLOW		91.29	76.07	63.39
SUM OF PV'S	230.75			

CASE 3 - SINGLE FUTURE CASH FLOW (END OF YEAR)		
DISCOUNT RATE	15.0%	
YEAR	3	
CASH FLOW IN YEAR 3	125	
YEAR		3
CASH FLOW		125
PRESENT VALUE FACTOR		0.658
PV OF CASH FLOW		82.19

ANSWER SHEET FOR INSTRUCTOR

HANDOUT #6

TO BE DISCUSSED

AFTER

PAGE 86

DISCOUNTED CASH FLOW ANALYSIS **EXAMPLE**

ASSUMPTIONS:

Discount rate: (11)
Equity discount rate 24.0%

Growth:			
Total capacity	(1)	18,000	cases
Case growth	(2)	15.0%	
Price increases	(3)	6.0%	
Residual growth	(4)	4.0%	
Plant expenses	(5)	85.0%	(excluding depreciation & interest)
Administrative	(5)	5.0%	
Depreciation	(6)	650	
Working capital analysis:			
Current working capital (	(7)	(479)	
Required WC percent	(8)	3.0%	
Required WC	(9)	604	
Excess (deficit)	(10)	(1,083)	

Federal & state tax (12) 38.0%

	ACTUAL Year Ended Mar. 31, 1991	PROJECTED 1992	1993	1994	1995	1996
Total cases	11,270	12,961	14,905	17,140	18,000	18,000
Average pack fees	1.59	1.68	1.78	1.89	2.01	2.13
Total packaging revenues	17,903	21,824	26,603	32,429	36,099	38,265
Warehousing	1,588	1,936	2,360	2,876	3,202	3,394
Trucking & brokerage	632	770	939	1,145	1,274	1,351
Total revenues	20,123	24,530	29,902	36,451	40,576	43,010
Expenses:						
Plant expenses	16,835	20,850	25,417	30,983	34,489	36,559
Administrative	1,247	1,226	1,495	1,823	2,029	2,151
Interest	280	301	333	318	305	287
Depreciation	650	689	730	774	821	870
Total expenses	19,012	23,067	27,975	33,898	37,643	39,866
Taxable income	1,111	1,463	1,927	2,552	2,932	3,144
Pre-tax margin	5.5%	6.0%	6.4%	7.0%	7.2%	7.3%
Federal income tax		556	732	970	1,114	1,195
Net income		907	1,195	1,582	1,818	1,949
Cash flow:						
Net income		907	1,195	1,582	1,818	1,949
+ depreciation		689	730	774	821	870
- incremental working capital		(132)	(161)	(196)	(124)	(73)
+ new debt		200	300	0	0	0
- payments of debt		(50)	(75)	(100)	(100)	0
- capital investment	(13)	(500)	(450)	(650)	(700)	(870)
Free cash flow		1,114	1,539	1,410	1,715	1,876
PV factor	(14)	0.8980	0.7242	0.5840	0.4710	0.3798
PV of cash flows		1,000	1,115	824	808	713
Sum of PV's		4,459				
PV of residual value		3,706			Residual value =	9,756 (15)
FMV of equity, before adjustments	(16)	8,165				
Less: working capital deficit		(1,083)	(17)			
Plus: non-operating asset (real estate)		525	(17)			
FMV of equity		7,607				

FOOTNOTES TO DCF MODEL

1 Capacity based on discussions with manage. ıent of company; it is important that the growth in the model does not exceed the plant's capacity, or major capital expenditures will be required to allow the additional growth.

2 This is the growth in volume (cases) expected each year; should be based on discussi with management, outlook for the industry and economy and the historical trends

3 Increases in the price of the product each year based on economic and industry research as well as historical increases and management expectations.

4 Residual growth is often based on the long-term inflation expectations.

A word about growth in general: a buyer will typically not pay for high growth in the future, since after a few years he will be creating that growth through his own efforts as owner of the business; residual growth should be based on long-term price increases rather than volume growth since a mature, stable business will be providing replacement demand for its product.

5 Plant expenses are usually based on the most recent year, an average of several years, or an adjusted amount based on discussions with management; often historical costs may contain unusual or non-recurring items that should be eliminated when trying to estimate future expenses.

Depreciation is excluded in this figure so that it can be shown as a separate figure. Interest is based on amount of debt outstanding and the cost of debt.

General & administrative costs should be analyzed similar to plant expense or cost of sales; many timos, however, there are fixed costs in this category that may not increase as fast as sales; however, they typically should increase at least as fast as inflation

6 Depreciation can be based on (a) the amount of depreciation in the latest year and inflated, or (b) capital expenditures and the depreciation of existing assets over ti Depreciation can also be based as a percentage of sales by examining historical trends; in any event, capital expenditures and depreciation expenses should always equal in the residual calculation. This is because over the long term the depreciation amount should equal the amount of equipment added each year as long as the business is in a mature, stable growth phase without major capital expenditures for expansion. To have depreciation exceed capital expenditures in the residual would be an incorrect assumption, since after a time, depreciation would reduce to zero if there were not any capital expenditures.

7 This figure should be taken from the latest balance sheet available before the valuation date, calculated as current assets less current liabilities.

8 This figure is based on the amount of each dollar of sales (turnover) that is invested in working capital (inventory, receivables, etc.). It is based on an analysis of the historical working capital requirements of the business and on an analysis of typical working capital levels found in comparable companies.

As a business grows, it must retain some of its cash flow to finance the purchase of inventory, increase in receivables, etc. This is called the firm's incremental working capital requirement, in this case 3% of the change in sales.

9 Required working capital represents the amount the business should have on hand at the beginning of the forecast period, and is calculated by multiplying last year's sales times the required working capital percent.

FOOTNOTES TO DCF MODEL-continued

10 The current working capital excess or deficit is calculated by comparing the required working capital to the amount the business has on hand. If there is a deficit, it should subtracted from the value, since this represents cash an owner would have to put into the business to safely fund future growth without shortages.

11 The discount rate in this model is based on the capital asset pricing model.

12 Based on the rates in the tax law.

13 This is the amount of capital expenditures needed to maintain the existing capacity, or to provide the capacity necessary to allow the growth shown in the forecast. If the growth is stable, and no new capacity is needed, the types of capital expenditures will be those of replacement of existing assets as they wear out -- not to purchase new equipment/facilities for expansion. If no forecast from management is available, capital expenditures can often be set equal to depreciation, since over time, depreciation represents the amount of reserve needed to replace existing assets.

14 The present value factor is based on the mid-year formula.

15 The residual value is the amount of value remaining in the business after the discrete 5 year forecast period. It is typically calculated in one of two ways.

(1) there is a mathematical approximation for the present value of all cash flows from years 6 and beyond, called the "Gordon Model." It is calculated by dividing cash flows in the residual by the (discount rate less long term growth rate). This gives approximately the same answer as continuing the cash flow model into the future indefinitely.

(2) assume the business can be sold after five years. Multiply the earnings by an appropriate price-earnings multiple, or cash flow by an appropriate cash flow multiple.

In either case, the residual value represents the value of the business after the forecast period, in this case five years. This value must then be discounted to the present.

16 The sum of the present values of the 5 year cash flows and the residual value represents the value of the equity, before adjustments for non-operating assets, excess or deficient working capital, or other adjustments.

17 Other adjustments that may be required include:

1. Based on the working capital analysis described above, any excess should be added and any deficit deducted

2. Assets that are excess, or do not contribute in generating the cash flow stream shown in the model, should be added back at fair market value. These represent assets that can be sold without effecting the cash flow of the business, or the value of assets whose cash flows were not considered in the forecast (e.g., interest on excess cash, real estate operations)

3. Unrecorded liabilities should also be considered as to the appropriate disposition, and will vary on a case by case basis.

18 It is helpful to show the most recent year of operations as a comparison to the first projected year.

This is just one form of the model; the amount of detail and whether you forecast in units or total currency, with equity or debt-free cash flows, etc. will depend on the circumstances of each particular valuation.

HANDOUT #7

TO BE DISCUSSED

AFTER

PAGE 86

DISCOUNTED NET CASH FLOW REVIEW FORM

COMPANY_____ VALUATION DATE_____

COMPLETED BY_____ REVIEW DATE_____

FORECAST PREPARED BY:_____

FORECAST DETAIL:

Is the growth real or nominal (e.g., including inflation)? _____

Is the cash flow based on equity or debt-free cash flows? _____

		Yes	No	N/A
1	Has there been a comparison of the accounting principles used in the forecast to those used historically? Are there any significant variances? (If so, comment below)			
2	Are the key factors and assumptions used clearly identified?			
	Were they reasonably developed? Is there adequate support?			
3	Are there any inconsistencies in the assumptions?			
4	Was a mathmatical test of the model performed to insure accuracy?			
5	Were forecasted margins checked for reasonableness compared to historical margins?			
	Compared to industry/competitor margins?			
6	Has the model included or considered: a) Working capital deductions?			
	b) Excess or deficient working capital?			
	c) Capital expenditure allowances?			
	d) Adjustments for non-operating assets?			
7	Does the forecast in units produced exceed available capacity?			
	If so, are there capital expenditures in the forecast designed to increase capacity?			
8	Is the discount rate calculation adequately supported?			
	Does the discount rate calculation match the factors included above in the FORECAST DETAIL section?			
9	Is interest income included? If so, why?			
	Is interest expense properly excluded (debt free cash flow) or included? (equity cash flow)			
	Is the level of debt assumed in the model within reasonable standards? (Equity cash flow only)			
10	Does the calculation of cash flow match the Factors provided in the FORECAST DETAIL section?			
11	Are the present value factors displayed?			
	Is the present value factor based on a mid-year calculation?			
12	Is the interest bearing debt subtracted? (if the cash flow is a debt-free cash flow)			
13	Does depreciation and capital expenditures equal each other in the residual year?			

COMMENTS_____

_____

HANDOUT #8

TO BE DISCUSSED

AFTER

PAGE 86

DATA SHEET FOR XYZ CORP.

THE OBJECT IS TO CONSTRUCT AN EQUITY DCF MODEL

	Year 1	Year 2	Year 3	Year 4	Year 5
Expected growth:	9.0%	9.0%	7.0%	7.0%	7.0%
% of existing capacity	100.0%	103.0%	104.0%	105.1%	106.1%
Capital expenditures plan	200	350	150	150	150

Ave. life of assets = 10 years
(Assume cap ex made Jan. 1)

	Year 1	Year 2	Year 3	Year 4	Year 5
Remaining depr. of exist. asset	125	100	75	50	50
Debt borrowing (net)	50	200	0	0	0
Balance	250	450	450	450	450
(Debt borrowed on Jan. 1)					

1994 Net Income Assumptions:

Variable Costs	35.0%	of sales
SG&A	5.0%	of sales
Interest Rate	14.0%	
Tax rate	45.0%	
Net income margin	9.1%	

Average annual inflation	6.0%
Working capital % of sales	20.0%

1994 Data:

Sales	1,000
Cost of sales	
Fixed	250
Variable	350
Depreciation	150
Total COS	750
Gross Margin	250
S, G & A (variable)	50
EBIT	200
Interest expense	35
EBT	165
Tax	74
Net income	91

DATA FOR DISCOUNT RATE

Risk free rate	8.0%
Equity premium	17.0%

Balance Sheet Data:

Cash, accts rec.	120
Inventory	150
Current assets	270
Current liab.	150
Vacant land (appraised value)	150
Interest bearing debt	200

NOTES:

(1) Plant is currently operating at capacity.
(2) Capital expenditures will have to be incurred to increase capacity.
(3) If capacity is not increased, sales increases will not occur.
(4) Debt to total capital ratio is slightly below industry guidelines, available borrowing capacity is 300.

DISCOUNTED CASH FLOW MODEL
WORKSHEET

	YEAR 1	2	3	4	5
Sales	1,090	1,188	1,271	1,360	1,455
COS:					
Fixed	265	281	298	316	335
Variable	382	416	445	476	509
Depreciation					
Total COS					
Gross margin					
SG&A	55	59	64	68	73
EBIT					
Interest	35	63	63	63	63
EBT					
Tax (45%)					
Net income					
Cash flow:					
Net income					
+ Depr.					
+ Loans (net)					
- working capital					
- capital expenditures					
Cash flow					
PV factor					
PV of cash flows					
Sum of PV's					
PV of residual		Residual value =			
FMV of equity					
Less: deficient working cap.					
Plus: excess assets					
FMV of equity					

Depreciation schedule	YEAR 1	2	3	4	5
Depreciation on existing equip.	125	100	75	50	50
Additions: YEAR 1 200					
2 350					
3 150					
4 150					
5 150					
TOTAL					

Working capital calc.	
Required:	
Actual:	
Excess (deficiency)	

DISCOUNTED CASH FLOW MODEL
WORKSHEET

	YEAR 1	2	3	4	5
Sales	1,030	1,188	1,271	1,360	1,455
COS:					
Fixed	265	281	298	316	335
Variable	382	416	445	476	509
Depreciation	145	155	145	135	150
Total COS	792	852	888	927	994
Gross margin	299	336	384	434	462
SG&A	55	59	64	68	73
EBIT	244	277	320	366	389
Interest	35	63	63	63	63
EBT	209	214	257	303	326
Tax (45%)	94	96	116	136	147
Net income	115	118	141	166	179
Cash flow:					
Net income	115	118	141	166	179
+ Depr.	145	155	145	135	150
+ Loans (net)	50	200	0	0	0
- working capital	(18)	(20)	(17)	(18)	(19)
- capital expenditures	(200)	(350)	(150)	(150)	(150)
Cash flow	92	103	120	134	160
PV factor	0.8944	0.7155	0.5724	0.4579	0.3664
PV of cash flows	82	74	69	61	59
Sum of PV's	344				
PV of residual	327		Residual value =		893
FMV of equity	672				
Less: deficient working cap.	(80)				
Plus: excess assets	150				
FMV of equity	742				

Depreciation schedule	YEAR 1	2	3	4	5
Depreciation on existing equip.	125	100	75	50	50
Additions: YEAR 1 200	20	20	20	20	20
2 350		35	35	35	35
3 150			15	15	15
4 150				15	15
5 150					15
TOTAL	145	155	145	135	150

Working capital calc.	
Required:	200
Actual:	120
Excess (deficiency)	(80)

ANSWER SHEET FOR INSTRUCTOR

List of contents of "Cases" directory:

Name	Item
broadcas.doc	Slovakian Broadcasting Case Study Handout
broadcas.xls	Slovakian Broadcasting Case Study MODEL ANSWERS
cement.doc	Romanian Cement Case Study Handout
cement.xls	Romanian Cement Case Study MODEL ANSWERS
cemexh.xls	Romanian Cement Case Study Exhibits
dcfship.xls	Athena Shipping Case Study Handout
instruct.doc	Instruction manual for MODEL
newmodel.xls	Blank MODEL
shipping.xls	Athena Shipping Case Study MODEL ANSWERS

INSTRUCTION MANUAL FOR MODEL

Instructions for Using the Discounted Cash Flow ("DCF") Model:

This instruction manual is to be used with the discounted net cash flow model enclosed under the file name: "dcfmodel.xls." The model inputs are organized into five different steps. Inputs may only be made in the shaded cells.

Before the model outlined steps are completed, the Company's name, purpose, and date of valuation should be placed in the first three lines of the input section. Example:

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1995

Step 1. INPUTS for Product Sales and Gross Margin FORECASTS

A. INPUT Current Year: Enter the most recently ended year (current year). This year will serve as the base year from which the forecasts will be made. All of the years in the forecast period will appear subsequent to this year. *This entry is mandatory.*

B. Forecast TOTAL SALES or UNIT SALES (T or U)?: The DCF model allows the user to forecast sales by either of two methods:

TOTAL SALES ("T") method: this method allows the user to forecast sales based upon growth rates for the forecasted period (Years 1-5), using the current year sales as a basis for the growth (for this method, INPUT "T"). *This method is most appropriate when:*

- *forecasted product unit sales and costs are not available.*
- *the subject is a service company and product units are not an issue.*

NOTE: If "T" is selected, proceed to entry number 1C.

OR

UNIT SALES ("U") method: this method allows the user to forecast sales based on discreet unit sales, price per unit, and cost per unit (for this method, INPUT "U"). *This method is most appropriate when:*

- *forecasted product unit sales and costs are available with reasonable accuracy.*

NOTE: If "U" is selected, proceed to entry number 1D.

C. INPUTS for Variable and Fixed Costs and Taxation FORECASTS: This section is only applicable for the TOTAL SALES ("T") method. Inputs for this section are divided into four parts:

- INPUT Current year sales: Input the current year sales (in numerical amounts: example $100,000,000). This amount will serve as the base year from which the forecasted sales will be grown.

- INPUT Current year cost of goods sold (cost of service): Input the current year cost of goods sold (cost of service) (in numeric amounts: example $70,000,000).

- INPUT Sales growth rates for years 1-5: Input the forecasted sales growth rates for each of the five years in the forecast (Years 1-5). Example:

	1995	1996	1997	1998	1999
INPUT Sales growth rates for years 1-5:	5.0%	5.0%	5.0%	5.0%	5.0%

- INPUT Cost of goods sold (or cost of service) as a percent of sales for years 1-5: Enter the forecasted cost of goods sold *as a percent of sales* for each year of the forecast (Years 1-5). Example:

	1995	1996	1997	1998	1999
INPUT Cost of goods sold (or cost of service) as a percent of sales for years 1-5:	80%	80%	80%	80%	80%

D. INPUTS for UNIT SALES ("U") forecasts: This section is only applicable for the UNIT SALES ("T") method. The steps under this approach are as follows:

- INPUT Product Names and Forecasted Unit Production: Enter the names of the company's products. Note: Under this method, the model allows for up to *three product lines* to be forecasted.

- INPUT Current year Unit Production: Enter the current year and forecasted production for each of the company's products.

- INPUT Product Groups-Unit Capacity: Enter the total unit capacity for each of the previously named products for *both* the current year and for each year of the projected period (Years 1-5).

- INPUT Current year prices: Enter the individual unit product prices for the current year in nominal amounts (example $1,000 per unit). In addition, enter the forecasted price growth rates for each of the forecasted years (Years 1-5). Example:

	INPUT Current year Unit Prices	1995	1996	1997	1998	1999
Product #1	1,000	3%	3%	3%	3%	3%

- INPUT Product Cost per Unit: Enter the individual unit product costs for the current year in numeric amounts (example $1,000 per unit). In addition, enter the forecasted price growth rates for each of the forecasted years (Years 1-5). Example:

	INPUT Current year Unit Prices	1995	1996	1997	1998	1999
Product #1	1,000	3%	3%	3%	3%	3%

Step 2. INPUTS for Variable and Fixed Costs and Taxation FORECASTS:

A. INPUT Variable Cost forecasts: This section requires three entries. First, enter the appropriate expense item name. The model allows for up to eight expense items to be discreetly forecasted *OR* total variable costs may be forecasted as a total percent of sales (select *OPTIONAL: INPUT TOTAL VARIABLE COSTS*). The provided expense names (Administrative, Marketing, etc.) are presented for example purposes only and may be typed over with expense items specifically for the subject company.

Next, input the current year expense amount in numeric terms under the area marked *Current year Variable Costs.* Lastly, forecast the expense item as a percent of sales. Example:

	INPUT Current year Variable Costs	1995	1996	1997	1998	1999
Administrative	10,000,000	10%	10%	10%	10%	10%

B. INPUT Fixed Cost forecasts: These inputs are presented in the same format as the Variable Cost inputs. However, the main difference is that the inputs for the forecasted years are entered as growth rates versus as a percent of sales. First, enter the appropriate expense item name, if it is not already provided (example: Rent expenses). The model allows for up to five expense items to be discreetly forecasted *OR* the fixed costs may be combined and forecasted using one growth rate (select *OPTIONAL: INPUT TOTAL FIXED COSTS*). The provided expense names (Rent, Salaries, etc.) are presented for example purposes only and may be typed over with expense items specifically for the subject company.

C. INPUT Current year Taxes and Forecasted Tax Rates: This section requires the entering of the current tax rate and the tax rates forecasted for the future as a percent of the pretax income (Example 38%).

Step 3. INPUTS for FORECASTED Depreciation and Capital Expenditures:

A. INPUT Current Year Depreciation Expense: Enter the current year depreciation expense in numeric terms (Example $1,000,000).

B. INPUT Current Depreciable Assets: This section allows for inputs of fixed asset amounts as divided into three group categories: Short depreciable lives (1-5 years), Medium depreciable lives (6-19 years), and Long depreciable lives (20+years) The entries for the forecasting of depreciation and capital expenditures are in two parts:

- First assign the depreciable asset to a category and input the net depreciable asset amount in the section: INPUT Current Year Existing Fixed Assets.

- Next enter the depreciable life of the entered asset under the heading: INPUT Depreciable Years (Example: Medium Depreciable life 7 years).

NOTE: The total net fixed assets should match the net fixed assets from the latest balance sheet. All of the depreciation expenses are forecasted using the straight line method of depreciation.

C. INPUT Capital Expenditures in: This section requires the input of capital expenditure amounts in numeric amounts for each depreciable life category. In Step 3B, the depreciable lives were defined for each asset category. The model calculates future depreciation based on the entered capital expenditures for each of the forecasted years over the previously defined periods in the categories: Short depreciable lives (1-5 years), Medium depreciable lives (6-19 years), and Long depreciable lives (20+years). Again, all of the depreciation expenses are forecasted using the straight line method of depreciation.

Step 4: INPUTS for FORECASTED Long Term Financing:

A. INPUTS for Current and Forecasted Long Term Debt Financing: The first step under this section is to input the current year interest expense at the heading INPUT Current Year Interest Expense. Next, the estimated interest expense and principal payments for existing debt and/or additional debt may be forecasted. The model allows for *three* existing/additional debt instruments to be forecasted. The procedures for entering the principal and interest for each category of debt are as follows:

  - First, enter the name of the debt instrument (example: Bank Loans).

  - Second, enter the annual interest rate of the debt instrument under the heading INPUT Interest Rate.

- Third, enter the debt balance at the beginning of the first forecasted year (or the end of the current year) under the heading INPUT Beginning of Year Debt Balance (Year One Only). This entry is required only for debt that existed at the beginning of the first year of the projection.

- Fourth, enter any additional debt incurred over the projection period. *Note: The entries for additional debt are only on the line entitled Additional Debt.*

- Lastly, enter the discreet principal payments for each of the debt instruments of the forecasted years under the heading INPUT Principal Payments.

Note: The Ending Debt Balance is automatically calculated and no entries are required in this section.

B. INPUTS for Forecasted Equity Financing: This section allows the user of the model to forecast any anticipated equity issues/repurchases.

- First, input any forecasted equity issues, in numeric terms, under the heading INPUT New Equity Issues.

- Second, input any forecasted equity repurchases, in numeric terms, under the heading INPUT New Equity Repurchases.

- Third, input the total shares issued (for example 5,000)/repurchased (for example -5,000) that corresponds to the nominal terms entered in the previous two steps under the heading INPUT Total Shares Issued (Repurchased).

- Lastly, enter the total shares outstanding as of the current date under the heading INPUT Current shares outstanding.

Step 5: INPUT Valuation Assumptions

This section requires five inputs: *Working capital/sales* (in percentage terms), *Current year working capital* (defined as current assets less current liabilities), *Residual growth rate* (in percentage terms), *Cost of Equity* (percent), and the *Fair Market Value of Non-operating assets* (defined in numeric terms according to the appropriate market value estimates of value as of the current date).

Print Instructions:

The print macro can be engaged in one of two methods:

1. Go to the INPUT section. Under the Tools menu option, highlight the Macro option; Highlight the INPUTOUTPUT macro option using the mouse and click the RUN button with the mouse.
2. Go to the INPUT section. Create a macro button using the View and Toolbars option (see instructor). Once the macro button is created, highlight the INPUTOUTPUT macro option using the mouse and click the RUN button with the mouse.

Note: You must be in the INPUT section in order to run the macro correctly.

BLANK DCF MODEL

INPUT SECTION

Discounted Net Cash Flow Model

XYZ Company
Privatization
As of December 31, 1994

Step 1. INPUTS for Product Sales and Gross Margin FORECASTS

	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
A. INPUT Current year	1994					
B. Forecast TOTAL SALES or UNIT SALES (T or U)?	U	(If T is selected, proceed to #1C, If U is selected, proceed to #1D)				
C. INPUTS for TOTAL SALES (T) forecast:						
INPUT Current year sales	0					
INPUT Current year cost of goods sold (or cost of service)	0					
INPUT Sales growth rates for years 1-5		0.0%	0.0%	0.0%	0.0%	0.0%
INPUT Cost of goods sold (or cost of service) as a percent of sales for years 1-5		0.0%	0.0%	0.0%	0.0%	0.0%
D. INPUTS for UNIT SALES (U) forecast						
INPUT Product Names and Forecasted Unit Production	INPUT Current year Units Sold	INPUT Forecasted Units Sold				
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
INPUT Product Groups-Unit Capacity	INPUT Current year Unit Capacity	INPUT Forecasted Unit Capacity				
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
INPUT Unit Sales Prices	INPUT Current year Unit Prices	INPUT Forecasted Unit Price Growth Rates				
Product #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0	0.0%	0.0%	0.0%	0.0%	0.0%
INPUT Product Cost per Unit	INPUT Current year Cost per Unit	INPUT Forecasted Unit Cost Growth Rates				
Product #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0	0.0%	0.0%	0.0%	0.0%	0.0%

Step 2. INPUTS for Variable and Fixed Costs and Taxation FORECASTS

	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
A. INPUT Variable Cost forecasts	INPUT Current year Variable Costs	INPUT Variable Costs as a Percent of Sales				
Administrative	0	0.0%	0.0%	0.0%	0.0%	0.0%
Marketing	0	0.0%	0.0%	0.0%	0.0%	0.0%
Insurance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL VARIABLE COSTS	0	0.0%	0.0%	0.0%	0.0%	0.0%
B. INPUT for Fixed Cost forecasts	INPUT Current year Fixed Costs	INPUT Forecasted Fixed Cost Growth Rates				
Rent	0	0.0%	0.0%	0.0%	0.0%	0.0%
Salaries	0	0.0%	0.0%	0.0%	0.0%	0.0%
Maintenance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL FIXED COSTS	0	0.0%	0.0%	0.0%	0.0%	0.0%
C. INPUT Current Year Taxes and Forecasted Tax Rates	INPUT Current year Tax Rate	INPUT Forecasted Tax Rates				
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Discounted Net Cash Flow Model

XYZ Company
Privatization
As of December 31, 1994

INPUT SECTION

Step 3. INPUTS for FORECASTED Depreciation and Capital Expenditures

A. INPUT Current Year Depreciation Expense: 0

B. INPUT Current Depreciable Assets

	INPUT Current Year Existing Net Fixed Assets	INPUT Depreciable Years
Short depreciable life (1-5 years)	0	0
Medium depreciable life (6-19 years)	0	0
Long depreciable life (20+)	0	0
Total	0	

C. INPUT Capital Expenditures as:

INPUT Forecasted Capital Expenditures

	Year 1	Year 2	Year 3	Year 4	Year 5
	1995	1996	1997	1998	1999
Short term depreciable assets	0	0	0	0	0
Medium term depreciable assets	0	0	0	0	0
Long term depreciable assets	0	0	0	0	0

Step 4. INPUTS for FORECASTED Long Term Financing

A. INPUTS for Current and Forecasted Long Term Debt Financing

INPUT Current Year Interest Expense: 0

	Year 1	Year 2	Year 3	Year 4	Year 5
	1995	1996	1997	1998	1999
Bank Loans					
INPUT: Interest Rate	0.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	0	0	0	0	0
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	0	0	0	0	0
Ending Debt Balance	0	0	0	0	0
Debt Instrument #2					
INPUT: Interest Rate	0.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	0	0	0	0	0
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	0	0	0	0	0
Ending Debt Balance	0	0	0	0	0
Debt Instrument #3					
INPUT: Interest Rate	0.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	0	0	0	0	0
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	0	0	0	0	0
Ending Debt Balance	0	0	0	0	0

B. INPUTS for Forecasted Equity Financing

INPUT Discreet Equity Issues/Repurchases

	Year 1	Year 2	Year 3	Year 4	Year 5
	1995	1996	1997	1998	1999
INPUT New Equity Issues	0	0	0	0	0
INPUT Equity Repurchases	0	0	0	0	0
INPUT Total Shares Issued (Repurchased)	0	0	0	0	0
INPUT Current shares outstanding: 0					

Step 5. INPUT Valuation Assumptions

Working capital/sales	0.0%	Cost of Equity	0.0%
Current year working capital	0	Fair Market Value of Non-operating assets	0
Residual Growth Rate	0.0%		

Discounted Net Cash Flow Model

XYZ Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 1

Discounted Net Cash Flow	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Total Sales (PAGE 2)	0	0	0	0	0	0
Cost of Goods Sold (Cost of Service) (PAGE 2)	0	0	0	0	0	0
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Gross Margin	0	0	0	0	0	0
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Variable and Fixed Costs (PAGE 3)						
Total variable costs	0	0	0	0	0	0
Total fixed costs	0	0	0	0	0	0
Total variable and fixed costs	0	0	0	0	0	0
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	0	0	0	0	0	0
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Depreciation (PAGE 5)	0	0	0	0	0	0
Earnings Before Interest and Taxes (EBIT)	0	0	0	0	0	0
Interest Expense (PAGE 4)	0	0	0	0	0	0
Profit Before Tax	0	0	0	0	0	0
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Tax Provision	0	0	0	0	0	0
Profit After Tax	0	0	0	0	0	0
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Free Cash Flow						
Profit After Tax		0	0	0	0	0
Depreciation		0	0	0	0	0
Additional working capital requirements		0	0	0	0	0
Capital investment		0	0	0	0	0
Additional Debt Financing		0	0	0	0	0
Principal Payments		0	0	0	0	0
Changes in Equity Financing		0	0	0	0	0
Free Cash Flow		0	0	0	0	0
Present Value Factor		1.0000	1.0000	1.0000	1.0000	1.0000
Present Value of Cash Flow		0	0	0	0	0
				Residual Value		#DIV/0!

Sum of Present Value of Cash Flows	0
Present Value of Residual	#DIV/0!
Preliminary Value	#DIV/0!
Working capital (deficiency) surplus	0
Non-operating assets	0
Equity value indication	#DIV/0!
Total shares outstanding	0
Equity value per share	#DIV/0!

Discounted Net Cash Flow Model

XYZ Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 2

SALES AND COST OF GOODS SOLD (COST OF SERVICE) ANALYSIS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Unit Production						
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
Unit Capacity						
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
Percent of Capacity						
Product #1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Price per Unit						
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
Total Sales by Product						
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
Cost per Unit						
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
Total Costs by Product						
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
Profit per Unit						
Product #1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL SALES	0	0	0	0	0	0
TOTAL COSTS OF GOODS SOLD (COST OF SERVICE)	0	0	0	0	0	0

Discounted Net Cash Flow Model

XYZ Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 3

VARIABLE AND FIXED COST ANALYSIS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Variable Costs						
Administrative	0	0	0	0	0	0
Marketing	0	0	0	0	0	0
Insurance	0	0	0	0	0	0
Legal and auditing	0	0	0	0	0	0
Utilities	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL VARIABLE COSTS	0	0	0	0	0	0
Total Variable Costs	0	0	0	0	0	0
Fixed Costs						
Rent	0	0	0	0	0	0
Salaries	0	0	0	0	0	0
Maintenance	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL FIXED COSTS	0	0	0	0	0	0
Total Fixed Costs	0	0	0	0	0	0
Variable Costs (as a percent of sales)						
Administrative	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Marketing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL VARIABLE COSTS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Variable Costs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fixed Costs (percent growth)						
Rent		0.0%	0.0%	0.0%	0.0%	0.0%
Salaries		0.0%	0.0%	0.0%	0.0%	0.0%
Maintenance		0.0%	0.0%	0.0%	0.0%	0.0%
Other #1		0.0%	0.0%	0.0%	0.0%	0.0%
Other #2		0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL FIXED COSTS		0.0%	0.0%	0.0%	0.0%	0.0%
Total Fixed Costs		0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL VARIABLE COSTS	0	0	0	0	0	0
TOTAL FIXED COSTS	0	0	0	0	0	0

Discounted Net Cash Flow Model

XYZ Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 4

FORECASTED INTEREST PAYMENTS AND NET CHANGES IN LONG TERM FINANCING REQUIREMENTS

A. INPUTS for Current and Forecasted Long Term Debt Financing

	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
TOTAL INTEREST PAYMENTS					
Bank Loans	0	0	0	0	0
Debt Instrument #2	0	0	0	0	0
Debt Instrument #3	0	0	0	0	0
TOTAL INTEREST PAYMENTS	0	0	0	0	0
TOTAL ADDITIONAL DEBT FINANCING					
Bank Loans	0	0	0	0	0
Debt Instrument #2	0	0	0	0	0
Debt Instrument #3	0	0	0	0	0
TOTAL ADDITIONAL DEBT FINANCING	0	0	0	0	0
TOTAL PRINCIPAL PAYMENTS					
Bank Loans	0	0	0	0	0
Debt Instrument #2	0	0	0	0	0
Debt Instrument #3	0	0	0	0	0
TOTAL PRINCIPAL PAYMENTS	0	0	0	0	0
TOTAL ENDING DEBT	0	0	0	0	0
TOTAL CHANGE IN EQUITY FINANCING					
New Equity Issues	0	0	0	0	0
Additional shares issued	0	0	0	0	0
Equity Repurchases	0	0	0	0	0
TOTAL CHANGE IN EQUITY FINANCING	0	0	0	0	0
EBIT to INTEREST	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Discounted Net Cash Flow Model

XYZ Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 5

FIXED ASSET AND CAPITAL EXPENDITURE DEPRECIATION	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
	Net Fixed Assets					
Fixed Asset Depreciation - Existing Assets						
Depreciation for short term depreciable assets	0	0	0	0	0	0
Depreciation for medium term depreciable assets	0	0	0	0	0	0
Depreciation for long term depreciable assets	0	0	0	0	0	0
Capital Expenditure Depreciation						
Depreciation for short term depreciable assets		0	0	0	0	0
			0	0	0	0
				0	0	0
					0	0
						0
Depreciation for medium term depreciable assets		0	0	0	0	0
			0	0	0	0
				0	0	0
					0	0
						0
Depreciation for long term depreciable assets		0	0	0	0	0
			0	0	0	0
				0	0	0
					0	0
						0
TOTAL DEPRECIATION EXPENSE		0	0	0	0	0

CASE STUDY - ATHENA SHIPPING CO.

DCF TRAINING EXERCISE DCFSHIP.XLS
ATHENA SHIPPING COMPANY
COMBINED FINANCIAL STATEMENTS
AND FINANCIAL ANALYSIS

	BALANCE SHEETS July 31			AS A PERCENT OF ASSETS		
ASSETS	1993	1994	1995	1993	1994	1995
Current Assets						
Bank and cash	929	2,242	1,865	1.2%	2.5%	2.3%
Prepaid & inventories	1,300	2,356	3,360	1.7%	2.7%	4.2%
Trade receivables & claims (ne	5,399	4,099	3,518	7.0%	4.6%	4.4%
Deferred expenses	952	4,382	5,875	1.2%	5.0%	7.3%
Total Current Assets	8,580	13,079	14,618	11.1%	14.8%	18.2%
Fixed Assets						
Furniture & equipment	186	162	341	0.2%	0.2%	0.4%
Shipping fleet	66,134	73,555	60,909	85.9%	83.3%	75.8%
Total Fixed Assets	66,320	73,717	61,250	86.2%	83.5%	76.2%
Due From Related Companies	2,063	1,498	4,501	2.7%	1.7%	5.6%
TOTAL ASSETS	76,963	88,294	80,369	100.0%	100.0%	100.0%
LIABILITIES & CAPITAL						
Current Liabilities						
Creditors	5,423	5,961	7,174	7.0%	6.8%	8.9%
Short term bank loans	1,458	3,640	5,000	1.9%	4.1%	6.2%
Accrued expenses	1,029	1,786	948	1.3%	2.0%	1.2%
Other	256	582	612	0.3%	0.7%	0.8%
Total Current Liabilities	8,166	11,969	13,734	10.6%	13.6%	17.1%
Long term debt	41,560	38,252	24,203	54.0%	43.3%	30.1%
Total Liabilities	49,726	50,221	37,937	64.6%	56.9%	47.2%
Shareholders' equity	27,237	38,073	42,432	35.4%	43.1%	52.8%
TOTAL LIABILITIES & CAPITAL	76,963	88,294	80,369	100.0%	100.0%	100.0%

Notes:
Short term debt rate is 9 percent; will be paid down by 1,000 each of the next 5 years
Long term debt is at 8 percent; will borrow 6,000 next year; expect to pay 2,000 per year, beginning next year
Company will purchase a new ship next year at 8,000 (1996), this represents total investment for 1996; 20 year life
Capital expenditures in the other years: 5,000 per year; all in shipping fleet assets (20 year life)
Furniture & equipment depreciated over 5 years; shipping fleet has a 20 year life.
Tax rate is 40 percent.
Discount rate is 25 percent
Inflation for fixed costs estimated at 3 percent
Long term growth rate in cash flow is expected to be 5 percent.
The company has 10,000 shares outstanding

DCF TRAINING EXERCISE
ATHENA SHIPPING COMPANY
COMBINED FINANCIAL STATEMENTS
AND FINANCIAL ANALYSIS

	HISTORICAL INCOME STATEMENTS			AS A PERCENT OF REVENUE		
	Year ended July 31:					
	1993	1994	1995	1993	1994	1995
Revenues-shipping	28,333	25,254	28,901	100.0%	100.0%	100.0%
Cost of services	(10,049)	(9,381)	(13,475)	-35.5%	-37.1%	-46.6%
Gross margin	18,284	15,873	15,426	64.5%	62.9%	53.4%
Minus operating expenses:						
General & administrative (fixed)	2,805	1,285	1,651	9.9%	5.1%	5.7%
Variable operating costs	1,180	324	400	4.2%	1.3%	1.4%
Total operating expenses	3,985	1,609	2,051	14.1%	6.4%	7.1%
Earnings before depreciation, interest, and taxes	14,299	14,264	13,375	50.5%	56.5%	46.3%
Depreciation	3,470	3,360	3,100	12.2%	13.3%	10.7%
Earnings before interest & tax	10,829	10,904	10,275	38.2%	43.2%	35.6%
Interest expense	3,231	2,621	2,228	11.4%	10.4%	7.7%
Profit before tax	7,598	8,283	8,047	26.8%	32.8%	27.8%
Taxes	3,191	3,230	3,541	11.3%	12.8%	12.3%
Net income	4,407	5,053	4,506	15.6%	20.0%	15.6%

DCF TRAINING EXERCISE
ATHENA SHIPPING COMPANY
COMBINED FINANCIAL STATEMENTS
AND FINANCIAL ANALYSIS **RATIO ANALYSIS**

RATIO	1993	1994	1995
Current ratio	1.05	1.09	1.06
Working capital/sales	1.5%	4.4%	3.1%
LTD/total capital	60.4%	50.1%	36.3%
Interest coverage ratio	3.4	4.2	4.6
Return on assets	5.7%	5.7%	5.6%
Return on equity	16.2%	13.3%	10.6%
Sales to assets	0.37	0.29	0.36

Discounted Net Cash Flow Model

Athens Shipping
Privatization
As of December 31, 1995

INPUT SECTION

Step 1. INPUTS for Product Sales and Gross Margin FORECASTS

	Current year 1995	Year 1 1996	Year 2 1997	Year 3 1998	Year 4 1999	Year 5 2000
A. INPUT Current year	1995					
B. Forecast TOTAL SALES or UNIT SALES (T or U)?	T	(If T is selected, proceed to #1C, If U is selected, proceed to #1D)				
C. INPUTS for TOTAL SALES (T) forecast:						
INPUT Current year sales	28,901					
INPUT Current year cost of goods sold (or cost of service)	13,475					
INPUT Sales growth rates for years 1-5:		20.0%	15.0%	10.0%	5.0%	5.0%
INPUT Cost of goods sold (or cost of service) as a percent of sales for years 1-5:		46.0%	45.0%	45.0%	45.0%	45.0%

D. INPUTS for UNIT SALES (U) forecast:

INPUT Product Names and Forecasted Unit Production	INPUT Current year Units Sold	INPUT Forecasted Units Sold				
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
INPUT Product Groups-Unit Capacity	**INPUT Current year Unit Capacity**	**INPUT Forecasted Unit Capacity**				
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
INPUT Unit Sales Prices	**INPUT Current year Unit Prices**	**INPUT Forecasted Unit Price Growth Rates**				
Product #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0	0.0%	0.0%	0.0%	0.0%	0.0%
INPUT Product Cost per Unit	**INPUT Current year Cost per Unit**	**INPUT Forecasted Unit Cost Growth Rates**				
Product #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0	0.0%	0.0%	0.0%	0.0%	0.0%

Step 2. INPUTS for Variable and Fixed Costs and Taxation FORECASTS

	Current year 1995	Year 1 1996	Year 2 1997	Year 3 1998	Year 4 1999	Year 5 2000
A. INPUT Variable Cost forecasts:	INPUT Current year Variable Costs	INPUT Variable Costs as a Percent of Sales				
Administrative	0	0.0%	0.0%	0.0%	0.0%	0.0%
Marketing	0	0.0%	0.0%	0.0%	0.0%	0.0%
Insurance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL VARIABLE COSTS	400	1.4%	1.4%	1.4%	1.4%	1.4%
B. INPUT for Fixed Cost forecasts	INPUT Current year Fixed Costs	INPUT Forecasted Fixed Cost Growth Rates				
General & Admin	0	0.0%	0.0%	0.0%	0.0%	0.0%
Salaries	0	0.0%	0.0%	0.0%	0.0%	0.0%
Maintenance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL FIXED COSTS	1,651	3.0%	3.0%	3.0%	3.0%	3.0%
C. INPUT Current Year Taxes and Forecasted Tax Rates	INPUT Current year Tax Rate	INPUT Forecasted Tax Rates				
	44.0%	40.0%	40.0%	40.0%	40.0%	40.0%

Discounted Net Cash Flow Model

Athena Shipping
Privatization
As of December 31, 1995

INPUT SECTION

Step 3. INPUTS for FORECASTED Depreciation and Capital Expenditures

A. INPUT Current Year Depreciation Expense: 3,100

B. INPUT Current Depreciable Assets

	INPUT Current Year Existing Net Fixed Assets	INPUT Depreciable Years
Short depreciable life (1-5 years)	341	5
Medium depreciable life (6-19 years)	0	0
Long depreciable life (20+)	60,909	20
Total	61,250	

C. INPUT Capital Expenditures in

INPUT Forecasted Capital Expenditures

	Year 1	Year 2	Year 3	Year 4	Year 5
	1996	1997	1998	1999	2000
Short term depreciable assets	0	0	0	0	0
Medium term depreciable assets	0	0	0	0	0
Long term depreciable assets	8,000	5,000	5,000	5,000	5,000

Step 4. INPUTS for FORECASTED Long Term Financing

A. INPUTS for Current and Forecasted Long Term Debt Financing

INPUT Current Year Interest Expense: 2,228

	Year 1	Year 2	Year 3	Year 4	Year 5
	1996	1997	1998	1999	2000
Short term bank loans					
INPUT: Interest Rate	9.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	5,000	4,000	3,000	2,000	1,000
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	1,000	1,000	1,000	1,000	1,000
Ending Debt Balance	4,000	3,000	2,000	1,000	0
Long term debt					
INPUT: Interest Rate	8.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	24,203	28,203	26,203	24,203	22,203
INPUT: Additional Debt	6,000	0	0	0	0
INPUT: Principal Payments	2,000	2,000	2,000	2,000	2,000
Ending Debt Balance	28,203	26,203	24,203	22,203	20,203
Debt Instrument #3					
INPUT: Interest Rate	0.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	0	0	0	0	0
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	0	0	0	0	0
Ending Debt Balance	0	0	0	0	0

B. INPUTS for Forecasted Equity Financing

INPUT Discreet Equity Issues/Repurchases

	Year 1	Year 2	Year 3	Year 4	Year 5
	1996	1997	1998	1999	2000
INPUT New Equity Issues	0	0	0	0	0
INPUT Equity Repurchases	0	0	0	0	0
INPUT Total Shares Issued (Repurchased)	0	0	0	0	0
INPUT Current shares outstanding	10,000				

Step 5. INPUT Valuation Assumptions

Working capital/sales	4.0%	Cost of Equity	25.0%
Current year working capital	884	Fair Market Value of Non-operating assets	0
Residual Growth Rate	5.0%		

Discounted Net Cash Flow Model

Athena Shipping
Privatization
As of December 31, 1995

OUTPUT SECTION PAGE 1

Discounted Net Cash Flow	Current year 1995	Year 1 1996	Year 2 1997	Year 3 1998	Year 4 1999	Year 5 2000
Total Sales (PAGE 2)	28,901	34,681	39,883	43,872	46,065	48,369
Cost of Goods Sold (Cost of Service) (PAGE 2)	13,475	15,953	17,948	19,742	20,729	21,766
	46.6%	*46.0%*	*45.0%*	*45.0%*	*45.0%*	*45.0%*
Gross Margin	15,426	18,728	21,936	24,129	25,336	26,603
	53.4%	*54.0%*	*55.0%*	*55.0%*	*55.0%*	*55.0%*
Variable and Fixed Costs (PAGE 3)						
Total variable costs	400	486	558	614	645	677
Total fixed costs	1,651	1,701	1,752	1,804	1,858	1,914
Total variable and fixed costs	2,051	2,186	2,310	2,418	2,503	2,591
	7.1%	*6.3%*	*5.8%*	*5.5%*	*5.4%*	*5.4%*
Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	13,375	16,542	19,626	21,711	22,833	24,012
	46.3%	*47.7%*	*49.2%*	*49.5%*	*49.6%*	*49.6%*
Depreciation (PAGE 5)	3,100	3,514	3,764	4,014	4,264	4,514
Earnings Before Interest and Taxes (EBIT)	10,275	13,028	15,862	17,697	18,569	19,498
Interest Expense (PAGE 4)	2,228	2,741	2,491	2,241	1,991	1,741
Profit Before Tax	8,047	10,287	13,371	15,456	16,578	17,757
	27.8%	*29.7%*	*33.5%*	*35.2%*	*36.0%*	*36.7%*
Tax Provision	3,541	4,115	5,348	6,183	6,631	7,103
Profit After Tax	4,506	6,172	8,023	9,274	9,947	10,654
	15.6%	*17.8%*	*20.1%*	*21.1%*	*21.6%*	*22.0%*
Free Cash Flow						
Profit After Tax		6,172	8,023	9,274	9,947	10,654
Depreciation		3,514	3,764	4,014	4,264	4,514
Additional working capital requirements		(231)	(208)	(160)	(88)	(92)
Capital investment		(8,000)	(5,000)	(5,000)	(5,000)	(5,000)
Additional Debt Financing		6,000	0	0	0	0
Principal Payments		(3,000)	(3,000)	(3,000)	(3,000)	(3,000)
Changes in Equity Financing		0	0	0	0	0
Free Cash Flow		4,455	3,578	5,128	6,123	7,076
Present Value Factor		0.8944	0.7155	0.5724	0.4579	0.3664
Present Value of Cash Flow		3,984	2,560	2,935	2,804	2,592
				Residual Value		55,450

Sum of Present Value of Cash Flows	14,876
Present Value of Residual	20,314
Preliminary Value	35,191
Working capital (deficiency) surplus	(272)
Non-operating assets	0
Equity value indication	34,918
Total shares outstanding	10,000
Equity value per share	3.49

Discounted Net Cash Flow Model

Athena Shipping
Privatization
As of December 31, 1995

OUTPUT SECTION PAGE 2

SALES AND COST OF GOODS SOLD (COST OF SERVICE) ANALYSIS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Unit Production						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Unit Capacity						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Percent of Capacity						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Price per Unit						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Total Sales by Product						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cost per Unit						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Total Costs by Product						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Profit per Unit						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
TOTAL SALES	28,901	34,681	39,883	43,872	46,065	48,369
TOTAL COSTS OF GOODS SOLD (COST OF SERVICE)	13,475	15,953	17,948	19,742	20,729	21,766

Discounted Net Cash Flow Model

Athena Shipping
Privatization
As of December 31, 1995

OUTPUT SECTION PAGE 3

VARIABLE AND FIXED COST ANALYSIS	Current year 1995	Year 1 1996	Year 2 1997	Year 3 1998	Year 4 1999	Year 5 2000
Variable Costs						
Administrative	0	0	0	0	0	0
Marketing	0	0	0	0	0	0
Insurance	0	0	0	0	0	0
Legal and auditing	0	0	0	0	0	0
Utilities	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL VARIABLE COSTS	400	486	558	614	645	677
Total Variable Costs	400	486	558	614	645	677
Fixed Costs						
Rent	0	0	0	0	0	0
Salaries	0	0	0	0	0	0
Maintenance	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL FIXED COSTS	1,651	1,701	1,752	1,804	1,858	1,914
Total Fixed Costs	1,651	1,701	1,752	1,804	1,858	1,914
Variable Costs (as a percent of sales)						
Administrative	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Marketing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL VARIABLE COSTS	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Total Variable Costs	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Fixed Costs (percent growth)						
Rent		0.0%	0.0%	0.0%	0.0%	0.0%
Salaries		0.0%	0.0%	0.0%	0.0%	0.0%
Maintenance		0.0%	0.0%	0.0%	0.0%	0.0%
Other #1		0.0%	0.0%	0.0%	0.0%	0.0%
Other #2		0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL FIXED COSTS		3.0%	3.0%	3.0%	3.0%	3.0%
Total Fixed Costs		3.0%	3.0%	3.0%	3.0%	3.0%
TOTAL VARIABLE COSTS	400	486	558	614	645	677
TOTAL FIXED COSTS	1,651	1,701	1,752	1,804	1,858	1,914

Discounted Net Cash Flow Model

Athena Shipping
Privatization
As of December 31, 1995

OUTPUT SECTION PAGE 4

FORECASTED INTEREST PAYMENTS AND NET CHANGES IN LONG TERM FINANCING REQUIREMENTS

A. INPUTS for Current and Forecasted Long Term Debt Financing

	Year 1	Year 2	Year 3	Year 4	Year 5
	1996	1997	1998	1999	2000
TOTAL INTEREST PAYMENTS					
Short term bank loans	405	315	225	135	45
Long term debt	2,336	2,176	2,016	1,856	1,696
Debt Instrument #3	0	0	0	0	0
TOTAL INTEREST PAYMENTS	2,741	2,491	2,241	1,991	1,741
TOTAL ADDITIONAL DEBT FINANCING					
Short term bank loans	0	0	0	0	0
Long term debt	6,000	0	0	0	0
Debt Instrument #3	0	0	0	0	0
TOTAL ADDITIONAL DEBT FINANCING	6,000	0	0	0	0
TOTAL PRINCIPAL PAYMENTS					
Short term bank loans	1,000	1,000	1,000	1,000	1,000
Long term debt	2,000	2,000	2,000	2,000	2,000
Debt Instrument #3	0	0	0	0	0
TOTAL PRINCIPAL PAYMENTS	3,000	3,000	3,000	3,000	3,000
TOTAL ENDING DEBT	32,203	29,203	26,203	23,203	20,203
TOTAL CHANGE IN EQUITY FINANCING					
New Equity Issues	0	0	0	0	0
Additional shares issued	0	0	0	0	0
Equity Repurchases	0	0	0	0	0
TOTAL CHANGE IN EQUITY FINANCING	0	0	0	0	0
EBIT to INTEREST	4.75	6.37	7.90	9.33	11.20

Discounted Net Cash Flow Model

Athens Shipping
Privatization
As of December 31, 1995

INPUT SECTION

Step 3. INPUTS for FORECASTED Depreciation and Capital Expenditures

A. INPUT Current Year Depreciation Expense: 3,100

B. INPUT Current Depreciable Assets

	INPUT Current Year Existing Net Fixed Assets	INPUT Depreciable Years
Short depreciable life (1-5 years)	341	5
Medium depreciable life (6-19 years)	0	0
Long depreciable life (20+)	60,909	20
Total	61,250	

C. INPUT Capital Expenditures in:

INPUT Forecasted Capital Expenditures

	Year 1	Year 2	Year 3	Year 4	Year 5
	1996	1997	1998	1999	2000
Short term depreciable assets	0	0	0	0	0
Medium term depreciable assets	0	0	0	0	0
Long term depreciable assets	8,000	5,000	5,000	5,000	5,000

Step 4. INPUTS for FORECASTED Long Term Financing

A. INPUTS for Current and Forecasted Long Term Debt Financing

INPUT Current Year Interest Expense: 2,228

Short term bank loans

	Year 1	Year 2	Year 3	Year 4	Year 5
	1996	1997	1998	1999	2000
INPUT: Interest Rate	9.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	5,000	4,000	3,000	2,000	1,000
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	1,000	1,000	1,000	1,000	1,000
Ending Debt Balance	4,000	3,000	2,000	1,000	0

Long term debt

INPUT: Interest Rate	8.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	24,203	28,203	26,203	24,203	22,203
INPUT: Additional Debt	6,000	0	0	0	0
INPUT: Principal Payments	2,000	2,000	2,000	2,000	2,000
Ending Debt Balance	28,203	26,203	24,203	22,203	20,203

Debt Instrument #3

INPUT: Interest Rate	0.0%				
INPUT: Beginning of Year Debt Balance (Year 1 only)	0	0	0	0	0
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	0	0	0	0	0
Ending Debt Balance	0	0	0	0	0

B. INPUTS for Forecasted Equity Financing

INPUT Discreet Equity Issues/Repurchases

	Year 1	Year 2	Year 3	Year 4	Year 5
	1996	1997	1998	1999	2000
INPUT New Equity Issues	0	0	0	0	0
INPUT Equity Repurchases	0	0	0	0	0
INPUT Total Shares Issued (Repurchased)	0	0	0	0	0
INPUT Current shares outstanding: 10,000					

Step 5. INPUT Valuation Assumptions

Working capital/sales	4.0%	Cost of Equity	25.0%
Current year working capital	884	Fair Market Value of Non-operating assets	0
Residual Growth Rate	5.0%		

CASE STUDY - SLOVAKIAN BROADCASTING CO.

Case Study: Using the DCF model to value a company
Slovakian Broadcasting Company

Company Description: Slovakian Broadcasting ("SB") is engaged in the provision of microwave and satellite links and the transmission of radio and television broadcasts.

Slovakian Broadcasting Company

Balance Sheet Data as of 12/31/94

Assets		**Liabilities and Net Worth**	
Current Assets	50,000	Current Liabilities	40,000
Computer Equipment, net	20,000	Bank Loans	100,000
Telecommunications Equipment, net	2,000,000	Net Worth (1)	1,930,000
Total Assets	2,070,000	Total Liabilities Net Worth	2,070,000

For the year ended 12/31/94

Sales	900,000
Cost of Service and Materials	286,000
Administrative	117,000
Depreciation	100,000
Interest Expense	9,000
Management salaries	100,000
Pretax income	288,000
Taxes	158,400(2)
Net Income	129,600

(1) The Company's has 100,000 shares outstanding as of 12/31/94
(2) The Company's tax rate is 55%

Step 1. INPUTS for Product Sales and Gross Margin FORECASTS

- The Company anticipates that sales will grow in the first two years at 15 percent based on expected increases from new digital lines put into operation. (Instructor Note: forecast based on Total Sales "T" method) Thereafter, sales will achieve a sustainable growth rate of 10 percent.
- Cost of service and materials is anticipated to continue at current levels of approximately 30 percent of sales.

Step 2. INPUTS for Variable and Fixed Costs and Taxation

- Administrative costs are anticipated to continue in the future at current levels of 13 percent of total sales.
- Management salaries are forecasted to grow at 3 percent over the next five years.

Step 2. INPUTS for Depreciation and Capital Expenditures

- All of the Company's existing telecommunications equipment is depreciated over 10 years using the straight line method of depreciation.
- The Company's existing computer equipment is depreciated over 5 years using the straight line method of depreciation
- In order to construct the new digital line facilities, the company will initially spend Kcs 450,000 in 1995 and Kcs 100,000 in each year over 1996-1999. The new digital equipment will be depreciated over 10 years using the straight line method of depreciation.

Step 4. INPUTS for FORECASTED Long Term Financing

- The Company currently has Kcs 100,000 in existing debt. Interest is paid annually at a rate of 9 percent and the principal is paid in 10 equal annual installments.
- In order to finance the new equipment, the Company will borrow Kcs 650,000 during 1995. Interest is paid annually at a rate of 10 percent and the principal is paid in 10 equal annual installments.
- Over 1995-1999, the Company plans to draw Kcs 50,000 a year on its revolving line of credit at a rate of 11 percent. The line of credit will be paid down completely at the end of each year.

Step 5. INPUTS for Valuation Assumptions

- Residual growth rate=6 percent
- Cost of Equity=24 percent
- Required Working Capital as a percent of sales = 10 percent

Discounted Net Cash Flow Model

Slovakian Broadcasting Company
Privatization
As of December 31, 1994

INPUT SECTION

Step 1. INPUTS for Product Sales and Gross Margin FORECASTS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
A. INPUT Current year	1994					
B. Forecast TOTAL SALES or UNIT SALES (T or U)?	T	(If T is selected, proceed to #1C, If U is selected, proceed to #1D)				
C. INPUTS for TOTAL SALES (T) forecast:						
INPUT Current year sales	900,000					
INPUT Current year cost of goods sold (or cost of service)	286,000					
INPUT Sales growth rates for years 1-5:		15.0%	15.0%	10.0%	10.0%	10.0%
INPUT Cost of goods sold (or cost of service) as a percent of sales for years 1-5:		30.0%	30.0%	30.0%	30.0%	30.0%
D. INPUTS for UNIT SALES (U) forecast:						
INPUT Product Names and Forecasted Unit Production.	INPUT Current year Units Sold	INPUT Forecasted Units Sold				
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
INPUT Product Groups-Unit Capacity	INPUT Current year Unit Capacity	INPUT Forecasted Unit Capacity				
Product #1	0	0	0	0	0	0
Product #2	0	0	0	0	0	0
Product #3	0	0	0	0	0	0
INPUT Unit Sales Prices	INPUT Current year Unit Prices	INPUT Forecasted Unit Price Growth Rates				
Product #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0	0.0%	0.0%	0.0%	0.0%	0.0%
INPUT Product Cost per Unit	INPUT Current year Cost per Unit	INPUT Forecasted Unit Cost Growth Rates				
Product #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
Product #3	0	0.0%	0.0%	0.0%	0.0%	0.0%

Step 2. INPUTS for Variable and Fixed Costs and Taxation FORECASTS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
A. INPUT Variable Cost forecasts	INPUT Current year Variable Costs	INPUT Variable Costs as a Percent of Sales				
Administrative	117,000	13.0%	13.0%	13.0%	13.0%	13.0%
Marketing	0	0.0%	0.0%	0.0%	0.0%	0.0%
Insurance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL VARIABLE COSTS	0	0.0%	0.0%	0.0%	0.0%	0.0%
B. INPUT for Fixed Cost forecasts:	INPUT Current year Fixed Costs	INPUT Forecasted Fixed Cost Growth Rates				
Rent	0	0.0%	0.0%	0.0%	0.0%	0.0%
Salaries	100,000	3.0%	3.0%	3.0%	3.0%	3.0%
Maintenance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL FIXED COSTS	0	0.0%	0.0%	0.0%	0.0%	0.0%
C. INPUT Current Year Taxes and Forecasted Tax Rates	INPUT Current year Tax Rate	INPUT Forecasted Tax Rates				
	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%

Discounted Net Cash Flow Model

Slovakian Broadcasting Company
Privatization
As of December 31, 1994

INPUT SECTION

Step 3. INPUTS for FORECASTED Depreciation and Capital Expenditures

		INPUT Current Year Existing Net Fixed Assets	INPUT Depreciable Years
A. INPUT Current Year Depreciation Expense	100,000		
B. INPUT Current Depreciable Assets			
Short depreciable life (1-5 years)		20,000	5
Medium depreciable life (6-20 years)		2,000,000	10
Long depreciable life (20+)		0	0
Total		2,020,000	

C. INPUT Capital Expenditures in:

INPUT Forecasted Capital Expenditures

	Year 1	Year 2	Year 3	Year 4	Year 5
	1995	1996	1997	1998	1999
Short term depreciable assets	0	0	0	0	0
Medium term depreciable assets	450,000	100,000	100,000	100,000	100,000
Long term depreciable assets	0	0	0	0	0

Step 4. INPUTS for FORECASTED Long Term Financing

A. INPUTS for Current and Forecasted Long Term Debt Financing

INPUT Current Year Interest Expense: 9,000

Debt Instrument #1

INPUT: Interest Rate: 9.0%

	Year 1	Year 2	Year 3	Year 4	Year 5
	1995	1996	1997	1998	1999
INPUT: Beginning of Year Debt Balance (Year 1 only)	100,000	90,000	80,000	70,000	60,000
INPUT: Additional Debt	0	0	0	0	0
INPUT: Principal Payments	10,000	10,000	10,000	10,000	10,000
Ending Debt Balance	90,000	80,000	70,000	60,000	50,000

Debt Instrument #2

INPUT: Interest Rate: 10.0%

INPUT: Beginning of Year Debt Balance (Year 1 only)	0	585,000	520,000	455,000	390,000
INPUT: Additional Debt	650,000	0	0	0	0
INPUT: Principal Payments	65,000	65,000	65,000	65,000	65,000
Ending Debt Balance	585,000	520,000	455,000	390,000	325,000

Debt Instrument #3

INPUT: Interest Rate: 11.0%

INPUT: Beginning of Year Debt Balance (Year 1 only)	0	0	0	0	0
INPUT: Additional Debt	50,000	50,000	50,000	50,000	50,000
INPUT: Principal Payments	50,000	50,000	50,000	50,000	50,000
Ending Debt Balance	0	0	0	0	0

B. INPUTS for Forecasted Equity Financing

INPUT Discreet Equity Issues/Repurchases

	Year 1	Year 2	Year 3	Year 4	Year 5
	1995	1996	1997	1998	1999
INPUT New Equity Issues	0	0	0	0	0
INPUT Equity Repurchases	0	0	0	0	0
INPUT Total Shares Issued (Repurchased)	0	0	0	0	0

INPUT Current shares outstanding: 100,000

Step 5. INPUT Valuation Assumptions

Working capital/sales	10.0%	Cost of Equity	24.0%
Current year working capital	10,000	Fair Market Value of Non-operating assets	0
Residual Growth Rate	6.0%		

Discounted Net Cash Flow Model
Slovakian Broadcasting Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 1

Discounted Net Cash Flow	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Total Sales (PAGE 2)	900,000	1,035,000	1,190,250	1,309,275	1,440,203	1,584,223
Cost of Goods Sold (Cost of Service) (PAGE 2)	286,000	310,500	357,075	392,783	432,061	475,267
	31.8%	*30.0%*	*30.0%*	*30.0%*	*30.0%*	*30.0%*
Gross Margin	614,000	724,500	833,175	916,493	1,008,142	1,108,956
	68.2%	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*
Variable and Fixed Costs (PAGE 3)						
Total variable costs	117,000	134,550	154,733	170,206	187,226	205,949
Total fixed costs	100,000	103,000	106,090	109,273	112,551	115,927
Total variable and fixed costs	217,000	237,550	260,823	279,478	299,777	321,876
	24.1%	*23.0%*	*21.9%*	*21.3%*	*20.8%*	*20.3%*
Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	397,000	486,950	572,353	637,014	708,365	787,080
	44.1%	*47.0%*	*48.1%*	*48.7%*	*49.2%*	*49.7%*
Depreciation (PAGE 5)	100,000	249,000	259,000	269,000	279,000	289,000
Earnings Before Interest and Taxes (EBIT)	297,000	237,950	313,353	368,014	429,365	498,080
Interest Expense (PAGE 4)	9,000	73,050	65,650	58,250	50,850	43,450
Profit Before Tax	288,000	164,900	247,703	309,764	378,515	454,630
	32.0%	*15.9%*	*20.8%*	*23.7%*	*26.3%*	*28.7%*
Tax Provision	158,400	90,695	136,236	170,370	208,183	250,046
Profit After Tax	129,600	74,205	111,466	139,394	170,332	204,583
	14.4%	*7.2%*	*9.4%*	*10.6%*	*11.8%*	*12.9%*
Free Cash Flow						
Profit After Tax		74,205	111,466	139,394	170,332	204,583
Depreciation		249,000	259,000	269,000	279,000	289,000
Additional working capital requirements		(13,500)	(15,525)	(11,903)	(13,093)	(14,402)
Capital investment		(450,000)	(100,000)	(100,000)	(100,000)	(100,000)
Additional Debt Financing		700,000	50,000	50,000	50,000	50,000
Principal Payments		(125,000)	(125,000)	(125,000)	(125,000)	(125,000)
Changes in Equity Financing		0	0	0	0	0
Free Cash Flow		434,705	179,941	221,491	261,239	304,181
Present Value Factor		0.8980	0.7242	0.5840	0.4710	0.3798
Present Value of Cash Flow		390,377	130,316	129,361	123,044	115,541
				Residual Value		1,119,956

Sum of Present Value of Cash Flows	888,638
Present Value of Residual	425,406
Preliminary Value	1,314,044
Working capital (deficiency) surplus	(80,000)
Non-operating assets	0
Equity value indication	1,234,044
Total shares outstanding	100,000
Equity value per share	12.34

Discounted Net Cash Flow Model

Slovakian Broadcasting Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 2

SALES AND COST OF GOODS SOLD (COST OF SERVICE) ANALYSIS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Unit Production						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Unit Capacity						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Percent of Capacity						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Price per Unit						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Total Sales by Product						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cost per Unit						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Total Costs by Product						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Profit per Unit						
Product #1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Product #3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
TOTAL SALES	900,000	1,035,000	1,190,250	1,309,275	1,440,203	1,584,223
TOTAL COSTS OF GOODS SOLD (COST OF SERVICE)	286,000	310,500	357,075	392,783	432,061	475,267

Discounted Net Cash Flow Model

Slovakian Broadcasting Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 3

VARIABLE AND FIXED COST ANALYSIS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Variable Costs						
Administrative	117,000	134,550	154,733	170,206	187,226	205,949
Marketing	0	0	0	0	0	0
Insurance	0	0	0	0	0	0
Legal and auditing	0	0	0	0	0	0
Utilities	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL VARIABLE COSTS	0	0	0	0	0	0
Total Variable Costs	117,000	134,550	154,733	170,206	187,226	205,949
Fixed Costs						
Rent	0	0	0	0	0	0
Salaries	100,000	103,000	106,090	109,273	112,551	115,927
Maintenance	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL FIXED COSTS	0	0	0	0	0	0
Total Fixed Costs	100,000	103,000	106,090	109,273	112,551	115,927
Variable Costs (as a percent of sales)						
Administrative	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Marketing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL VARIABLE COSTS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Variable Costs	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Fixed Costs (percent growth)						
Rent		0.0%	0.0%	0.0%	0.0%	0.0%
Salaries		3.0%	3.0%	3.0%	3.0%	3.0%
Maintenance		0.0%	0.0%	0.0%	0.0%	0.0%
Other #1		0.0%	0.0%	0.0%	0.0%	0.0%
Other #2		0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL FIXED COSTS		0.0%	0.0%	0.0%	0.0%	0.0%
Total Fixed Costs		3.0%	3.0%	3.0%	3.0%	3.0%
TOTAL VARIABLE COSTS	117,000	134,550	154,733	170,206	187,226	205,949
TOTAL FIXED COSTS	100,000	103,000	106,090	109,273	112,551	115,927

Discounted Net Cash Flow Model

Slovakian Broadcasting Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 4

FORECASTED INTEREST PAYMENTS AND NET CHANGES IN LONG TERM FINANCING REQUIREMENTS

A. INPUTS for Current and Forecasted Long Term Debt Financing

	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
TOTAL INTEREST PAYMENTS					
Debt Instrument #1	8,550	7,650	6,750	5,850	4,950
Debt Instrument #2	61,750	55,250	48,750	42,250	35,750
Debt Instrument #3	2,750	2,750	2,750	2,750	2,750
TOTAL INTEREST PAYMENTS	73,050	65,650	58,250	50,850	43,450
TOTAL ADDITIONAL DEBT FINANCING					
Debt Instrument #1	0	0	0	0	0
Debt Instrument #2	650,000	0	0	0	0
Debt Instrument #3	50,000	50,000	50,000	50,000	50,000
TOTAL ADDITIONAL DEBT FINANCING	700,000	50,000	50,000	50,000	50,000
TOTAL PRINCIPAL PAYMENTS					
Debt Instrument #1	10,000	10,000	10,000	10,000	10,000
Debt Instrument #2	65,000	65,000	65,000	65,000	65,000
Debt Instrument #3	50,000	50,000	50,000	50,000	50,000
TOTAL PRINCIPAL PAYMENTS	125,000	125,000	125,000	125,000	125,000
TOTAL ENDING DEBT	675,000	600,000	525,000	450,000	375,000
TOTAL CHANGE IN EQUITY FINANCING					
New Equity Issues	0	0	0	0	0
Additional shares issued	0	0	0	0	0
Equity Repurchases	0	0	0	0	0
TOTAL CHANGE IN EQUITY FINANCING	0	0	0	0	0
EBIT to INTEREST	3.26	4.77	6.32	8.44	11.46

Discounted Net Cash Flow Model

Slovakian Broadcasting Company
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 5

FIXED ASSET AND CAPITAL EXPENDITURE DEPRECIATION	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
	Net Fixed Assets					
Fixed Asset Depreciation - Existing Assets						
Depreciation for short term depreciable assets	20,000	4,000	4,000	4,000	4,000	4,000
Depreciation for medium term depreciable assets	2,000,000	200,000	200,000	200,000	200,000	200,000
Depreciation for long term depreciable assets	0	0	0	0	0	0
Capital Expenditure Depreciation						
Depreciation for short term depreciable assets		0	0	0	0	0
			0	0	0	0
				0	0	0
					0	0
						0
Depreciation for medium term depreciable assets		45,000	45,000	45,000	45,000	45,000
			10,000	10,000	10,000	10,000
				10,000	10,000	10,000
					10,000	10,000
						10,000
Depreciation for long term depreciable assets		0	0	0	0	0
			0	0	0	0
				0	0	0
					0	0
						0
TOTAL DEPRECIATION EXPENSE		249,000	259,000	269,000	279,000	289,000

CASE STUDY - ROMANIAN CEMENT SA

CASE STUDY: Using the DCF Model to Value a Company
Romanian Cement SA ("RC")

Purpose of the Valuation:

The valuation opinion of 100 percent of the owners' equity of Romanian Cement will be one of several factors considered by management as it moves forward with its plans to engage in a joint venture with a foreign company.

Company Profile:

Romanian Cement is one of the four largest cement companies in Romania and consists of six separate production facilities located throughout Romania. Approximately 80 percent of the Company's revenues have come from cement production. Other products include asbestos cartons and lime.

The Company's current year balance sheets and income statements are presented in Schedules I and II, respectively. Schedule III presents historical and forecasted product sales, capacity, and costs. Schedule IV presents the forecasted capital expenditures for 1995-1999. Enclosed also is industry information from Dun and Bradstreet's *Industry Norms and Key Business Ratios*.

Step 1. INPUTS for Product Sales and Gross Margin FORECASTS

- The Company has forecasts sales on a unit production basis for Cement, Lime, and Asbestos Cartons (Schedule III).
- The Company has presented the existing capacity by product line (Schedule III).
- The Company has forecasted prices for Cement, Lime, and Asbestos Cartons (Schedule III).
- The Company has forecasted the cost per unit for each of its product lines (Schedule III).

Step 2. INPUTS for Variable and Fixed Costs and Taxation

- The Company's Administrative expenses are forecasted to remain at 1994 levels (as a percent of sales) in each year of the forecast (Schedule II).
- Marketing expenses are forecasted to remain at 1994 levels (as a percent of sales) for each year of the forecast (Schedule II).
- Salaries are anticipated to grow at an inflationary rate of 3.0 percent for each year of the forecast (Schedule II).
- The Company's current tax rate is forecasted to remain constant for each year of the forecast (Schedule II).

Step 3. INPUTS for FORECASTED Depreciation and Capital Expenditures

- The Company's Buildings (Schedule I) are depreciated using the straight line method over 30 years.

- The Company's Machinery and Equipment (Schedule I) are depreciated using the straight line method over 15 years.
- The Company plans on making capital expenditures as presented in Schedule IV.

Step 4. INPUTS for FORECASTED Long Term Financing

- The Company's Bank Loans (Schedule I) have a weighted average cost of 25.0 percent.
- The Company plans to add 700,000 Lei in Bank Loans in 1995.
- The Company plans to pay 1,500,000 in principal of the Bank Loans in 1996.
- The remainder of the Company's Bank Loans will be paid off in 1997.
- All of the Company's capital expenditures will be financed with a new equity offering of 5,000,000 Lei (300,000 shares) in 1995 (issued in conjunction with the initial phase of the proposed joint venture).

Step 5. INPUTS for Valuation Assumptions

- The required working capital as a percent of sales is forecasted based on the industry average for SIC Code 3241 (see handout from *Industry Norms and Key Business Ratios*).
- Residual growth rate = 6 percent.
- Cost of Equity = 35 percent.
- The Company's Other Assets (Schedule I) is a vacation house, and is considered to be a non-operating asset. The fair market value of the house is 200,000 Lei.

Schedule I: Selected Balance Sheet Data

Romanian Cement
Fair Market Value of the Owners' Equity
As of December 31, 1994

As of December 31, 1994

Assets		Common size	Industry
Current Assets			
Cash	914,342	3.6%	12.0%
Accounts Receivable	2,234,132	8.8%	13.1%
Inventories	5,438,080	21.4%	8.1%
Other Receivables	120,794	0.5%	
Letters of Credit	86,664	0.3%	
Prepayments	334,953	1.3%	
Total Current Assets	9,128,965	36.0%	36.5%
Net Property, Plant, and Equipment			
Buildings	2,343,559	9.2%	
Machinery and Equipment	13,749,561	54.2%	
Net Property, Plant, and Equipment	16,093,120	63.4%	95.8%
Other Assets	154,403	0.6%	0.0%
Total Assets	25,376,488	100.0%	100.0%

Liabilities and Stockholders' Equity		Common size	Industry
Current Liabilities			
Accounts Payable	3,766,633	14.8%	6.4%
Bank Loans	1,560,694	6.2%	
Other Creditors	835,932	3.3%	
Miscellaneous	8,994	0.0%	
Total Current Liabilities	6,172,253	24.3%	18.3%
Long-Term Debt	0	0.0%	13.1%
Other Long-Term Liabilities	627,906	2.5%	
Total Liabilities	6,800,159	26.8%	45.2%
Equity	18,576,329	73.2%	47.0%
Total Liabilities and Equity	25,376,488	100.0%	100.0%

Note: The Company has 1,000,000 shares outstanding as of 12/31/94.

Schedule II: Selected Income Statement Data

Romanian Cement
Fair Market Value of the Owners' Equity
As of December 31, 1994

For the Year Ended December 31, 1994

Income Statements		Common size	Industry
Sales	46,516,118	100.0%	100.0%
Cost of Goods Sold	37,456,603	80.5%	78.8%
Gross Income	9,059,515	19.5%	21.2%
General and Administrative			
Administrative	930,322	2.0%	
Salaries	660,835	1.4%	
Marketing	186,064	0.4%	
Total General and Adminstrative	1,777,221	3.8%	
Earnings Before Interest, Taxes and Depreciation	7,282,294	15.7%	22.4%
Depreciation	962,111	2.1%	7.5%
Earnings Before Interest and Taxes	6,320,183	13.6%	
Interest Expense	1,031,143	2.2%	3.6%
Earnings Before Taxes	5,289,040	11.4%	11.6%
Taxes (1)	1,517,954	3.3%	
Net Income	3,771,086	8.1%	7.8%

Note (1): The Company's tax rate is 28.7 percent.

Schedule III: Historical and Forecasted Product Sales

Romanian Cement
Fair Market Value of the Owners' Equity
As of December 31, 1994

	Historical			Forecasted				
	1992	1993	1994	1995E	1996E	1997E	1998E	1999E
PRODUCT SALES								
CEMENT								
Cement Sales (tons)	1,700	2,210	2,763	3,315	3,812	4,193	4,403	4,623
Percent change		30.0%	25.0%	20.0%	15.0%	10.0%	5.0%	5.0%
Cement Price per ton (average)	13,056	13,448	13,986	14,545	15,272	16,036	16,838	17,680
Percent change		3.0%	4.0%	4.0%	5.0%	5.0%	5.0%	5.0%
Capacity - Cement (tons)	2,500	2,500	3,000	3,500	3,500	4,500	4,500	4,500
Capacity Utilization	68.0%	88.4%	92.1%	94.7%	108.9%	93.2%	97.8%	102.7%
LIME								
Lime Sales (tons)	180	190	200	220	250	300	325	325
Percent change		5.6%	5.3%	10.0%	13.6%	20.0%	8.3%	0.0%
Lime Price per ton	12,118	12,300	12,484	12,484	12,484	12,484	12,484	12,484
Percent change		1.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Capacity - Lime (tons)	500	500	500	500	500	500	500	500
Capacity Utilization	36.0%	38.0%	40.0%	44.0%	50.0%	60.0%	65.0%	65.0%
ASBESTOS CARTONS								
Asbestos Cartons (000s Square Meters)	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500
Percent change		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Asbestos Cartons (price per 000 Square Meters)	512	512	512	512	512	512	512	512
Percent change		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Capacity - Asbestos Cartons (000s Square Meters)	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000
Capacity Utilization	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
PRODUCT COSTS								
Cement (cost per ton)	10,445	10,758	11,081	11,413	11,756	12,108	12,472	12,846
Percent change		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Lime (cost per tons)	8,483	8,737	8,999	9,269	9,547	9,834	10,129	10,433
Percent change		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Asbestos Cartons (cost per Square Meter)	435	457	480	504	529	555	583	612
Percent change		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Schedule IV: Capital Expenditure Forecasts

Romanian Cement
Fair Market Value of the Owners' Equity
As of December 31, 1994

Forecasted for the year ending	1995	1996	1997	1998	1999
Capital Expenditures					
New Building	400,000	0	400,000	0	0
Machinery and Equipment	1,000,000	0	1,000,000	0	0
Replacement of Machinery and Equipment (1)	100,000	100,000	100,000	100,000	100,000
Total Capital Expenditures	1,500,000	100,000	1,500,000	100,000	100,000

Note:
(1) Replacement of the Machinery and Equipment is depreciated on a straight line basis over 15 years.

	SIC 3231 PRDS OF PRCHSD GLSS (NO BREAKDOWN) 1994 (155 Establishments)		SIC 3241 CEMENT, HYDRAULIC (NO BREAKDOWN) 1994 (21 Establishments)		SIC 3251 BRCK,STRL CLAY TILE (NO BREAKDOWN) 1994 (21 Establishments)		SIC 3255 CLAY REFRACTORIES (NO BREAKDOWN) 1994 (25 Establishments)	
	$	%	$	%	$	%	$	%
Cash	58,283	12.3	13,679,859	6.7	784,845	10.7	188,782	7.3
Accounts Receivable	130,308	27.5	22,867,824	11.2	931,545	12.7	711,164	27.5
Notes Receivable	5,212	1.1	---	---	---	---	10,344	0.4
Inventory	115,145	24.3	13,475,682	6.6	1,467,000	20.0	581,861	22.5
Other Current	22,271	4.7	9,596,319	4.7	432,765	5.9	108,614	4.2
Total Current	**331,218**	**69.9**	**59,619,684**	**29.2**	**3,616,155**	**49.3**	**1,600,765**	**61.9**
Fixed Assets	99,508	21.0	54,311,082	26.6	2,273,850	31.0	649,099	25.1
Other Non-current	43,120	9.1	90,246,234	44.2	1,444,995	19.7	336,187	13.0
Total Assets	**473,846**	**100.0**	**204,177,000**	**100.0**	**7,335,000**	**100.0**	**2,586,050**	**100.0**
Accounts Payable	60,178	12.7	9,596,319	4.7	506,115	6.9	331,014	12.8
Bank Loans	1,422	0.3	---	---	---	---	---	---
Notes Payable	13,742	2.9	1,020,885	0.5	212,715	2.9	155,163	6.0
Other Current	72,498	15.3	21,030,231	10.3	476,775	6.5	320,670	12.4
Total Current	**147,840**	**31.2**	**31,647,435**	**15.5**	**1,195,605**	**16.3**	**806,848**	**31.2**
Other Long Term	84,818	17.9	68,807,649	33.7	2,134,485	29.1	537,898	20.8
Deferred Credits	474	0.1	1,633,416	0.8	---	---	12,930	0.5
Net Worth	240,714	50.8	102,088,500	50.0	4,004,910	54.6	1,228,374	47.5
Total Liab & Net Worth	**473,846**	**100.0**	**204,177,000**	**100.0**	**7,335,000**	**100.0**	**2,586,050**	**100.0**
Net Sales	1,174,546	100.0	84,027,588	100.0	8,567,582	100.0	3,735,646	100.0
Gross Profit	438,106	37.3	19,326,345	23.0	3,341,357	39.0	1,090,809	29.2
Net Profit After Tax	38,760	3.3	1,848,607	2.2	548,325	6.4	239,081	6.4
Working Capital	183,378	---	27,972,249	---	2,420,550	---	793,917	---

RATIOS	UQ	MED	LQ	UQ	MED	LQ	UQ	MED	LQ	UQ	MED	LQ
SOLVENCY												
Quick Ratio (times)	2.6	1.1	0.7	1.9	1.1	0.6	3.7	1.6	0.9	2.0	1.3	0.8
Current Ratio (times)	4.3	2.4	1.6	2.8	2.2	1.4	7.4	4.1	2.2	3.5	2.5	1.6
Curr Liab To Nw (%)	20.3	58.3	119.2	16.8	39.8	60.5	12.3	22.5	65.9	30.5	56.0	122.3
Curr Liab To Inv (%)	59.8	109.3	200.6	157.6	200.0	227.7	42.0	62.9	77.6	66.1	121.0	193.1
Total Liab To Nw (%)	31.1	79.6	175.2	48.0	106.8	227.4	23.4	57.7	174.3	53.9	116.2	186.5
Fixed Assets To Nw (%)	18.0	38.1	93.0	102.6	148.0	221.0	33.6	65.8	169.2	41.5	80.7	96.9
EFFICIENCY												
Coll Period (days)	26.8	38.4	58.9	50.7	62.8	125.9	31.4	35.6	43.3	44.7	54.8	76.7
Sales To Inv (times)	17.9	9.2	5.4	8.6	7.6	5.9	8.4	5.7	4.4	12.4	6.1	4.9
Assets To Sales (%)	30.9	42.4	60.1	137.9	166.5	274.2	56.8	67.6	115.9	39.2	54.6	103.1
Sales To Nwc (times)	10.1	5.4	3.7	9.1	5.1	2.9	6.6	3.4	2.2	10.5	4.9	3.2
Acct Pay To Sales (%)	2.8	5.0	9.5	4.9	6.7	12.5	2.4	4.1	7.7	5.5	7.8	9.2
PROFITABILITY												
Return On Sales (%)	6.3	3.0	0.3	6.7	2.1	(5.6)	8.8	4.1	1.5	8.6	4.5	0.6
Return On Assets (%)	12.3	3.2	0.3	2.5	0.9	(3.8)	8.2	5.7	2.3	21.1	7.8	1.5
Return On Nw (%)	28.4	10.3	0.8	5.1	1.2	(13.5)	14.5	10.9	4.6	55.0	19.5	3.5

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1994

INPUT SECTION

Step 1. INPUTS for Product Sales and Gross Margin FORECASTS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
A. INPUT Current year	1994					
B. Forecast TOTAL SALES or UNIT SALES (T or U)?	U	(If T is selected, proceed to #1C, If U is selected, proceed to #1D)				
C. INPUTS for TOTAL SALES (T) forecast:						
INPUT Current year sales	0					
INPUT Current year cost of goods sold (or cost of service)	0					
INPUT Sales growth rates for years 1-5.		0.0%	0.0%	0.0%	0.0%	0.0%
INPUT Cost of goods sold (or cost of service) as a percent of sales for years 1-5.		0.0%	0.0%	0.0%	0.0%	0.0%
D. INPUTS for UNIT SALES (U) forecast.						
INPUT Product Names and Forecasted Unit Production.	INPUT Current year Units Sold	INPUT Forecasted Units Sold				
Cement	2,763	3,315	3,812	4,193	4,403	4,623
Lime	200	220	250	300	325	325
Asbestos Cartons	10,500	10,500	10,500	10,500	10,500	10,500
INPUT Product Groups-Unit Capacity	INPUT Current year Unit Capacity	INPUT Forecasted Unit Capacity				
Cement	3,000	3,500	3,500	4,500	4,500	4,500
Lime	500	500	500	500	500	500
Asbestos Cartons	21,000	21,000	21,000	21,000	21,000	21,000
INPUT Unit Sales Prices	INPUT Current year Unit Prices	INPUT Forecasted Unit Price Growth Rates				
Cement	13,986	4.0%	5.0%	5.0%	5.0%	5.0%
Lime	12,484	0.0%	0.0%	0.0%	0.0%	0.0%
Asbestos Cartons	512	0.0%	0.0%	0.0%	0.0%	0.0%
INPUT Product Cost per Unit	INPUT Current year Cost per Unit	INPUT Forecasted Unit Cost Growth Rates				
Cement	11,081	3.0%	3.0%	3.0%	3.0%	3.0%
Lime	8,999	3.0%	3.0%	3.0%	3.0%	3.0%
Asbestos Cartons	480	5.0%	5.0%	5.0%	5.0%	5.0%

Step 2. INPUTS for Variable and Fixed Costs and Taxation FORECASTS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
A. INPUT Variable Cost forecasts.	INPUT Current year Variable Costs	INPUT Variable Costs as a Percent of Sales				
Administrative	930,322	2.0%	2.0%	2.0%	2.0%	2.0%
Marketing	136,064	0.4%	0.4%	0.4%	0.4%	0.4%
Insurance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL VARIABLE COSTS	0	0.0%	0.0%	0.0%	0.0%	0.0%
B. INPUT for Fixed Cost forecasts	INPUT Current year Fixed Costs	INPUT Forecasted Fixed Cost Growth Rates				
Rent	0	0.0%	0.0%	0.0%	0.0%	0.0%
Salaries	660,835	3.0%	3.0%	3.0%	3.0%	3.0%
Maintenance	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0	0.0%	0.0%	0.0%	0.0%	0.0%
OPTIONAL: INPUT TOTAL FIXED COSTS	0	0.0%	0.0%	0.0%	0.0%	0.0%
C. INPUT Current Year Taxes and Forecasted Tax Rates	INPUT Current year Tax Rate	INPUT Forecasted Tax Rates				
	28.7%	28.7%	28.7%	28.7%	28.7%	28.7%

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1994

INPUT SECTION

Step 3. INPUTS for FORECASTED Depreciation and Capital Expenditures

		INPUT Current Year Existing Net Fixed Assets	INPUT Depreciable Years
A. INPUT Current Year Depreciation Expense	962,111		
B. INPUT Current Depreciable Assets			
Short depreciable life (1-5 years)		0	0
Medium depreciable life (6-19 years)		13,749,561	15
Long depreciable life (20+)		2,343,559	30
Total		16,093,120	

C. INPUT Capital Expenditures in:

	INPUT Forecasted Capital Expenditures				
	Year 1	Year 2	Year 3	Year 4	Year 5
	1995	1996	1997	1998	1999
Short term depreciable assets	0	0	0	0	0
Medium term depreciable assets	1,100,000	100,000	1,100,000	100,000	100,000
Long term depreciable assets	400,000	0	400,000	0	0

Step 4. INPUTS for FORECASTED Long Term Financing

A. INPUTS for Current and Forecasted Long Term Debt Financing

INPUT Current Year Interest Expense: 1,031,143

		Year 1	Year 2	Year 3	Year 4	Year 5
		1995	1996	1997	1998	1999
Bank Loans						
INPUT: Interest Rate	25.0%					
INPUT: Beginning of Year Debt Balance (Year 1 only)		1,560,694	2,260,694	760,694	0	0
INPUT: Additional Debt		700,000	0	0	0	0
INPUT: Principal Payments		0	1,500,000	760,694	0	0
Ending Debt Balance		2,260,694	760,694	0	0	0
Debt Instrument #2						
INPUT: Interest Rate	0.0%					
INPUT: Beginning of Year Debt Balance (Year 1 only)		0	0	0	0	0
INPUT: Additional Debt		0	0	0	0	0
INPUT: Principal Payments		0	0	0	0	0
Ending Debt Balance		0	0	0	0	0
Debt Instrument #3						
INPUT: Interest Rate	0.0%					
INPUT: Beginning of Year Debt Balance (Year 1 only)		0	0	0	0	0
INPUT: Additional Debt		0	0	0	0	0
INPUT: Principal Payments		0	0	0	0	0
Ending Debt Balance		0	0	0	0	0

B. INPUTS for Forecasted Equity Financing

		INPUT Discreet Equity Issues/Repurchases				
		Year 1	Year 2	Year 3	Year 4	Year 5
		1995	1996	1997	1998	1999
INPUT New Equity Issues		5,000,000	0	0	0	0
INPUT Equity Repurchases		0	0	0	0	0
INPUT Total Shares Issued (Repurchased)		300,000	0	0	0	0
INPUT Current shares outstanding	1,000,000					

Step 5. INPUT Valuation Assumptions

Working capital/sales	19.6%	Cost of Equity	35.0%
Current year working capital	2,956,712	Fair Market Value of Non-operating assets	500,000
Residual Growth Rate	6.0%		

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 1

Discounted Net Cash Flow	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Total Sales (PAGE 2)	46,516,118	56,340,614	61,951,492	76,361,605	83,571,740	88,993,630
Cost of Goods Sold (Cost of Service) (PAGE 2)	37,456,603	45,166,694	49,088,775	59,555,439	64,331,072	67,629,581
	80.5%	*80.2%*	*79.2%*	*78.0%*	*77.0%*	*76.0%*
Gross Margin	9,059,515	11,173,920	12,862,717	16,806,167	19,240,668	21,364,048
	19.5%	*19.8%*	*20.8%*	*22.0%*	*23.0%*	*24.0%*
Variable and Fixed Costs (PAGE 3)						
Total variable costs	1,116,386	1,352,175	1,486,836	1,832,679	2,005,722	2,135,847
Total fixed costs	660,835	680,660	701,080	722,112	743,776	766,089
Total variable and fixed costs	1,777,221	2,032,835	2,187,916	2,554,791	2,749,497	2,901,936
	3.8%	*3.6%*	*3.5%*	*3.3%*	*3.3%*	*3.3%*
Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	7,282,294	9,141,085	10,674,801	14,251,376	16,491,171	18,462,112
	15.7%	*16.2%*	*17.2%*	*18.7%*	*19.7%*	*20.7%*
Depreciation (PAGE 5)	962,111	1,081,423	1,088,089	1,174,756	1,181,423	1,188,089
Earnings Before Interest and Taxes (EBIT)	6,320,183	8,059,662	9,586,712	13,076,620	15,309,748	17,274,023
Interest Expense (PAGE 4)	1,031,143	565,174	377,674	95,087	0	0
Profit Before Tax	5,289,040	7,494,489	9,209,039	12,981,533	15,309,748	17,274,023
	11.4%	*13.3%*	*14.9%*	*17.0%*	*18.3%*	*19.4%*
Tax Provision	1,517,954	2,150,918	2,642,994	3,725,700	4,393,898	4,957,645
Profit After Tax	3,771,086	5,343,570	6,566,044	9,255,833	10,915,851	12,316,378
	8.1%	*9.5%*	*10.6%*	*12.1%*	*13.1%*	*13.8%*
Free Cash Flow						
Profit After Tax		5,343,570	6,566,044	9,255,833	10,915,851	12,316,378
Depreciation		1,081,423	1,088,089	1,174,756	1,181,423	1,188,089
Additional working capital requirements		(1,925,601)	(1,099,732)	(2,824,382)	(1,413,186)	(1,062,690)
Capital investment		(1,500,000)	(100,000)	(1,500,000)	(100,000)	(100,000)
Additional Debt Financing		700,000	0	0	0	0
Principal Payments		0	(1,500,000)	(760,694)	0	0
Changes in Equity Financing		5,000,000	0	0	0	0
Free Cash Flow		8,699,392	4,954,402	5,345,513	10,584,087	12,341,778
Present Value Factor		0.8607	0.6375	0.4722	0.3498	0.2591
Present Value of Cash Flow		7,487,245	3,158,570	2,524,381	3,702,416	3,197,980
				Residual Value		41,134,171

Sum of Present Value of Cash Flows	20,070,592
Present Value of Residual	10,658,615
Preliminary Value	30,729,208
Working capital (deficiency) surplus	(6,160,447)
Non-operating assets	200,000
Equity value indication	24,768,761
Total shares outstanding	1,300,000
Equity value per share	19.05

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 2

SALES AND COST OF GOODS SOLD (COST OF SERVICE) ANALYSIS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Unit Production						
Cement	2,763	3,315	3,812	4,193	4,403	4,623
Lime	200	220	250	300	325	325
Asbestos Cartons	10,500	10,500	10,500	10,500	10,500	10,500
Unit Capacity						
Cement	3,000	3,500	3,500	4,500	4,500	4,500
Lime	500	500	500	500	500	500
Asbestos Cartons	21,000	21,000	21,000	21,000	21,000	21,000
Percent of Capacity						
Cement	92.1%	94.7%	108.9%	93.2%	97.8%	102.7%
Lime	40.0%	44.0%	50.0%	60.0%	65.0%	65.0%
Asbestos Cartons	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Price per Unit						
Cement	13,986	14,545	15,273	16,036	16,838	17,680
Lime	12,484	12,484	12,484	12,484	12,484	12,484
Asbestos Cartons	512	512	512	512	512	512
Total Sales by Product						
Cement	38,643,318	48,218,134	53,454,492	67,240,405	74,138,440	79,560,330
Lime	2,496,800	2,746,480	3,121,000	3,745,200	4,057,300	4,057,300
Asbestos Cartons	5,376,000	5,376,000	5,376,000	5,376,000	5,376,000	5,376,000
Cost per Unit						
Cement	11,081	11,413	11,756	12,109	12,472	12,846
Lime	8,999	9,269	9,547	9,833	10,128	10,432
Asbestos Cartons	480	504	529	556	583	613
Total Costs by Product						
Cement	30,616,803	37,835,520	41,145,415	50,770,974	54,913,173	57,806,622
Lime	1,799,800	2,039,173	2,386,760	2,950,035	3,291,747	3,390,500
Asbestos Cartons	5,040,000	5,292,000	5,556,600	5,834,430	6,126,152	6,432,459
Profit per Unit						
Cement	20.8%	21.5%	23.0%	24.5%	25.9%	27.3%
Lime	27.9%	25.8%	23.5%	21.2%	18.9%	16.4%
Asbestos Cartons	6.3%	1.6%	-3.4%	-8.5%	-14.0%	-19.7%
TOTAL SALES	46,516,118	56,340,614	61,951,492	76,361,605	83,571,740	88,993,630
TOTAL COSTS OF GOODS SOLD (COST OF SERVICE)	37,456,603	45,166,694	49,088,775	59,555,439	64,331,072	67,629,581

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 3

VARIABLE AND FIXED COST ANALYSIS	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
Variable Costs						
Administrative	930,322	1,126,812	1,239,030	1,527,232	1,671,435	1,779,873
Marketing	186,064	225,362	247,806	305,446	334,287	355,975
Insurance	0	0	0	0	0	0
Legal and auditing	0	0	0	0	0	0
Utilities	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL VARIABLE COSTS	0	0	0	0	0	0
Total Variable Costs	1,116,386	1,352,175	1,486,836	1,832,679	2,005,722	2,135,847
Fixed Costs						
Rent	0	0	0	0	0	0
Salaries	660,835	680,660	701,080	722,112	743,776	766,089
Maintenance	0	0	0	0	0	0
Other #1	0	0	0	0	0	0
Other #2	0	0	0	0	0	0
TOTAL FIXED COSTS	0	0	0	0	0	0
Total Fixed Costs	660,835	680,660	701,080	722,112	743,776	766,089
Variable Costs (as a percent of sales)						
Administrative	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Marketing	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Legal and auditing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other #2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL VARIABLE COSTS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Variable Costs	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Fixed Costs (percent growth)						
Rent		0.0%	0.0%	0.0%	0.0%	0.0%
Salaries		3.0%	3.0%	3.0%	3.0%	3.0%
Maintenance		0.0%	0.0%	0.0%	0.0%	0.0%
Other #1		0.0%	0.0%	0.0%	0.0%	0.0%
Other #2		0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL FIXED COSTS		0.0%	0.0%	0.0%	0.0%	0.0%
Total Fixed Costs		3.0%	3.0%	3.0%	3.0%	3.0%
TOTAL VARIABLE COSTS	1,116,386	1,352,175	1,486,836	1,832,679	2,005,722	2,135,847
TOTAL FIXED COSTS	660,835	680,660	701,080	722,112	743,776	766,089

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 4

FORECASTED INTEREST PAYMENTS AND NET CHANGES IN LONG TERM FINANCING REQUIREMENTS

A. INPUTS for Current and Forecasted Long Term Debt Financing

	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
TOTAL INTEREST PAYMENTS					
Bank Loans	565,174	377,674	95,087	0	0
Debt Instrument #2	0	0	0	0	0
Debt Instrument #3	0	0	0	0	0
TOTAL INTEREST PAYMENTS	565,174	377,674	95,087	0	0
TOTAL ADDITIONAL DEBT FINANCING					
Bank Loans	700,000	0	0	0	0
Debt Instrument #2	0	0	0	0	0
Debt Instrument #3	0	0	0	0	0
TOTAL ADDITIONAL DEBT FINANCING	700,000	0	0	0	0
TOTAL PRINCIPAL PAYMENTS					
Bank Loans	0	1,500,000	760,694	0	0
Debt Instrument #2	0	0	0	0	0
Debt Instrument #3	0	0	0	0	0
TOTAL PRINCIPAL PAYMENTS	0	1,500,000	760,694	0	0
TOTAL ENDING DEBT	2,260,694	760,694	0	0	0
TOTAL CHANGE IN EQUITY FINANCING					
New Equity Issues	5,000,000	0	0	0	0
Additional shares issued	300,000	0	0	0	0
Equity Repurchases	0	0	0	0	0
TOTAL CHANGE IN EQUITY FINANCING	5,000,000	0	0	0	0
EBIT to INTEREST	14.26	25.38	137.52	#DIV/0!	#DIV/0!

Discounted Net Cash Flow Model

Romanian Cement
Privatization
As of December 31, 1994

OUTPUT SECTION PAGE 5

FIXED ASSET AND CAPITAL EXPENDITURE DEPRECIATION	Current year 1994	Year 1 1995	Year 2 1996	Year 3 1997	Year 4 1998	Year 5 1999
	Net Fixed Assets					
Fixed Asset Depreciation - Existing Assets						
Depreciation for short term depreciable assets	0	0	0	0	0	0
Depreciation for medium term depreciable assets	13,749,561	916,637	916,637	916,637	916,637	916,637
Depreciation for long term depreciable assets	2,343,559	78,119	78,119	78,119	78,119	78,119
Capital Expenditure Depreciation						
Depreciation for short term depreciable assets		0	0	0	0	0
			0	0	0	0
				0	0	0
					0	0
						0
Depreciation for medium term depreciable assets		73,333	73,333	73,333	73,333	73,333
			6,667	6,667	6,667	6,667
				73,333	73,333	73,333
					6,667	6,667
						6,667
Depreciation for long term depreciable assets		13,333	13,333	13,333	13,333	13,333
			0	0	0	0
				13,333	13,333	13,333
					0	0
						0
TOTAL DEPRECIATION EXPENSE		1,081,423	1,088,089	1,174,756	1,181,423	1,188,089