

FINAL

**GROUP - IV
PAPER - 18**

**BUSINESS
VALUATION
MANAGEMENT**



The Institute of Cost and Works Accountants of India
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BUSINESS VALUATION MANAGEMENT

A Note to the Student:

Business Valuation Management is a fascinating subject, as it, foremost, provides (and also warrants) the most comprehensive analysis of a business model. It perforce enjoins upon the business valuer to delve into the depths of the business that is being valued and come to grips with the macro and micro, technical and financial, the short and longer term aspects of the business.

This book attempts to provide the following to you:

- An easy introduction to the concept of business valuation
- A complete overview of the existing business valuation models
- An understanding of the importance of various assumptions underlying the valuation models
- An easy-to-understand explanation of various business valuation techniques, with their pros and cons
- A discussion on valuation of assets and liabilities, whether tangible or intangible, apparent or contingent.
- Application of the concepts in real-life situations, with many examples.

The design and structure of the book are such that the book can provide vital insights into the key issues in business valuation, suitably enhanced with many scholastic articles that can not only provide the depth, but also bring out the complexities involved in business valuation.

In writing the book, we have relied upon not only our knowledge and experience, but also the extensive work done worldwide by several pioneers and experts, as can be seen from the reference materials appended to the book, but also from the bibliography. We owe them, as well as their institutions and publishers, a debt of gratitude.

Business valuation is a complex exercise and no single volume or course can attempt to cover the subject in its entirety. Fortunately for the keen learner, there is a great deal of literature available on the (constantly expanding) subject. This is an introductory course on business valuation, and therefore, the student is well advised to look at this as a beginning of a long and exciting journey and not an end.

Bon Voyage and Happy Learning!

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STUDY NOTE - 1

Valuation Basics

business
valuation
management





Chapter 1

CONCEPT OF VALUE

CHAPTER CONTENTS
1. An understanding of 'Value'
2. The nature and scope of Valuation
3. Objectives of Valuation
4. Importance of Business Valuation
5. Misconceptions about Valuation

“A thing is worth whatever the buyer will pay for it”. – Publilius Syrus.

1.1 What is Value?

1.1.1 Value is the 'worth' of a thing. It can also be defined as 'a bundle of benefits' expected from it. It can be tangible or intangible.

1.1.2 Value is defined as:

- a. The worth, desirability, or utility of a thing, or the qualities on which these depend
- b. Worth as estimated
- c. The amount for which a thing can be exchanged in the market
- d. Purchasing power
- e. Estimate the value of, appraise (professionally)

1.1.3 Valuation is defined as:

- Estimation (esp. by professional valuer) of a thing's worth
- Worth so estimated
- Price set on a thing

1.2 How is Value different from cost and price?

1.2.1 Cost is defined as 'resources sacrificed to produce or obtain a thing, (a product or service).

1.2.2 Price is what is charged by a seller or provider of product or service. Many a time, it is a function of market forces.

1.2.3 Oscar Wilde said, “A cynic is one who knows the price of everything and the value of nothing”.

1.3 Different connotations of Value:

1.3.1 Value, like 'utility', has different connotations in different contexts, and may vary from person, place and time. It can range from a precise figure to something bordering on sentimental or emotional, or even the absurd.



1.3.2 Value is also different from 'Values', which refers to one's principles or standards.

1.4 What has Value?

- 1.4.1 Everything under the sun has value. There is nothing in God's creation that does not have value. This applies to all physical things. If something has not been assigned any value, it can only be said that its value or utility has not yet been explored or discovered yet.
- 1.4.2 A case in point is the element called Gadolinium. It was considered a useless rare earth element by the chemists, till hundred years later when magnetic resonance imaging (MRI) was invented and the use of Gadolinium was found in MRI as the perfect contrast material. This only goes to show that no material can be perceived to be useless, i.e., without any value.
- 1.4.3 In a philosophical context, 'Values' have 'Value', as they guide a person through life and provide the moorings or anchorage in the sea of life. Refer Swami Dayanand Saraswathi's "The Value of Values".

1.5 Why Value?

- 1.5.1 Value is sought to be known in a commercial context on the eve of a transaction of 'buy or sell' or to know the 'worth' of a possession.

1.6 Who wants to Value?

- 1.6.1 The following entities may require valuation to be carried out:
1. A buyer or a seller
 2. A lender
 3. An intermediary like an agent, a broker
 4. Regulatory authorities such as tax authorities, revenue authorities
 5. General public
- 1.6.2 Global/corporate investors have become highly demanding and are extremely focused on maximizing corporate value. The list of investors includes high net worth individuals, pension and hedge funds, and investment companies. They no longer remain passive investors but are keen followers of a company's strategies and actions aimed at maximizing and protecting the value of their investments.

1.7 When to Value?

- 1.7.1 Valuation is done for "numerous purposes, including transactions, financings, taxation planning and compliance, intergenerational wealth transfer, ownership transition, financial accounting, bankruptcy, management information, and planning and litigation support", as listed by AICPA.
- 1.7.2 We see that the corporate world has increasingly become more dynamic, and sometimes volatile. Globalization, enhanced IT capabilities, the all pervasive role of the media, and growing awareness of investors have rendered the situation quite complex. Mergers, acquisitions, disinvestment and corporate takeovers have become the order of the day across the globe, and are a regular feature today.



- 1.7.3 Understanding the factors that determine the value of any business will pay tangible dividends by focusing the management on ways to increase the firm's short and long - run profitability.
- 1.7.4 Investors in shares and companies seeking to make acquisitions need to know how much a company is worth and how much to pay for their investment. We need to determine 'Value' mainly on the following occasions:
1. Portfolio Management/transactions: A transaction of sale or purchase, i.e., whenever an investment or disinvestment is made. Transaction appraisals include acquisitions, mergers, leveraged buy-outs, initial public offerings, ESOPs, buy-sell agreements, sales of interest, going public, going private, and many other engagements.

Mergers and Acquisition: Valuation becomes important for both the parties – for the acquirer to decide on a fair market value of the target organization and for the target organization to arrive at a reasonable for itself to enable acceptance or rejection of the offer being made.
 2. Corporate Finance: The desire to know intrinsic worth and enhance value is important, as financial management itself is defined as "maximization of corporate value". A proper valuation will help in linking the value of a firm to its financial decisions such as capital structure, financing mix, dividend policy, recapitalization and so on.
 3. Resolve disputes among stakeholders/litigation: Divorce, bankruptcy, breach of contract, dissenting shareholder and minority oppression cases, economic damages computations, ownership disputes, and other cases.
 4. Taxes (or estate planning), including gift and estate taxes, estate planning, family limited partnerships, *ad valorem* taxation, and other tax-related reasons.

1.8 Who determines Value?

- 1.8.1 The concept of Value is like beauty. Just as it is said that 'beauty lies in the eyes of the beholder', value is determined by a person who seeks or perceives value in a thing.
- 1.8.2 Value can also be estimated, assessed, or determined by a professional called 'Valuer'. The process of determining value is called 'Valuation'. Business Valuation is the process of determining the economic value of a business. Valuation is an estimation, by a professional valuer, of a thing's worth.

1.9 What to Value?

- 1.9.1 Value all assets and liabilities to know the value of 'what we own' and 'what we owe'.
- 1.9.2 Assets will include both the tangibles and intangibles.
- 1.9.3 Liabilities will include both the apparent and contingent.

1.10 How to Value?

- 1.10.1 There are several tools and techniques, covered in the field of valuation, depending on what is valued. These range from simple thumb rules to complex models.



1.11 Types of Values:

1.11.1 There are a number of types of Values:

1. Original Value
2. Book Value
3. Depreciated Value
4. Sale Value
5. Purchase Value
6. Replacement Value
7. Market Value
8. Economic Value
9. Residual Value
10. Disposal Value/Scrap Value

1.12 Business Valuation:

- 1.12.1 The objective of any management today is to maximize corporate value and shareholder wealth. This is considered their most important task. A company is considered valuable not for its past performance, but for what it is and its ability to create value to its various stakeholders in future.
- 1.12.2 Therefore, in analyzing a company, it is not sufficient just to study its past performance. We must understand the environment – economic, industrial, social and so on – and its internal resources and intellectual capital in order to gauge its future earning capabilities.
- 1.12.3 It is therefore essential to understand that business valuation is important in determining the present status as well as the future prospects of a company, which in turn is important to understand how to maximize the value of a company. The creation and development of corporate value is the single most important long – term measure of the performance of a company’s management. Further, this is the only common goal all shareholders agree on.
- 1.12.4 Business Valuation is a fascinating topic, as it requires an understanding of financial analysis techniques in order to estimate value, and for acquisitions, it also requires good negotiating and tactical skills needed to fix the price to be paid.
- 1.12.5 The aim of the study materials on Business Valuation Management is to equip the student in the following areas:
1. Become familiar with various methods and techniques of business valuation.
 2. Appreciate the advantages and disadvantages of each technique.
 3. Be able to decide on the most appropriate method or methods of valuation according to the circumstance, i.e., the purpose for which it is being done.



1.13 Factors determining Value:

1.13.1 There are a host of factors that go into determining value. Some of them are listed below:

1. Level of technology
2. Design and engineering
3. Material of construction.
4. Aesthetics
5. Features in a product, asset or business
6. Performance of an asset or business
7. Reliability
8. Maintenance and upkeep
9. Service features
10. Level of obsolescence of asset, or stage of product in its life cycle

The various factors relevant in a business valuation are:

- The nature of the business and its history from its inception.
- The economic outlook in general and the condition and outlook of the specific industry in particular.
- The book value and the financial condition of the business.
- The earning capacity of the company.
- The company's earnings and dividend paying capacity.
- Whether the enterprise has goodwill or other intangible value.
- Sales of the stock and the size of the blocks of stock to be valued.
- The market price of the stock of corporations engaged in the same or a similar line of business having their stocks actively traded in a free and open market.
- The marketability, or lack thereof, of the securities.

1.14 Misconceptions about Valuation:

1.14.1 There are a number of misconceptions about valuation and some of them are given below:

1. Myth 1: A valuation is an objective search for "true" value.

Truth 1.1: All valuations are biased. The only questions are how much and in which direction.

Truth 1.2: The direction and magnitude of the bias in your valuation is directly proportional to who pays you and how much you are paid.

2. Myth 2: A good valuation provides a precise estimate of value.



Truth 2.1: There are no precise valuations.

Truth 2.2: The payoff to valuation is greatest when valuation is least precise.

3 Myth 3: The more quantitative a model, the better the valuation.

Truth 3.1: One's understanding of a valuation model is inversely proportional to the number of inputs required for the model.

Truth 3.2: Simpler valuation models do much better than complex ones.

4. Myth 4: Valuing a private business should only be done when the business is ready to be sold or a lender requires a valuation as part of its due diligence process.

Truth 4.1: Although the above situations require valuations to be carried out, effective planning for ownership transition requires a regular valuation of the business.

5. Myth 5: Businesses in an industry always sell for x times the annual revenue (the revenue multiple). So why should valuation of the business be done by an external valuer?

Truth 5.1: While median multiple values are commonly used as a rule of thumb, they do not represent the revenue multiple for any actual transaction.

6. Myth 6: The business should be at least worth equivalent to what a competitor sold his business for recently.

Truth 6.1: What happened a few months ago is not really relevant to what something is worth today.

Truth 6.2: What a business is worth today depends on three factors: 1) how much cash it generates today; 2) expected growth in cash in the foreseeable future; and 3) the return buyers require on their investment in the business. Therefore, unless a firm's cash flows and growth prospects are very similar to the competitor firm, that firm's revenue multiple is irrelevant to valuing the firm. Also, the current value of the business is likely to be different than a few months ago because economic conditions may have changed.

7. Myth 7: How much a business is worth depends on what the valuation is used for!

Truth 7.1: The value of a business is its fair market value, i.e., what a willing buyer will pay a willing seller when each is fully informed and under no pressure to transact.

8. Myth 8: The business loses money, so it is not worth much.

Truth 8.1: While most private businesses may appear to lose money, the cash a business generates determines the value of the business. Quantifying the size of discretionary expenses is often a critical determinant of the firm's value.

1.15 Written Valuation Reports:

1.15.1 A written valuation report must summarize the appraisal procedures and the valuation conclusions. It should consist of the following:

* Company description.

* Relevant valuation theory, methodology, procedures.



Business Valuation Management

- * A valuation synthesis and conclusion.
- * A summary of the quantitative and qualitative appraisal.
- * A listing of the data and documents the valuer relied on.
- * A statement of the contingent and limiting conditions of the appraisal.
- * An appraisal certification.
- * The professional qualifications of the principle analysts.

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Chapter 2

PRINCIPLES & TECHNIQUES OF VALUATION

CHAPTER CONTENTS
1. Elements of Business Valuation
2. Conceptual Overview
3. Valuation Approaches
4. Choice of Approach
5. Fair Market Value
6. Adjustments for Valuation Purposes

2.1 Elements of Business Valuation:

2.1.1 Business valuation refers to the process and set of procedures used to determine the economic value of an owner's interest in a business.

2.1.2 The three elements of Business Valuation are:

1. Economic Conditions:

As we see in Portfolio Management Theory, wherein we adopt the Economy-Industry-Company (E-I-C) approach, in Business Valuation too, a study and understanding of the national, regional and local economic conditions existing at the time of valuation, as well as the conditions of the industry in which the subject business operates, is important. For instance, while valuing a company involved in sugar manufacture in India in January 2008, the present conditions and forecasts of Indian economy, industries and agriculture need to be understood, before the prospects of Indian sugar industry and that of a particular company are evaluated.

2. Normalization of Financial Statements:

This is the second element that needs to be understood for the following purposes:

- a. Comparability adjustments: to facilitate comparison with other organizations operating within the same industry.
- b. Non-operating adjustments: Non-operating assets need to be excluded.
- c. Non-recurring adjustments: Items of expenditure or income which are of the non-recurring type need to be excluded to provide meaning comparison between various periods.
- d. Discretionary adjustments: Wherever discretionary expenditure had been booked by a company, they will need to be adjusted to arrive at a fair market value.

3. Valuation Approach:

There are three common approaches to business valuation - Discounted Cash Flow Valuation, Relative Valuation, and Contingent Claim Valuation - and within each of these approaches, there are various techniques for determining the fair market value of a business.



2.2 Conceptual Overview:

2.2.1 **Equity and Enterprise Value:** There is an important distinction between equity value and enterprise value.

The equity value of a company is the value of the shareholders' claims in the company. The value of a share is arrived at by dividing the value of the company's equity as accounted in the balance sheet by the total number of shares outstanding. When a company is publicly traded, the value of the equity equals the market capitalization of the company.

The enterprise value of a company denotes the value of the entire company to all its claimholders.

Enterprise value = Equity value + market value of debt + minority interest + pension and other similar provisions + other claims.

2.2.2 **Fundamental vs Relative Valuation:**

Fundamental valuations are calculated based on a company's fundamental economic parameters relevant to the company and its future, and are also referred to as 'standalone valuations'.

On the other hand, Relative valuations or relative multiples apply a relation of a specific financial or operational characteristic from a similar company or the industry to the company being valued. They express the value of a company as a multiple of a specific statistic.

2.2.3 **Basis for valuations:**

The different bases that can be used in valuations are:

1. **Cash flows:** the cash flow to equity shareholders (dividends) or to both equity shareholders and debtors (free cash flow)
2. **Returns:** The difference between the company's capital and the cost of capital.
3. **Operational Variables:** Production capacity, subscriber base (as in telecom), etc.

2.3 Valuation Approaches:

2.3.1 **Discounted Cash Flow Valuation:** This approach is **also known as the Income approach**, where the value is determined by calculating the net present value of the stream of benefits generated by the business or the asset. Thus, the DCF approach equals the enterprise value to all future cash flows discounted to the present using the appropriate cost of capital.

2.3.2 **Relative Valuation:** This is **also known as the market approach**. In this approach, value is determined by comparing the subject company or asset with other companies or assets in the same industry, of the same size, and/or within the same region, based on common variables such as earnings, sales, cash flows, etc.

The Profit multiples often used are: (a) Earnings before interest tax depreciation and amortisation (EBITDA), (b) Earnings before interest and tax (EBIT), (c) Profits before tax, and (d) Profits after tax.



Historic, current and forecast profits/earnings are used as multiples from the quoted sector and actual transactions in the sector.

2.3.3 **Contingent Claim Valuation:** This approach uses the option pricing models to estimate the value of assets.

2.3.4 **Asset-based approach:** A fourth approach called asset-based approach is also touted as another approach to valuation.

The valuation here is simply the difference between the assets and liabilities taken from the balance sheet, adjusted for certain accounting principles.

Two methods are used here:

- a. The Liquidation Value, which is the sum of estimated sale values of the assets owned by a company.
- b. Replacement Cost: The current cost of replacing all the assets of a company.

However, the asset-based approach is not an alternative to the first three approaches, as this approach itself uses one of the three approaches to determine the values.

This approach is commonly used by property and investment companies, to cross check for asset based trading companies such as hotels and property developers, underperforming trading companies with strong asset base (market value vs. existing use), and to work out break – up valuations.

2.3.5 **Other Approaches:**

The two other approaches are the EVA and Performance-based compensation plans.

Refer CPA article titled “Building Long-Term Value” included in the Reader.

Extracts are given below:

Economic Value added (EVA): This analysis is based on the premise that shareholder value is created by earning a return in excess of the company’s cost of capital. EVA is calculated by subtracting a capital charge (invested capital x WACC) from the company’s net operating profit after taxes (NOPAT). If the EVA is positive, shareholder value has increased. Therefore, increasing the company’s future EVA is key to creating shareholder value.

An EVA model normally includes an analysis of the company’s historical EVA performance and projected future EVA under various assumptions. By changing the assumptions, such as for revenue growth and operating margins, management can see the effects of certain value improvement initiatives.

A simple illustration is given below;

$$\begin{aligned}
 \text{NOPAT} &= \$15,000 \\
 \text{Invested capital} &= \$50,000 \\
 \text{WACC} &= 12\% \\
 \text{EVA} &= \text{NOPAT} - (\text{Invested capital} \times \text{WACC}) \\
 &= \$15,000 - (\$50,000 \times 12\%) \\
 &= \$9,000
 \end{aligned}$$



Performance-based compensation. This effective tool for motivating employees aligns their interests with the shareholders. For example, establish a base level of compensation plus a bonus pool tied to certain EVA targets. A minimum level of EVA is required for any bonus to apply, and the pool increases based on how much actual EVA exceeds the minimum threshold.

By tying compensation to certain performance metrics, such as EVA or EVA improvement, employees have a sense of ownership and strong incentives to help achieve the company's value-creation goals. Numerous criteria and performance metrics can be used in setting up a performance-based compensation plan. However, to be effective, the performance criteria must be achievable, measurable and clearly communicated to the employees intended to be impacted by it. Regular feedback and information reporting procedures should be established that will help employees monitor their progress for meeting the performance goals throughout the year.

2.4 Choice of Approach:

- 2.4.1 In determining which of these approaches to use, the valuer must exercise discretion as each technique has advantages as well as drawbacks. It is normally considered advisable to employ more than one technique, which must be reconciled with each other before arriving at a value conclusion.
- 2.4.2 The valuation analyst should use all valuation approaches and methods that are appropriate to the engagement and consider all three generally accepted valuation approaches. For the valuation of a business, business ownership interest or security, the valuer should consider:
- The DCF approach.
 - The market approach.
 - The asset-based approach.
- 2.4.3 For the valuation of an intangible asset, the valuer should consider:
- The DCF approach.
- The market approach.
- The cost approach.
- 2.4.4 Applying a "rule of thumb" is not an appropriate valuation method. However, a rule of thumb can be used as a reasonableness check in a valuation analysis but should not be the only method used to value the subject interest.

2.5 Fair Market Value:

- 2.5.1 This is the first important definition we should understand in business valuation.

"Fair market value" is defined as the price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.

The fair market value standard incorporates certain assumptions, including the assumptions that



the hypothetical purchaser is reasonably prudent and rational but is not motivated by any synergistic or strategic influences; that the business will continue as a going concern and not be liquidated; that the hypothetical transaction will be conducted in cash or equivalents; and that the parties are willing and able to consummate the transaction. These assumptions might not, and probably do not, reflect the actual conditions of the market in which the subject business might be sold. However, these conditions are assumed because they yield a uniform standard of value, after applying generally-accepted valuation techniques, which allows meaningful comparison between businesses which are similarly situated.

It should be noted that there is no clear legal definition of fair market value, and it is not automatically the market value. It is what the seller gives up and what the buyer acquires. The onus is on the valuer to get the balance right as well as be independent.

2.6 Adjustments for Valuation Purposes:

A number of adjustments are required from the account statements of the company to be valued, and these are listed below:

2.6.1 Income Statement:

- Excess compensation
- Excess fringe benefits
- Inventory accumulation
- Bad debts
- Depreciation
- Extraordinary write-offs
- Corporate income taxes

2.6.2 Balance Sheet:

- Inventory
- Bad debts
- Fixed asset appreciation/depreciation
- Patent, franchises, goodwill, and other intangibles
- Investment in affiliates
- Future royalties
- Low cost debt service
- Tax loss carry forwards

2.6.3 General Accounting Policies:

- Overhead allocations
- Installment sales



Business Valuation Management

- Deferred compensation
- Pension and profit sharing
- Foreign exchange
- Consolidation
- Depreciation
- Inventories
- Accounts receivable
- Research and development
- Income tax deferrals
- Marketable Securities
- Contingencies
 - a. Unknown law suit potential (product liability)
 - b. Executory contracts
 - c. Management or employment contracts
 - d. Ownership restrictions



Chapter 3

DISCOUNTED CASH FLOW VALUATION

CHAPTER CONTENTS
1. Definition and description of DCF analysis
2. Assumptions in DCF Model
3. Importance of DCF approach
4. Advantages and Limitations of DCF approach
5. Application of DCF Valuation
6. Value drivers
7. Steps in DCF Valuation

“The value of a business is the future expected cash flows discounted at a rate that reflects the risk of the cash flows”.

- Copeland, Koller and Murrin McKinsey & Co., Valuation Measuring and Managing the Value of Companies. 2nd Edition, 1994.

3.1 What is DCF?

- 3.1.2 In Discounted Cash Flow (DCF) valuation, the value of an asset is the present value of the expected cash flows on the asset.
- 3.1.3 The basic premise in DCF is that every asset has an intrinsic value that can be estimated, based upon its characteristics in terms of cash flows, growth and risk.
- 3.1.4 Though the DCF Valuation is one of the three approaches to Valuation, it is essential to understand the fundamentals of this approach, as the DCF method finds application in the use of the other two approaches also. The DCF model is the most widely used standalone valuation model.

3.2 Discounted Cash Flow (DCF) Analysis:

- 3.2.1 To use DCF valuation, we need to estimate the following:

the life of the asset

the cash flows during the life of the asset

the discount rate to apply to these cash flows to get present value

The Present Value of an asset is arrived at by determining the present values of all expected future cash flows from the use of the asset. Mathematically,

$$\text{Value of an asset} = \sum_{i=1}^{i=n} [(CF_i / (1+r)^i)]$$

That is:

$$\text{Value} = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n}$$



where

CF_i = Expected Future Net Cash Flow during period i

n = Life of the asset

r = rate of discount

The expected future net cash flow is defined as after-tax cash flow from operations on an invested capital basis (excluding the impact of debt service) less the sum of net changes in working capital and new investments in capital assets.

The discount rate should reflect the riskiness of the estimated cash flows. The rate will be higher for high risk projects as compared to lower rates for safe or less risky investments. The Weighted Average Cost of Capital (WACC) is used as the discount rate. The cost of capital with which the cash flows are discounted should reflect the risk inherent in the future cash flows.

The WACC is calculated using the following formula:

$$WACC = [(E/(D+E) \times C_E)] + [(D/(D+E) \times C_D \times (1-T))]$$

where E is the market value of equity, D is the market value of debt, C_E is the cost of equity, C_D is the cost of debt and T is the tax rate.

The first step in determining WACC is the assessment of capital structure, i.e., how a company has financed its operations.

It can thus be seen that the company's net cash flows are projected for a number of years and then discounted to present value using the WACC. The expected cash flows earned beyond the projection period are capitalized into a terminal value and added to the value of the projected cash flows for a total value indication.

3.3 Assumptions of the DCF Model:

3.3.1 The DCF model relies upon cash flow assumptions such as revenue growth rates, operating margins, working capital needs and new investments in fixed assets for purposes of estimating future cash flows. After establishing the current value, the DCF model can be used to measure the value-creation impact of various assumption changes, and the sensitivity tested.

3.4 Importance of DCF:

3.4.1 Business valuation is normally done to evaluate the future earning potential of a business, and involves the study of many aspects of a business, including anticipated revenues and expenses. As the cash flows extend over time in future, the DCF model can be a helpful tool, as the DCF analysis for a business valuation requires the analyst to consider two important components of:

- a. projection of revenues and expenses of the foreseeable future, and,
- b. determination of the discount rate to be used.

3.4.2 Projecting the expected revenues and expenses of a business requires domain expertise in the business being valued. For example, a DCF analysis for a telecom company requires knowledge of the technologies involved, their life cycle, cost advantages and so on. Similarly, a DCF analysis of a proposed mine requires the expertise of geologists to ascertain the quality and quantity of deposits.



3.4.3 Selecting the discount rate requires consideration of two components:

- a. the cost of capital, and
- b. the risk premium associated with the stream of projected net revenues.

3.4.4 The cost of capital is the cost of funds collected for financing a project or purchasing an asset. Capital is a productive asset that commands a rate of return. When a business purchase is financed by debt, the cost of capital simply equals the interest cost of the debt. When it is financed by the owner's equity, the relevant cost of capital would be the "opportunity cost" of the capital, i.e., the net income that the same capital would generate if committed to another attractive alternative.

3.4.5 The choice of discount rate must consider not only the owner's cost of capital, but also the risk of the business investment.

3.5 Advantages of DCF Valuation:

- a. As DCF valuation is based upon an asset's fundamentals, it should be less exposed to market moods and perceptions.
- b. DCF valuation is the right way to think about what an investor would get when buying an asset.
- c. DCF valuation forces an investor to think about the underlying characteristics of the firm, and understand its business.

3.6 Limitations of DCF Valuation:

- a. Since DCF valuation is an attempt to estimate intrinsic value, it requires far more inputs and information than other valuation approaches.
- b. The inputs and information are difficult to estimate, and can also be manipulated by a smart analyst to provide the desired conclusion.
- c. It is possible in a DCF valuation model to find every stock in a market to be over valued.
- d. The DCF valuation has certain limitations when applied to firms in distress; firms in cyclical business; firms with unutilized assets, patents; firms in the process of reorganizing or involved in acquisition, and private firms.

3.7 Application of DCF Valuation:

3.7.1 DCF valuation approach is the easiest to use for assets or firms with the following characteristics:

cash flows are currently positive

the cash flows can be estimated with some reliability for future periods, and

where a proxy for risk that can be used to obtain discount rates is available.

3.7.2 DCF approach is also attractive for investors who have a long time horizon, allowing the market time to correct its valuation mistakes and for price to revert to "true" value, or those who are capable of providing the needed thrust as in the case of an acquirer of a business.



3.8 Value Drivers:

- 3.8.1 In business valuation, it is important to understand the value creation process in a company, and this warrants an understanding of the hundreds of value-drivers and their effect on the company's future cash flow.
- 3.8.2 Value drivers include Financial value drivers such as operating margins and return on invested capital, and operational, non-financial value drivers. While financial drivers are generic, operational value drivers differ from company to company and from industry to industry.
- 3.8.3 According to David Frykman and Jakob Tolleryd, the key value drivers can be divided into three distinct areas:
1. The company's internal resources and its intellectual capital (such as brand strength, innovation power, management and board motivation and past performance, and person-independent knowledge)
 2. The company's external environment and its industry structure (sector growth, relative market share and barriers to entry)
 3. The company's strategy, the way the company chooses to exploit its key value drivers.

3.9 Steps in DCF Valuation:

- 3.9.1 The steps in valuing a company using DCF are given below:
1. Determine the time horizon for specific forecasts:
Consider economic and business cycles, positive and negative growth.
 2. Forecast operating cash flows:
Determine value drivers, estimate historic, current and future ratios, decide on cash/investment policy.
 3. Determine residual value:
Decide on residual value methodology, estimate growth rate in perpetuity.
 4. Estimate WACC:
Estimate cost of equity and debt, the debt-equity ratio.
 5. Discount cash flows:
Determine enterprise value and equity value, conduct sensitivity analysis.
 6. Prepare related financial statements.



Chapter 4

RELATIVE VALUATION

CHAPTER CONTENTS
1. Definition and description of Relative Valuation
2. Steps in Relative Valuation
3. Market Value
4. Market Multiples
5. Wide application of Relative Valuation
6. Advantages and Limitations of Relative Valuation
7. When to use Relative Valuation

“The price attainable in an arm’s length sale between a willing seller and a willing prudent buyer in the open market” - KPMG LLP (UK).

4.1 What is Relative Valuation?

- 4.1.1 This approach is based on the premise that the value of any asset can be estimated by analysing how the market prices ‘similar’ or ‘comparable’ assets. The basic belief here is that it is impossible or extremely difficult to estimate the intrinsic value of an asset, and therefore, the value of an asset is whatever the market is willing to pay for it.
- 4.1.2 Most valuations in the Stock Market are relative valuations.
- 4.1.3 The following data relating to the US Stock Market are quite revealing:
- a. Almost 85% of equity research reports are based upon a multiple and comparables.
 - b. More than 50% of all acquisition valuations are based upon multiples.
 - c. Rules of thumb based on multiples are not only common but are often the basis for final valuation judgments.

4.2 Steps in Relative Valuation:

- 4.2.1 The following steps have to be followed in carrying out relative valuation:
- a. Identify comparable assets and obtain market values for these assets.
 - b. Convert these market values into standardized values, since the absolute prices cannot be compared. This process of standardizing creates price multiples.
 - c. Compare the standardized value or multiple for the asset being analyzed with the standardized values for comparable asset, adjusting for any differences between the firms that might affect the multiple, to judge whether the asset is under or over valued.
- 4.2.2 The most commonly used multiples are:
- a. Revenue or sales multiples
 - b. EBITDA multiples



- c. Operational multiples
- d. Operating free cash flow multiples
- e. Earnings multiples
- f. Book value multiples

4.3 Market Value:

- 4.3.1 The starting point for determining market multiples is the market values of companies whose shares are listed and hence quoted on a stock exchange. Publicly listed companies, those with shares listed on stock exchanges, have their share prices quoted by market makers whose job it is to provide a market in shares. This gives an instant picture of a company's value. The market value of a company may be derived from multiplying the share price by the number of shares in issue.
- 4.3.2 For large companies traded on the major stock exchanges, the share price will represent a price at which the shares were very recently traded and so will give an up-to-date valuation. For less liquid shares, in closely held companies or traded on emerging stock markets, the price may be somewhat out of date or may not be realistic for a larger than average trade. Such less liquid stocks will have wider spreads between the bid and ask prices to reflect their lack of liquidity – it will be more difficult for a market maker to sell on or buy back the trade the maker has completed.
- 4.3.3 In this context, it will be pertinent to keep in mind the following note of warning issued by the London Stock Exchange:

"We desire to state authoritatively that Stock Exchange quotations are not related directly to the value of a company's assets, or to the amount of its profits, and consequently these quotations, no matter what date may be chosen for references, cannot form a fair and equitable basis for compensation.

The Stock Exchange may be likened to a scientific recording instrument which registers, not its own actions and opinions, but the actions and opinions of private and institutional investors all over the country and, indeed, the world. These actions and opinions are the result of hope, fear, guesswork, intelligence or otherwise, good or bad investment policy, and many other considerations. The quotations that result definitely do not represent a valuation of a company by reference to its asset and earning potential".

4.4 Market Multiples:

- 4.4.1 The following Table gives a listing of a number of ratios that can be applied to companies for which a share price and market value are not available, with some of their major pros and cons. For instance, where a company's shares are not quoted, the potential buyer or seller may be prepared to pay a multiple of the company's assets, profits or cash flow, where the multiple is based on multiples derived from companies for which there is a share price and market value. It should be noted that these multiples can be applied at the share level or company level, depending on whether an investor is looking at the purchase or sale of a few shares, or the whole company as a potential acquirer.



Sl. No.	Valuation Multiple	Description	Pros	Cons
1.	Net asset value	Non-current assets + current assets – current liabilities – non-current liabilities – preference shares	Easy to compute, useful for companies in easily valued fixed assets	Relies on accounting value and not economic value.
2.	Dividend Yield	The ratio of Dividend per share to Market price per share. A measure of income yield from a share and ignores the capital gain or loss element of return.		Difficulty associated with market price per share, varying expectations of investors.
3.	Price to Book Ratio	The ratio of the share price to the book value per share. At the company level, the ratio of market value of the equity to the book value of shareholders' funds. A measure of how much more than asset value is being paid		
4.	Tobin's Q	The ratio of Market capitalization to Replacement cost of assets net of liabilities. If over 1, this deems stock markets to be highly valued	Has economic rationale, useful for valuation of markets, tries to adjust historic values.	Dependent on accounting values
5.	Price to Earnings ratio or PE Multiple	It is the ratio of Share Price to Earnings per share or Market Capitalization to Earnings for shareholders. The most common measure of valuation using a multiple of accounting earnings	Commonly used ratio, easy to compute.	Sensitive to accounting standards, time value of money not fully taken into account, needs normalizing when earnings are erratic.
6.	Earnings Yield ratio	The ratio of Earnings per share to Market price per share.		
7.	Price to Cash Flow	It is the ratio of Share Price to Cash flow per share or Market Capitalization to Cash flow. A measure of valuation using cash flow, although the definition of cash flow can vary according to the analyst	Takes investment into account, represents real cash belonging to shareholders.	Time value of money not fully taken into account, confusion over definition of cash flow.



8.	Enterprise Value (EV) to EBITDA (Earnings before Interest, Tax, Depreciation and Amortisation) (EV is the market value of the equity + market value of net debt + minority interests)	A valuation multiple for the enterprise as a whole and using a surrogate for operating cash flow before tax	Commonly used ratio, more stable than cash flow, allows companies with different financial structures to be compared, allows international comparisons.	Ignores capital expenditure requirements and differences in tax rates between companies, time value of money not fully taken into account
9.	EV to Sales	A valuation multiple for the enterprise as whole which is unaffected by accounting differences.	Commonly used ratio in countries where earnings are meaningful numbers, enables accounting distortions to be minimized.	Ignores value to shareholders, taxes, capital structure. Time value of money not fully taken into account.
10.	Specific Valuation Ratios	Valuation multiples based on a value driver for a specific sector. For instance, telecom on subscriber base, retail on floor space, etc.	Commonly used in acquisitions, gives reference points within a sector.	Important differences between companies may be ignored, time value of money not fully taken into account, considers only one value driver.

4.5 Wide application of Relative Valuation:

- 4.5.1 While it is true that in practice DCF valuations appear to be more widely used in business valuations, it is widely opined that they are often relative valuations masquerading as DCF valuations. This carries some conviction as the objective in many DCF valuations is to reach a number that has been obtained by using a multiple, and the terminal value in a large number of DCF valuations is estimated using a multiple.
- 4.5.2 Therefore, Relative valuation is a lot more likely to reflect market perceptions than DCF valuation. It can thus be an advantage when it is important that the price reflects these perceptions as is the case when the objective is to sell a security at that price today as in the case of an IPO.
- 4.5.3 The following inferences can therefore be drawn with regard to relative valuation:
- a. There will always be a significant proportion of securities that are under-and over-valued.
 - b. Relative valuation is more suited to the needs of portfolio managers, as they are most often judged based upon how they perform on a comparable or relative basis to the market and other fund/money managers.



- c. Relative valuation generally requires less information than DCF valuation.
- d. Even if DCF valuation is carried out, presenting the findings on a relative valuation basis will make the findings/recommendations more easily acceptable to a larger audience.
- e. In some cases, relative valuation can help in identifying weak spots in DCF valuations.
- f. The problem with multiples is not in their use but in their abuse. If they can be worked out correctly, then relative valuation can be quite useful.

4.6 Advantages of Relative Valuation:

- a. As already mentioned, Relative valuation is much more likely to reflect market perceptions and moods than DCF valuation.
- b. Relative valuation generally requires less information than DCF valuation.

4.7 Disadvantages of Relative Valuation:

- 4.7.1 Relative valuation may require less information in the way in which most analysts and portfolio managers use it. However, this is because implicit assumptions are made about other variables that would have been required in a DCF valuation. To the extent that these implicit assumptions are wrong the relative valuation will also be wrong.

4.8 When to use Relative Valuation?

- 4.8.1 Relative Valuation is easy to use under the following circumstances:
 - a. There are a large number of assets comparable to the one being valued.
 - b. These assets are priced in a market.
 - c. There exists some common variable that can be used to standardize the price.



Chapter 5

CONTINGENT CLAIM VALUATION

CHAPTER CONTENTS
1. Definition and description of Real Option
2. Enterprise Value in Real Options Valuation
3. Examples of Real Options
4. Disadvantages of Real Option model

5.1 What is a Real Option?

- 5.1.1 Traditional DCF approaches cannot properly capture the company's flexibility to adapt and revise decisions in response to unexpected market developments. They assume an expected scenario of cash flows and presume an organization's passive commitment to a certain static operating strategy.
- 5.1.2 However, the real world is characterized by change, uncertainty and competitive interactions. A company may exhibit flexibility in its operating strategy and agility to respond to changing circumstances and market conditions, to seize and capitalize on favorable future opportunities or to react so as to mitigate losses. This flexibility is like financial options, and is known as Real Options.

5.2 Enterprise Value in Real Options Valuation:

- 5.2.1 The enterprise value using this approach is given as follows:
- $$\begin{aligned} \text{Enterprise Value} &= \text{Value of existing operations} \\ &+ \text{Value of future potential operations} \\ &= \text{Value of all discounted future cash flows} \\ &+ \text{Value of the company's portfolio of real options} \end{aligned}$$

5.3 Examples of Real Options:

- Option to invest in a new technology-based service/product, as the result of a successful R&D effort.
- Equity in a firm with negative earnings and high leverage.
- The patent and other intellectual property owned by a firm.

5.4 Disadvantages of Real Option Valuation Models:

- 5.4.1 When real options are valued, many of the inputs for the option pricing model are difficult to obtain. For instance, R&D projects do not trade and thus getting a current value for a project or its variance may be a daunting task.



5.5 Conclusions:

The following conclusions can be made about Real Options:

- a. The option pricing models derive their value from an underlying asset. Thus, to do option pricing, we first need to value the assets. It is therefore an approach that is an addendum to another valuation approach.
- b. Traditional valuation procedures cannot properly capture the company's flexibility to adapt and revise later decisions in response to unexpected competitive/technological/market developments.
- c. The real option technique can value the company's flexibility to alter its initial operating strategy in order to capitalize on favorable future growth opportunities or to react so as to mitigate losses.
- d. Valuations computed using the real option technique are often closer to market valuations for high-growth stocks in high-risk industries.



Chapter 6

ASSET VALUATION

CHAPTER CONTENTS
1. Determining Book Value
2. Adjusting Book Value
3. Factors in Asset Valuation

6.1 Determining Book Value:

- 6.1.1 In asset based valuation, the value of a company is equal to the net assets attributable to the equity shareholders. Asset values can be of many types: Book Value, Net present value based on future cash flows to be derived from the assets, and Replacement Value based on worth to be derived from the future use of the asset.
- 6.1.2 Assets are capital items and the key resources of a firm that have the potential to confer benefits over a long period of time. They represent the infrastructure and productive assets a firm can use in producing and delivering its products and services.
- 6.1.3 All countries have internal accounting standards and guidelines in regard to accounting for assets. The classification and codification of assets are done as per these standards, while, however, valuing these assets and determining the reliability of these values are areas still weak.
- 6.1.4 Determining Book value is centred around the balance sheet value of a company as presented in the latest Annual Report.
- 6.1.5 In terms of book-value based valuation, the principle is that a company is worth to its ordinary shareholders the value of its assets less the value of any liabilities to third parties. This is also referred to as net asset value, shareholders' funds or the book value of the equity.

6.2 Adjusting Book Value:

- 6.2.1 In the books of accounts the assets are classified according to various groups, the primary groups being fixed assets which have long-term value, current assets with short-term value, and investments outside the business. Then come the intangible assets.
- 6.2.2 Assets are valued at historical cost, i.e., the cost of acquisition. Costs incurred towards upgradation are added and depreciation is applied for usage of the assets. Thus, we have the gross block (original cost) and the net block (gross block - depreciation) available as book value in the accounting books.
- 6.2.3 The asset values in the books of accounts need to be adjusted to offer a closer estimate of economic value than does the conventional book value.
- 6.2.4 **Tangible assets:**
Tangible assets are valued at historical cost, and depreciation is applied for diminution in value. Determining the depreciation to be charged is governed more by accounting standards, company



law and income tax rules, and nor by any technical estimation of the life of the asset. There are two methods by which depreciation can be charged: the straight line method and the written down value method.

Therefore, the choice of depreciation method employed and the rate of depreciation adopted can greatly influence the book value of an asset.

Land is not depreciated as it is not expected to wear out as in the case of buildings and plant and machinery.

Current assets include inventories, cash and marketable securities.

Inventories are generally valued on the three commonly bases: FIFO (First-In-First-Out), LIFO (Last-In-First-Out), and Weighted Average.

The method adopted will have a bearing on the cost of goods sold as well as the closing stock. Under FIFO, the cost of goods sold will bear more of the cost of materials bought during earlier periods, while the closing stock will reflect the more recent or current replacement cost. In LIFO, the converse will hold good. Under Weighted average method, both the cost of goods sold and closing inventory will bear the average cost of materials purchased during the period.

Cash: While valuing cash should not pose any problem in the normal course, problem will arise when it is deployed in short-term interest-bearing deposits or treasury deposits. These are generally risk-free and there is no default risk.

Accounts Receivables are the sums owned by the customers to whom products have been sold or services rendered on credit.

Depending on the accounting jurisdiction, property assets such as land, buildings and plant and machinery, may be carried on the balance sheet either at historic cost or at recent market valuation, and this choice can radically affect book value. While in India the assets are shown at historic cost, in the U.K. property owned by companies is often revalued on a regular basis and included in the accounts at close to current values. The practice in the USA, France and Germany are similar to that in India, and in all these cases of historical cost accounting, the book value will be lower than the current value.

Where properties are valued by expert valuers or surveyors using, for instance estimates of rental income, they can be considered to be included at economic value (the present value of future income generated) rather than historic cost.

However, the practice in U.K., where tangible assets are shown at lesser of depreciated book value or market value, gives a better indicator of current values, though not very accurate. The book value of assets do not take into account factors such as inflation or obsolescence. If the valuer has more detailed information on the type and age of assets than is available from the accounts, it is possible to adjust book values of fixed and, indeed current, assets to a closer estimate of current value.

Another fixed asset which may be included at other than historic cost is property under construction. In some countries, including India, companies are allowed to capitalize the interest they pay on debt related to the construction rather than write it off as an expense.



6.2.5 Intangible assets:

Intangible assets include expenditure on research and development (R&D), brand values, intellectual capital and goodwill.

R&D expenditure represents cash spent on a knowledge base which may generate future revenues. Treatment of R&D expenses varies from country to country.

Similarly, there is some argument for capitalizing expenditure on other forms of knowledge, as in database systems within consultancy firms or expertise provided by professional employees in investment banks. This is known as intellectual capital and firms such as Scandia, a Swedish insurance company, have pioneered approaches to the valuation of intellectual capital for inclusion in the balance sheet.

Another type of intangible asset over which there has been controversy is capitalization of brand values in the balance sheet, as done by Coca-Cola or Amazon.com. The methods for valuing brands are linked to forecast cash flows related to the brands and hence to economic value. Therefore, capitalization of brands will give a closer approximation to market value than would the exclusion of the brands.

The difference between the price paid for a company and its book value is known as goodwill. This is because goodwill is an intangible asset, which arises as a result of the fact that book values of companies typically do not reflect their economic values, and hence the prices paid for companies, especially for high value-added firms such as advertising agencies and consulting firms.

6.2.6 Off-balance sheet items:

Besides fixed assets and intangible assets, another possible area where the value of the shareholders' funds can mislead is its exclusion, by definition, of what are known as off-balance sheet items. These can be leases, pension assets or liabilities, employee-related liabilities and other contingent liabilities which may be mentioned in the notes to the accounts.

6.3 Factors in Asset Valuation:

6.3.1 The factors to be considered for valuation of Assets are given below:

- a. Type of Building/Plant/Equipment
- b. Specifications/Ratings
- c. Make and Model
- d. Year of construction/installation
- e. Service conditions
- f. Extent of upkeep/maintenance
- g. Upgradation, Retrofits, Modifications and Modernisation of assets, if any

6.3.2 Capacity costs are non-linear and follow an exponential equation. 'Factor Estimating' is an established method of estimating the cost of a project, and is widely used in Project Cost Estimation. If the cost of a given unit (C_1) is known at one capacity (Q_1) and it is desired to estimate the cost at another capacity (Q_2), the cost at the second capacity (C_2) can be determined using the following equations:



i. $C_2 = C_1 \cdot (R)^x$

ii. $R = (Q_2/Q_1)$

This is popularly known as the 6/10 Rule. The exponent varies from 0.6 to 1, where at 1 the relationship becomes linear.

Ref: p.62-64 from The Engineer's Cost Handbook, Edited by Richard E. Westney, published by Marcel Decker, Inc., New York, USA.

- 6.3.4 Building and Civil Costs can be worked out from an *ab initio* estimation based on technical specifications and current construction costs. The Building Costs will include foundation costs (to the extent of about 15%).
- 6.3.5 Basis of Asset Valuation:
- Replacement Cost/Value
 - Market Value = Replacement Cost – Depreciation
 - Agreed Value
- 6.3.6 Replacement Cost/Value is the Current Cost of a new asset of same kind – Value of similar new property, and is based on current prices/quotes. However, it is costly to determine, time consuming, and is not always feasible.
- 6.3.7 Replacement cost factors:
- Current F.O.B/F.O.R Cost of a new asset
 - Price escalation
 - Foreign Currency rate
 - Duties & Taxes : Customs/Excise/S.Tax
 - Set off as Cenvat credit
 - Freight, Insurance, Handling, Inland transit
 - Erection costs
- 6.3.8 Market Value: It is the amount at which a property of the same age and description can be bought or sold.
- 6.3.9 Estimating of replacement costs can be done by indexing the original acquisition costs, or through an *ab initio* estimating from technical specifications. Determination of market value requires estimating depreciation or the life of an asset and the residual life of an asset.
- 6.3.10 Agreed Values are arrived at for properties whose Market Value cannot be ascertained, such as Curios, Works of art, Manuscripts, and Obsolete machinery. However, such valuations require Valuation certificate from expert valuers.



Chapter 7

RELATED CONCEPTS IN BUSINESS VALUATION

CHAPTER CONTENTS	
1.	Efficient Market Hypothesis
2.	The Impact of Changing Capital Structure on the Market Value of the Company
3.	Priorities of Different Stakeholders in terms of Business Valuation

7.1 Efficient Market Hypothesis:

- 7.1.1 The Efficient Market Hypothesis (EMH) has been the central proposition of finance for nearly thirty years. In his classic statement of this hypothesis, Fama (1970) defined an efficient financial market as one in which security prices always fully reflect the available information.
- 7.1.2 The EMH then states that real-world financial markets such as the stock market are actually efficient according to this definition. The EMH 'rules out the possibility of trading systems based only on currently available information that have expected profits or returns in excess of equilibrium expected profit or return' (Fama 1970).
- 7.1.3 In other words, an average investor – whether an individual, a pension fund, or a mutual fund – cannot hope to consistently beat the market, and the vast resources that such investors dedicate to analyzing, picking, and trading securities are wasted. Better to passively hold the market portfolio, and to forget active money management altogether. If the EMH holds, the market truly knows best.
- 7.1.4 The basic theoretical case for the EMH rests on three arguments which rely on progressively weaker assumptions:
1. Investors are assumed to be rational and hence to value securities rationally.
 2. To the extent that some investors are not rational, their trades are random and therefore cancel each other out without affecting prices.
 3. To the extent that investors are irrational in similar ways, they are met in the market by rational arbitrageurs who eliminate their influence on prices.
- 7.1.5 When investors are rational, they value each security for its fundamental value: the net present value of its future cash flows, discounted using their risk characteristics. When investors learn something about fundamental value of securities, they quickly respond to the new information by bidding up prices when the news is good and bidding them down when the news is bad. As a consequence, security prices incorporate all the available information almost immediately and prices adjust to new levels corresponding to the new net present values of cash flows.



7.2 The Impact of Changing Capital Structure on the Market Value of the Company:

- 7.2.1 The capital structure, according to Modigliani and Miller, can have no impact on the value of a company, other than by the advantage of the tax shield on debt interest payments, which increases the value and is fairly easy to quantify, and the probability of financial distress and bankruptcy, which decreases the value and is very difficult to quantify.
- 7.2.2 The value of an asset depends on the cash flows that it can generate in the marketplace, and not on how the asset is financed.

7.3 Priorities of Different Stakeholders in terms of Business Valuation:

- 7.3.1 The priorities of different stakeholders in terms of business valuation need to be recognized under three circumstances. They are given below:
- 7.3.2 Liquidation: While the major and important requirements may be governed by the relevant provisions of Company Law, the management may still be able to influence stakeholder priorities by negotiating with the various groups, especially in a voluntary liquidation.
- 7.3.3 Refinancing: There are occasions when companies need to obtain new financing or re-finance existing debt. The company has to then take into account the views of managers, shareholders, long term lenders and creditors.
- 7.3.4 Mergers and Acquisitions: Other than the bidder and the biddee, numerous stakeholders, such as employees, suppliers, customers, government and local community, will be involved in the process. For instance, recall the recent acquisition of Tata Motors of Ford's Jaguar and Land Rover (JLR) in UK. The Tata had to engage the employees of JLR and provide with adequate assurances as an essential step in the acquisition process.



Illustrations on Valuation

I Valuation of a project

You are evaluating a new project. the Project requires an investment of 4000 now and is expected to product the following cash flow:

Period	Cash flow
1	1500.00
2	2000.00
3	1500.00
4	1200.00
Cost of capital	15%

Determine the Net Present Value and Internal rate of return

Net present value is the total of discounted future value of estimated cash flows from the project, discounted at the appropriate cost of capital, minus the initial investment. The method used is DCF approach.

Time	0	1	2	3	4
Cash flow.	-4000	1500	2000	1500	1200
Cost of capital	0.15				
Present value	$4000/(1+.15)^0$	$1500/(1+.15)^1$	$2000/(1+.15)^2$	$1500/(1+.15)^3$	$1200/(1+.15)^4$
Net Present Value	\$489.01				

II Valuation of an instrument

zero coupon treasury bond

- The default free 10 year interest rate on riskless investments is 4.55% and that you are pricing a zero coupon treasury bond, with a maturity of 10 years and a face value of Rs.1000. What is the price of the bond

The value of the instrument, namely the zero coupon bond is the present value of the future cash flow, discounted at the appropriate discount rate, which is in this case 4.55%, namely the risk free rate of interest.

$$\boxed{1000/(1+.455)^{10}} = 640.85$$

III Valuation of equity

Dividend discount model: Under this model, the value of equity shares is the present value of future dividend stream from the company, assuming a certain growth rate and cost of equity capital

- $V_0 = D \times (1+g)/(r-g)$
 - V_0 = Value today of the equity
 - D = Latest Dividend
 - g = growth rate in dividend
 - r = cost of equity



CK Ltd paid a dividend of 2.12 in 2006. The dividends are expected to grow at 5% per year in the long term and the company has a cost of equity of 9.40%. what is the value per equity share.

$$= 2.12 * (1 + 0.05) / (0.094 - 0.05)$$

50.59

Please note that the present value of cash flows in perpetuity is simply cash flow/ r , where ' r ' is the discount rate. If these cash flows grow at rate ' g ', then the present value of perpetuity is cash flows/ $(r-g)$

IV Valuation of company

(a)

Under the DCF method, companies are valued by discounting the free cash flows.

Free cash flows are defined as follows:

Free cash flows to equity=

- Net income+Depreciation+/-non cash items- Changes in working capital-Capital expenditure+(New debt issues-repayment of debt)-Preference dividends

	Year 1	Year 2
Net income	34.2	3
Depreciation	41.5	45
Cash flow from operations	75.7	48
Capital expenditure	64.1	36.5
Working capital change	12.5	-6.3
Free cash flows to equity	-0.9	17.8

- (b) A firm has cash flows of 850 million in the current year after reinvestment but before debt payment. These cash flows are expected to grow at 15% for the next five years and at 5% thereafter. The cost of capital is 9.17% and the value of debt today is 20000 million.

Cash flows	850	
Growth rate	15%	
Estimated duration of growth	5	Years
Growth rate after 5 years	5%	
Cost of capital	9.17%	
Present value of debt	20000	



Year	Cash flow	Terminal value	Total Cash flow
1	978		978
2	1124		1124
3	1293		1293
4	1487		1487
5	1710	43049	44758
Value of the firm			\$32,743
Presented value of debt			20000
Value of equity			\$12,743

Please note that the value of debt is subtracted from the value of the firm to arrive the value of equity

(C) Valuation of companies-comprehensive illustration

- Hagan Plc, an independent television company has become the subject of intense take-over speculation. You have been requested to suggest a suitable value for the business, based on the following information.

-

Basic Facts	
The pre-tax profits for the year just ended	43.8 million
Earning per share	28.4 pence
The turnover for the year	236.8 million
Annual growth rate expected	0.15
Annual operating margin	Expected to be maintained
Annual depreciation	0.1 Net book value asset
Weighted average cost of capital	0.1
Tax rate	0.3



Balance sheet for the year ended			
Tangible assets			
Freehold land and building		5842	
Long leasehold property		28193	
plant and equipment		21541	
fixtures and fitting		4507	
		60083	
Intangible assets			
Programme rights		3080	
Investment		37909	
		101072	
Current assets			
Film rights	48750		
Programme stocks	27356		
Debtors	89114		
short term deposits	47605		
cash at hand and in bank	11338		
	224163		
Creditors due within one year	-126042		
		98121	
Creditors due more than one year		-18001	
Total		181192	
Share capital (25 pence per share)		25862	
Share premium		4093	
Profit and loss account		151237	
Total		181192	

Other details	
1	The current rental value of the freehold land and building is 900000 per annum and this could be capitalized at a rate of 8%.
2	The market value of the long leasehold property is estimated to be in the region 35 million. Due to the specialized nature of the plan and equipment its reliable value is only about 8 million. Its replacement cost is 27 million.
3	The programme and film right and programme stocks are stated at their purchase cost or production cost as applicable.
4	The market value of the investment is currently 29.654 million.



Solution

Net Asset Value

Net Asset Value		
1	Frehand land and buildings	11.25
2	Long leasehold	35.00
3	Plant and equipment	27.00
4	Fixtures and fittings	4.51
5	Programme rights	3.08
6	Investment	29.65
7	Net current assets	98.12
8	Creditors due after more than one year	-18.00
		190.61

Market multiple methods

number of shares	103.45
Current EPS	28.40
Earning after tax	29.38
Lower limit	587.58
Higher limit	793.24
Current share price	5.80
Current EPS	28.40
Current P/E	20.42

Dividend growth rate model

		L-5	L	Growth rate
Growth rate in dividends		14.10	17.90	0.05
Next year dividend value		18.77		
Value of the share		264.00		
		2.64		
Value of the company		273.10		



Free cash flow method

Time horizon for valuation	4 years			
Free cash flow projections assumptions				
Pre tax operation profit	43.8			
Sales growth	0.15			
Operating profit margin	Maintained at current levels			
Depreciation	Maintained at 10% of NBV of fixed assets			
Capital expenditure	Depreciation			
Net operating assets	Constant			
Taxes	0.3			
WACC	0.1			
	Year-1	Year-2	Year-3	Year-4
Net operating profit	50.37	57.93	66.61	76.61
Add Depreciation	6.01	6.01	6.01	6.01
EBITDA	56.38	63.93	72.62	82.61
Taxes	-15.11	-17.38	-19.98	-22.98
Capex	-6.01	-6.01	-6.01	-6.01
Free cash flow	35.26	40.55	46.63	53.62
Terminal Value				413.07
Total cash flow	35.26	40.55	46.63	466.70
Present value	\$419.36			
Value of debt	-18			
Value of the company	\$401.36			

Summary	
Net Asset Value	190.61
Multiple based	793.24
Dividend based	273.10
Free cash flow based	401.30

Please note that some methods undervalue the company [Net asset value, dividend based] in the above case [need not be in all the cases]. The above values are used as a basis for negotiation in mergers and acquisitions and other valuation situations.

ILLUSTRATION

Illustration 1 - Y Ltd. is expected to generate future profits of Rs. 54,00,000. What is its value of business if investments of this type are expected to give an annual return of 20%.

Solution:

Annual earnings = Rs. 54,00,000

Required earnings yield 20% = $\frac{20}{100} = 0.20$



$$\text{Value of Business} = \frac{\text{Rs. } 54,00,000}{0.20} = \text{Rs. } 2,70,00,000$$

Illustration 2 - M Ltd. agrees to acquire N Ltd. based on the capitalisation of last three years profits of N Ltd. at an earnings yield of 25%.

<i>Profits of N Ltd. for the years</i>	<i>Rs. lakhs</i>
2007	75
2008	89
2009	82

Calculate the value of business based on earnings yield basis.

Solution:

Calculation of 3 years average profits

<i>Year</i>	<i>Rs. lakhs</i>
2007	75
2008	89
2009	82
Total	246

$$\text{Average profit} = \frac{\text{Rs. } 2,46,00,000}{3} = \text{Rs. } 82,00,000$$

$$\text{Earnings yield} = 25\% = \frac{25}{100} = 0.25$$

$$\text{Business valuation} = \frac{\text{Earnings}}{\text{yield}} = \frac{\text{Rs. } 82,00,000}{0.25} = \text{Rs. } 3,28,00,000/-$$

Illustration 3 - R Ltd. is having an issued and subscribed capital of 50,000 equity shares of Rs. 100 each fully paid up. The company's after tax profits for the year 2008-09 amounting to Rs. 30 lakhs. The average present stock exchange price of the company's share is Rs. 190. The Price/Earning ratio of the four listed companies to be used for calculation, their type of business seems to be similar to R Ltd. are:

<i>Company</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
A Ltd.	5.7	6.3	7.1
B Ltd.	6.5	5.9	6.8
C Ltd.	7.4	6.8	7.0
D Ltd.	5.0	5.9	6.1

Calculate the valuation of business and per share based on average *P/E ratio* of the industry.

**Solution:****Calculation of P/E ratio of four listed companies**

<i>Company</i>	2007	2008	2009	<i>Company Average</i>
A Ltd.	5.7	6.3	7.1	6.37
B Ltd.	6.5	5.9	6.8	6.40
C Ltd.	7.4	6.8	7.0	7.07
D Ltd.	5.0	5.9	6.1	5.67
				Total = 25.51

$$\text{Average P/E ratio} = \frac{25.51}{4} = 6.38$$

$$\text{Earnings per share} = \frac{\text{Profit after tax}}{\text{No. of Equity Shares}} = \frac{\text{Rs. } 28,00,000}{50,000} = \text{Rs. } 56.00$$

$$\text{P/E ratio of R Ltd.} = \frac{\text{Market price per share}}{\text{Earnings per Share}} = \frac{\text{Rs. } 190}{\text{Rs. } 56} = 3.39$$

$$\begin{aligned} \text{Value of Share} &= \text{Earnings per Share} \times \text{Average P/E ratio} \\ &= \text{Rs. } 56.00 \times 6.38 = \text{Rs. } 357.28 \end{aligned}$$

$$\begin{aligned} \text{Value of Business} &= \text{Total Earnings} \times \text{Average P/E ratio} \\ &= \text{Rs. } 30,00,000 \times 6.38 = \text{Rs. } 1,91,40,000 \text{ lakhs.} \end{aligned}$$



Module 1

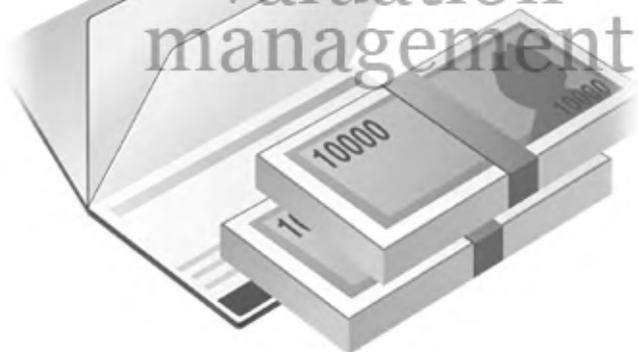
Questions

1. What are the different types of value? Explain with examples
2. What do you mean by intrinsic value? What are the drivers of intrinsic value of a business firm?
3. "There is no such thing as the true value of a firm" Discuss this statement from the buyer's and seller's perspective
4. Differentiate between absolute and relative methods of valuation
5. When is the asset based approach to valuation resorted to?
6. What do you mean by Economic Value Added? How is EVA related to valuation?
7. What are the various adjustments that you will make to financial statements before valuation and why?
8. Why is the DCF approach considered to be a superior method of valuation?
9. Discuss in detail the various multiples used in relative valuation methods
10. What do you mean by option valuation? When will you use this approach?
11. Explain the concept of efficient market hypothesis and its relevance to valuation
12. How will the capital structure of a firm affect the valuation?
13. Select any company of your choice and work out the value of the company using various approaches
14. Differentiate between valuation of projects, instruments and firms

STUDY NOTE - 2

Valuation of Mergers and Acquisitions

business
valuation
management





Chapter 1

BUSINESS STRATEGY

1.1 Strategy for entering a new business:

- 1.1.1 Strategies define the policies, plans and culture of an organization in a long-term horizon. It is a basic proposition that all Mergers & Acquisition (M&A) policies and decisions should take place within the general framework of an organization's strategic planning process.
- 1.1.2 An organization can enter into a new or unrelated business in any of the following three forms:
1. Acquisition
 2. Internal start-up
 3. Joint Ventures or strategic partnerships
- 1.1.3 Acquisition is the most popular means of diversifying into another industry. It represents a much quicker way to enter the target market than trying to launch a brand-new, right-from-scratch venture from the ground up.
- 1.1.4 Merging with or acquiring other businesses is a frequent route to intended higher profits. The aim may be to eliminate part of the competition, to acquire new customers and products or simply to realize higher efficiencies through the synergies of a combined operation, such as integrated sourcing conferring increased purchasing power.
- 1.1.5 Some of these strategies are not without their obstacles and pitfalls. For instance, abuse of market position can attract the attention of Competition Commission. Many an acquisition has both proved more costly than anticipated as well as more difficult to convert into predicted benefits.
- 1.1.6 Merging with or acquiring rivals to form an enterprise that has greater competitive strength and a larger share of the overall market is one of the most frequently used growth strategies employed by ambitious companies. For a company to succeed with this strategic approach, the senior management must have the skills to assimilate the operations of the acquired companies, eliminate duplication and waste, generate efficiencies and cost savings, and structuring the combined resources in ways that create substantially stronger competitive capabilities.
- 1.1.7 The advantages of an acquisition are numerous:
1. Overcome easily many entry barriers
 2. Acquiring technological experience
 3. Establishing supplier relationships
 4. Scaling up fast to match rivals' efficiency and cost competitiveness
 5. Attaining visibility and brand recognition from day one, without having to spend large amounts of money on advertising and product promotions
 6. Securing adequate distribution.
- 1.1.8 In several industries, starting a green field venture and trying to develop knowledge, resources, scale of operations, and market reputation to become a significant and effective player will take



years. Acquiring an already established organization will enable a company to get over the problems of gestation and help it to leap-frog to the next level of focusing on the task of building a strong market position in the target industry.

1.2 Strategic Vision & Strategy Formulation:

- 1.2.1 Strategic vision is what a leader envisions for his country or organization. It could be freedom from foreign rule as for Mahatma Gandhi, industrial development for Jamshedji Tata, or 'putting America on wheels' for Henry Ford.
- 1.2.2 Other examples include:
- Michael Dell formulated the vision of selling made-to-order computers by mail.
 - Amazon recognized quite early the potential of e-commerce for providing convenience in the purchase of books.
 - Wal-Mart began with the concept that less populated areas made it possible to establish department stores within a broader geographic business operation that could achieve economies of inventory control, warehousing and logistical support, leading to its USP: 'Everyday low prices'.
 - Intel, faced with Japanese competitors who made high quality memory chips at lower costs in 1984, shifted its strategy from memory to processors.
 - Cisco evolved from selling basic network routers into a complete data networking solution provider. Cisco engaged in more than 50 acquisitions during 1993 to 1999.
 - Starbucks reflected the concept that the consumption of premium coffee could take place in an attractive setting with facilities for relaxing, reading, and perhaps socializing. Mergers facilitated the company expanding nationally and internationally.
 - McDonald's formulated the concept of supply of high-quality beef for its hamburgers sold in a clean environment at low prices.
- 1.2.3 Strategic planning is a rigorous effort, and calls for a deep understanding of the company, its industrial environment, and today a global perspective. Michael Porter has led the study of strategy through his seminal works such as *Competitive Strategy* and *Competitive Advantage*.

1.3 Cost-of-entry Test:

- 1.3.1 A challenge in executing the strategy is finding the right kind of target company. A dilemma facing an acquirer is whether to pay a premium price and acquire a successful company or to buy a poorly performing company at a bargain price and transform it into a good performer. If the buying company is not constrained by funds and wants to enter a business it has little knowledge of, then the best thing to do would be buy a strongly-positioned company, unless of course the cost of acquisition is high that it fails the cost-of-entry test. On the other hand, when the acquiring company has the resources, knowledge and patience, it would do well to acquire a struggling company as a better long-term investment.
- 1.3.2 The cost-of-entry test requires that the expected profit stream of an acquired business provide an attractive return on the total acquisition cost and on any new capital investment needed to sustain or expand its operations. A high acquisition price can render the meeting the test improbable or difficult.



- 1.3.3 Consider an acquirer paying a price of Rs.30 crores for a business, which is earning a post-tax return of Rs.2 crores on an equity investment of Rs.10 crores, i.e., 20% annual return. A simple calculation will show that the acquired company's profits will have to be triples for the acquirer to earn the same 20% return on their investment of Rs.30 crores, that the previous owners were getting on their Rs.10 crores investment. Achieving the target earnings of Rs.6 crores will take some time and may require additional investment, on which too the acquirer has to earn 20% return.
- 1.3.4 Normally, since the owners of a successful and growing company usually demand a price that reflects their business' future profit prospects, it is easy for such an acquisition to fail the cost-of-entry test. A would-be diversifier cannot count on being able to acquire a desirable company in an appealing industry at a price that still offers attractive returns on investment.

Questions and Problems

1. Explain how Mergers & Acquisitions are an important part of corporate strategy.
2. Give some examples of strategic visions that guided the success of individual Indian companies.
3. Explain what is meant by cost-of-entry test, and how it is a basic step in the M&A process.

Solutions to Questions and Problems

1. Strategies define the policies, plans and culture of an organization in a long-term horizon. An organization can enter into a new or unrelated business through Acquisitions, Internal start-up, or Joint Ventures or strategic partnerships. It is a basic proposition that all Mergers & Acquisition (M&A) policies and decisions should take place within the general framework of an organization's strategic planning process.

Acquisition is the most popular means of diversifying into another industry, as it represents a quick way to enter the target market than trying to launch a new venture.

Merging with or acquiring other businesses is a frequent route to intended higher profits. The aim may be to eliminate part of the competition, to acquire new customers and products or simply to realize higher efficiencies through the synergies of a combined operation, such as integrated sourcing conferring increased purchasing power.

2. On the lines of examples given under para 1.2, develop Indian examples.
3. The cost-of-entry test requires that the expected profit stream of an acquired business provide an attractive return on the total acquisition cost and on any new capital investment needed to sustain or expand its operations. A high acquisition price can render the meeting the test improbable or difficult.

As the owners of a successful and growing company usually demand a price that reflects their business' future profit prospects, it is easy for such an acquisition to fail the cost-of-entry test. A would-be diversifier cannot count on being able to acquire a desirable company in an appealing industry at a price that still offers attractive returns on investment.



A sweet deal

Apr 28th 2008

From Economist.com

Confectionery

Mars and Warren Buffett agree to buy Wrigley for \$23 billion



Get article background

IT IS a little over a month since Wrigley, the world's biggest gum-maker, announced that it would improve the taste of its favourite goods and introduce new flavours and whizzier packaging. The brand's added allure was quick in making an impression. On Monday April 28th Mars, another American confectionery giant, and Warren Buffett's investment firm, Berkshire Hathaway, agreed to team up to buy Wrigley for some \$23 billion. The deal will give rivals in the world's sweets industry plenty to chew over.

For several years Wrigley, Hershey, Cadbury, Mars, Nestlé, Kraft and other big confectionery firms have been in on-and-off talks in a variety of permutations. Yet among all the big corporate tie-ups under discussion a union of Mars and Wrigley seemed the least likely. Mars is a private company. The Wrigley family controls the gum firm. And both seemed to guard their independence fiercely.

One reason that both parties were keen to do a deal is that the newly minted firm will control a sizeable slice of the world's confectionery market. Wrigley and Mars, the company behind Snickers, Twix and Mars chocolate bars, will have a share of about 14.4% of the market compared with 10.1% for Cadbury. And like Cadbury the new sweet giant will be strong in gum, chocolate and sugar sweets—the three main types of confectionery.

Mr Buffett and Mars are paying generously for Wrigley. It represents a 28% premium over Wrigley's current share price. The sugar coating for Bill Wrigley Junior, the great-grandson of the company's founder, is that he will remain executive chairman. He can keep his management team and Mars, mindful of its close association, will let Wrigley remain based in Chicago. The Wrigley building is a Chicago landmark. Wrigley field is the home stadium to the Chicago Cubs, one of the most popular baseball teams in the country.

Mars (with Mr Buffett's help) is prepared to stump up such a sum for Wrigley to bring greater strength and diversity to its business. Wrigley operates across the globe, making most of its sales outside America, and has done well in fast-growing markets such as China, India and the Middle East to counteract weaker growth in America. Wrigley has been facing tougher competition in the American gum market from Cadbury since the British firm bought Adams, a rival gum-maker, from Pfizer in 2003.



Cadbury has the most to fear from a bulked up Mars. Next week it becomes a standalone confectionery company when it lists Dr Pepper Snapple Group, its American fizzy-drinks business. Spinning off that business is intended to allow Cadbury's to sharpen its focus on confectionery. The emergence of a much bigger rival might spur a bid for Kraft's confectionery unit. But it would struggle to find the cash for a large acquisition. Cadbury had wanted to sell its drinks arm to provide it with a bumper war chest, but hopes for a private-equity deal foundered last year as conditions in credit markets deteriorated. It is also under intense pressure from shareholders to lift margins.

Switzerland's Nestlé has far fatter coffers than Cadbury. Although anti-trust issues would prevent Nestlé from buying Cadbury's British chocolate business, it might be interested in the group's fast-growing gum brands. On another front Kraft may be weighing a bid for Cadbury rather than wait for Cadbury to make a move of its own. To spruce up its lacklustre performance Kraft must move into businesses with higher growth such as gum and sugar sweets and into booming emerging economies, where Cadbury derives over one-third of its sales.

After many failed attempts to come to an understanding, Hershey, America's biggest chocolate-maker, and Cadbury could revive their merger talks. The two are a near-perfect fit, but Hershey cannot afford Cadbury, and Cadbury cannot buy Hershey without the approval of the trust that controls the firm. So far the Hershey Trust has stubbornly insisted that it is unwilling to relinquish its 78% controlling interest in the company. One crumb of comfort for Cadbury is that Hershey, faced with a formidable new rival in its home market, might rethink a tie-up.



Chapter 2

BASIC CONCEPTS IN MERGERS AND ACQUISITIONS

2.1 Forces Driving M&A Activities:

2.1.1 The major forces which drive M&A activities since the early 1990's have been identified as the following:

1. Rapid pace of technological change
2. Low costs of communication and transportation
3. Globalization and global markets
4. Nature of competition in terms of forms, sources and intensity
5. Emergence of new types of industries
6. Regulation in some industries and sectors
7. Liberalization in some industries and sectors
8. Growing inequalities in incomes and wealth

2.1.2 Merger activity generally comes in waves, and is most common when shares are overvalued. The late 1990's saw fevered activity. Then the pace slowed in most industries, particularly after September 11, 2001. It picked up again in mid-2003 as companies that weathered the global recession sought bargains among their battered brethren. By the start of 2006, a mergers and acquisitions boom was in full swing, provoking a nationalist backlash in some European countries. The future of the merger wave now depends on how deep the downturn in private equity proves to be.

2.2 Industry Characteristics:

2.2.1 The industry characteristics related to strong M&A pressures are presented in the following Table:

Sl. No.	Industry	Characteristics
1.	Telecommunications	Technological change and deregulation
2.	Media	Technological change
3.	Financial services	Globalization
4.	Chemicals, Pharmaceuticals	Technological change, increased risks due to competitive pressures
5.	Automotive, Oil & Gas, Industrial machinery	Requirement of scale, volatility in price, supply instability
6.	Utilities	Deregulation
7.	Food, Retailing	Expanding into new markets
8.	Natural resources, Timber	Limited and exhausting sources of supply

2.2.2 Read the article titled "Looking good, feeling good" given at the end of the chapter.



2.3 Types of Mergers:

- 2.3.1 In mergers, the combining companies engage in prior negotiations which may ultimately lead to a transaction. In tender offers, the acquiring company may seek to hold initial discussions with the top executives of the target company. If they are not able to move towards a mutual agreement, the acquirer may make an open offer to the shareholders of the acquiring company to tender their shares at a specified offer price. Mergers are generally friendly. Tender offers may become hostile.
- 2.3.2 There are three types of mergers:
- Horizontal integration, when two similar firms, in the same line of business, tie the knot; eg. Coca-Cola and Parle, Exxon and Mobil, BP and Amoco, Chevron and Texaco.
 - Vertical integration, in which two firms at different points in the supply chain or different stages of production get together; eg. Microsoft and Hotmail, Google and YouTube, and
 - Diversification, also called conglomerate merger, when two companies in unrelated lines of business with nothing in common jump into bed.
- 2.3.3 These can be a voluntary merger of equals, a voluntary takeover of one firm by another; or a hostile takeover - in which the management of one firm tries to buy a majority of shares in another.

Questions and Problems

1. What were the major change forces that contributed to the high level of mergers activity since the early 1990's?
2. Explain the central forces in the high-level merger activity industries of:
(a) Telecommunications, (b) Pharmaceuticals, and (c) Financial services.
3. What is meant by vertical integration?

Solutions to Questions and Problems

1. The major forces which drive M&A activities since the early 1990's have been identified as rapid pace of technological change, low costs of communication and transportation, globalization and global markets, nature of competition in terms of forms, sources and intensity, emergence of new types of industries, regulation in some industries and sectors, liberalization in some industries and sectors, and growing inequalities in incomes and wealth.
2. Refer para 2.2, and elaborate with examples.
3. Vertical integration is created by a web of arrangements between suppliers and customers. Companies such as Dell, Auto majors – Maruti and Hyundai, have closely linked their production operations with their suppliers and customers. Dell's suppliers are networked with the company to allow very precise shipping of the exact products Dell needs. Dells' customers have easy access to ordering, services, and other needs.



Looking good, feeling good

Apr 7th 2008

From Economist.com

Novartis and Nestlé do a deal that suits both firms' vision of the future.

FARSIGHTEDNESS is an asset whose value should not be underestimated. Novartis, a Swiss drug giant, proved that it has at least one eye on the future on Monday April 7th, when it agreed to buy 25% of Alcon, an American firm that makes contact-lens solution and eye drops, for \$11 billion. Nestlé, which is selling the stake, also has an option to sell its remaining 52% of Alcon between January 2010 and July 2011. The deal could eventually be worth some \$39 billion if the world's biggest food company exercises its right to sell to Novartis.

The deal is representative of the way that health and welfare businesses are faring. Novartis, like other ailing drug firms, is desperately seeking to bring relief to sufferers other than those patients who already gobble its pills. Nestlé, by contrast, is ridding itself of distractions to concentrate ever more on consumers who want to stay in good shape and so ward off medical intervention. The Swiss food giant has spent the past five years bulking up businesses that cater to food buyers who are becoming increasingly health-conscious, with a range of high-tech sports and health foods. Last year the Swiss company bought Gerber, a baby-food brand, and a medical-nutrition business from Novartis for some \$8 billion.

Nestlé has certainly thrived from a growing desire to keep the doctor away. Despite spiralling food-commodity prices the Swiss giant's profits jumped by 16% last year to SFr10.7 billion (\$9.7 billion). Apart from its move into healthier foodstuffs the firm also spotted that prices for the raw materials it relies on were set to shoot up. By passing the rises on to customers early and with some judicious hedging it also reckons that 2008 could be a bumper year, particularly if commodity prices ease in the second half. So selling Alcon, a highly profitable business, will not make much of a dent.

Pharmaceutical companies are having a much tougher time at present. Pipelines of new drugs are running dry, patents protecting current blockbusters are running out and the firms that make generic copies of the most popular medicines are becoming more assertive. Even if drug companies can come up with fresh blockbusters—approval of new drugs in America has slumped over the past decade—a new president in the White House could introduce measures that would curb drug companies' profits.

Today's woes and future threats in America, the drug companies' biggest market, has prompted a shift in strategy. Novartis, like many of its competitors, wants to beef up its own generics business as well as moving further into biotechnology, non-prescription drugs and medical devices. Along with its consumer products, Opti-Free contact lens solution and Systane eye drops, Alcon also manufactures surgical equipment and implantable lenses. With an ageing population comes greater spending on eye care and good prospects for growth. And Novartis will offer Alcon greater opportunities to develop new medical technologies than Nestlé.

The structure of the deal, however, may delay the benefits. By remaining a minority partner until it takes up the option to wield full control Novartis avoids having to raise a big pile of cash while credit markets are in such a fix. But it also defers the benefits that full control might bring in terms of saving costs by integrating Alcon into its business. How farsighted the deal turns out to be remains in question.

Aside from the sick, what of the healthy? Nestlé has thrived by anticipating the shift by consumers to healthy living and is sure to have its sights on more targets that produce nutritional foods with fat margins that have kept the company in peak form. But another possibility is that the food giant bids for full control of L'Oréal, the world's biggest cosmetics firm. Analysts have long questioned whether L'Oréal is a useful adjunct to Nestlé's empire. And an agreement between Nestlé which owns 30%, and the Bettencourt family, which own a similar stake, means that neither can sell before April 2009, just a few months before the Swiss food giant can oblige Novartis to cough up for its remaining 52% of Alcon. Nestlé regards the business of looking good and feeling good as natural bedfellows. So perhaps the Swiss firm is looking far ahead too.



Chapter 3

THEORIES OF MERGERS AND ACQUISITIONS

3.1 Theories of Mergers & Acquisitions:

3.1.1 There are three major theories of Mergers & Acquisitions:

1. Synergy or Efficiency:

In this theory, the total value from the combination is greater than the sum of the values of the component companies operating independently.

2. Hubris:

The result of the winner's curse, causing bidders to overpay. It is possible that value is unchanged.

3. Agency:

The total value here is decreased as a result of mistakes or managers who put their own preferences above the well-being of the company.

3.1.2 While the target company always gains, the acquirer gains when synergy accrues from combined operations, and loses under the other two theories. The total value becomes positive under synergy, becomes zero under the second, and becomes negative under the third.

3.2 Sensible Reasons for Mergers:

3.2.1 There are a number of reasons for mergers, why two companies may be worth more together, than when they are apart. These are given below:

1. Economies of Scale:

We have earlier seen in Chapter 2, some of the industry characteristics. For all Oil and Gas companies, scale of operations has been a driving force.

Consider the examples of mergers of Exxon and Mobil, BP and Amoco, Chevron and Texaco. Same is the case with the steel giants Arcelor and Mittal. Economies are stated to accrue in terms of sharing central services such as procurement, accounting, financial control, human resources management and development, and top-level management and control.

2. Economies of Vertical Integration:

Organizations seek to attain economies by moving both forward (towards the customer) and backward (towards supplies of raw materials and inputs).

Reliance Industries is a classic case, as it set up its polymer plants to cater to its textile operations, moved back further to set up petroleum refinery and then moved forward to set up its own outlets for petroleum products. The current trend of all metallurgical companies such as Tata Steel, SAIL, JSW Steel, Vedanta and Hindalco to acquire mines across the globe is a classic example.



Tata Steel's acquisition of Corus in UK was stated to enable the company move up the value chain in terms of superior products. The rationale for Tata Motors' recent acquisition of Jaguar and Land Rover was stated to be on similar lines, i.e., moving up the value chain. Tata's earlier acquisition of Tetley was to get access to the high tea-consuming Europe.

Tata Chemicals recent acquisition of General Chemicals of US was due to a number of reasons:

GCIL has access to the world's largest and most economically recoverable trona ore deposits (which is converted into soda ash) in Wyoming in the US, said Mr Khusrokhan.

After the buy, over 50 per cent of Tata Chemicals' capacity would be through the natural route, providing both sustainability as well as a natural hedge against the commodity cycle, he said.

As a thumb rule, natural soda ash is more economical and delivers higher margins, said Mr R Mukundan, Executive Vice-President, Chemicals.

(Refer to the article given in the Reader for more details)

Vertical integration facilitates better coordination and administration.

This was the thinking of many auto companies earlier, when they manufactured all components in-house. The trend now is to outsource, and buy components from a host of dedicated suppliers, to achieve better cost efficiency. This was a major reason for General Motors to spin off its automotive parts into a separate entity called Delphi. Ford Corporation adopted a similar strategy by spinning off its auto parts business into Visteon.

3. Complementary Resources:

When two companies have complimentary resources, that is each having what the other needs, they may see some logic to come together.

The recently announced decision of HP to acquire EDS appears to be for these reasons. Read article given at the end of the chapter.

4. Investible Surplus Funds:

When organizations have investible surplus funds, that had not been distributed to the shareholders as higher dividends or bonus stocks, they look for investment opportunities.

Organizations that have excess cash and do not payout to their shareholders or invest it through acquisitions, may become targets of take-over.

5. Eliminating Inefficiencies:

Organizations with unexploited opportunities to cut costs and improve revenues become take-over targets of organizations with better management.

Consider Tata Motors' recent acquisition of Jaguar and Land Rover: "The key here is the ability of Tata Motors to implement cost savings at JLR. What will help assess the long-term impact of the acquisition on the profitability of Tata Motors is how much of the marquee brands' component sourcing can actually be done from India, ...".

Read article titled "Tatas bag Ford Marques" given in the Reader.



3.3 Dubious Reasons for Mergers:

3.3.1 Some of the dubious reasons for mergers are given below:

1. To Diversify:

Studies have shown that diversification does not increase value.

2. Increasing Earnings per Share:

This also called the 'bootstrap' or 'chain letter' game. Some organizations with high price-earnings ratio may purchase slow-growing businesses with low price-earnings ratios. This can lead to a dramatic increase in short-term earnings per share, although the long-term result will be slower growth and a depressed price-earnings ratio. The increase higher EPS can not come about year after year, and the plan will collapse one day.

3. Lower Financing Costs:

Many a time an argument is advanced that a merged entity can borrow more cheaply. This may be due to the debt being made less risky to the lenders due to mutual guarantees. However, the value to the shareholders is reduced.

3.4 Advantages and limitations of growth through mergers:

3.4.1 While a wide range of capabilities may be added immediately, synergy estimates may turn out to be over-optimistic, and premiums paid may be excessive. Implementation of combining different organizations and cultures may not be successfully achieved. However, high-quality management, experienced with acquisition activity, increases the probability of success.

Questions and Problems

1. Give some examples of synergies from mergers.
2. What are the dubious reasons given for mergers?

Solutions to Questions and Problems

1. The major synergies from mergers are: Economies of scale, economies of vertical integration, complimentary resources, investible surplus funds, and eliminating inefficiencies.
2. The dubious reasons given for mergers are diversification, increasing earnings per share, and lower financing costs.



Hewlett-Packard, Electronic Data Near Merger?

HP looks to expand its business services operation, something it has been trying to do for eight years.

Stephen Taub, CFO.com, | US

May 12, 2008

Hewlett-Packard and Electronic Data Systems confirmed rumors that gripped the markets Monday afternoon that they are in advanced discussions about a possible business combination.

Both pointedly said there are no assurances that an agreement will be reached or a transaction consummated and declined further comment.

Such a deal, which Bloomberg News reported could be valued as high as \$13 billion, would be HP's largest since it bought Compaq Computer for \$20 billion six years ago.

EDS provides technology consulting and outsourcing services. In fiscal 2007, HP's services business accounted for \$16.6 billion of its \$104 billion in revenue, *The Wall Street Journal* pointed out. HP has been anxious to expand this business ever since its failed attempt to buy PricewaterhouseCoopers' consulting division in 2000. Two years later, rival IBM bought the PwC unit.

HP has since made smaller acquisitions, including Mercury Interactive Corp. for \$4.5 billion in 2006.

Observers think a merger of HP and EDS could trigger other deals as cash-rich companies try to buy smaller rivals whose stock prices are down from their highs. It also could spawn more so-called strategic mergers among companies in unrelated industries. Those would not be as dependent on a friendly credit market as deals involving private equity firms, which heavily drove the record deal volume in 2006 and early 2007.

HP to Acquire EDS for \$13.9 Billion

www.hp.com

- EDS shareholders to receive \$25.00 per share in cash for each EDS share
- Transaction expected to more than double HP's revenue from services, furthering its standing as world's largest technology company

PALO ALTO, Calif., and PLANO, Texas, May 13, 2008

HP and EDS today announced that they have signed a definitive agreement under which HP will purchase EDS at a price of \$25.00 per share, or an enterprise value of approximately \$13.9 billion. The terms of the transaction have been unanimously approved by the HP and EDS boards of directors.

The transaction is expected to close in the second half of calendar year 2008 and to more than double HP's services revenue, which amounted to \$16.6 billion in fiscal 2007. The companies' collective services businesses, as of the end of each company's 2007 fiscal year, had annual revenues of more than \$38 billion and 210,000 employees, doing business in more than 80 countries.

HP intends to establish a new business group, to be branded EDS - an HP company, which will be headquartered at EDS's existing executive offices in Plano, Texas. HP plans that EDS will continue to be led after the deal closes by EDS Chairman, President and Chief Executive Officer Ronald A. Rittenmeyer, who will join HP's executive council and report to Mark Hurd, HP's chairman and chief executive officer.



Business Valuation Management

HP anticipates that the transaction will be accretive to fiscal 2009 non-GAAP earnings and accretive to 2010 GAAP earnings. Significant synergies are expected as a result of the combination.

“The combination of HP and EDS will create a leading force in global IT services,” said Hurd. “Together, we will be a stronger business partner, delivering customers the broadest, most competitive portfolio of products and services in the industry. This reinforces our commitment to help customers manage and transform their technology to achieve better results.”

Rittenmeyer said, “First and foremost, this is a great transaction for our stockholders, providing tremendous value in the form of a significant premium to our stock price. It’s also beneficial to our customers, as the combination of our two global companies and the collective skills of our employees will drive innovation and enhance value for them in a wide range of industries. In addition, our Agility Alliance will be significantly strengthened.”

Acquiring EDS advances HP’s stated objective of strengthening its services business. The specific service offerings delivered by the combined companies are: IT outsourcing, including data center services, workplace services, networking services and managed security; business process outsourcing, including health claims, financial processing, CRM and HR outsourcing; applications, including development, modernization and management; consulting and integration; and technology services. The combination will provide extensive experience in offering solutions to customers in the areas of government, healthcare, manufacturing, financial services, energy, transportation, communications, and consumer industries and retail.

Under the terms of the merger agreement, EDS stockholders will receive \$25.00 for each share of EDS common stock that they hold at the closing of the merger. The acquisition is subject to customary closing conditions, including the receipt of domestic and foreign regulatory approvals and the approval of EDS’s stockholders.



Chapter 4

VALUATION OF MERGERS AND ACQUISITIONS

4.1 Importance of Valuation:

- 4.1.1 Valuation is a critical and the most important part of the merger process. A deal that may be sound from a business perspective may not appear so wise from a financial perspective if the bidder pays too much. The purpose of a valuation analysis is to provide a disciplined approach in arriving at a price. If the prospective buyer offers too little, the target company may resist, and since it is in play, it may attract other bidders. Remember what happened in Tata Steel's takeover of Corus, when midway during the process, CSN of Brazil also jumped into the fray and drove up the final offer price for Tata Steel. It was a fight 'down to the wires'. If the price is too high, the premium may never be recovered from the post-merger synergies.
- 4.1.2 In the context of acquisitions, there are several distinct concepts of value:
1. **Intrinsic Value:** This is based on the net present value of expected future cash flows completely independent of any acquisition.
 2. **Market Value:** Commonly known as 'current market capitalization', it is the same as share price. It reflects the market's valuation of a company.
 3. **Purchase Price:** It is the price that a bidder anticipates having to pay to be accepted by the target company's shareholders.
 4. **Synergy Value:** It is the net present value of expected future cash flows that will result from the combined operations and additional benefits expected to accrue.
 5. **Value Gap:** The difference between the intrinsic value and the purchase price.
Synergy value is expected to accrue on account of cost savings, revenue enhancements, process improvements, financial engineering and tax benefits.

4.2 Estimating Merger Gains and Costs:

- 4.2.1 Mergers increase value when the value of the combined entity is greater than the sum of the pre-merger values of the independent entities. There should be an economic gain from the merger for it to make sense. According to Brealy and Myers, "There is an economic gain *only if the two firms are worth more together than apart*".

$$NPV_c = PV_{bt} - (PV_b + PV_t)$$

Where,

NPV_c = the net present value increase or gain

PV_{bt} = Present Value of the combined entity

PV_b = Present Value of the bidder alone

PV_t = Present Value of the target alone

Cost = Cash paid - PV_t



Decision Rule:

The net present value to the bidder of a merger with a target company is measured by the difference between the gain and the cost. The bidder should go ahead with the merger only if its net present value, represented as given below, is positive.

$$\begin{aligned} \text{NPV} &= \text{Gain} - \text{Cost} \\ &= [\text{PV}_{bt} - (\text{PV}_b + \text{PV}_t)] - (\text{Cash paid} - \text{PV}_t) \end{aligned}$$

4.2.2 Illustration:

Assume the current market value of the bidding company is Rs.40 crores, and that of the target company is also Rs.40 crores. Then, the sum of the values as independent companies is Rs.80 crores. Suppose, as a combined entity, due to synergistic effects, the value increases to Rs.100 crores. The amount of value created is Rs.20 crores.

- 4.2.3 How will the increase in value be shared or divided between the bidder and the target company? Targets usually receive a premium. If the bidder pays the target a premium of less than Rs.20 crores, it will share in the value increases. If the bidder pays Rs.60 crores to the target, all gains will go the target company. The bidder achieves no value increase for itself. On the other hand, if the bidder pays Rs.70 crores to the target, the value of bidder will down to Rs.30 crores.

4.3 Estimating the Benefits of Mergers:

- 4.3.1 Most companies begin their merger analyses with a forecast of the target company's future cash flows. Any increase in revenue or reduction in cost attributable to the merger is factored in in the forecasts, which are then discounted to arrive at the present value for comparison with the purchase price:

$$\begin{aligned} \text{Estimated net gain} &= \text{DCF Valuation of target company, including merger benefits} - \\ &\quad \text{Cash required for acquisition} \end{aligned}$$

- 4.3.2 This approach is considered dangerous, as the outcome of the analysis depends on how optimistic or pessimistic the analyst's forecasts were. This may result over estimation of a prospect which may not fructify or losing out a good proposal.
- 4.3.3 It is considered advisable to start with the target company's stand-alone market value and forecast changes in cash flow that would result from the merger.
- 4.3.4 The same approach has to be adopted when a sale of part of a business is contemplated. Unless the buyer can operate the business better, the price a seller will receive will only reflect the poor prospects.
- 4.3.5 The generally held notions that there good acquisition opportunities by buying into growth industries or acquiring companies selling below book value are not really correct, as an investment becomes a good investment decision only when the buyer can add value by being able to create additional economic value.
- 4.3.6 In acquisitions, as Robert G. Eccles, Kersten L. Lanes and Thomas C. Wilson advise, "The key is knowing what your top price is – and having the discipline to stick to it".



- 4.3.7 It has been seen that in many instances, acquisitions do not create value for the acquiring company's shareholders. The most common reasons are irrational exuberance about the strategic importance of the deal, enthusiasm built up during the excitement of negotiations, and weak integration skills. If a takeover deal was not a good one on the day it was made, it will never be.
- 4.3.8 Several studies covering Mergers & Acquisitions have concluded that over half of these M & A's have failed to create their expected value. It has also been reported that in many cases, value was destroyed, and the company's performance after the deal was significantly below what it had been before the deal. It has also been observed that the market is fairly good at predicting which ones will and which ones will not create value.
- 4.3.9 How does one think about acquisitions, the price to pay, and when to walk away? Many a time the acquiring company gets emotionally attached to a deal, or gets carried away by an empire-building mindset. Under such circumstances, what kind of an organizational discipline should be in place to control the emotions and take a calculated business decision.
- 4.3.10 Robert G. Eccles et al have the following advice to offer: "In today's market, the purchase price of an acquisition will nearly always be higher than the intrinsic value of the target company. An acquirer needs to be sure that there are enough cost savings and revenue generators – synergy value – to justify the premium so that the target company's shareholders don't get all the value the deal creates".
- 4.3.11 Read the articles titled "Fools' Gold", "Just say no", and "Doubly Blessed" given at the end of the chapter.
- 4.3.12 Read the example of how Microsoft very recently handled its intended take-over of Yahoo!:

Microsoft and Yahoo!

April 2008

The key to a successful acquisition is knowing the maximum price one can pay and then having the discipline not to pay a penny more. When the numbers don't add up, Robert G. Eccles et al categorically state that the most disciplined thing to do is walk away.

A case in point is the recent offer of Microsoft to acquire Yahoo! Microsoft offered \$33 per share at \$47.5 billion for the takeover of the internet pioneer. Yahoo's board wanted \$37 per share, a price the company's stock has not reached in more than two years. While Yahoo expected Microsoft to counter, Mr. Steve Ballmer of Microsoft walked.

It has been reported that after rejection of Microsoft bid, Yahoo is facing pressure from irate shareholders. Two days after Microsoft walked away, the Yahoo's stock plunged 15% in reaction to Microsoft's withdrawal of its offer. Two lawyers already suing Yahoo's board vowed to amend their complaint to account for a "massive loss in shareholder value".

While Yahoo! has promised an accelerated revenue growth by at least 25% in 2009 and 2010, the market is not convinced.

If Yahoo! stumbles, that could entice Microsoft to return with another takeover bid that would be more difficult to turn down. Venture Capitalist Todd Dages of Spark Capital has compared this approach to a crocodile's. "Rather than try to eat its prey while it's warm and tough, (Microsoft is) dragging it down to the bottom of the river, sticking it under a rock and eating it later when it's cold and soft".



4.4 Comparable Companies or Transactions Approach:

- 4.4.1 In the Comparable Companies or Transactions approach, the key relationships are computed for a group of similar companies or transactions as a basis for valuation of companies involved in a merger or takeover. Being simple, straight-forward, plain commonsense, and using marketplace transactions, this approach is quite popular with investment bankers and in legal cases.
- 4.4.2 The approach is illustrated with a simple illustration, given in Table 1. For the purpose of testing for similarity, three companies of comparable size, similar products, age, growth rates, and recent trends are considered.

**TABLE 1
COMPARABLE COMPANIES APPROACH**

Step 1: Working out Comparable Companies Ratios

Ratio	Comparable Companies			Average Ratio
	A	B	C	
Enterprise Market Value/Revenues	1.4	1.2	1.0	1.2
Enterprise Market Value/EBITDA	15.0	14.0	22.0	17.0
Enterprise Market Value/Free cash flows	25.0	20.0	27.0	24.0

Step 2: Application of Valuation Ratios for Target Company T

	Rs. In crores	Average Ratio	Enterprise Market Value of T
Revenues	100	1.2	120.0
EBITDA	7	17.0	119.0
Free cash flows	5	24.0	120.0
Total			359.0
Average			120

(Adapted from Mergers & Acquisitions by J. Fred Weston and Samuel C. Weaver, McGraw-Hill)

- 4.4.3 It is important that the degree of correlation among the comparable companies is quite good, so that there is no substantial dispersion around the average.
- 4.4.4 This approach has the advantage of being put to use in valuation of companies not publicly traded, and can also be used to test the soundness of valuations in mergers by both the buyer and seller.

4.5 Discounted Cash Flow Analysis:

- 4.5.1 The Discounted Cash Flow (DCF) analysis requires projections of the future free cash flows of a project or investment which are discounted back to the present by an applicable cost of capital.
- 4.5.2 The approach is illustrated with a simple illustration, given in Table 2 (Adapted from Mergers & Acquisitions by J. Fred Weston and Samuel C. Weaver, McGraw-Hill), along with the terms used in computation under this approach and the steps:



TABLE 2
DCF SPREADSHEET VALUATION
(ZERO TERMINAL GROWTH)

Sl. No.	Particulars	Years					
		1 2003 Rs.	2 2004 Rs.	3 2005 Rs.	4 2006 Rs.	5 2007 Rs.	n+1 2008 Rs.
Step 1: Initial Growth Period:							
1	Revenues	10000	11550	13340	15408	17796	17796
2	EBITDA	2000	2310	2668	3082	3559	3559
3	Depreciation	500	577	667	770	890	890
4	EBIT = NOI (2) - (3)	1500	1733	2001	2312	2669	2669
5	Less: Interest	300	346	400	462	534	534
6	EBT (4-5)	1200	1387	1601	1850	2135	2135
7	Less: Tax @ 40%	480	555	640	740	854	854
8	Net Income (6) - (7)	720	832	961	1,110	1,281	1,281
9	Add: [Interest x (1-T)] = (5) x (1-T)	180	208	240	277	320	320
10	NOPAT = (4) x (1-T) = (8) + (9)	900	1040	1201	1387	1601	1601
10a.	Add: Depreciation	500	577	667	770	890	890
10b.	Less: Capital expenditures	900	1039	1201	1387	1602	890
10c.	Less: Changes in working capital	400	462	534	616	712	0
11	Free cash flow = 10 + (10a) - (10b) - 10c)	100	116	133	154	177	1601
12	Discount factor @ 10%	0.909	0.826	0.751	0.683	0.621	
13	Present Value of free cash flow	91	96	100	105	110	
14	Sum of initial period present values	502					
Step 2: Terminal Period:							
1	EBITDA of 2008	3559					
2	Free cash flow in 2008	1601					
3	Terminal period discount rate	12%					
4	Terminal value in 2008	13345					
5	Present Value factor: $[1/(1+0.10)^n]$	0.6209					
6	Present Value of terminal period	8286					
Step 3: Calculation of Equity Value:							
1	Sum of initial period present values	502					
2	Present Value of terminal period	8286					
3	DCF Enterprise value	8788					
4	Add: Excess cash	0					
5	Less: Debt	3000					
6	Equity value	5788					
7	Number of shares outstanding	100					
8	Value per share	57.88					

**Step 2: Terminal Period:**

1	EBITDA of 2008	3737
2	Free cash flow in 2008	1708
3	Terminal period discount rate	12%
4	Terminal value in 2008	14235
5	Present Value factor: $[1/(1+0.10)^n]$	0.6209
6	Present Value of terminal period	8839

Step 3: Calculation of Equity Value:

1	Sum of initial period present values	804
2	Present Value of terminal period	8839
3	DCF Enterprise value	9642
4	Add: Excess cash	0
5	Less: Debt	3000
6	Equity value	6642
7	Number of shares outstanding	100
8	Value per share	66.42

4.5.6 Valuation of Shares in acquisitions-an illustration

An illustration of Valuation of shares				
1	1991 sales	55.30	million	
2	1992 sales	55.00	million	
3	Tax rate	40%		
4	Cost of capital	10%		
5	Growth rate in sales upto 1996			6%
6	Growth rate in sales 1997-2001			2%
7	Working capital/sales (for 1991 it was 44%)			40%
8	COGS is 67% in 1992 and thereafter		65%	
9	SGA is 21% of sales in 1992, 20% in 1993 and 19% thereafter			
10	Depreciation and other deductions are assumed to hold at 1991 levels	2.1		
11	Other deductions	0.2		
12	New investments assumed to be equal to depreciation			
13	After 2001, after tax operating cash flow and investments are assumed to be constant at 2001 level. Changes in working capital are assumed to be zero			
14	Value of debt	10	million	
15	No of shares	584000		

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Sales	55.30	55.00	58.30	61.80	65.51	69.44	70.82	72.24	73.69	75.16	76.66
COGS		-36.85	-37.90	-40.17	-42.58	-45.13	-46.04	-46.96	-47.90	-48.85	-49.83
SGA		-11.55	-11.66	-11.74	-12.45	-13.19	-13.46	-13.73	-14.00	-14.28	-14.57
Depreciation		-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10
Other Deductions		-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20
Taxable Income		4.30	6.45	7.59	8.18	8.81	9.03	9.26	9.49	9.73	9.97
Tax		-1.72	-2.58	-3.04	-3.27	-3.52	-3.61	-3.70	-3.80	-3.89	-3.99
NOPAT		2.58	3.87	4.55	4.91	5.29	5.42	5.56	5.69	5.84	5.98
Operating CF		4.68	5.97	6.65	7.01	7.39	7.52	7.66	7.79	7.94	8.08
Working capital	24.33	22.00	23.32	24.72	26.20	27.77	28.33	28.90	29.47	30.06	30.67
Change in working capital		2.33	-1.32	-1.40	-1.48	-1.57	-0.56	-0.57	-0.58	-0.59	-0.60
New investments		-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10	-2.10
Free cash flows		4.91	2.55	3.15	3.43	3.71	4.86	4.99	5.12	5.25	5.38
Continuing value											59.80



Present value of cash flows	25.58
PV of Continuing value	23.05
Total value	48.63
Less Debt	-10.00
Value of shares	38.63
Per share value	66.15

4.6 Cost of Capital:

4.6.1 Capital Asset Pricing Model:

The most widely used method in calculating the cost of equity is the capital asset pricing model (CAPM). In CAPM, the required return on equity is a risk-free return plus a risk component.

Cost of equity = Risk-free rate + market price of risk x beta

Illustration:

The risk-free rate = 5.5%

The market price of risk = 7%

The company's beta = 1.2

Cost of equity = 5.5% + 7% (1.2) = 13.9%

4.6.2 The Dividend Growth Model:

Cost of equity = Expected Dividend yield + expected growth rate.

4.6.3 Bond Yield Plus Equity Risk Adjustment:

Cost of equity = Bond yield + spread over bond yields.

4.6.4 Cost of Debt:

Cost of debt should be on after-tax basis, as interest is tax deductible. Therefore, the cost of debt is given by:

The after-tax cost of debt = $k_b (1-T)$

Where T = Tax rate.

4.6.5 Weighted Average Cost of Capital:

The financial proportions of debt and equity are used as a guide.

Illustration:

Cost of debt = 8%

Tax rate = 40%

Capital structure: Debt: 40% and Equity: 60%

Weighted average cost of capital = 13.9%(0.60) + 8%(1-0.40)(0.40) = 10.26%



ILLUSTRATION

Illustration 1 - X Ltd. is intending to acquire B Ltd. (by merger) and the following information is available in respect of the companies.

Particulars	X Ltd.	B Ltd.
No. of Equity Shares	5,00,000	3,00,000
Earnings after tax (Rs.)	25,00,000	9,00,000
Market value per share (Rs.)	21	14

- What is the present EPS of both the companies?
- If the proposed merger takes place, what would be the new earning per share for X Ltd. (assuming that the merger takes place by exchange of equity shares and the exchange ratio is based on the current market prices).
- What should be exchange ratio, if B Ltd. want to ensure the same earnings to members as before the merger takes place?

Solution:

$$(i) \text{ Earnings per share} = \frac{\text{Earnings after tax}}{\text{No. of Equity shares}}$$

$$\text{X Ltd.} = \frac{\text{Rs. } 25,00,000}{5,00,000} = \text{Rs. } 5 \quad \text{B Ltd.} = \frac{\text{Rs. } 9,00,000}{3,00,000} = \text{Rs. } 3$$

- Calculation of new EPS of X Ltd. after merger (Exchange ratio based on market prices)**

Particulars	X Ltd.	B Ltd.
Earning after tax (Rs.)	25,00,000	9,00,000
No. of equity shares	5,00,000	3,00,000
Market value per share (Rs.)	21	14

No. of shares B Ltd. Shareholders will get in X Ltd. based on market price of shares is as follows:

$$= \frac{\text{Rs. } 14}{\text{Rs. } 21} \times 3,00,000 \text{ shares} = 2,00,000 \text{ shares}$$

For every three shares held in B Ltd., two shares of X Ltd. are given.

Then, the total number of equity shares of X Ltd. after merger is as follows:

$$\begin{aligned} &= 5,00,000 + 2,00,000 &&= 7,00,000 \text{ shares} \\ \text{Total Earnings of X Ltd. after merger} &= 25,00,000 + 9,00,000 &&= \text{Rs. } 34,00,000 \\ \text{The new EPS of X Ltd. after merger} &= \frac{\text{Rs. } 34,00,000}{7,00,000 \text{ Shares}} &&= \text{Rs. } 4.86 \end{aligned}$$



(iii) **Calculation of exchange ratio to ensure B Ltd. to earn the same before the merger takes place:**

Original EPS : X Ltd. = Rs. 5; B Ltd. = Rs. 3

The number of shares to be exchanged by X Ltd. with B Ltd. based on the EPS of the respective companies is as follows:

$$= \frac{\text{Rs. 3}}{\text{Rs. 5}} \times 3,00,000 = 1,80,000 \text{ shares}$$

Total number of shares of X Ltd. after merger = 5,00,000 + 1,80,000 = 6,80,000 shares

$$\text{EPS after merger} = \frac{\text{Rs. 25,00,000} + \text{Rs. 9,00,000}}{6,80,000 \text{ shares}} = \text{Rs. 5}$$

The total earnings in Q Ltd. available to new shareholder of B Ltd.

$$= 1,80,000 \text{ shares} \times \text{Rs. 5} = \text{Rs. 9,00,000}$$

Recommendation : The exchange ratio based on market shares is beneficial to the shareholders of B Ltd.

Illustration 2 - X Ltd. is considering the proposal to acquire Y Ltd. and their financial information is given below:

Particulars	X Ltd.	Y Ltd.
No. of Equity shares	10,00,000	6,00,000
Market price per share (Rs.)	30	18
Market Capitalisation (Rs.)	3,00,00,000	1,08,00,000

X Ltd. intend to pay Rs. 1,40,00,000 in cash for Y Ltd., if Y Ltd.'s market price reflects only its value as a separate entity. Calculate the cost of merger : (i) When merger is financed by cash (ii) When merger is financed by stock.

Solution:

(i) **Cost of Merger, when Merger is Financed by Cash** = (Cash - MV_Y) + ($MV_Y - PV_Y$)

Where,

MV_Y = Market value of Y Ltd.

PV_Y = True/intrinsic value of Y Ltd.

Then, = (1,40,00,000 - 1,08,00,000) + (1,08,00,000 - 1,08,00,000) = Rs. 32,00,000

If cost of merger becomes negative then shareholders of X Ltd. will get benefited by acquiring Y Ltd. in terms of market value.

(ii) **Cost of Merger when Merger is Financed by Exchange of Shares in X Ltd. to the Shareholders of Y Ltd.**

Cost of merger = $PV_{XY} - PV_Y$

Where,



PV_{XY} = Value in X Ltd. that Y Ltd.'s shareholders get.

Suppose if X Ltd. agrees to exchange 5,00,000 shares in exchange of shares in Y Ltd., instead of payment in cash of Rs. 1,40,00,000. Then the cost of merger is calculated as below:

$$= (5,00,000 \times \text{Rs. } 30) - \text{Rs. } 1,08,00,000 = \text{Rs. } 42,00,000$$

$$PV_{XY} = PV_X + PV_Y = 3,00,00,000 + 1,08,00,000 = \text{Rs. } 4,08,00,000$$

Proportion that Y Ltd.'s shareholders get in X Ltd.'s Capital structure will be :

$$= \frac{5,00,000}{10,00,000 + 5,00,000} = 0.333$$

True Cost of Merger = $PV_{XY} - PV_Y$

$$= (0.333 \times 4,08,00,000) - 1,08,00,000 = \text{Rs. } 28,00,000$$

The cost of merger i.e., Rs. 42,00,000 as calculated above is much higher than the true cost of merger Rs. 28,00,000. With this proposal, the shareholders of Y Ltd. will get benefited.

Note :

- (1) When the cost of merger is calculated on the cash consideration, when cost of merger is unaffected by the merger gains.
- (2) But when merger is based on the exchange of shares, then the cost of merger depends on the gains, which has to be shared with the shareholder of Y Ltd.

Illustration 3 - East Co. Ltd. is studying the possible acquisition of West Co. Ltd. by way of merger. The following data are available in respect of the companies:

Particulars	East Co. Ltd.	West Co. Ltd.
Earnings after tax (Rs.)	2,00,000	60,000
No. of equity shares	40,000	10,000
Market value per share (Rs.)	15	12

- (i) If the merger goes through by exchange of equity share and the exchange ratio is based on the current market price, what is the new earnings per share for East Co. Ltd.?
- (ii) West Co. Ltd. wants to be sure that the earnings available to its shareholders will not be diminished by the merger. What should be the exchange ratio in that case?

Solution:

(i) **Calculation of new EPS of East Co. Ltd.**

No. of Equity Shares to be issued by East Co. Ltd. of West Co. Ltd.

$$= 10,000 \text{ Shares} \times \text{Rs. } 12 / \text{Rs. } 15 = 8,000 \text{ Shares}$$

$$\text{Total no. of Shares in East Co. Ltd. after acquisition of West Co. Ltd.} = 40,000 + 8,000 = 48,000$$

$$\text{Total earnings after tax after acquisition} = 2,00,000 + 60,000 = \text{Rs. } 2,60,000$$

$$\text{EPS} = \frac{\text{Rs. } 2,60,000}{48,000 \text{ Equity Shares}} = \text{Rs. } 5.42$$



(ii) Calculation of exchange ratio which would not diminish the EPS of West Co. Ltd. after its merger with East Co. Ltd.

Current EPS

$$\text{East Co. Ltd.} = \frac{\text{Rs. 2,00,000}}{40,000 \text{ Equity Shares}} = \text{Rs. 5}$$

$$\text{West Co. Ltd.} = \frac{\text{Rs. 60,000}}{10,000 \text{ Equity Shares}} = \text{Rs. 6}$$

Exchange ratio is to be $= 6/5 = 1.20$

No. of new Shares to be issued by East Co. Ltd. to West Co. Ltd. $= 10,000 \times 1.20 = 12,000 \text{ Shares}$

Total number of Shares after acquisition $= 40,000 + 12,000 = 52,000 \text{ Shares}$

EPS after Merger $= \text{Rs. 2,60,000} / 52,000 \text{ Shares} = \text{Rs. 5}$

Total Earnings of West Co. Ltd. $= \text{No. of Shares} \times \text{EPS} = 12,000 \times \text{Rs. 5} = \text{Rs. 60,000}$

Illustration 4 - A Ltd. is considering takeover of B Ltd. and C Ltd. The financial data for the three companies are as follows :

Particulars		A Ltd.	B Ltd.	C Ltd.
Equity Share Capital of Rs. 10 each	(Rs. crores)	450	180	90
Earnings	(Rs. crores)	90	18	18
Market price of each share	(Rs.)	60	37	46

Calculate :

- (i) Price earnings ratios
- (ii) Earning per share of A Ltd. after the acquisition of B Ltd. and C Ltd. separately. Will you recommend the merger of either/both of the companies? Justify your answer.

Solution:

Calculation of Price Earning ratios

Particulars		A Ltd.	B Ltd.	C Ltd.
Earnings	(Rs. crores)	90	18	18
No. of shares	(crores)	45	18	9
EPS	(Rs.)	2	1	2
Market price per share	(Rs.)	60	37	46
PE Ratio		30	37	23

Calculation of EPS of A Ltd. after acquisition of B Ltd. and C Ltd.

$$\text{Exchange ratio or rate} = \frac{\text{Buyer's P/E Ratio}}{\text{Seller's P/E Ratio}}$$



Particulars	A Ltd	B Ltd	C Ltd
Exchange ratio in A Ltd.	-	81	1.30
Value of shares (Rs. crores)	2,700	666	414
No. of A Ltd.'s share to be given (crores)	-	666/60	414/60
EPS (Rs.)	-	11.11	6.9
Total earnings after acquisition (Rs. crores)	-	108	108
Total number of shares (crores)	-	56.1	51.9
EPS after acquisition (Rs.)	-	1.93	2.08

Analysis: After merger of C Ltd. with A Ltd.'s. EPS is higher than A Ltd. (Rs. 2.08). Hence merger with only C Ltd. is suggested to increase the value to the shareholders of A Ltd.

Illustration 5 - XYZ Ltd. is considering merger with ABC Ltd. XYZ Ltd.'s shares are currently traded at Rs. 25. It has 2,00,000 shares outstanding and its profits after taxes (PAT) amount to Rs. Rs. 4,00,000. ABC Ltd. has 1,00,000 shares outstanding; its current market price is Rs. 12.50 and its PAT are Rs. 1,00,000. The merger will be effected by means of a stock swap (exchange). ABC Ltd. has agreed to a plan under which XYZ Ltd. will offer the current market value of ABC Ltd.'s shares:

- What is the pre-merger earnings per share (EPS) and P/E ratios of both the companies?
- If ABC Ltd.'s P/E ratio is 8, what is its current market price? What is the exchange ratio? What will XYZ Ltd.'s post-merger EPS be?
- What must the exchange ratio be for XYZ Ltd.'s that pre and post-merger EPS to be the same?

Solution:

(i) **Pre-merger EPS and P/E ratios of XYZ Ltd. and ABC Ltd.** (Rs.)

Particulars	XYZ Ltd.	ABC Ltd.
Profits after taxes	4,00,000	1,00,000
Number of shares outstanding	2,00,000	1,00,000
EPS (Earnings after tax/No. of shares)	2	1
Market price per share	23.00	12.50
P/E Ratio (times)	12.50	12.50

- (ii) **Current market price of ABC Ltd., if P/E ratio is 8** = Rs. 1 × 8 = Rs. 8
 Exchange ratio = Rs. 25/8 = 3.125

$$\text{Post merger EPS of XYZ Ltd.} = \frac{\text{Rs. } 4,00,000 + \text{Rs. } 1,00,000}{2,00,000 + (1,00,000/3.125)} = \frac{5,00,000}{2,32,000} = \text{Rs. } 2.16$$

(iii) **Desired exchange ratio**

Total number of shares in post-merged company

$$= \frac{\text{Post-merged earnings}}{\text{Pre-merger EPS of XYZ Ltd.}} = \frac{5,00,000}{2} = 2,50,000$$

$$\text{Number of shares required to be issued} = 2,50,000 - 2,00,000 = 50,000$$

$$\text{Therefore, the exchange ratio is} = 50,000 / 1,00,000 = 0.50$$



Illustration 6 : Company X is contemplating the purchase of Company Y, Company X has 3,00,000 shares having a market price of Rs. 30 per share, while Company Y has 2,00,000 shares selling at Rs. 20 per share. The EPS are Rs. 4.00 and Rs. 2.25 for Company X and Y respectively. Managements of both companies are discussing two alternative proposals for exchange of shares as indicated below:

- (i) in proportion to the relative earnings per share of two Companies.
- (ii) 0.5 share of Company X for one share of company Y (5 : 1).

You are required:

- (i) to calculate the Earnings Per Share (EPS) after merger under two alternatives; and
- (ii) to show the impact on EPS for the shareholders of two companies under both alternatives.

Solution:

Working Notes

Calculate of total earnings after merger

Particulars	Company X	Company Y	Total
Outstanding shares	3,00,000	2,00,000	
EPS (Rs.)	4	2.25	
Total earnings (Rs.)	12,00,000	4,50,000	16,50,000

(i)(a) Calculation of EPS when exchange ratio is in proportion to relative EPS of two companies

(Marks)

Company X		3,00,000
Company Y	$2,00,000 \times 2.25 / 4$	1,12,500
Total number of shares after merger		4,12,500

Company X

EPS before merger = Rs. 4

EPS after merger = Rs 16,50,000 / 4,12,500 shares = Rs. 4

Company Y

EPS before merger = Rs 2.25

EPS after merger

= EPS before merger / Share Exchange ratio on EPS basis

$$= \frac{2.25}{2.25/4} = \frac{2.25}{0.5625} = \text{Rs. } 4$$

(i)(b) Calculate of EPS when share exchange ratio is 0.5:1

Total earnings after merger = Rs. 16,50,000

Total number of shares after merger = 3,00,000 + (2,00,000 x 0.5) = 4,00,000 shares

EPS after merger = Rs. 16,50,000 / 4,00,000 = Rs. 4.125

**(ii) Impact of merger on EPS for shareholders of Company X and Company Y****(a) Impact on Shareholders of Company X**

(Rs.)

EPS before merger	4.000
EPS after merger	4.125
Increase in EPS	0.125

(b) Impact on shareholders of Company Y

(Rs.)

Equivalent EPS before merger (2.25/0.5)	4.500
EPS after merger	4.125
Decrease in EPS	0.375

Illustration 7 : ABC Ltd. is run and managed by an efficient team that insists on reinvesting 60% of its earnings in projects that provide an ROE (Return of Equity) of 10% despite the fact that the firm's capitalization rate (K) is 15%. The firm's currently year's earnings is Rs. 10 per share.

At what price will the stock of ABC Ltd. sell? What is the present value of growth opportunities? Why would such a firm be a takeover target?

Solution:**Dividend growth rate (G)**

$$G = \text{ROE} \times b$$

Where,

$$b = 1 - \text{Pay out ratio}$$

$$\therefore G = 10\% \times 0.60 = 6\%$$

Stock price of ABC Ltd.

$$= \frac{10 \times 0.4}{0.15 \times 0.06} = \frac{4}{0.009} = \text{Rs. } 44.44$$

Present Value of Growth Opportunities (PVGO)

$$\begin{aligned} &= \text{Market price per share} - \text{No growth value per share} \\ &= \text{Rs. } 44.44 - (\text{Rs. } 10/0.15) \\ &= \text{Rs. } 44.44 - \text{Rs. } 66.66 = \text{Rs. } 22.22 \text{ (negative PVGO)} \end{aligned}$$

Reasons for takeover target

Negative PVGO implies that the net present value of the firm's projects is negative: the rate of return on this assets is less than the opportunity cost of capital. Such a firm would be subject to takeover target because another firm could buy the firm for the market price of Rs. 44.44 per share and increase the value of the firm by changing its investment policy. For example, if the new management simply paid out all earning as dividend, the value of the firm would increase up to its no growth value of Rs. 66.66.



Illustration 8 : Following are the financial statement for A Ltd. for the current financial year. Both the firm operate in the same industry:

Balance Sheet (Rs.)

<i>Particulars</i>	<i>A Ltd.</i>	<i>B. Ltd.</i>
Total Current assets	14,00,000	10,00,000
Total Fixed assets (net)	10,00,000	5,00,000
	24,00,000	15,00,000
Equity capital (of Rs. 10 each)	10,00,000	8,00,000
Retained earnings	2,00,000	
14% Long-term debt	5,00,000	3,00,000
Total Current liabilities	7,00,000	4,00,000
	24,00,000	15,00,000

Income-Statements (Rs.)

<i>Particulars</i>	<i>A Ltd.</i>	<i>B. Ltd.</i>
Net sales	34,50,000	17,00,000
Cost of goods sold	27,60,000	13,60,000
Gross profit	6,90,000	3,40,000
Operating expenses	2,00,000	1,00,000
Interest	70,000	42,000
Earning before taxes	4,20,000	1,98,000
Taxes (50%)	2,10,000	99,000
Earning after taxes (EAT)	2,10,000	99,000

Additional Information

Number of equity shares	10,000	8,000
Divident payment ratio (D/P)	40%	60%
Market price per share (MPS)	Rs. 400	Rs. 150

Assume that the two firms are in the process of negotiating a merger through an exchange of equity shares. You have been asked to assist in establishing equitable exchange terms, and are required to –

- (i) Decompose the share prices of both the companies into EPS and P/E components, and also segregate their EPS figures into return on equity (ROE) and book value/intrinsic value per share (BVPS) components.
- (ii) Estimate future EPS growth rates for each firm.
- (iii) Based on expected operating synergies, A Ltd. estimates that the intrinsic value of B’s equity share would be Rs. 200 per share on its acquisition. You are required to develop a range of justifiable equity share exchange ratios that can be offered by A Ltd. to B Ltd. ’s shareholders. Based on your analysis in parts (i) and (ii) would you expect the negotiated terms to be closer to the upper, or the lower exchange ratio limits? Why?
- (iv) Calculate the post-merger EPS based on an exchange ratio of 0.4:1 being offered by A Ltd. Indicate the immediate EPS accretion or dilution, if any, that will occur for each group of shareholders.



- (v) Based on a 0.4:1 exchange ratio, and assuming that A's pre-merger P/E ratio will continue after the merger, estimate the post-merger market price. Show the resulting accretion or dilution in pre-merger market prices.

$$\text{Market price per share (MPS)} = \text{EPS} \times \text{P/E ratio or P/E Ratio} = \text{MPS} / \text{EPS}$$

Solution:

(i) Determination of EPS, P/E ratio, ROE and BVPC of A Ltd. and B Ltd.

		A Ltd.	B Ltd.
Profits After Tax (PAT)		Rs. 2,10,000	99,000
No. of Shares		10,000	8,000
EPS (PAT/N)		Rs. 21.00	Rs. 12.375
Market price share (MPS)		Rs. 400	Rs. 150
P/E ratio (MPS/EPS)		19.05	12.12
Equity funds (EF)		12,00,000	8,00,000
BVPC (EF/N)		Rs. 120	Rs. 100
ROE (PAT/EF) x 100		17.5%	12.37%

(ii) Estimates of Growth rates in EPS for each Firm

Retention ratio (1-D/P ratio)		0.6	0.4
Growth rate (ROE x Retention ratio)		10.5%	4.95%

(iii) Justifiable equity share exchange ratio

(a) Market price based $= \frac{\text{MPS}_B}{\text{MPS}_A} = \frac{\text{Rs. 15}}{\text{Rs. 40}} = 0.375:1$ (lower limit)

(b) Intrinsic value based $= \frac{\text{Rs. 20}}{\text{Rs. 40}} = 0.5:1$ (upper limit)

Since A Ltd. has a higher EPS, ROE, P/E ratio, and even higher EPS growth expectations, the negotiated terms would be expected to be closer to the lower limit, based on the existing share prices.

(iv) Calculation of Post-merger EPS and other effects

Particulars		A Ltd.	B Ltd.	Combined
PAT (Rs.)	(i)	2,10,000	99,000	3,09,000
Shares outstanding	(ii)	10,000	8,000	13,200*
EPS (Rs.)	(i)/(ii)	21.00	12.375	23.41
EPS Accretion (Dilution) (Rs.)		2.41	3.015	—

(v) Estimate of Post-merger Market Price and other effects

Particulars		A Ltd.	B Ltd.	Combined
EPS (Rs.)	(i)	Rs. 21.00	Rs. 12.375	23.41
P/E Ratio	(ii)	19.05	12.12	19.05
MPS (Rs.)	(i)x(ii)	400	150	446.00
MPS Accretion (Dilution) (Rs.)		46	28.40***	

* Shares outstanding (combined) = 10,000 shares + (0.40 x 8,000) = 13,200 Shares

** EPS claim per old share = Rs. 23.41 x 0.40 = Rs. 9.36

EPS dilution = Rs. 12.375 - Re. 9.36 = Rs. 3.015



		(Rs.)
MPS claim per old share	(Rs. 446 x 0.4)	178.40
Less : MPS per old share		150.00
		28.40

Illustration 9 : Fat Ltd. wants to acquire Lean Ltd. the Balance sheet of Lean Ltd. as on 31st March, 2009 is as follows:

<i>Liabilities</i>	<i>Rs.</i>	<i>Assets</i>	<i>Rs.</i>
Equity share capital (60,000 Shares)	6,00,000	Cash	20,000
Retained Earnings	2,00,000	Debtors	30,000
12% Debentures	2,00,000	Inventories	1,70,000
Creditors and other liabilities	3,20,000	Plant and Equipments	11,00,000
	13,20,000		13,20,000

Additional information:

- (i) Shareholders of Lean Ltd. will get one share in Fat Ltd. for every two shares. External liabilities are expected to be settled at Rs. 3,00,000. Shares of Fat Ltd. would be issued at its current price of Rs. 15 per share. Debentureholders will get 13% convertible debentures in the purchasing company for the same amount. Debtors and inventories are expected to realise Rs. 1,80,000.
- (ii) Fat Ltd. has decided to operate the business of Lean Ltd. as a separate division. The division is likely to give cash flows (after tax) to the extent of Rs. 3,00,000 per year for 6 years. Fat Ltd. has planned that, after 6 years this division would be demerged and disposed of for Rs. 1,00,000.
- (iii) Company's cost of capital is 14%.

Make a report to the managing director advising him about the financial feasibility of the acquisition.

Note: Present Value of Re. 1 for six years @ 14%: 0.8772, 0.7695, 0.6750, 0.5921, 0.5194 and 0.4556.

Solution:

Cost of Acquisition	(Rs.)
Equity share capital $\left(\frac{60,000}{2} \times \text{Rs. } 15 \right)$	4,50,000
13% Convertible Debentures	2,00,000
Cash (Payment for external liabilities - Realisation of cash from Debtors and inventories - Cash of Lean Ltd.) (i.e. 3,00,000 - 1,80,000 - 20,000)	1,00,000
Total consideration	7,50,000



Calculation of NPV

(Rs.)

Year	Cash inflow	P.V. factor @ 14%	Present values
1	3,00,000	0.8772	2,63,160
2	3,00,000	0.7695	2,30,850
3	3,00,000	0.6750	2,02,500
4	3,00,000	0.5921	1,77,630
5	3,00,000	0.5194	1,55,820
6	3,00,000	0.4556	1,36,680
6 Salvage value	1,00,000	0.4556	45,560
Total P.V. of cash inflow			12,12,200
Less: Cost of acquisition			7,50,000
NPV			4,62,200

Suggestion : Since the NPV is positive it is suggested to acquire Lean Ltd. to maximise the value of shareholders of both the companies.

Illustration 10 : XYZ Ltd. is considering merger with ABC Ltd.'s shares are currently traded at Rs. 200. It has 25,000 shares outstanding and its profit after taxes (PAT) amount to Rs. 5,00,000. ABC Ltd. has 1,25,000 shares outstanding, its current market price is Rs. 100 and its PAT are Rs. 1,25,000. The merger will be effected by means of a stock swap (exchange). ABC Ltd. has agreed to a plan under which XYZ Ltd. will offer the current market value of ABC Ltd.'s shares:

- What is the pre-merger earning per share (EPS) and P/E ratios of both the companies?
- If ABC Ltd.'s P/E ratio is 6.4, what is its current market price? What is the exchange ratio? What will XYZ Ltd.'s post-merger EPS be?
- What should be the exchange ratio, if XYZ Ltd.'s pre-merger and post-merger EPS are to be the same?

Solution:**(i) Pre-merger EPS and P/E Ratios of XYZ Ltd., and ABC Ltd.**

Particulars	XYZ Ltd.	ABC Ltd.
Profits after taxes	Rs. 5,00,000	Rs. 1,25,000
Number of shares outstanding	25,000	12,500
EPS (= PAT / No. of shares)	Rs. 20	Rs. 10
Market price per share	Rs. 200	Rs. 100
P/E Ratio (times) (=MPS / EPS)	10	10

(ii) Current Market Price of ABC Ltd. if P/E ratio is 6.4 = Rs. 10 × 6.4 = Rs. 64.00

Exchange ratio = Rs. 200/64 = 3.125

Post-merger EPS of XYZ Ltd.

$$= \frac{\text{Rs. 5,00,000} + \text{Rs. 1,25,000}}{25,000 + 12,500/3.125} = \frac{\text{Rs. 6,25,000}}{29,000} = \text{Rs. 21.55}$$



(iii) Desired Exchange Ratio

$$\begin{aligned} &\text{Total number of shares in post-merged company} \\ &= \frac{\text{Post-merger earnings}}{\text{Pre-merger EPS of XYZ Ltd.}} = \frac{\text{Rs. 6,25,000}}{20} = 31,250 \text{ shares} \\ &\text{Number of shares to be issued} = 31,250 - 25,000 = 6,250 \text{ shares} \\ &\text{Exchange ratio} = 62,500/12,500 = 0.50 \end{aligned}$$

Illustration 11 : M Ltd. is studying the possible acquisition of N Ltd. by way of merger. The following data are available in respect of the companies:

<i>Particulars</i>	<i>M Ltd.</i>	<i>N Ltd.</i>
Profits after tax (PAT)	Rs. 80,00,000	Rs. 24,00,000
No. of equity shares	16,00,000	4,00,000
Market value per share	Rs. 200	Rs. 160

- (i) If the merger goes through by exchange of equity and the exchange ratio is based on the current market price, what is the new earnings per share for M Ltd.?
- (ii) N Ltd. wants to be sure that the earnings available to its shareholders will not be diminished by the merger. what should be the exchange ratio in that case?

Solution:

(i) Calculation of new EPS of M Co. Ltd.

$$\begin{aligned} &\text{Number of equity shares to be issued by M Ltd. to N Ltd.} \\ &= 4,00,000 \text{ shares} \times \text{Rs. 160} / \text{Rs. 200} = 3,20,000 \text{ shares} \\ &\text{Total number of shares in M Ltd. after acquisition of N Ltd.} \\ &= 16,00,000 + 3,20,000 = 19,20,000 \text{ shares} \\ &\text{Total profits after tax (after acquisition)} \\ &= 80,00,000 + 24,00,000 = \text{Rs. 1,04,00,000} \\ &\text{EPS} = \frac{\text{Rs. 1,04,00,000}}{19,20,000 \text{ Equity shares}} = \text{Rs. 5.42} \end{aligned}$$

(ii) Calculation of exchange ratio which would not diminish the EPS of N Ltd. after its merger with M Ltd.

Current EPS:

$$\begin{aligned} \text{M. Ltd.} &= \frac{\text{Rs. 80,00,000}}{16,00,000 \text{ equity shares}} = \text{Rs. 5} \\ \text{N. Ltd.} &= \frac{\text{Rs. 24,00,000}}{4,00,000 \text{ equity shares}} = \text{Rs. 6} \end{aligned}$$



$$\begin{aligned} \text{Exchange ratio} &= 6/5 &&= 1.20 \\ \text{Number of new shares to be issued by M Ltd. to N Ltd.} & && \\ &= 4,00,000 \times 1.20 &&= 4,80,000 \text{ shares} \\ \text{Total number of shares of M Ltd. after acquisition} & && \\ &= 16,00,000 + 4,80,000 &&= 20,80,000 \text{ shares} \\ \text{EPS (after merger)} &= \frac{\text{Rs. } 1,04,00,000}{20,80,000 \text{ shares}} &&= \text{Rs. } 5 \\ \text{Total earnings in M available to new shareholders of N Ltd.} & && \\ &= 4,80,000 \times \text{Rs. } 5 &&= \text{Rs. } 24,00,000 \end{aligned}$$

Suggestion: the Exchange ratio (6 for 5) based on market shares is beneficial to shareholders of 'N' Ltd. companies:

Illustration: 12 : B Ltd. is intending to acquire Z Ltd. by merger and the following information is available in respect of the companies:

	B Ltd.	Z Ltd.
Number of equity shares	10,00,000	6,00,000
Earning after tax	Rs. 50,00,000	Rs. 18,00,000
Market value per share	Rs. 42	Rs. 28

Required :

- (i) What is the present EPS of both the companies?
- (ii) If the proposed merger takes place, what would be the new earning per share for B Ltd.? assume that the merger takes place by exchange of equity shares and the exchange ratio is based on the current market price.
- (iii) What should be exchange ratio, if Z Ltd. wants to ensure the earning to members are as before the merger takes place?

••

(i) **Present EPS of both the Companies**

$$\begin{aligned} \text{B Ltd.} &= \text{Rs. } 50,00,000 / 10,00,000 \text{ shares} &&= \text{Rs. } 5 \\ \text{Z Ltd.} &= \text{Rs. } 18,00,000 / 6,00,000 \text{ shares} &&= \text{Rs. } 3 \end{aligned}$$

(ii) **Calculation of new EPS if proposed merger takes place**

$$\begin{aligned} \text{Number of B Ltd. shares to be exchanged for Z Ltd. share based on market value per share} & && \\ &= 6,00,000 \text{ shares} \times \text{Rs. } 28/\text{Rs. } 42 &&= 4,00,000 \text{ shares} \end{aligned}$$

$$\begin{aligned} \text{Total number of equity shares in B Ltd. after proposed merger} & && \\ &= 10,00,000 + 4,00,000 &&= 14,00,000 \text{ shares} \end{aligned}$$

$$\begin{aligned} \text{EPS of B Ltd. after merger} & && \\ &= (\text{Rs. } 50,00,000 + \text{Rs. } 18,00,000) / 14,00,000 \text{ shares} &&= \text{Rs. } 4.86 \end{aligned}$$



(iii) Calculation of exchange ratio, if Z Ltd., wants to ensure the earnings to members before merger takes place

Shares to be exchanged of EPS basis

$$= 6,00,000 \text{ shares} \times \text{Rs. } 3/\text{Rs.}5 = 3,60,000 \text{ shares}$$

Total number of equity shares in B Ltd. after proposed merger

$$= 10,00,000 + 3,60,000 = 13,60,000$$

EPS after Merger

$$= (\text{Rs. } 50,00,000 + \text{Rs. } 18,00,000)/13,60,000 \text{ shares} = \text{Rs. } 5$$

Total earning in B Ltd. available to shareholders of Z Ltd.

$$= 3,60,000 \text{ shares} \times \text{Rs. } 5 = \text{Rs. } 18,00,000$$

Total earning in B Ltd. available to shareholders of Z Ltd., if exchange is based on market price

$$= 4,00,000 \text{ shares} \times \text{Rs. } 4.86 = \text{Rs. } 19,44,000$$

Illustration 13 : The following information is provided related to the acquiring firm Mark Limited and the target firm Mask Limited:

	<i>Mark Limited</i>	<i>Mask Limited</i>
Profits after tax (PAT)	Rs. 2,000 lakhs	Rs. 400 lakhs
Number of shares outstanding	200 lakhs	100 lakhs
P/E ratio (times)	10	5

Required:

- (i) What is the swap ratio based on current market price?
- (ii) What is the EPS of Mark Limited after acquisition?
- (iii) What is the expected market price per share of Mark Limited after acquisition, assuming P/E ratio of Mark Limited remains unchanged?
- (iv) Determine the market value of the merged firm.
- (v) Calculate gain/loss for shareholders of the two independent companies after acquisition.

Solution:

EPS before acquisition

$$\text{Mark Ltd.} = \text{Rs. } 2,000 \text{ lakhs}/200 \text{ lakhs} = \text{Rs.}10$$

$$\text{Mask Ltd.} = \text{Rs. } 400 \text{ lakhs}/100 \text{ lakhs} = \text{Rs. } 4$$

Market price of share before an acquisition = EPS x P.E. ratio

$$\text{Mark Ltd.} = \text{Rs. } 10 \times 10 = \text{Rs. } 100$$

$$\text{Mask Ltd.} = \text{Rs. } 4 \times 5 = \text{Rs. } 20$$

(i) Swap Ratio based on Current Market Prices

$$= \text{Rs. } 20/\text{Rs. } 100 = 0.2 \text{ i.e. } 1 \text{ share of Mark Ltd. for } 5 \text{ shares of Mask Ltd.}$$



$$\begin{aligned} \text{Number of shares to be issued} \\ = 100 \text{ lakhs} \times 0.20 &= 20 \text{ lakhs} \end{aligned}$$

(ii) EPS after Acquisition

$$= \frac{\text{Rs. 2,000 Lakhs} + \text{Rs. 400 lakhs}}{200 \text{ lakhs} + 20 \text{ lakhs}} = \text{Rs. 10.91}$$

(iii) Expected market price per share of Mark Ltd. after an acquisition after assuming P/E ratio of Mark Ltd. remains unchanged

$$= \text{Rs. 10.91} \times 10 = \text{Rs. 109.10}$$

(iv) Market Value of Merged Firm

$$= \text{Rs. 109.10} \times 220 \text{ lakh shares} = \text{Rs. 240.02 crores}$$

(v) Gain from the Merger

(Rs. crores)

Post-merger market value of merged firm		240.02
Less: Pre-merger market value		
Mark Ltd. 200 lakhs x Rs. 100	= 200 crores	
Mask Ltd. 100 lakhs x Rs. 20	= <u>20 crores</u>	<u>220.00</u>
Gain from merger		20.02

Gain to shareholders of Mark Ltd. and Mask Ltd.

(Rs. crores)

Particulars	Mark Ltd.	Mask Ltd.
Post-merger value	218.20	21.82
Less: Pre-merger value	<u>200.00</u>	<u>20.00</u>
Gain to shareholders	18.20	1.82



Questions and Problems

1. Explain the concept of merger gains and costs.
2. Explain the comparable companies or transactions approach to valuation.

Solutions to Questions and Problems

1. Mergers increase value when the value of the combined entity is greater than the sum of the pre-merger values of the independent entities. There should be an economic gain from the merger for it to make sense.

$$NPV_c = PV_{bt} - (PV_b + PV_t)$$

Where,

NPV_c = the net present value increase or gain

PV_{bt} = Present Value of the combined entity

PV_b = Present Value of the bidder alone

PV_t = Present Value of the target alone

Cost = Cash paid - PV_t

Decision Rule:

The net present value to the bidder of a merger with a target company is measured by the difference between the gain and the cost. The bidder should go ahead with the merger only if its net present value, represented as given below, is positive.

$$NPV = \text{Gain} - \text{Cost}$$

$$= [PV_{bt} - (PV_b + PV_t)] - (\text{Cash paid} - PV_t)$$

2. In the Comparable Companies or Transactions approach, the key relationships are computed for a group of similar companies or transactions as a basis for valuation of companies involved in a merger or takeover. Being simple, straight-forward, plain commonsense, and using marketplace transactions, this approach is quite popular with investment bankers and in legal cases.



Fool's Gold

Acquirers seeking synergies would do well to shrink their expectations.

Kris Frieswick, CFO Magazine

February 01, 2005

Kmart and Sears were being conservative last November, they said, when they predicted a half-billion dollars of revenue and cost synergies within three years of their merger's completion. Last month Oracle was preparing a detailed synergy estimate for its combination with PeopleSoft — which itself predicted synergies of between \$167 million and \$207 million from buying J.D. Edwards a couple of years earlier. And in 2004, General Electric projected \$400 million to \$500 million in synergies from combining its NBC unit with Vivendi Universal's entertainment assets.

These deals might indeed make their synergy numbers. Then again, they might not. A recent McKinsey & Co. study finds that 70 percent of mergers fall short when it comes to achieving their targets for revenue synergies, while 40 percent lead to cost-synergy disappointments. And occasionally, of course, deals enter the realm of dis-synergy disasters — the classic being AOL/Time Warner's \$106 billion merger in 2001. That \$1 billion synergy play, considered the 20th century's biggest, had resulted in \$99 billion of write-downs by January 2003.

Why do companies miscalculate so often? In the case of revenue synergies — top-line enhancements beyond the simple addition of two companies' sales — McKinsey says typical reasons include unexpectedly high customer-defection levels, poor assumptions about market growth and competitive realities, and overly optimistic prospects for cross selling opportunities in a deal's wake.

"Mergers are tough," says Diane Sias, leader of McKinsey's Americas postmerger management practice and co-author of the study. Synergy projections are often rushed. "It's not until the merger is closed that you get access to all the data," she notes, and by the time "you can have a good 'think' about it, you've changed everything for all the employees in both companies, and you have to make sure those people don't walk out the door."

The McKinsey study recommends that acquirers reduce their revenue synergy projections to reflect their lack of predictability, and suggests that companies avoid making "simplistic and optimistic assumptions about how long it will take to capture synergies and sustain them." Bad assumptions make cash-flow accretion and other deal metrics look unrealistically positive, it says, "leading to substantial overestimates of synergy net present value."

If acquirers do better at estimating cost synergies — from combining systems or operations, including through layoffs — their mistakes still can have a severe impact. The estimation of one-time costs often gets short shrift during due diligence, Sias says, and the merger's impact on pricing and postmerger market share may not be adequately examined. And afterwards, acquirers are usually unwilling to face the reality of how much a merger disrupted business, how cost-reduction efforts eroded the customer base, or how wishful thinking might have governed the projections. Banking mergers represent an obvious case, where any talk about customer defections is avoided. But in other industries, too, says Sias, acquirers seeking historic synergy examples may find "only two or three good precedents."

Trust the Business Sectors

What about just not projecting revenue synergies at all? That would be difficult in a world where acquirers often have to justify their offering price to investors.



When defense contractor Northrop Grumman Corp. made a hostile bid for TRW, for example, Northrop used revenue-synergy predictions to help woo reluctant TRW shareholders. "That was a very competitive situation," says retiring CFO Chuck Noski, who joined Northrop in November 2002, while the deal was being negotiated. "Normally we don't make [synergy] predictions, [preferring] our actions and track record to speak for itself." By 2003, Noski notes, actual combined revenues slightly exceeded the \$25 billion to \$26 billion range Northrop had forecast.

Others are less sensitive about predicting revenue or cost synergies. "It's all part of the public-relations campaign," according to Sydney Finkelstein, a professor at the Tuck School of Business at Dartmouth College and author of *Why Smart Executives Fail* (Portfolio, 2003). When acquirers can't find enough good synergy data to support their price, "they make it up," he says. As for why companies fail to fess up to shortfalls, he suggests they're often "honestly overestimating how they've done, because it's really hard to do an honest postmortem on a merger."

Mark Sirower, managing director of PricewaterhouseCoopers's M&A strategy practice and author of *The Synergy Trap* (Free Press, 1997), says the announcement of revenue synergies presents particular challenges for acquirers because growth expectations are already reflected in the share price when the deal is announced. "You don't get real revenue synergies until you beat the projection that is already in there," he says. And it's "competitively tough to beat revenue expectations. Revenue synergies assume you can take revenue away from another company."

Some acquisitive companies, like Eaton Corp., avoid that problem by tending to forecast *only* cost synergies, says Finkelstein, who has studied the Cleveland-based industrial products maker. Eaton "hardly ever puts out a number for revenue synergies, because it refuses to be drawn into a game of guesswork," he says.

Even though Northrop usually refrains from publicizing revenue synergies, it runs all those numbers internally to ensure that it values deals correctly. Noski says it pays special attention to data collected from the division and business-unit managers closest to the acquired company's market, because those divisions will often be responsible for integrating and running the new, acquired divisions.

"The people in the business sector have to be an integral part of understanding the numbers," he says. "You don't want to say to them after the deal is done, 'OK, you're running this new business and you have to hit these numbers,' and then have them ask, 'What numbers, and where did they come from?' There has to be an engagement and understanding of how we came up with the synergies."

Keep Those Products Coming

Other executives concentrate on revenue synergies and not cost synergies. Dick Heckmann, CEO of Carlsbad, California-based sporting-goods company K2 Corp., for one, says he has based his aggressive acquisition strategy on revenue synergies since taking the helm two years ago. He developed the method as CEO of U.S. Filter, where he helped orchestrate 260 acquisitions in nine years. (U.S. Filter was sold to Vivendi SA in 1999, which sold it off in chunks between 2002 and 2004.)

"If you buy companies and start driving cost synergies, all you end up with is a pissed-off organization," he says. "You demotivate people from acquisitions." That's why "we never base a merger on cost synergies, [although] we go after them if we find them." (Heckmann says that he approves only acquisitions that are accretive to earnings and based on advantageous revenue synergies.)



But like Northrop, K2 relies heavily on its operating groups to familiarize themselves with synergy prospects in acquisitions. Indeed, K2's six business divisions bring Heckmann proposed deals for approval, he says, because the divisions are in a better position to evaluate acquisitions in their markets. "For corporate to look for an acquisition in our fishing division is insanity," explains Heckmann. "What does a guy at corporate know about fishing?"

K2's divisions also are held accountable for the valuation research — including revenue-synergy projections underpinning their acquisitions. A group that fails to meet postmerger budget targets doesn't get its bonuses. (At the corporate level, however, K2 does do quarterly evaluations of how its mergers are progressing.)

The tactic of restraining the pursuit of cost synergies draws some fire in the investment community. "I am criticized each quarter by analysts," says Heckmann. "They want to know why our SG&A as a percentage of revenue isn't declining with the acquisitions." His answer: increased research-and-development spending is needed to keep K2 ahead of retailers, which often create less-expensive private-label versions of brand-name products they stock on their shelves. "You have to keep coming out with hot products," explains Heckmann.

The level of research that K2 and Northrop both use in determining acquisition values helps them avoid the kind of corporate criticism that flows from McKinsey's study of 160 mergers, which found top-line forecasts particularly "rife with inflated estimates."

Says Noski, "It would surprise me, in a post-Sarbox world, if companies were making those numbers up." Still, "some companies might say, 'I can only absorb so much earnings-per-share dilution on the deal, and in order to achieve that threshold I need this much synergy.'"

Kris Frieswick is a senior writer at CFO.



Just say no

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When and how, exactly, can a company decline to be bought?

FOR firms with cash to spare, today's market for mergers and acquisitions looks tempting. Share prices are down, making targets look cheap. And the seizure in the corporate-debt market means there is little competition from private-equity outfits in any deal worth over \$1 billion. If you are a target, meanwhile, things could scarcely be worse. No doubt your low share-price is the result of irrational, non-exuberant investors lumping you in with the rest—wrongly of course. But what can be done to fight off a hostile bidder?

On either side of the Atlantic, big companies are discovering to what extent they can say no. On February 11th Yahoo!, a pioneering internet company, turned down a takeover offer worth \$44.6 billion from Microsoft. The software giant had made the bid public a week earlier in a "bear hug" letter designed to press Yahoo! into accepting. But Microsoft's bid, even at a 62% premium to the market price of Yahoo! shares at the time, "substantially undervalues" the company, Yahoo!'s board contended. In London Rio Tinto said much the same thing on February 6th when it rebuffed the latest offer, worth \$147.5 billion, from BHP Billiton, a fellow mining giant.

Despite the similar reactions of the target boards, the two deals highlight big differences in takeover law on either side of the Atlantic. In Britain it is relatively straightforward. BHP has made a tender offer for Rio Tinto shares; if enough shareholders accept the offer, BHP will prevail, provided it wins antitrust approval.

Things are more complicated in America. For a start, Microsoft's letter to the board of Yahoo! does not constitute a formal offer, or oblige it to make one. Under British rules, such a letter would require a bidder to make a formal offer by a deadline, as in BHP's case. That said, going public with a letter in the way Microsoft has done is not without risk, as it may alert other potential buyers. But Microsoft appears to have concluded that publicising the premium it is willing to pay for Yahoo! is more likely to scare off other bidders.

Yahoo! has several options, depending on how determined it is to maintain its independence. Two decades ago the courts in Delaware ruled that a board could "just say no" to an offer it did not like, for whatever reason and however much shareholders disagreed, and that would be the end of the matter. But a series of court cases, and the growing power and activism of America's institutional shareholders, have reduced the board's freedom of action since those heady days.

In today's litigious climate, Yahoo! must at least go through the motions of demonstrating that its decision to reject the bid is being done in the best interests of its shareholders, which means plenty of work for its investment bankers as they explain why the firm's low share price is an aberration, and why Microsoft's (non-binding) offer is not as generous as it looks.

Yahoo! has also been considering a defensive tie-up with Google, AOL or News Corp to keep Microsoft at bay. Failing that, it could encourage the antitrust authorities to intervene, as PeopleSoft did in 2003 when a rival software firm, Oracle, launched a hostile bid. Microsoft has been the target of the trustbusters before, after all. But it is a high-risk strategy, for if the buyer then makes a new offer that the board wants to accept, the antitrust authorities may not go away.



Yahoo! might also try another of PeopleSoft's tactics: using a "poison pill" scheme to issue new shares and make a takeover impossibly expensive (which is banned in Britain). The legality of doing this when most shareholders want to accept a bid is not as clear as it was: an attempt to have PeopleSoft's poison pill thrown out might have had a good chance of success, but the case was not decided in court because PeopleSoft bowed to its shareholders and accepted Oracle's bid.

Most lawyers think that, one way or another, Yahoo!'s board will have to accede to the wishes of its shareholders, many of whom seem to be keener on squeezing a slightly higher offer out of Microsoft than scaring it away. In a letter on February 10th Bill Miller of Legg Mason, the second-largest shareholder in Yahoo!, said that his valuation of Yahoo! was in the region of \$40 a share (compared with the \$31 now on offer) and that he expects Microsoft to "do what it takes". In short, by saying no, Yahoo!—like Rio Tinto—is probably just playing hard to get.



Doubly Blessed?

Integrating Hewlett-Packard and Compaq may have been the easy part. Can HP now beat Dell and IBM at their own game?

Roy Harris, CFO Magazine
September 01, 2003

When the idea of combining Hewlett-Packard Co. and Compaq Computer Corp. first came up, HP chief financial officer Robert Wayman was skeptical. "I assumed we'd study it for two weeks and move on," he says. "In this industry, there's virtually no history of a good consolidating merger."

Sixteen months after completing the \$19 billion deal, Wayman is confident he and his counterpart from Compaq — Jeff J. Clarke — have helped rewrite that piece of history. For his part, Wayman has championed the deal with investors as a model of combined efficiency. Meanwhile, as a leader of the consolidation process, Clarke fashioned the model over a nine-month period, applying "the financial rigor needed to coordinate milestones and drive costs out."

So far, that rigor has already reduced costs by \$3.5 billion, or 5 percent, about \$1 billion more than the goal set for 2004's October 31 year-end. Inventory has been slashed from 48 days' worth to 40 days, gaining some \$1.2 billion in working capital. Moreover, four of HP's five business segments were in the black in the first fiscal quarter, with the combined companies having only minimal market-share losses in a number of product lines. Says Clarke simply, "We believe this was the most thoroughly planned merger in history."

But now comes the hard part: capitalizing on Wayman's promise to investors that the integration will produce competitive advantages. He argues that the blending of Compaq and HP — already a profitable leader in imaging and printing — will soon put the combined entity called Hewlett-Packard in a position to beat Dell and IBM in the PC, server, and services businesses. "This combination gives us a tremendous number of levers to work with," he says.

But whether pulling those levers will allow a beefed-up HP to actually overtake Dell and IBM as a profit machine is still an open question. Analysts such as S.G. Cowen's Richard Chu at least give HP high marks for avoiding the integration catastrophes that naysayers predicted. Chu even thinks HP's cost-cutting efforts, along with its strong profit base in printers, just might let the company make market-share inroads — although not without a battle. "IBM at one end of the spectrum, and Dell at the other," he says, "are viewed by the investment community as having very defensible business models." Nevertheless, he adds, "I can afford to say, maybe they can pull it off."

Tampa's Defense, Oakland's Offense

Pulling off such a high-profile merger is a delicate proposition. And it typically results in the exit of the smaller company's CFO. In this case, says Clarke, "I didn't go away, because Carly [CEO Carleton S. Fiorina] and Bob [Wayman] offered me a great job: to co-lead the integration [with HP executive vice president Webb McKinney]."

Working with McKinney, Clarke first sought out some examples to follow. Positive lessons came from such mergers as NationsBank and Bank of America (for branding), Exxon-Mobil (for global scale), and Citibank-Salomon Smith Barney (for employee retention). Meanwhile, the largest negative lesson may have come from Compaq's acquisition of Digital Equipment Corp. back in 1998.



As Digital's CFO in Paris at the time, Clarke lived through "that horribly messy integration," says Lorraine Segil, an expert in alliances who studied the HP-Compaq deal for her book *Measuring the Value of Partnering*, due out in January. For HP's integration, "he managed to avoid the lack of coordination and communication" that bogged down Compaq-Digital, "and he didn't leave the cultural element to serendipity."

In fact, Clarke and his six-member integration steering committee didn't leave much to serendipity at all. Meeting each Thursday to brief Fiorina and Wayman, as well as CIO Robert Napier and human-resources chief Susan Bowick, the committee named HP's new top managers by year-end 2001, and had them ready to take their posts on the May 7 completion date. Before that, the members oversaw the actual integration planning, which was done by so-called clean teams — named for the 2,500 employees who had been freed from their normal jobs to prepare for the combination.

The teams' marching orders were based on a philosophy called "adopt-and-go," which was largely a product of HP's own spin-out of Agilent in 1999. In essence, says Clarke, it recognizes that "fast, decisive actions that stick, and are driven by the top," work better than more-deliberate decisions that, "at the end of the day, may be right on paper but can't be implemented."

To illustrate, Clarke uses a hypothetical combination of last year's Super Bowl rivals — the offense-heavy Oakland Raiders and defense-minded Tampa Bay Buccaneers. Rather than take defensive and offensive players from each team and make them work together, he says, "we'd pick the entire offense of the Raiders and the entire defense of the Buccaneers," recognizing each for its strength. "Since we had two sets of Unix servers, and Compaq was losing lots of money, we stuck with [only] the winning HP team." In the main case of two brands being maintained, HP and Compaq PCs, the supply chain and procurement were combined, significantly trimming costs. Eventually, one PC brand probably will survive.

Cultural issues, a potential quagmire in any merger, were also addressed head-on, and early. All employees were required to participate in "fast-start workshops," which focused on team-building and governance issues within the framework of blending the HP and Compaq cultures. And the success of managers in personnel transition matters was reflected in their compensation through the balanced scorecard. The attention to cultural affairs was especially helpful given that 17,900 employees, 11 percent of the premerger total of 154,900, were laid off during the first five quarters after the merger, and 1 in every 10 remaining employees in a product-related position was moved from one product to another in the adopt-and-go realignments.

The Magic "1 and 4"

The incentive for reshuffling the deck correctly was the creation of an HP that could compete profitably across a wide range of products. Wayman says any misgivings he had about the merger dissipated after he studied the impact of the combination on the two companies' market share of major products, especially where one of the two ranked number 1 and the other languished in the pack. "We saw how we could improve our market position and our financial results," he says. "And where there was overlap, it was in areas where there was complementary strength." In industry-standard servers — those based on the Windows platform, for example — Compaq was number 1 and HP was number 4, while in Unix servers the 1 and 4 positions were reversed. "It was a great strategic fit," Wayman says.



"This is a winner-take-all business," adds Clarke. "You have a great opportunity to make profits if you're in a strong position, but it's brutal if you're number 4. Eliminating those number 4s just changed the nature of the industry." In the services area, number 8 HP and number 9 Compaq combined to become number 3 — putting it in a position to bid on work it couldn't have supported before. The biggest example: a \$3 billion Procter & Gamble contract in April, for which a prime competitor was number 1 IBM.

Of course, despite all the consolidation, a return to growth in HP's businesses may take a while, and will depend in part on an economic upswing. In the meantime, Clarke and Wayman say that HP is currently innovating at a fast clip. It boasts 3,000 patents worldwide since May 2002 and a \$4 billion rate of annualized research-and-development spending, with no slippage from what HP and Compaq together spent in their last year as separate entities.

No Niches to Milk

Still, investors have balked at the merger, especially since it came during the high-tech slump. Stockholders punished both HP and Compaq shares when the deal was struck, and the combined HPQ stock lagged behind Dell and IBM until an upturn starting in early June. "The market has been saying this is going to be a really competitive industry in the future. Nobody will have a real niche that they can milk," says Harold Mulherin, a professor at California's Claremont McKenna College.

Clarke argues that HP's smaller services business actually has a better margin than IBM's — 9.9 percent versus 9 percent. (Yes, responds S.G. Cowen's Chu, but HP's margins reflect more maintenance and support work, rather than IBM's broad services lines.) And Clarke sees Dell — not HP — on the defensive in other markets. "Let's remember," he says, "that Dell as a company is half the size of HP, and 68 percent of [Dell's] revenue is in the United States."

In the battles ahead, HP has decided that the integration itself may be a good competitive weapon, even using its success as the basis of a \$400 million brand campaign. Meanwhile, the relationship forged between veteran Wayman and newcomer Clarke — now executive vice president for global relations — may also be to HP's advantage going forward. There is even speculation that the 41-year-old Clarke will take the CFO spot when Wayman, 58, retires.

Clarke won't discuss that, but says, "Bob and I are good friends. We'll continue to work closely and consult each other. We have been through a lot together."

Roy Harris is senior editor at CFO.



A Question of Value

Over 20 years, technology and technique have greatly improved the ability to price targets accurately.

Don Durfee, CFO Magazine

March 01, 2005

All too often since the 1980s gave birth to America's historic "merger mania," the story has been the same. The initial champagne celebration gives way to a major hangover once the final cost of the deal is tallied. In fact, taken as a whole, mergers and acquisitions in recent years have produced a disheartening negative 12 percent return on investment.

It may come as a surprise, then, that among the clearest areas of progress during the past two decades has been company valuation — the art of figuring how much a target is worth, so that the offering price can include the smallest premium necessary to win the prize.

"We know much more about a target company today that we ever did 20 years ago," says David Harding, a senior partner with Bain & Co. and co-author of *Mastering the Merger* (Harvard Business School Publishing, 2004). "It's the difference between examining a patient with a stethoscope or with a CAT scan."

Indeed, acquirers have found the financial data to create good models ever more readily available, resulting in the increased reliability of discounted cash flow (DCF) estimates, and leading to the refinement of all kinds of valuation techniques. On top of that, companies have adopted far more rigorous due-diligence practices, drawing many of them from the entrepreneurial private-equity sector.

Subtracting the Multiple

While many factors have contributed to the improvement in valuation techniques, perhaps the most important of them flow from new technologies — often summoned through the magic of the Internet. Consider how complicated and time-consuming it was in 1985 merely to obtain all the needed public financial statements.

"We used to have to send guys from our D.C. office [over] to the [Securities and Exchange Commission] to copy 10-Ks for a nickel a page — and even then you often couldn't get all the filings," recalls Robert Reilly, managing director of Chicago-based valuation consultancy Willamette Management Associates. Now public filings are available online. In addition, such operations as FactSet Mergerstat LLC and Ibbotson Associates provide a constant flow of M&A transaction data and cost-of-capital statistics.

When the numbers are right, that can make the task of calculating the right discount rate a relative breeze. "You can now get every input you want for the capital asset pricing model [CAPM] for every industry and every time frame," says Reilly, referring to the model commonly used to determine the risk-adjusted cost of equity. "Our ability to be more precise in the application of CAPM has improved a lot in the past 20 years."

Adding to the improvement have been advanced cost-of-capital methodologies, notes Jay B. Abrams, president and CEO of North Hollywood, California-based Abrams Valuation Group Inc. For instance, analysts can now adjust discount models for special cases, such as nonpublic companies and smaller targets. "Large firms are more stable and small firms more volatile," says Abrams. "So for smaller firms, you should be using much higher discount rates" than the CAPM would yield. Newer methods, such as the Fama-French three-factor model, do a better job of capturing such subtleties.



The improvement in DCF calculations has ushered out, in many cases, the once-dominant role of such less-exact methods as historic market multiples. And for many finance executives, it's been good riddance.

"It used to be that market multiples were all anybody looked at," says Robert Holthausen, an accounting and finance professor at the University of Pennsylvania's Wharton School, "in part because discounted cash flows were so hard to do."

Not that multiples have lost their clout entirely; the calculations remain a standard tool — particularly for private-equity firms — because they offer a helpful means of comparing what others have paid in similar transactions. And they are still the main way of pricing deals in the technology sector. Rocky Pimentel, executive vice president and CFO of San Mateo, California-based game software maker Sorrent Inc., and a veteran of many high-tech mergers, says that most of the deals he has worked on, including Microsoft Corp.'s acquisition of WebTV, were largely based on multiples. "When you are in a high-growth industry, you are usually more willing to pay more for future revenue growth, and are less focused on the cost structure," he says.

Among the companies that came to rely more on discounted cash flows and cost of capital was New York-based Colgate-Palmolive Co. By the late 1980s, the company's management had gone through a period of diversification, and had decided to focus the business and to increase efficiencies. That meant adopting a formal approach to investments globally — from capital spending to acquisitions — based on DCF and cost of capital.

"We had used other approaches over the years, like sales growth and profitability trends," says now-retired Colgate CFO Robert Agate, who headed finance for the consumer-products giant from 1987 to 1996. "But when looking at high- and low-inflation countries or different types of businesses, it was apparent that we needed a method that would provide a dollar-based common denominator for viewing the various transactions." The approach also called for management to determine the likely upside and downside of its projections, which has the virtue of encouraging a focus on business assumptions rather than on methodology.

Colgate's DCF approach proved valuable in such deals as the company's January 1995 acquisition of the Brazilian firm Kolynos. The economic environment was uncertain — the Mexican peso had undergone its steep devaluation just a month earlier (Kolynos had operations in Mexico) — and Brazil was coping with its own high-inflation environment. The valuation methodology enabled Colgate to compare this investment with others it might make elsewhere.

Now a corporate director serving on the board at Allied Waste Industries Inc., Agate has seen yet another new factor improving the depth and breadth of an acquirer's information: board activism. Inspired in part by the post-Enron focus on governance and the threat of shareholder lawsuits, board members have been pushing corporate managers to make a stronger case for the deals they propose. "For me, acquisition justification must cover at least strategic consistency; the financial plan, including scenarios for growth; and synergies, discounted cash flow expectations, and general risk issues," says Agate.

More-thorough due-diligence efforts also give acquirers better insight into the costs and revenues of target companies — and, of increasing importance, also their accounting practices. "Buyers are really doing much deeper accounting diligence now," says Glenn Gurtcheff, managing director and co-head



of middle-market M&A for Piper Jaffray & Co. in Minneapolis. “They’re not just taking the company’s audited and unaudited financial statements at face value; they are really diving into the numbers and trying to understand not just their accuracy, but what they mean in terms of trends.”

The Overpayment Quandary

Better DCF forecasts have another benefit: the ability to increase the complexity of M&A financing.

The past decade saw a rise in mezzanine financing, contingent convertible bonds, and interest-only notes, among many other structures — products that in some cases provide acquirers with cheaper and more flexible sources of capital.

Willamette’s Reilly argues that such financing has become possible largely because better valuations have helped lenders see that deal pricing is less risky. “If you have done a rigorous analysis, are certain about the discount rate, and really know what the expected cash flow is going to be over the next 10 or 20 years, then you can convince the lender and the equity holder to buy these securities at a reasonable price,” he says. “On the other hand, in the 1980s you might have priced the deal simply on multiples. The lenders would have said, ‘I’m not really confident about what the future will bring, so I’m not willing to purchase that kind of security.’”

He cites the recent example of a \$3.7 billion acquisition of power-generation company Texas Genco Holdings by a consortium of private-equity companies. The highly leveraged purchase included several layers of debt financing, made possible because the consortium was able to persuade lenders that its cash-flow forecasts were accurate. As part of the deal, buyers had arranged to sell some of the company’s future electricity to investors as a commodity hedge.

If valuation has improved so much, why do analyses show that companies so often overpay? One obvious reason: the inexactitude that can creep into pricing when synergies are calculated poorly (see “[Fool’s Gold](#)” *New Deals*, February). And then there’s the role of the imperial CEO.

Thomas Lys, an M&A professor at Northwestern University’s Kellogg School of Management, says the improvement in valuation techniques can be negated when M&A deteriorates into a game of tweaking the numbers to justify a deal the CEO wants to do regardless of price. “Valuation is just an excuse,” he says. “The moment it becomes clear that the CEO wants to do the deal no matter what, his investment banker and advisers are best advised to tell the emperor that his clothes are beautiful.” In other words, value is one thing — price can be quite another.

Don Durfee is research editor at CFO.

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Bear Stearns

No picnic

Mar 27th 2008 | NEW YORK

From The Economist print edition

JPMorgan Chase quintuples its bid for its battered rival. Now for the hard part

THE dramatic \$2-a-share rescue of Bear Stearns was, almost everyone agreed at the time, the best way out of an awful situation. Bear was going for a song, but that was better than bankruptcy, which might have caused global markets to collapse. The only aggrieved parties were Bear's shareholders and employees — but they had got it into the mess in the first place.

And yet, a week later on March 24th, JPMorgan Chase raised its offer fivefold and other elements of the deal, brokered by the Federal Reserve, were amended. The world's bankers heaved a sigh of relief at the improved terms — so did many at Bear. But why the reprieve?

For sure, nobody knows precisely what Bear is worth, so stuffed is it with hard-to-value, illiquid mortgage securities and other nasties. That explains how a respectable firm like Lazard, Bear's adviser, could in the space of a few days endorse both the \$2 and \$10 bids in fairness opinions.

Dimon geezer

The main reason for improving the offer, however, was to overcome disaffection among Bear's employees and shareholders, who had threatened to torpedo the deal. In offering more, Jamie Dimon, JPMorgan's boss, hopes to recast himself not as a plunderer but as a pragmatist focused on people as well as price.

Other things needed revisiting, too. The original deal had been cobbled together in such a hurry that key clauses were mangled. One sloppy sentence appeared to require JPMorgan to continue guaranteeing Bear's trades even if its shareholders voted down the takeover. But the bigger problem, according to a JPMorgan executive, was that the guarantee would fall away if Bear's board recommended a rival bid. Unlikely though that was, it unnerved some of Bear's biggest trading partners, who continued to pull away last week. The higher bid was a price deemed worth paying to stop the exodus.

The higher price looks a bit more like the kind of rescue for shareholders that the Fed had wanted to avoid, fearing accusations of a bail-out. In exchange, it will no longer be responsible for all \$30 billion of Bear's least liquid assets; JPMorgan has agreed to bear the first \$1 billion of losses. But the Fed (and thus the taxpayer) could still end up losing billions. Upcoming congressional hearings on the deal are likely to be stormy. The Fed, however, will stick to its line that, however imperfect the rescue, letting Bear die would have been much worse. "It has been messy, but bear in mind it was done in the fog of war," says Roy Smith, a finance professor at New York University's Stern School.

As well as giving Bear's shareholders more money, the revised deal does give JPMorgan a lot more certainty that it will be completed. The bank gets 39.5% of Bear straight away through an issue of new shares. Sympathetic Bear directors own around 6% more, bringing it close to the simple majority needed.

But much litigation looms. Already, several class-action and other suits have been filed against Bear and its board. Executives could be in the line of fire too, since they assured shareholders that the bank was fine just before it almost went belly-up. JPMorgan has set aside \$6 billion for legal and other merger-related costs.



With perhaps half of Bear's 14,000 employees facing redundancy, many feel they have nothing to lose by kicking up a fuss. JPMorgan is stepping up efforts to win over those it wants to keep — it has offered star brokers signing bonuses of up to 100% of the annual revenue they generate. Some, however, are being offered double that to decamp to rivals. Mr Dimon has appealed to other firms not to poach.

Bear offers some attractive franchises, for instance in prime brokerage, clearing and energy. But not everyone is convinced these are worth the effort. Prime brokerage has been hemorrhaging clients to Goldman Sachs and others. Morale at other businesses is said to be rock-bottom. So JPMorgan may not be getting a bargain after all, reckons Dick Bove of Punk Ziegel. He points out that the total cost of the deal, adding in the \$6 billion charge (but excluding the new share issue), is around \$65 per share. Hardly a snip.

The assumption that JPMorgan is strong enough to absorb Bear may also be tested soon. Certainly, the bank is in better shape than its arch-rival Citigroup, having largely avoided the most toxic subprime securities. But its mix of businesses suggests plenty of pain to come.

The bank is heavily exposed to rising corporate defaults. It is also big in home-equity loans, which are souring at an alarming rate. More importantly, it is a giant in the over-the-counter derivatives market, and number one by a long way in credit-default swaps. With such a large derivatives book, the bank can withstand losses of only 15 basis points (hundredths of a percentage point) across its positions before eating through its regulatory risk-based capital, according to Institutional Risk Analytics (IRA), a research firm. These positions are, like those of America's housing giants, Freddie Mac and Fannie Mae, too big to hedge effectively, IRA says. It also calculates that JPMorgan needs almost five times its current capital to cover its economic risks.

The bank hotly disputes this. It points out that its actual exposure to derivatives, at \$67 billion, is a mere thousandth of the notional value of the trades. But this is still a big number. And the backdrop remains bleak: this week Goldman put banks' eventual credit losses at an eye-watering \$460 billion. Mr Dimon is likely to face some worrying distractions as he integrates what is left of Bear.

Mergers and acquisitions: Reducing the private firm discount

Owners of private companies normally sell their shares at a 20-30 per cent discount during mergers and acquisitions. The 'private firm discount' is one reason the stock market reacts more favorably when companies announce a private acquisition than when the target is a publicly-listed firm.

From the buyer's point of view, says INSEAD Associate Professor of Strategy Laurence Capron, the discount reflects a presumed higher risk associated with the value of private assets due to a lack of information about the target firms, their lack of liquidity and their lack of visibility. From the seller's point of view, the discount can reflect naivety, a lack of financial advice and the choice of a preferred buyer rather than the highest bidder.

Capron and co-author Assistant Professor of Strategy Jung-Chin Shen of York University, surveyed executives involved in 101 acquisitions of manufacturing companies in Europe and the United States to determine the effect of the acquisitions, and the strategy behind the choice of the target. The subject is important because 60-70 per cent of US acquisitions and even more in Europe are private, yet there has been little research on M&A activity involving private firms. The study, '*Acquisitions of Private vs. Public Firms: Private Information, Target Selection, and Acquirer Returns*', was published in *Strategic Management Journal*.



“What we found is that the stock market reacts more positively to the acquisition of private targets, about plus four per cent,” says Capron, while the average reaction to the acquisition of publicly-listed targets “tends to be negative or zero.” The discrepancy is even more noteworthy because private acquisitions tend to be smaller than the average public acquisition, so the target’s weight in the combined equity is smaller, yet the effect is bigger.

When the acquirer is looking within its own industry, its knowledge of the potential target can help to reduce the risks, inspite of the information asymmetry. When companies want to diversify, however, they are more likely to choose public company targets, because there is less information asymmetry. Firms that have gone through an initial public offering (IPO) process must publish financial information that helps acquirers judge their worth, reducing the risk of entering a new industry. In the study, only 8 per cent of private targets were intended to be used for diversification purposes, while 24 per cent of public targets were outside the acquirer’s core business.

Private sellers are free from the pressure of the market to accept the highest bid, which allows them to have other priorities, but nonetheless they can reduce ‘the private firm discount’ by approaching negotiations with a dispassionate attitude.

“Typically private sellers, small family firms, tend to be naïve when they come to the negotiating table,” Capron says. They might negotiate for concessions other than financial ones because “they care a lot for employment retention, they care for the community and they will tend to accept a much lower price. And one of the issues is that, most of the time, the acquirers do not live up to their promises after the deal.”

While public targets are often bought and sold in an auction atmosphere, private targets are typically bought and sold through negotiations. Private sellers have a smaller pool of potential bidders because of their lower visibility, and, says Capron, “most of the time they stop the search after they find the first bidder. They value ... the cultural fit with the bidder, and usually they do not have the resources or the mindset to use financial advisors.”

The study argues that the rule of thumb of a 20-30 per cent discount for a private firm should not be taken for granted. Private sellers can reduce the discount by reducing the uncertainty associated with their assets and by promoting competition among bidders. There can come a point at which additional expense in increasing their marketability does not increase the value of their company, Capron says, but in any potential deal, “they should be careful when they negotiate not to accept a sharp discount.”



Restaurant Business Valuation

by Oanh Tran, MBA

The George Washington University

Before an investor acquires a restaurant business, he/she would have to perform two types of valuation: the first one is for the business itself, and the second one is for its real estate. According to industry experts, the ability to generate consistent profits will ultimately determine the worth of the restaurant's operation in the marketplace. The four approaches to value restaurant businesses are as follows: asset-based valuation, capitalization of income valuation, cash flow based valuation and market valuation or multiplier method.

1. Asset-based valuation

Asset based valuation is not usually practical for restaurant valuation because food establishment is usually measured by the clientele it attracts, the quality and creativity of its kitchen staff and the management. Restaurant assets such as dining room tables and kitchen equipment usually have low liquidation value. In addition, perishable items such as food have low inventory value. However, an extensive wine collection of a French restaurant can be a valuable inventory. For franchise operations, intangibles - trade names - of popular establishments such as Hard Rock Café or Pizza Hut can be valuable assets. The valuation is measured as:

Value = Fair Market Value of Assets + Inventory + Annual Net Income + Intangibles

2. Capitalization of Income Valuation

Because it accounts only for past history and not for future performance, this method is best used for franchise restaurant businesses which usually have steady growth potential in earnings. The price of a franchise restaurant is equal to its current annual income capitalized with (divided by) a capitalization rate ranging from 9% for well-known franchised operations such as McDonald's or Burger King to 11% for a lessor known chain food operation.

3. Cash Flow-Based Valuation

This is the most comprehensive method and it is based on the premise that the present worth of the business is the present value of all net free cash flows that the establishment will generate over its expected life.

4. Market Valuation or Restaurant Multipliers Method

This is the most frequently used method in the restaurant business where the value of the restaurant is derived from using an "industry average" sales figure as a multiplier. Sometimes, appropriate adjustments need to be made such as location of the business, the equipment age and the arm's length transaction. Although this valuation formula is simplistic, it is widely used. For example,

Restaurant with proven franchise

(brand new equipment) 60% per cent of annual gross revenues

Fast food restaurants

(no franchises) 40% per cent of annual gross revenues



Chapter 5

THE MERGER PROCESS

5.1 The Merger Process:

- 5.1.1 A merger is a fairly complex transaction, involving a web of legal, taxation and accounting angles. If the entities – bidder and the target companies – are located in different countries, it can become more complex and tedious. If national pride is invoked, as it happened during the takeover of Arcelor by Mittal Steel, governments can also get involved. Mr. Mittal was summoned by the French President, and also had to meet with heads of government in Luxemburg and Spain, to explain his proposition and assure the governments on labour policies and so on.
- 5.1.2 Deal structuring is a detailed process and involves the choice of accounting method, taxability, methods of payment, premiums, contingent payouts, etc. in designing the terms of a transaction.

5.2 The Legal Procedures:

- 5.2.1 The various provisions of the Companies Act, 1956 come into play. Sections 391 to 394 contain the relevant provisions relating to amalgamations. The legal process normally involves the following steps:
1. Examination of Object Clauses
 2. Intimation to Stock Exchanges
 3. Approval of the draft amalgamation proposal by the respective boards of the companies
 4. Application to the National Company Law Tribunal (NCLT)
 5. Despatch of notice to shareholders and creditors
 6. Holding of meetings of shareholders and creditors
 7. Petition to the NCLT for confirmation and passing of NCLT orders
 8. Filing the order with the Registrar of companies
 9. Transfer of assets and liabilities
 10. Issue of shares and debentures

5.3 Tax aspects:

- 5.3.1 Tax considerations affect the planning and structuring of corporate mergers. Even in M&A's undertaken for other motives, transactions are structured to maximize tax benefits while complying with various tax laws. Though tax effects are not the dominant influence in merger and acquisition decisions, their impact can be substantial, and are known to have made major impacts, and in some cases, marred the deals.
- 5.3.2 Tax benefits and concessions are available to the merged entity, subject to certain conditions. These need to be ascertained and complied with to enable the company, for instance, to carry forward losses and unabsorbed depreciation.



5.4 Accounting for Amalgamations:

5.4.1 The provisions of Accounting Standard (AS-14) on Accounting for Amalgamations issued by the Institute of Chartered accountants of India need to be referred to in this context.

5.5 Methods of Payment:

5.5.1 The two main methods of financing an acquisition are cash and share exchange.

5.5.2 **Cash:** This method is generally considered suitable for relatively small acquisitions. It has two advantages: (i) the buyer retains total control as the shareholders in the selling company are completely bought out, and (ii) the value of the bid is known and the process is simple.

Illustration:

	Company A	Company B
Market price per share	Rs.75/-	Rs.15/-
No. of shares	100,000	60,000
Market Value of the company	75,00,000	900,000

Assume Company A intends to pay Rs.12,00,000/- cash for Company B.

b. If the share price does not anticipate a merger:

The share price in the market is expected to accurately reflect the true value of the company.

$$\begin{aligned}
 \text{The cost to the bidder Company A} &= \text{Payment} - \text{The market value of Company B} \\
 &= \text{Rs.12 lakhs} - \text{Rs.9 lakhs} \\
 &= \text{Rs.3 lakhs.}
 \end{aligned}$$

Company A is paying Rs.3 lakhs for the identified benefits of the merger.

c. If the share price includes a speculation element of Rs.2/- per share:

$$\begin{aligned}
 \text{The cost to Company A} &= \text{Rs.3,00,000} + (60,000 \times \text{Rs.2}) \\
 &= \text{Rs.3,00,000} + \text{Rs.1,20,000} \\
 &= \text{Rs.4,20,000/-}
 \end{aligned}$$

$$\begin{aligned}
 \text{Worth of Company B} &= (\text{Rs.15} - \text{Rs.2}) \times 60,000 \\
 &= \text{Rs.13} \times 60,000 \\
 &= \text{Rs.7,80,000/-}
 \end{aligned}$$

This can also be expressed as: Rs.12,00,000 – Rs.4,20,000 = Rs.7,80,000/-

5.5.3 **Share exchange:** The method of payment in large transactions is predominantly stock for stock. The advantage of this method is that the acquirer does not part with cash and does not increase the financial risk by raising new debt. The disadvantage is that the acquirer's shareholders will have to share future prosperity with those of the acquired company.



Illustration:

Suppose Company A wished to offer shares in Company A to the shareholders of Company B instead of cash:

$$\begin{aligned}
 \text{Amount to be paid to shareholders of Company B} &= \text{Rs.12,00,000} \\
 \text{Market price of shares of Company A} &= \text{Rs.75/-} \\
 \text{No. of shares to be offered} &= \text{Rs.12,00,000 / Rs.75} \\
 &= 16,000
 \end{aligned}$$

Now, shareholders of Company B will own part of Company A, and will benefit from any future gains of the merged enterprise.

$$\begin{aligned}
 \text{Their share in the merged enterprise} &= 16,000 / (1,00,000 + 16,000) \\
 &= 13.8\%
 \end{aligned}$$

Further, now suppose that the benefits of the merger has been identified by Company A to have a present value of Rs.4,00,000/-,

$$\begin{aligned}
 \text{The value of the merged entity} &= \text{Rs.75,00,000} + \\
 &\quad (\text{Rs.9,00,000} + \text{Rs.4,00,000}) \\
 &= \text{Rs.88,00,000/-}
 \end{aligned}$$

True cost of merger to the shareholders of Company A:

	Company A	Company B
Proportion of ownership in merged enterprise	86.2%	13.8%
Market Value: Total = Rs.88,00,000	75,85,600	12,14,400
No. of shares currently in issue	100,000	60,000
Market price per share	Rs.75.86	Rs.20.24

The above gives the value of shares in the company *before* the merger is completed, based on estimates of what the company will be worth *after* the merger.

The valuation of each company also recognizes the split of the expected benefits which will accrue to the combined entity once the merger has taken place.

The true cost can be calculated as given below:

$$\begin{aligned}
 60,000 \text{ shares in Company B@ Rs.20.24} & \text{Rs.12,14,400} \\
 \text{Less: Current market value} & \text{Rs. 9,00,000} \\
 & \text{-----} \\
 \text{Benefits being paid to shareholders of Company B} & \text{Rs. 3,14,400} \\
 & \text{-----}
 \end{aligned}$$



Chapter 6

MAJOR CHALLENGES TO SUCCESS OF MERGERS

6.1 Major Challenges to Merger Success:

6.1.1 While there are many potential gains from a merger activity, there are three major challenges that need to be handled carefully. They are:

1. Due diligence
2. Cultural factors
3. Implementation difficulties

6.2 Due Diligence:

6.2.1 While some corporate acquirers may judge a deal by relying on numbers provided by the seller, or on their own gut feel for the market, the best buyers look for a level of detail similar to that required by the private-equity investors who do deals for a living. They commission outside help when necessary and look well beyond the financial statements of each potential target.

6.2.2 Due diligence may begin with legal aspects, but it must be extended to business and management considerations. It must involve the following:

1. Examination of all aspects of partners
2. Legal: including pension, product and environmental liabilities
3. Relevance of accounting records
4. The maintenance and quality of assets and facilities
5. The possibility of maintaining cost controls
6. Potential for product improvements

6.2.3 Broader business aspects such as management relationships, managerial responsibilities and capabilities, fitment of the two management systems, and evaluate scope for extending and enhancing capabilities of the companies. It should be ensured that the acquired unit should be worth more as a part of the acquiring company than alone or with any other entity.

6.3 Cultural Factors:

6.3.1 Corporate culture is defined by an organization's values, traditions, norms, beliefs and behaviour patterns.

6.3.2 In planning for inorganic growth through mergers and acquisitions and alliances, the company must recognize cultural factors besides products, assets and financial factors. The company must recognize the need for all sub-systems of the organization to work in total synchronization as a team, putting together all the systems, informal processes, and cultures required for overall



organizational effectiveness. A prudent acquirer will place culture at the top of the process and earliest in the planning sessions.

- 6.3.3 Cultural differences have caused mergers to fail or prevented them from achieving their full potential. Cultural differences are certainly likely to surface when two different entities come together in a marriage of merger or acquisition, and become even more important as in a cross-border transaction.
- 6.3.4 The organization must move towards cultural congruence, and also learn to manage diversity. In a vast country like India, and in increasingly globalized world, effectively managing diverse cultures is an essential ingredient for corporate success.
- 6.3.5 Read the articles titled “Integrating Steel Giants” and “Why do so many mergers fail?” given in the Reader, to understand how cultures can be managed successfully.

6.4 Implementation difficulties:

- 6.4.1 Integration, the final phase of an acquisition, is nearly as important as the target-selection phase, say experienced buyers. A good deal on paper can easily fall apart during the post-deal marriage of the two companies.
- 6.4.2 Speed is everything in the integration process. The longer the integration process is stretched out, the harder it becomes to change certain practices. To lay the groundwork for a speedy integration, it is important to establish a full integration team before a transaction closes. Facilitating interaction between employees at the two companies as quickly as possible is also important.
- 6.4.3 To ensure the smoothest possible integration, managers can take another lesson from the private-equity sector. Private-equity investors typically develop 120-day plans. These are very detailed plans that explain how management teams are going to be integrated, what the operating metrics are going to be, how management will be measured, and what changes need to be made.
- 6.4.4 The views of all stakeholders such as customers, employees and creditors need to be carefully assessed and addressed.

For instance, in the JLR acquisition by Tata Motors, consider the following statements:

Before the agreement:

Job security of Jaguar Land Rover (JLR) employees and the fate of manufacturing facilities in the UK should be at the heart of future discussions, or Unite, Britain’s largest trade union, will not support or accept Ford’s intention to sell or transfer the company.

This was the message from Mr Tony Woodley, Unite’s Joint General Secretary, coming close on the heels of Ford’s announcement that it was entering into focused negotiations with the Tatas over the sale of its iconic brands Jaguar and Land Rover.

“We need further and more detailed meetings and discussions with Ford and Tata which will focus on the job security of our members in the Jaguar Land Rover and Ford plants in the UK,” he said, after the workforce were informed of Ford’s intentions.

After finalization of the deal:



The Tatas have agreed to leave untouched the terms of employment for the British workforce of nearly 16,000 employees.

“The parties do not anticipate any significant changes to Jaguar Land Rover employees’ terms of employment on completion,” said the Tata statement.

“We had a discussion with the pension trustees, and the pension regulator in the UK and we have their confidence and approval for the transaction,” said an official.

6.5 Major Reasons why Mergers fail:

6.5.1 The reasons why normally mergers and acquisitions fail are given below:

1. Lack of fit due to differences in management styles or corporate structure
2. Lack of commercial fit
3. Paying too much
4. Cheap purchases turning out to be costly in terms of resources required to turnaround the acquired company
5. Lack of commonality of goals
6. Failure to integrate effectively
7. Ineffective change management

6.5.2 The above reasons need to be guarded against, through effective integration measures, focusing on energy and speed.

6.5.3 The article appended at the end of the chapter may be referred to, to get a deeper understanding of the topic.



Won't Get Fooled Again

Burned by due-diligence failures, some companies install safeguards against merger surprises

Roy Harris, CFO Magazine

July 01, 2004

For Lockheed Martin Corp., the path to acquiring Titan Corp. has taken some unexpected twists. A few months after agreeing to pay \$2.4 billion in cash and stock for the San Diego-based defense contractor last September, Lockheed uncovered questions about possible improper overseas payments that Titan consultants may have made, leading the Justice Department to open an investigation. Then, in May, a Titan employee was identified as being present during the abuse of Iraqis at Abu Gharib prison.

While the employee's activities in Iraq didn't stall the deal — Lockheed CFO Chris Kubasik told an analyst conference that they "were not significant to our strategic decision" to acquire Titan — the foreign-payments situation certainly did. Lockheed first slashed its offering price to \$20 a share in cash only — a total reduction of \$200 million — and made Titan's settlement with the government a condition of the closing. (After Titan and the government failed to settle by June 25, a deadline set by Lockheed and Titan, Lockheed reportedly terminated the deal.)

Interestingly, it wasn't during due diligence that Lockheed detected Titan's foreign-payments problems. It was during "part of the transition planning process" for Titan, according to a spokesman for Bethesda, Maryland-based Lockheed — a process "generally more detailed than that involved in presigning due diligence."

Indeed, as the Lockheed situation illustrates, merger "surprises" can occur well after a binding agreement has been signed. After getting through due diligence, "you hope the transition planning will be just mechanical, like learning how to get two phone systems to work together," says Alexander Pyle, an attorney with Boston-based law firm Foley Hoag LLP. "But sometimes in looking at those mechanical issues, other questions emerge."

Few of those questions end up being deal-breakers. Post-diligence breakups, in fact, are extremely rare, while Pyle estimates that as many as 20 percent of deals fall apart during due diligence. "Once the deal has been announced, both sides have a lot of incentive to make it work," he says. But the end of the official due-diligence period often doesn't ease the complications. Among the issues that can continue to create a minefield: taxes, stock allocations, employee benefits, manufacturing capabilities, and environmental liabilities. In addition, legal contracts with noncompete or other limiting covenants have the potential to — at the very least — delay the closing, increase costs, and reduce profits.

To hedge against late discoveries, some buyers place 5 percent to 10 percent of the price in escrow, to be held back if problems arise. Others include earnout payments in the deal, spreading both the postacquisition risks and the rewards among the selling parties. Still, the best protection, say experts, is to create a flexible due-diligence process that can be updated to reflect past mistakes. Then remain vigilant in the post-due-diligence phase. That's a time when "there's a feeling that the two sides are all on the same side, and there's a little more potential for people to admit things they might have been guarded about before," says Pyle.



How Do We Build This Thing?

Like many companies, Needham, Massachusetts-based Brooktrout Technology “uses three forms of diligence: business, legal, and financial due diligence,” says CFO Bob Leahy. “As we get closer to actually doing the deal, we bring in our organizational heads. They ask different questions and help us uncover things that normal due diligence wouldn’t uncover.”

It hasn’t always worked. In the mid-1990s, for example, when Brooktrout bought a small unit of a larger company, Leahy recalls, “we were given information in due diligence about how to build their products. But lo and behold, when we tried to make the stuff, it didn’t match what we had been told.”

Leahy figures that the target company hadn’t kept its documentation up-to-date, and had been relying on subcontractors to build the products. “It took us a good six to nine months to sort through it,” he says. There was no recourse against the seller; Brooktrout “just used our internal resources to handle it.”

The error did, however, help improve the company’s due-diligence style. “We now have people go in and look at the engineering documentation” when reviewing acquisition candidates. “The lesson learned? Just because someone says it is the way it is, don’t believe it.”

The advent of Section 404 of the Sarbanes-Oxley Act of 2002, with its mandatory documentation of internal controls, is giving companies a greater comfort level when acquiring a firm — even if the target is private. “If sellers feel that the questions we’re asking are impugning them,” says Sean Creamer, CFO of Baltimore-based Laureate Education Inc., “we can now explain that it’s nothing personal.” But Section 404 is no guarantee if, for example, potential problems occur beyond the reach of the disclosure requirements. Moreover, he says, in any deal, “you’re getting what the seller is willing to show you.”

To be fair, “sometimes the seller just isn’t focused on a potential problem,” says Pyle, citing the case of a noncompete clause that may exist in a joint venture. A classic case involves Viacom Inc., which in 1994 acquired Paramount Studios. At the time, Paramount was involved in a joint venture with Universal Studios to operate cable television’s USA Networks, and in the venture agreement, Universal, Paramount, and their affiliates agreed not to compete against USA. But Viacom also owned Viacom International, a unit that operated several cable channels competing with USA. Universal sued Viacom, citing breach of the noncompete, among other charges, and Viacom eventually divested itself of its interest in the venture.

“There are two lessons from this case,” says Pyle. “In dealing with the clauses, it’s important to be as clear as possible about the effect of the clause if the situation changes” between the parent and its venture interest. Meanwhile, the buyer should scrutinize joint ventures that otherwise seem harmless. “Don’t assume you know what these provisions are going to mean and how they’ll be applied,” he suggests.

Haunted by the Arcane

For Keane Inc. CFO and senior vice president of finance John Leahy (no relation to Brooktrout’s finance chief), “the sort of things we worry will come out of the woodwork are the latent tax issues.” Eighteen months ago, he says, the Boston-based outsourcing-services concern “walked away from a deal solely because there were some pretty aggressive decisions” that were excluded from the target’s disclosures. The extra tax-related due diligence saved Keane, says its CFO.



To guard against such merger surprises, Keane is among a growing number of companies designing its own online tools for helping managers with “the complete cycle of M&A,” says Leahy. Keane developed its tool on its Lotus Notes system, where it leads acquisition team members from preliminary evaluation and negotiation through integration and postdeal review, presenting staffers with sample documentation through a tool kit and offering models of various deal stages.

“We’re always refining it for new lessons learned,” says Leahy. For one thing, the tool now instructs Keane’s managers on revenue-recognition techniques — a lesson learned from an experience five years ago. “We were acquiring a private company in deep distress,” recalls Leahy, and after due diligence was completed and the deal was closed, “we found out that they had prematurely booked some revenue on a sizable project. Although our people had taken a look at it and understood the technology, it wasn’t until we took over that we realized the project wasn’t as far along as had been presented.” The project’s profits suffered until the problems with the acquisition were corrected.

Creamer of Laureate, which has M&A guidelines similar to Keane’s, says another key to success is to make “the company due-diligence checklist a living, breathing document. We try to learn from our mistakes, and from others that we read about.”

Still, says John Leahy, the motto in any deal is to prepare for the unexpected. “It’s absolutely the case that these things can be missed in due diligence. You’re often looking at accounting and more basic things, and it’s the more arcane items that can come back to haunt you.”

Roy Harris is senior editor of CFO.



Chapter 7

RESTRUCTURING AND FINANCIAL ENGINEERING

7.1 Restructuring

Restructuring is a process by which a firm does an analysis of itself at a point of time and alters what it owes and owns, refocuses itself to specific tasks of performance improvements. Restructuring would sometimes radically alter a firm's capital structure, asset mix and organization so as to enhance the firm's value.

7.1.1. Reasons for Restructuring

There are basically six reasons why companies are going for restructuring:

1. The globalization of business has compelled Indian companies to open new export houses to meet global competition. Global market concept has necessitated many companies to restructure because lowest cost producers only can survive in the competitive global market.
2. Changed fiscal and government policies like deregulation/decontrol has led many companies to go for newer market and customer segments.
3. Revolution information technology has made it necessary for companies to adapt new changes in the communication/information technology for improving corporate performance.
4. Many companies have divisionalised into smaller businesses. Wrong divisionalisation strategy has led to revamp themselves. Product divisions which do not fit into the company's main line of business are being divested. Fierce competition is forcing Indian companies to relaunch themselves.
5. Improved productivity and cost reduction has necessitated downsizing of the work force—both at works and managerial level
6. Convertibility of rupee has attracted medium-sized companies to operate in the global market.

7.1.2. Broad areas of restructuring:

- Financial restructuring: decisions relating to acquisition, mergers, joint ventures and strategic alliances, restructuring the capital base and raise finance for new projects
- Technological restructuring: investments in research and development and also alliance with multinational companies for exchange of technologies
- Market restructuring: the product market segments where the company plans to operate based on its core competencies
- Manpower restructuring: internal structures and processes for improving the capability of personnel of the organization.

7.1.3. Techniques of Corporate Restructuring

A. Expansion techniques

- Mergers and amalgamations: Merger is the fusion of two companies to achieve expansion and diversification. Amalgamation is an arrangement for bringing the assets of two companies under the control of one management.



Business Valuation Management

- Takeovers: it is a business strategy wherein a person/company acquires control over the other company, directly or indirectly by owning the control over management.
- Joint ventures: it is a part of strategic business policy to diversify and explore into the new markets, acquire finance, technology, patent and brand names
- Business alliances: alliance helps in gaining importance in infrastructural sectors, more particularly in the areas of power, oil and gas.
- Foreign franchises: it is key mechanism for technological, marketing and service linkages between enterprises within a country as well as in cross-border transactions.
- Intellectual property rights: these gives the real value to a company.

B. Divestment techniques

- Sell-off: A corporate/company may take decision to concentrate on core business activities by selling out the non-core business activities.
- Demerger (spin-off): a corporate body splits into two or more corporate bodies with separation of management and accountability.
- Management buyout: if the existing owners are unable to run the company successfully for which the very existence of the company is at stake, management buyout takes place.
- Liquidation: with accumulated losses equal to or exceeding the networth, a company may go into liquidation.
- Leveraged buyout: it is an acquisition of a company which leaves the acquired operating entity with a greater traditional debt to equity ratio.

C. Other techniques

- Going private: a company can avoid the predators from bidding the company.
- Share repurchase: a company can buy-back its shares by utilizing its reserves.
- Buy-in: the management team who have got special skills will search out and purchase business, to their interested area, which has considerable potential but that has not been run to its full advantage due to lack of managerial and technical skills, fails to establish the market for the company's products.
- Reverse-merger: a smaller company acquires the larger company.

7.1.4. Implications of restructuring:

- Decrease in the number of corporate players in the market segment- with increase in mergers and acquisitions , there shall be a decrease in the quantum of corporate rivalry
- Emergence of new companies: new look companies are expected to join the market
- Healthy economic state of the Nation: the restructured companies shall contribute towards the economic growth and sound economic health of the Nation
- Social discontent: to some extent, the restructuring will help to sustain employment and thereby help in stabilizing the social discontent.

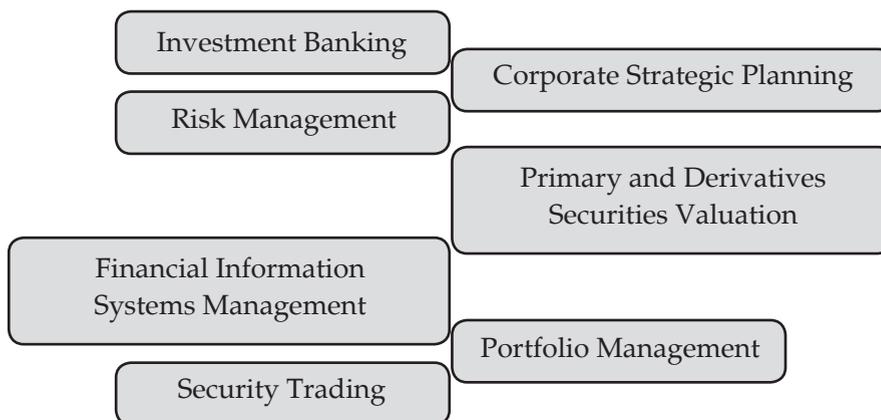


7.2 Financial Engineering

What is Financial Engineering?

- Financial Engineering refers to the bundling and unbundling of securities. This is done in order to maximize profits using different combinations of equity, futures, options, fixed income, swaps.
- They apply theoretical finance and computer modeling skills to make pricing, hedging, trading and portfolio management decisions.

7.2.1 Financial Engineers are prepared for careers in :



Suggested Background

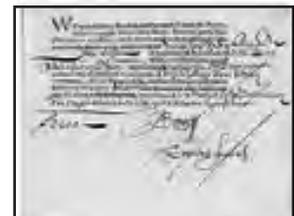
Generally, Financial Engineers are strong on the following fields:

- Statistics/Probability and PDEs
- Stochastic Processes
- C++ Programming
- Basic Business Finance Theory



7.2.2 What is a security?

- A security is a fungible, negotiable instrument representing financial value.
- Securities are broadly categorized into debt and equity securities such as bonds and common stocks, respectively.



7.2.3 What's the purpose of securities? For the Issuer

Rise New Capital: Depending on the pricing and market demand, securities might be an attractive option.

Repackaging: Achieve regulatory capital efficiencies.





7.2.4 What's the purpose of securities?

For the Holder

Investment: Debt securities generally offer a higher rate of interest than bank deposits, and equities may offer the prospect of capital growth.

Collateral: Purchasing securities with borrowed money secured by other securities.

7.2.5 Equity and Debt

Traditionally, securities are divided into debt securities and equity.



7.2.5.1 Debt

Debt securities may be called debentures, bonds, notes or commercial paper depending on their maturity and certain other characteristics.



The holder of a debt security is typically entitled to the payment of principal and interest, together with other contractual rights under the terms of the issue, such as the right to receive certain information.

Debt securities are generally issued for a fixed term and redeemable by the issuer at the end of that term. ing on their maturity and certain other characteristics.

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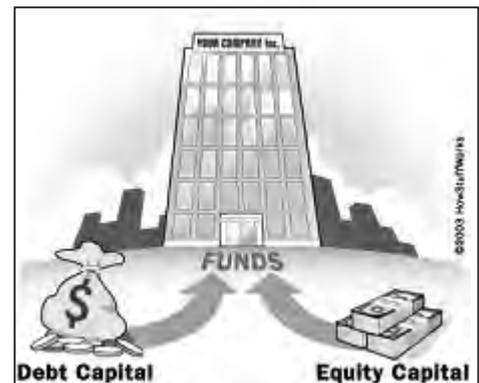
Debt securities are generally issued for a fixed term and redeemable by the issuer at the end of that term

7.2.5.2 Equity

- An equity security is a share in the capital stock of a company (typically common stock, although preferred equity is also a form of capital stock).
- The holder of an equity is a shareholder, owning a share, or fractional part of the issuer. Unlike debt securities, which typically require regular payments (interest) to the holder, equity securities are not entitled to any payment.
- Equity also enjoys the right to profits and capital gain.

7.2.6 Weighted average cost of capital

The Weighted Average Cost of Capital (WACC) is used in finance to measure a firm's cost of capital.





Formula

The cost of capital is then given as:

$$K_c = (1-\ddot{a}) K_e + \ddot{a} K_d$$

Where :

K_c The weighted cost of capital for the firm

\ddot{a} The debt to capital ratio, $D / (D + E)$

K_e The cost of equity

K_d The after tax cost of debt

D The market value of the firm's debt, including bank loans and leases

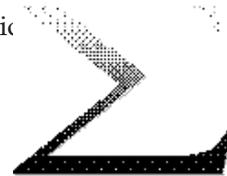
E The market value of all equity (including warrants, options, and the equity portion of convertible securities)

In writing :

$$WACC = (1 - \text{debt to capital ratio}) * \text{cost of equity} + \text{debt to capital ratio} * \text{cost of debt}$$

7.2.7 The Modigliani-Miller Theorem

The basic theorem states that, in the absence of taxes, bankruptcy costs, and asymmetric information, and in an efficient market, the value of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt. It does not matter what the firm's dividend policy is. Therefore, the Modigliani-Miller theorem is also often called the capital structure irrelevance principle.



Proposition

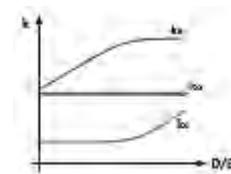
$$y = C_0 + D/E (C_0 - b)$$

* y is the required rate of return on equity, or cost of equity.

* C_0 is the cost of capital for an all equity firm.

* b is the required rate of return on borrowings, or cost of debt.

* D / E is the debt-to-equity ratio.



7.2.8 Financial Engineering :- Perspectives

- Trading Perspective
 - Create structured securities from basic assets to catch specific market niches
- Modeling Perspective
 - Develop/apply contingent claim valuation methods to price exotic structured securities
- Management Perspective
 - Assess the uncertainty of future payoff of portfolio
 - Determine strategies to restructure the portfolio risk-return to meet investor's objectives



7.2.8.1 Trading Perspective

- Design structured security to satisfy market demand
- Examples:
 - Futures Option, Swaption, Spread Option
 - Convertible bond, Callable bond, Index bond, Floater
 - CMO, IO, PO
 - CDO, Credit swap, Credit linked bond
 - ABS, Lease, Real option

7.2.8.1 Types of Cash Flows

Year	0	1	2	3	28	29	30
Beginning Balance	\$ 100.00	\$ 97.50	\$ 92.66	\$ 86.06	\$ 2.68	\$ 1.30	\$ (0.00)
Default Principal		\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.01	\$ 0.01	\$ 0.00
Recoverd Amount			\$ 0.18	\$ 0.17	\$ 0.01	\$ 0.01	\$ 0.00
Interest Income		\$ 7.50	\$ 7.31	\$ 6.95	\$ 0.31	\$ 0.20	\$ 0.10
Annual Payment		\$ 8.47	\$ 8.34	\$ 8.01	\$ 1.59	\$ 1.49	\$ 1.39
Principal Amortized		\$ 0.97	\$ 1.02	\$ 1.06	\$ 1.28	\$ 1.29	\$ 1.30
Principal Prepaid		\$ 1.29	\$ 3.57	\$ 5.31	\$ 0.17	\$ 0.08	\$ (0.00)
Principal Income		\$ 2.00	\$ 4.52	\$ 6.31	\$ 1.45	\$ 1.37	\$ 1.30
Unpaid Interest		\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.00	\$ 0.00	\$ 0.00
Guarantee Fee		\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.01	\$ 0.01	\$ 0.00
Servicing Fee		\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.01	\$ 0.01	\$ 0.00

7.2.8.1.2 Cash Flows Structure

- Un-guaranteed MBS
 - $CF1 = \text{Collected Interest} + \text{Amortized Principal} + \text{Prepaid Principal} + \text{Default Recovery}$
- Guaranteed MBS
 - $CF2 = CF1 + \text{Default Principal} - \text{Default Recovery} + \text{Uncollected Interest}$
- IO Strip (Servicing Right)
 - $CF3 = \text{Collected Interest} (+ \text{Uncollected Interest})$

Cash Flows — continued

- PO Strip
 - $CF4 = \text{Amortized Principal} + \text{Prepaid Principal} + \text{Default Recovery} (\text{or Default Principal})$
- Servicing Right
 - $CF5 = \text{Servicing Fee} - \text{Servicing Expense}$
- Guarantee Contract
 - $CF6 = \text{Guarantee Fee} - \text{Default Principal} + \text{Recovery} - \text{Expense}$



7.2.8.1.3 Valuation

- Expected Cash Flows discounted at risk-adjusted return (assume to be 7.25%)

	Year	0	1	2	3	28	29	30						
MBS w/o Insurance		\$	9.49	\$	11.82	\$	13.24	\$	1.76	\$	1.57	\$	1.39	
PV @	7.25%	\$ 99.27	8.84	10.27	10.73	0.25	0.21	0.17						
MBS with Insurance			9.50	11.66	13.09	1.75	1.57	1.39						
PV @	7.00%	\$ 100.00	8.88	10.19	10.68	0.26	0.22	0.18						
IO Strip	Cash Flow		\$	7.48	\$	7.29	\$	6.93	\$	0.31	\$	0.20	\$	0.10
PV @	7.25%	\$ 51.93	6.98	6.34	5.62	0.04	0.03	0.01						
PO Strip	Cash Flow		\$	2.00	\$	4.52	\$	6.31	\$	1.45	\$	1.37	\$	1.30
PV @	7.25%	\$ 47.34	1.87	3.93	5.11	0.20	0.18	0.16						

- Value of Uninsured MBS = 99.28
= Value of IO + Value of PO
- Value of Insured MBS = 100.00

7.2.8.2 Modeling Perspective

- Cash flow allocation
- Discounted cash flows
 - Discount expected cash flows by a Risk-Adjusted Return

$$P = \sum_t \frac{E(CF_t)}{1+k_t}$$

- Discount risk-adjusted cash flows by risk-free

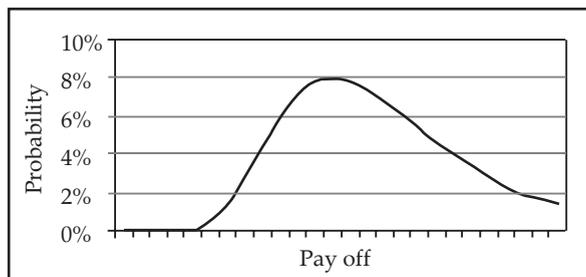
$$P = \sum_t \frac{E'(CF_t)}{1+r_t}$$

7.2.8.2.1 Equilibrium (Risk-adjusted Return) Approach

- CAPM
 $k = r_f + \beta(r_m - r_f)$
- APT/Multi-factor CAPM
 $k = r_f + \alpha_1(r_1 - r_f) + \alpha_2(r_2 - r_f) + \dots$

7.2.8.2.2 Cash Flow Projection

- Actuarial based distribution of outcomes





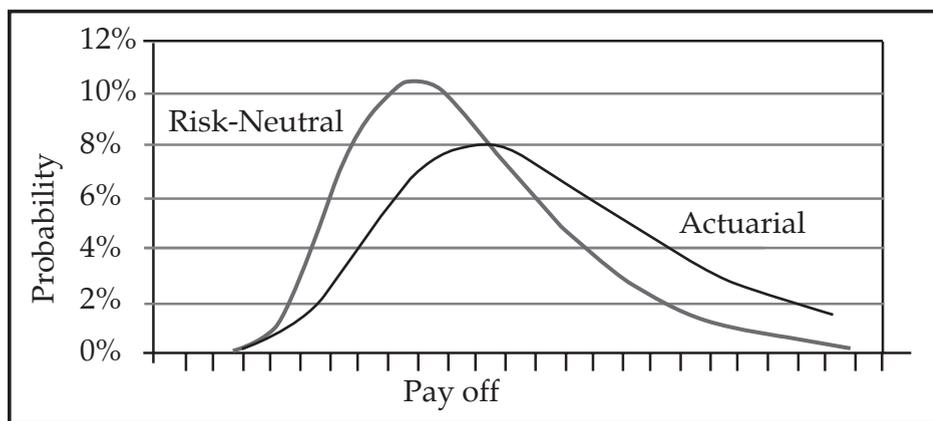
7.2.8.2.3 Example 1

- Stock value can up to \$200 with 70% probability and down to \$50 with 30% probability when risk-free rate is 10%
- Expected payoff = $.7 (200) + .3 (50) = \$155$
 - $u = 200/100 = 2$
 - $d = 50/100 = 0.5$
 - $r = 1.10$
- Risk-adjusted return = $155/100 - 1 = 55\%$
- Risk premium = $55\% - 10\% = 45\%$

Example 2

- A call option with exercise price = \$125
- Possible payoffs are \$80 with 70% probability and \$0 with 30% probability
- Expected payoff of option = $.7 (80) + .3 (0) = \$56$
- Beta of the option = $b(C) = 1.83$
- Risk-adjusted return = $k(C) = 10\% + 1.83 (45\%) = 92.5\%$
- Option Value = $C = 56 / (1.925) = \$29.09$

7.2.8.2.4 Risk-Neutral Probability



7.2.8.2.5 Risk-Neutral Approach

- Risk-adjusted probability
- Pseudo probabilities
$$\left\{ \begin{array}{l} P_u = \frac{r - d}{u - d} \\ P_d = \frac{u - r}{u - d} \end{array} \right.$$
- Discount risk-adjusted expected cash flows at risk-free rate

**Example**

- Risk-neutral probability (u) = $r - d / u - d = 0.4$
- Risk-neutral expected payoff of stock
= $.4 (200) + .6 (50) = \$110$
- Stock price = $110/1.10 = \$100$
- Risk-neutral expected payoff of the call option = $.4 (80) + .6 (0) = \$32$
- Option value = $\$32/1.10 = \29.09

7.2.8.2.6 Model Solutions

- Closed form solutions
 - Black-Scholes model, Vasicek model
- Finite Difference Methods
 - Implicit
 - Explicit (trinomial tree)
 - Binomial tree
- Monte Carlo Simulation
 - Risk-neutral process
 - Actuarial based process

Examples

- Lattice Method (Binomial Tree)
 - American Put Option
- Monte Carlo Simulation
 - Bond pricing under the Hull-White term structure model
 $dr_t = \alpha(\mu_t - r_t)dt + \sigma dz$
 - Value-at-Risk by Bootstrapping

7.2.8.2.7 Closed Form Solutions

- Pros
 - Fast
 - Easy to implement
- Cons
 - Can only work under limited simplified assumptions, which may not satisfy trading needs
 - May not exist for all derivative contracts



7.2.8.2.8 Finite Difference Methods

- Pros
 - Intuitively simple
 - Fast
 - Capture forward looking behavior, best for American style contracts
 - Accuracy increases with density of time interval
- Cons
 - Can not price path-dependent contracts
 - Difficult to implement, especially with time and state dependent processes

7.2.8.2.9 Monte Carlo Simulations

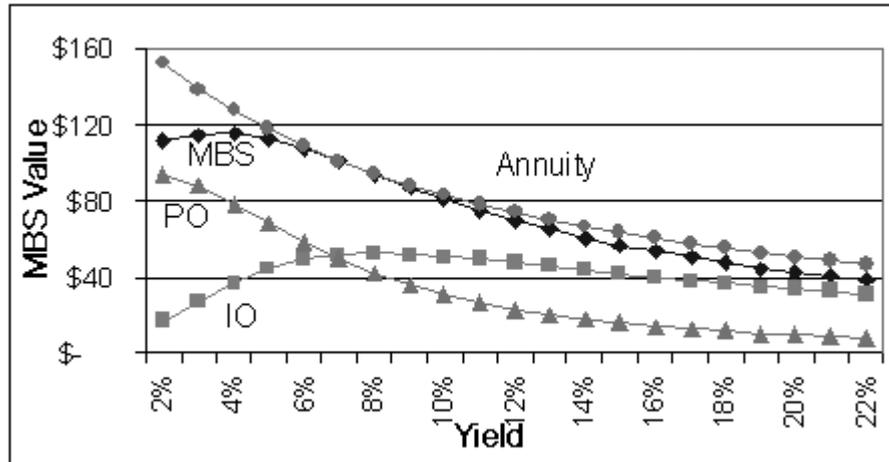
- Pros
 - Intuitive
 - Easy to implement
 - Matches VaR concept
 - Accuracy increases with number of simulations
- Cons
 - Forwardly simulate cash flows, cannot handle American style contracts
 - Slow in convergence

7.2.8.2.10 Combined Approaches

- To handle both path-dependent and American style cash flows
- Difficult to implement and time consuming
- Alternative methods
 - Simulation through tree
 - Bundled simulation

7.2.8.3 Management Perspective

- Fundamental driving force of financial engineering
- Analyze the risk and return tradeoff for different cash flow components of an asset/portfolio
- Determine the optimal risk-return profile for the portfolio based on investor's objectives and constraints
 - To hedge or not to hedge?
- Value-at-Risk applications
- Capital adequacy requirements for: regulator, rating agency, stock holders



Expand Research Scope

- Mathematical and technical advancements
- Volatility and hedging analysis
- Financial risk management applications
- Creative structure development
- General equilibrium impacts
- Policy implications



Spin Cycles

An essential tool for unlocking corporate value, spin-offs have rebounded in popularity.

Roy Harris, CFO.com | US
September 1, 2001

Two years ago, when Eastman Chemical Co. first considered a restructuring to resuscitate its sagging stock price, a spin-off wasn't even on the radar screen. "Company loyalty was very much in vogue, and there was a sense that we could make a reorganization work in the form we were in," says senior vice president and CFO James Rogers.

But a spin-off quickly emerged as the sensible way to go. For one thing, separating its two main businesses, specialty chemicals and polyethylene terephthalate (PET) plastics, made organizational sense. A rush of competitors into the production of PET resins had turned it into a commodity-style operation, with its own marketing and capital-raising needs, and with a different investor appeal. Also, the company was intimately familiar with the spin-off form: Eastman Chemical itself was born in a spin seven years ago, when Eastman Kodak Co. divested itself of a range of nonphotographic businesses by issuing stock in a new company to Kodak shareholders.

Indeed, Eastman Chemical not only understood the appeal of avoiding taxes through a qualifying spin-off, but it also appreciated the fact that unlike the taxable outright sale of a unit, "there's no other [buying] party you have to work with," as Rogers points out. "The spin is in your control, as long as you handle things well with the Internal Revenue Service." All these factors led Eastman to announce last February that it would split into two new companies via a spin-off (more on this deal below).

During the long bull market, spin-offs became common. They were prized as a tax-free way to squeeze cash out of hot dot-coms, or to package unattractive assets for investors seemingly poised to buy anything. Today, though, the spin-off once again is viewed as a basic tool for allowing noncore businesses to grow by giving them a separate identity and attracting investors.

As a type of divestiture, in fact, the spin-off has been quite resilient over the past 18 months, spiking last year at a near-record volume of \$92.3 billion. Through June 30, companies had spun off eight companies of more than \$500 million in size, worth a total of \$43.6 billion.

"To the extent that spin-offs are consummated to unleash value, they become even more popular in down markets," says Gregory Falk, a mergers- and-acquisitions tax partner at Pricewaterhouse-Coopers LLP. Companies hope, of course, that the purer plays resulting from a spin-off will fare better with investors than one stock representing the combined businesses. Also, the tax benefits of a spin-off "ring true in a strong or a weak stock market," adds Falk. Those benefits are avoidance of the 35 percent federal tax on the unit being divested, as well as of the income tax liability for stockholders that receive the qualified spun-off shares.

Meanwhile, the popularity of one species of spin-off, the carve-out, has suffered somewhat. That's because carve-outs make shares available through an initial public offering as opposed to a shareholder dividend, and therefore depend on a healthy IPO market.



THE TWO "S" WORDS

Experts see little reason for a letup in spin-offs, in part because companies will be looking for ways to unravel the tangles brought on by the merger binge of the 1990s. J. Randall Woolridge, a finance professor at Pennsylvania State University, says that many companies like to predict the synergy that will be achieved through an acquisition, but "the other 'S' word that they don't talk about is spin-off. And when one 'S' word doesn't work out, the other one does."

Correcting a merger miscalculation was at the root of a recently completed spin by Equifax Inc. The Atlanta-based information services concern, with annual revenues of about \$1.2 billion, announced last October that it would shed its \$780 million payment services business, now called Certegy Inc. When Equifax acquired the business in 1988, "the thought had been that each company could incorporate the other's businesses, but they were two very distinct businesses, with few operating synergies," says Equifax executive vice president and CFO Phil Mazzilli. Now, Equifax has learned that "smaller companies can move more quickly, and each of the companies will grow faster separately than they would together."

The biggest boost from a spin-off may well stem from the psychological lift it gives employees of the newly divided companies, says Woolridge: "There's this tremendous entrepreneurial spirit, especially in the higher-growth units." Executives are energized by the prospect of stock options and other compensation geared to operations of the reorganized units. And operationally, spun-off companies can be a lot easier to manage. "There's much less having to play politics for capital," notes Woolridge.

Investors also like it when companies announce spin-offs, according to a recent report by J.P. Morgan Securities Inc. The report says parent firms making such divestiture plans outperform the market by around 5 percent, on average, with big spin-offs producing larger share-price increases. The spun-off outfits themselves, in the first 18 months of independent operation, outperform the market by an average of more than 10 percent, says the report.

NEW CHEMISTRY

Eastman Chemical, in Kingsport, Tennessee, was in the doldrums early in 1999 when it decided to review its options for increasing shareholder value. The stock price languished in the mid-40s, where it was when Kodak spun it off, and "there was a sense that we'd gone through six or seven years and hadn't created the lasting value we needed," says Rogers. Yet the company was enthusiastic about the future of its specialty and commodity businesses, and believed Wall Street wasn't giving it credit for this potential dual upswing.

As executives considered alternatives, it soon became apparent that the company's structure was working against it. Managers often had to choose between capital spending on the \$4 billion chemicals business – making coatings, adhesives, inks, and specialty polymers and plastics – and spending on the \$2.5 billion PET side, which also produced container plastics and acetate fibers. Dollars for one were seen as dollars stolen from the other.

The company studied several scenarios, including a taxable outright sale of various businesses, but found the spin-off to be easily the most value creating, because of the tax advantages. Gradually, executives realized that the promising prospects being identified for both lines of business were pluses. "When you launched these companies, you wanted to do it when there was plenty of upside left when you did your road show," explains Rogers.



Management also looked to see how complicated it might be to break specialty chemicals from PET. It discovered there could be “a clean asset split” between the two, says Rogers, because for the most part, specialty plants and employees were physically separated from the PET operation. “You could take a map and with a highlighter draw lines around the plants that would stay or go,” he says.

In the spin-off as planned, current Eastman Chemical stockholders will receive shares in a second company through a tax-free stock dividend around year-end. Technically, the smaller PET operation will be the surviving entity, although it will receive a new name that hasn’t yet been selected. The specialty-chemicals company will become Eastman Co., and the Eastman Chemical name will disappear. “Investors don’t care who spins who, and neither do the employees,” comments Eastman Chemical treasurer Al Wargo, who will become vice president, CFO, and treasurer of the PET company.

The trick, of course, is to design the new companies so they will succeed on their own. That means avoiding the temptation to transfer huge amounts of debt to the spun-off unit, for example. “Our intent is for both these companies to win as strong an investment-grade rating as we can get for them,” says Wargo, noting that Eastman Chemical now maintains a triple-B-plus rating on its \$1.5 billion of public debt. The spin-off was first announced on February 5, and details such as a new debt structure and the size of an expected write-off will be announced closer to the deal’s completion, now envisioned for the fourth quarter of this year.

His new company will miss the positive associations with the old Eastman name, says Wargo, “but I think the pride will come from our actions, not names. What’s important is how we treat our employees going forward.”

Roy Harris (royharris@cfo.com) is a senior editor of CFO.

Once you have read the article, answer the following questions:

1. What is the difference between a spin-off and a carve-out?
2. What is the potential tax advantage of a spin-off or carve-out over an outright sale?
3. The author identified several potential benefits in addition to tax savings that could occur with a spin-off or carve-out. Briefly describe the benefits.



Chapter 8

TAKE-OVER DEFENSES

8.1 Takeover defenses:

- 8.1.1 The term *takeover* refers to the attempt, and often sprung as a surprise, of one firm to acquire ownership or control over another firm against the wishes of the latter's management, and perhaps some of its stockholders.
- 8.1.2 Takeover defenses, also referred to as anti-takeover defenses, comprise of the following strategies:
1. Operating performance
 2. Financial techniques
 3. Restructuring and financial engineering
 4. Anti-takeover charter amendments
 5. Other board or management methods
 6. Post-acquisition bid techniques

(Extracted from Mergers & Acquisitions by J. Fred Weston and Samuel C. Weaver, McGraw-Hill)

8.2 Takeover Methods:

- a. Proxy context
- b. Acquisition
- c. Leveraged Buy-out
- d. Management Buy-out
- e. Merger
- f. Tender offer

8.3 Defensive Operating performance:

- 8.3.1 This includes the following:
- a. Growth in operations
 - b. Efficiency of operations
 - c. Efficiency of capital management including working capital management
 - d. Meet or exceed expectations



8.4 Defensive Financial techniques:

8.4.1 These includes the following:

- a. Liquidate marketable securities
- b. Issue debt
- c. Structure debt so that if an acquisition occurs, the debt must be paid off
- d. Repurchase stock
- e. Increase dividends
- f. Pay a one-time, extraordinary dividend

8.5 Restructuring and Financial Engineering:

8.5.1 These includes the following:

1. Ownership reorganization
 - a. Sell off assets to unlock 'true' value
 - b. Divest businesses to realize true value
 - c. Spin-offs and split-ups
 - d. Equity carve-outs
 - e. Tracking stock
2. Employee stock ownership plans (ESOP's)
3. Financial restructuring:
 - a. Leveraged Buy-outs (LBO's)
 - b. Leverages recapitalizations
 - c. Dual-class of stock recapitalizations – super voting stock
 - d. Recapitalization
 - e. Exchange offers
 - f. Reorganization
 - g. Liquidation
4. Reorganize in an anti-takeover friendly state.

8.6 Anti-takeover charter amendments:

1. Board provisions
 - a. Classified or staggered board
 - b. For-cause provision
 - c. Maximum number of members
 - d. Elect standby directors



2. Fair price provisions
3. Shark Repellent - Amendments to a company charter made to forestall takeover attempts.
4. Supermajority votes
5. Super voting stock (dual recapitalization)
6. Eliminate cumulative voting
7. Anti-green mail amendment
8. Limit shareholder action:
 - a. Curtail consent solicitation
 - b. Advance notice of meeting
 - c. Ability to call special meetings
 - d. Scheduling shareholder meetings
 - e. Setting and controlling meeting agendas

8.7 Other board or management methods:

1. Poison Pill - Measure taken by a target firm to avoid acquisition; for example, the right for existing shareholders to buy additional shares at an attractive price if a bidder acquires a large holding:
 - a. Flip-over plan
 - b. Flip-in plan
 - c. Dead-hand provisions
 - d. Back-end plans
 - e. Poison puts
2. Authorization of preferred equity privately placed with favourable vote
3. Parachutes:
 - a. Golden Parachute
 - b. Silver Parachute
 - c. Tin Parachute
4. Negotiate contracts for labour, rent, etc. that increase with management change.

8.8 Post-acquisition bid techniques:

1. Just say no
2. Greenmail
3. Standstill agreements
4. Pac-Man defense



Business Valuation Management

5. Implement other acquisition plans
6. White Knight or white squire - Friendly potential acquirer sought by a target company threatened by an unwelcome suitor.
7. Divest 'crown jewels'
8. Litigation:
 - a. Anti-trust effect of acquisition
 - b. Material information missing from SEC filing
9. Create anti-trust incompatibility
10. Trigger the application of state anti-takeover laws



Module 2

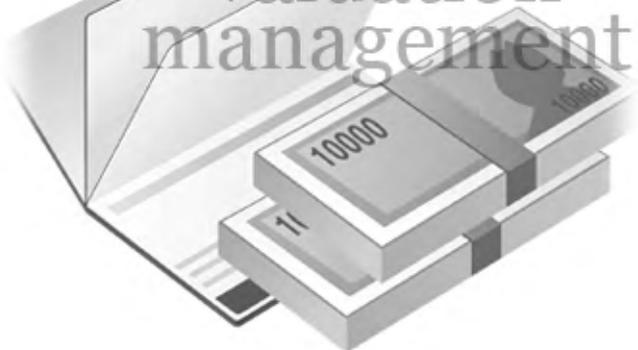
Questions

1. Explain how Mergers & Acquisitions are an important part of corporate strategy. Discuss from the perspective of shareholder wealth maximization
2. What are the major drivers of Mergers and Acquisition activity?
3. Is there any relationship between the nature of the industry and M & A activity? Explain with some examples
4. What are the different types of mergers?
5. What are the major theories behind the M & A activity?
6. What do you understand by “Comparable companies approach” to valuation?
7. How will you determine the discount factor in an M & A deal valuation, under the DCF valuation methodology?
8. What are the several of ways settling the payments in a merger deal? What are the implications of the various methods of settlement?
9. Why do many mergers fail?
10. What do you mean by financial engineering in the context of restructuring?
11. What are the take-over defenses available for the target company?

STUDY NOTE - 3

Valuation of Assets and Liabilities

business
valuation
management





Chapter 1

FORMS OF INTELLECTUAL PROPERTY AND METHODS OF VALUATION

1.1 Introduction:

- 1.1.1 We are now on throes of a new phase of evolution in the major global economies, which is characterized by new performance and value drivers that are mainly intangible in nature. Accordingly, the so called intangible or knowledge economy is the new environment that companies have to learn to cope with.
- 1.1.2 This new phase is having profound implications also for corporate accounting and reporting. It is widely known that there is a huge gap between the accounting book value and the market value of many internationally-listed companies. There is also widespread concern about the difficulty of valuing and assessing the performance of 'new economy' companies. Some companies have recognized this new phase and started to produce reports which are largely different from the traditional, financially-oriented ones. These reports may take different names such as intellectual capital report, auxiliary balance sheet, and report on intangibles, but they have a common goal of penetrating beyond the financial dimension in order to identify and track the new value drivers – mainly of an intangible nature - which permit long-term, sustainable growth of the company.
- 1.1.3 This new economic order poses challenges and offers innovative opportunities also to the profession of management accountants and financial analysts. In particular, the so-called intellectual capital supplements pose a clear problem of verification of the data and information which are disclosed to institutional investors and the general public. The procedures for verification and assessment of this new information set are immature and need to be standardized and agreed at an international level.

1.2 Traditional Accounting for Intangible Assets:

- 1.2.1 Financial accounting and reporting practices have traditionally provided a basis for evaluating a company's business performance. The fundamental objective of financial accounting is to provide users of financial statements with useful information for the purpose of efficient and effective decision making. Outside of the firm, financial reporting should provide information that is useful to present and potential investors and creditors in making rational investment and credit decisions. Within the firm, accounting information is essential for the purposes of efficient managerial decision making – as managers need timely and accurate information in order to carry out the budgeting process and implement effective control mechanisms.
- 1.2.2 Consequently, any event that is likely to affect a firm's current financial position or its future performance should be reflected in its annual accounts. Unfortunately, conventional financial statements appear to be rapidly becoming less useful within today's dynamic business environment.



- 1.2.3 Conventional accounting systems, as well as the system of national accounts used in all industrialised countries, were developed for manufacturing economies where most wealth was in the form of property, plant and equipment. These systems were designed to provide accurate and reliable cost-based information about the value of assets used in production, and about the net value (adjusted for depreciation) of the output produced by these assets.
- 1.2.4 A principal factor behind this growing irrelevance of conventional financial statements has been the global transition towards a knowledge driven economy. During the last two decades most industrialised economies have progressively moved towards a knowledge-based rapidly changing economy where investments in human resources, information technology, R&D and advertising have become essential in order to strengthen a firm's competitive position and ensure its future viability.
- 1.2.5 Intangible factors play a predominant role in the ability of companies to innovate and their subsequent competitiveness within a knowledge-based economy. Such assets enable knowledge intensive economies to maintain their competitive position compared to resource or labour intensive economies. This dematerialisation of the economy involves greater investment in intangibles. There is a growing awareness across the globe that an increasing part of total investment in the business enterprise sector is directed towards intangible "investment products" such as R&D, marketing, training, software.
- 1.2.6 With the transition to a knowledge-based economy, the principal source of economic value and wealth is no longer the production of material (tangible) goods but the creation and manipulation of intangible assets. In other words, economic growth is not as much influenced by investments in physical capital (i.e. land, machinery), as by knowledge which is a critical determinant for the productive application and exploitation of physical capital. Consequently, companies depend on being able to measure, manage and develop their knowledge.
- 1.2.7 Unfortunately conventional accounting systems still largely concentrate on and to measure only the value of financial and physical assets – plant, equipment, inventories, land and natural resources. In other words, conventional accounting principles simply do not account for many drivers of corporate success in the knowledge-based economy, eg. investments in intangible assets such as know-how, brands, patents and customer loyalty. There presently exist no adequate accounting techniques for determining and reporting the value of intangible assets such as the skills of workers, IP, business infrastructure, brand names, databases and relationships with customers and suppliers.

1.3 Accounting for Intangible Assets – General Approaches:

- 1.3.1 The increased importance of intellectual capital (IC) to business competitiveness has driven change in the accounting treatment of intangibles. So far there are two broad streams of development.
- 1.3.2 One approach is to improve information about intangibles by making it easier to treat them as assets in financial statements, thereby increasing their visibility in financial accounting and reporting. The International Accounting Standards Committee (IASC) took a step in this direction with the 1998 approval of International Accounting Standard (IAS) 38 – a standard on intangibles, including advertising, training, start-up and R&D activities. For intangibles to be recognized as assets, they are required to meet definitions spelt out in the standard, generate a flow of benefits



that are likely to accrue to the company, and are able to be measured reliably. Although this places businesses under the obligation of recognizing intangible assets on the balance sheet, it does impose certain strict conditions on the capitalisation of such assets in order to get greater certainty on their future realisability. This fact, to a certain extent, limits its applicability in measuring and valuing a number of intangible assets.

- 1.3.3 Another approach is to increase the availability of non-financial information about investment in and management of intangibles. This strategy is most evident in Europe, where some countries require companies to report certain information about human resources, for example, and where many companies have voluntarily disclosed non-financial information about everything from training efforts to customer networks and in-process R&D (e.g., Skandia, Ramboll and Ericsson). This second approach is promising, as it does not run afoul of objections by accountants and accounting standards. In contrast to reporting requirements linked to accounting standards, though, the disclosure of non-financial information about intangibles has been far less transparent. There is little clarity concerning definitions, measurement and verifiability of information; the consistency over time and the comparability of information across companies is not ensured.

1.4 Intellectual Capital: Definition and Classification:

- 1.4.1 Intellectual capital can be described simply as knowledge that can be converted into profits. There is, however, a multitude of other IC definitions and experts have yet to reach a consensus on a commonly accepted definition. Researchers and other large accounting/consulting firms have played an important role in the search for suitable classification of intangibles. Other definitions of intellectual capital/assets include:

'The sum of everything everybody in a company knows that gives it the competitive edge.'

'Intellectual capital is intellectual material – knowledge, information, intellectual property, experience that can be put to use to create wealth.' (Stewart 1998)

'Knowledge that can be converted into value.'

(1996; Leif Edvinsson, Skandia, Pat Sullivan, European Management Journal, vol. 14)

'Intellectual material that has been formalised, captured and leveraged to produce a higher valued asset.'

(Klein & Prusak 1994)

'Intangible assets as non-monetary assets without physical substance that are held for use in the production or supply of goods or services, for rentals to others, or for administrative purposes:

(a) that are identifiable;

(b) that are controlled by an enterprise as a result of past events; and

(c) from which future economic benefits are expected to flow to the enterprise (IAS 38).'

1.5.0 Components of Intellectual Capital:

- 1.1.1 In order to arrive at the objective of valuing and measuring IC, it is necessary to understand the different components that make up intellectual capital. Intellectual capital includes/encompasses inventions, ideas, general know-how, design approaches, computer programs, processes and publications. Distinguishing between the different components of IC will help to improve the



understanding of what IC is, and will hopefully allow us to apply the concept at a strategic and operational level. Some components of intellectual capital are difficult to measure, and the costs and benefits are difficult to quantify. For example, quantifying the value of customer relationships is highly subjective and determining a dollar measure would be very difficult.

1.5.2 One of the most popular models for classifying IC is the Hubert Saint-Onge model which is largely based on Sveiby's (1988). The Saint-Onge model, developed in the early 1990's, divides intellectual capital into three parts: human capital; structural capital; and customer capital. A slight variant of this model, devised by Dr Nick Bontis, Director of the Institute for Intellectual Capital Research, restates customer capital as relational capital to include relationship with suppliers and other strategic partners and stakeholders.

1.5.3 Adopting Bontis's classifications, intellectual capital can be divided into three categories:

Human Capital	Structural Capital	Relational Capital
Knowledge, competence, skills and experiences of employees; Training; Networks.	Organisational processes; Databases; Software; Manuals; Trademarks; Laboratories and market intelligence; Assembled workforce – the relationship between the business and its employees; training, employee contracts; Leadership; Organisational capacity for saleable innovation; Organisational learning capacity; Leaseholds; Franchises; Licenses; Patents; Mineral rights.	Customer relationship; Customer loyalty and satisfaction; Distribution relationships and agreements; Relationships with other partners and other stakeholders.

1.5.4 Human capital is often recognised as one of the largest and most important intangible asset in an organisation. It is the capital which ultimately provides the good or services which customers require or the answers to their problems. Human capital includes the collective knowledge, competency, experience, skills and talents of people within an organisation. It also includes the creativity and innovativeness of the organisation. The predominant intangible in any organisation is largely driven by and derived from the human side of the enterprise, that is, its people and their collective intelligence. Improving productivity through the provision of employee training is not a



new phenomenon, but the financial commitment and scale at which companies are now investing in human capital is growing. The effects of human capital formation are hard to determine, even how difficult they are to measure. Apart from the measurement difficulties, many argue against the inclusion of human capital onto the balance sheet because (1) human capital is not owned by the organisation: it is only for rent, and (2) ethical reasons – placing a price on individuals runs the risk of making employees appear substitutable for other form of capital. However, in spite of these shortcomings, considerations of human capital provides another approach on training and human resource management policies, ultimately improving the management of an organisation.

- 1.5.5 Structural capital is often referred to as what is left when the employees go home at night and is considered the “hard” assets of the firm. It consists of the supporting resources and infrastructure of a firm and includes all of the assets found in the financial statements of a firm, such as cash and equivalents, property, buildings, and equipment. It reflects the collective capabilities of the organisation that enable it to function to meet market requirements. Unlike human capital, structural capital is company property and can be traded, reproduced and shared by within the firm.
- 1.5.6 Relational capital comprises not only customer relations but also the organisation’s external relationships with its network of suppliers, as well as its network of strategic partners and stakeholders. The value of such assets is primarily influenced by the firm’s reputation. In measuring relational capital, the challenge remains in quantifying the strength and loyalty of customer satisfaction, longevity, and price sensitivity.
- 1.5.7 The International Federation of Accountants (IFAC) offers a slightly different and broader classification as given below in Table.

Classification of Intellectual Capital, IFAC (1998)

<p>Human Capital</p> <ul style="list-style-type: none"> * Know-how * Education * Vocational qualification * Work related knowledge * Occupational assessments * Work related competencies * Entrepreneurial élan, innovativeness, pro-active and reactive abilities, changeabilities 	<p>Relational (Customer) Capital</p> <ul style="list-style-type: none"> * Brands * Customers * Customer loyalty * Company names * Backlog orders * Distribution channels * Business collaborations * Licensing agreements * Favourable contracts * Franchising agreements
<p>Organisational (Structural) Capital Intellectual Property</p> <ul style="list-style-type: none"> * Patents * Copyrights * Design rights * Trade secrets * Trademarks * Service marks 	<p>Infrastructure assets</p> <ul style="list-style-type: none"> * Management philosophy * Corporate culture * Management processes * Information systems * Networking systems * Financial relations



1.6 Knowledge Companies:

1.6.1 The term knowledge companies or knowledge intensive companies is increasingly being used to describe companies that focus or leverage their intellectual capital. Knowledge companies are utilising their intellectual capital as a key source of competitive advantage. In a knowledge company, profits are generated primarily through the commercialisation of new ideas and innovations, that is through the interaction of the company's human capital and structural capital. Activities that create intangibles always lead to a set of tangible outcomes, over a period of time. It is the interaction between tangible and intangibles that determine the corporate value. It is this entrepreneurial activity that generates the primary value of so many businesses. The embedded 'know-how' or knowledge of an organisation is dynamic, complex, heterogeneous and networked.

1.7 Why do Companies want to measure Intellectual Capital?

1.1.1 Before going into the issues surrounding the measurement and reporting of intellectual capital, we need to examine why firms want to measure IC. Young, knowledge-intensive organizations encounter great difficulty in attracting external financiers, and as such need to develop a way to quantify their intellectual capital to investors and financiers. There are a number of reasons why firms want to measure IC and the predominant reason has been for strategic or internal management purposes. Specifically, the reasons include:

- a. Alignment of IC resources with strategic vision. To support the implementation of a specific strategy via a general upgrading of the work with the companies' human resources (support and maintain a strategy concerning the composition of staff as regards seniority, professional qualifications and age. Through the description of the staff profile, measuring, discussion and adjustment become possible).
- b. To support or maintain various parties' awareness of the company.
- c. To help bridge the present and the past (stimulates the decentralised development of the need for constant development and attention towards change).
- d. To influence stock prices, by making several competencies visible to current and potential customers.
- e. To make the company appear to the employees as a name providing an identity for the employees and visualising the company in the public. Knowledge of employees and customers will stimulate the development of a set of policies to increase customer satisfaction and customer loyalty.
- f. Assessing effectiveness of a firm's IC utilisation – Allocate resources between various business units. Extract full value from acquisition and joint ventures.
- g. Determine the most effective management incentive structures.

1.8 The Valuation of Intellectual Capital:

1.8.1 The growing interest in benchmarking intellectual capital stock between firms has led to the development of three broad indicators – market-to-book ratios, Tobin's Q and Calculated Intangible Value (CIV). The value of intellectual capital is both time and context dependent. As a result, these measures of intellectual capital should be interpreted as a stock valuation, not a flow.



1.8.2 Market-to-book values:

The value of intellectual capital is commonly expressed as the difference between the market value of the company and its book (equity) value. People are recognising the growing divergence occurring in the marketplace between the book value and the market capital of various corporations. This divergence indicates that there is something not accounted for on the balance sheet. Recent acquisitions show that the price paid for an acquired company is almost invariably higher than its book value, and this difference has been incorporated under conventional accounting practices as goodwill. In today's increasingly fast-paced business environment, where mergers and acquisitions are occurring more frequently, what has changed, is increasingly the size of the value of goodwill that has been paid.

The growing disparity between market value (MV) and book value (BV) is largely based on the intangibles of the business providing the foundation for future growth. The largest disparity occurs in high-tech and knowledge-intensive industries, where investment is heavily weighted in intangible assets such as R&D and brands.

From an internal perspective, differences between MV and BV are due primarily to assets that are not currently included in the conventional balance sheet total, such as knowledge, relationships, and image. The external perspective on the gap between MV and BV is due primarily to the company's future opportunities and these are currently not valued in the conventional balance sheet.

Limitations of market-to-book values

Market-to-book ratios have both theoretical and practical problems. First, the stock market is volatile and responds, often strongly, to factors entirely outside the control of management. Stock market price data are a highly volatile series, which can often be dominated by irregular, seasonal and cyclical factors. Furthermore, market-to-book values ignore exogenous factors that can influence MV, such as deregulation, supply conditions, general market nervousness, as well as the various other types of information that determine investors' perceptions of the income-generating potential of the firm, such as industrial policies in foreign markets, media and political influences.

Companies with large intangible values tend to have share prices that fluctuate more than other companies. In a publicly traded company, the greater the ratio of intangible to book value, the more uncertain the investment, as witnessed by recent falls in technology stocks.

Second, there is evidence that both MV and BV are usually understated. To encourage companies to invest in new equipment, Internal Revenue Services rules deliberately permit companies to depreciate assets faster than the rate at which they actually wear out. Calculations of IC that use the difference between market and book values can also suffer from inaccuracy because book values can be impacted if firms choose to, or are required to, adopt tax depreciation rates for accounting purposes.

Third, adopting the market-to-book approach for valuing intangibles suffers from timing inconsistencies because market value is determined and revised constantly whereas book values are only updated periodically.



The reliability and usefulness of the difference between MV and BV can be enhanced by looking at the ratio between the two, rather than at the raw number. One can then compare a company with similar competitors or benchmarked against the industry average and also make year-to-year comparisons of the ratios. While the market-to-book method of valuing IC is subject to several problems, it has served to draw attention to the undeniable existence of IC, and for that reason alone has been a constructive innovation.

1.8.3 Tobin's Q:

Traditionally, Tobin's Q was used as a method for predicting investment behaviour. Tobin's Q compares the market value of a company with the replacement cost of its assets. It uses the ratio (the "Q") to predict the investment decisions of the firm, independent of macroeconomic conditions such as interest rates. The replacement cost of fixed assets can be calculated as the reported value of a company's fixed assets plus the accumulated depreciation and adjusted for inflation.

As with market-to-book ratios, Tobin's Q is most revealing when like companies are compared over a period of several years. Use of both Tobin's Q and the market-to-book ratio are best suited to making comparisons of the value of intangible assets of firms within the same industry, serving the same markets, that have similar types of hard assets. These ratios are useful for comparing the changes in the value of IC over a number of years. When both the "Q" and the market-to-book ratio of a company are falling over time, it is a good indicator that the intangible assets of the firm are depreciating. This may provide a signal to investors that a particular company is not managing its intangible assets effectively and may cause them to adjust their investment portfolios towards companies with climbing, or stable "Q's". An advantage of Tobin's Q over the market-to-book ratios, is that the Tobin's Q approach neutralises the effects of different depreciation policies.

Tobin's Q can be a useful measure of intellectual capital because it can reflect the value markets place on assets which are not typically reported in conventional balance sheet. By making intra-industry comparisons between a firm's primary competitors, these indicators can act as performance benchmarks that can be used to improve the internal management or corporate strategy of the firm. The information provided by these ratios facilitates internal benchmarking; enabling the organisation to track its progress in the area that it has defined as being integral to its success.

1.8.4 Calculated Intangible Value (CIV):

Developed by NCI Research, calculated intangible value allows us to place a monetary value on intangible assets. This method allows us to calculate the fair value of the intangible asset. CIV computes the value of intangible assets by comparing the firm's performance with an average competitor that has similar tangible assets. An advantage of the CIV approach is that it allows firm-to-firm comparisons using audited financial data and, as such, CIV can be used as a tool for benchmarking.

Determining CIV:

1. Calculate average pre-tax earnings
2. Calculate average year-end tangible asset (from balance sheet)
3. Return on assets (ROA) = Average pre-tax earnings / Average year-end tangible assets
4. Benchmark/compare the ROA against the industry's average ROA. If a company's ROA > Industry ROA proceed to step 5.



5. Excess return = Pre-tax earnings - [industry - average ROA * company's average tangible assets]
6. $(1-t) * \text{excess return} = \text{premium attributable to IA}$ (where t = average income tax rate and IA= intangible assets)
7. $\text{NPV}_{\text{premium}} = \text{premium} / \text{company's cost of capital} = \text{CIV}$.

Limitations of CIV method:

First, the CIV uses average industry ROA as a basis for determining excess returns. By nature, average values suffer from outlier problems and could result in excessively high or low ROA.

Secondly, the NPV of intangible assets will depend on the company's cost of capital. However, for comparability within and between industries, the industry average cost of capital should be used as a proxy for the discount rate in the NPV calculation. Again the problem of averages emerges and one must be careful in calculating an average that has been adjusted for outliers.

1.8.5 Real Options-based Approach:

An emerging new market approach to the valuation of intangibles is now gaining currency. Over the past twenty years, there has been a growing body of academic research that has taken the theory and methodology of financial options and applied it to the valuation of intangible assets. This is known as real option theory, an extension of financial option theory. An option is the right, but not the obligation to buy (or sell) an underlying asset at some fixed price for a predetermined period of time. A real option is an option that is based on non-financial assets. It applies the same techniques and variables as the Black-Scholes model on which financial options are based, but uses non-financial inputs. Real options can be applied by using nonnumeric strategy options to determine the value to proceed, defer, expand or abandon investment. By drawing on financial markets' techniques, benchmarks, and information, businesses can discipline their investment decisions and align them with the investment decisions of the market. They can close the gap between strategy and shareholder value.

Reporting Intellectual Capital is often criticised by accounting professionals for the high uncertainty associated with the returns on intellectual assets. Intellectual capital by its very nature, derives its value from the opportunities it creates. Unlike the previous measures of IC - market-to-book value, Tobin's Q, and CIV - real options (option pricing models) provides an approach which values the opportunities arising from IC. Deciding how much to spend on R&D, or the kind of R&D in which to invest, translates to the valuation of opportunities. Companies with new technologies, product, development ideas, defensible positions in fast-growing markets, or access to potential new markets own valuable opportunities. For some companies, opportunities are the most valuable things they own and the question is how do we map the opportunity to reality. The analysis of real options is more than simply a valuation tool. It is also a formal strategic tool, offering a proactive rather than just reactive flexibility.

1.9 Intellectual Capital: Some Analytical Measures and Models:

- 1.9.1 There is a general consensus among managers, investors, financiers and accountants that intangibles are important factors in company performance. Businesses are discovering that fostering growth in intellectual capital can improve profits and are attempting to quantify this in their financial



statements. Reporting such information has the potential to improve internal management and improve the efficiency of the allocation of resources by providing more explicit recognition of assets. Other benefits include increased transparency, better information for investors and lenders, and more effective and efficient allocation of investments in the capital market. Firms that are actively measuring and reporting IC, obviously see value or benefits in such activities, otherwise they would choose not to engage in such activities.

1.9.2 Reasons for reporting on intellectual capital can be broadly classified as follows:

1. Reasons for internal reporting:

- a. Demands are growing for effective governance of intangibles, of which social and environmental reporting are already evident.
- b. 'What gets measured, gets managed' – it therefore focuses on protecting and growing those assets that reflect value.
- c. Managing the firm's intellectual assets.
- d. Assessing the effectiveness of the firm's IC utilisation/management.
- e. Reports of current and future income from IC.
- f. Relating employee contributions to IC to profits.
- g. Alignment of IC resources with strategic vision.

2. Reasons for external reporting:

- a. It more truly reflects the actual worth of the company.
- b. Improve stock prices, by providing a more accurate picture of a firm's assets.
- c. It supports a corporate goal of enhancing shareholder value.
- d. It provides more useful information to existing and potential investors.
- e. Strategic positioning.
- f. Effect on the cost of capital.

1.9.3 There are several substantial difficulties associated with the valuation of intangibles – values are subject to frequent changes, many intangible assets are produced internally, rather than acquired in an arm's length transactions. In addition, the value of an intangible asset often depends on the value of other related intangible and/or tangible assets. According to an OECD study undertaken by Mavrinac and Siesfeld (1998), empirical results collected using revealed preference analysis suggest that non-financial measures of quality and strategic achievement have a profound effect on investment and valuation.

1.9.4 In a world of increasing technological change and shortened product life cycles, and in a world where "knowledge work" and intangible assets are of profound importance, future financial performance is often better predicted by non-financial indicators than by financial indicators. The underlying principle of measuring intangible assets must be that it complements the accounting



system with a new language, not replace it with a new control system. A growing number of measurement systems are appearing, and one of the challenges for their users is to determine their relative merits and the scope and suitability of each.

1.9.5 The five popular approaches to intellectual capital measurement are:

1. EVA™ (Economic Value Added).
2. Human Resource Accounting.
3. The Intangible Assets Monitor.
4. The Skandia Navigator™.
5. The Balanced Scorecard.
6. Performance Prism.

1.10 Economic Value Added (EVA):

1.10.1 EVATM (economic value added) is a measure developed in the 1980's by New York consultancy Stern Stewart & Co. as an indicator of returns to shareholders. EVA is common in many large US companies, including AT&T and Coca – Cola. EVA represents the difference between profit and the cost of capital. It provides a measure directly linked to return on capital employed. In simple terms:

$$\text{EVA} = \text{net operating profit after taxes} - (\text{capital} \times \text{the cost of capital})$$

1.10.2 As such, EVA is an estimate of the amount by which earnings exceed or fall short of the required minimum rate of return that shareholders and lenders could get by investing in other securities of comparable risk. By taking all capital costs into account, including the cost of equity, EVA shows the amount of wealth a business has created or destroyed in each reporting period. The related measure MVA (market value added) compares total market value (less debts) with the money invested in the firm, represented by share issues, borrowings and retained earnings.

1.10.3 According to Stern Stewart, when used as a management tool, EVA shift's managers' focus to a balance sheet rather than an income focus:

“By assessing a charge for using capital, EVA makes managers care about managing assets as well as incomes, and for properly assessing the trade-offs between them. All key management decisions and actions are thus tied to just one measure, EVA”.

1.10.4 According to Stern Stewart, conventional financial balance sheets often need restating to give an accurate picture of the capital employed in the business, and often this involves adding in intangibles. They have identified over 160 possible balance sheet adjustments, of which an obvious one is to write back goodwill that has been written off. Other adjustments may include adding back R&D costs, and appropriate parts of marketing expenditure as well. If this was not done the EVA would show a short-term reduction even though the investment may ultimately increase the MVA.

1.10.5 Despite its popularity, measures like EVA have numerous critics. First, among analysts there is a feeling that EVA relies too much on accounting profits and adjustments, whereas cash flows might



be a more reliable indicator. Analysts are beginning to recognise that EVA should be complemented with measures that created stronger linkages between long-range plans, financial and stock price goals. Critics also argue that EVA is still too historic a measure and does not provide any sense of the linkages between a company's investments in intangibles and its financial performance. Furthermore, EVA has also been criticised for its inability to explain why firms can be successful one year and then a complete failure the next.

1.11 Human Resource Accounting:

1.11.1 Human Resource Accounting (HRA) is a set of accounting methods that seek to settle and describe the management of a company's staff. It focuses on the employees' education, competence and remuneration. HRA promotes the description of investments in staff, thus enabling the design of human resource management systems to follow and evaluate the consequences of various HR management principles. There are four basic HRA models:

1. The anticipated financial value of the individual to the company. This value is dependent on two factors – the person's productivity, and his/her satisfaction with being in the company.
2. The financial value of groups, describing the connection between motivation and organisation on one hand, and financial results on the other. This model does not measure value, but concepts such as motivation and welfare. Under this model, measurements of employee satisfaction are represented with great importance.
3. Staff replacement costs describing the financial situation in connection with recruitment, re-education and redeployment of employees. This model focuses on replacement costs related to the expenses connected with staff acquisition, training and separation. Acquisition covers expenses for recruitment, advertising etc. Training covers education, on-the-job training etc. Separation covers lost production etc, when a person leaves a job. This model can be used to describe the development of costs in connection with replacements. In many firms, such replacement costs are included in accounts as an expression of staff value to the company.
4. Human resource accounting and balancing as complete accounts for the human resource area. This model concentrates on cost control, capitalisation and depreciation of the historic expenses for human resources. One effect of such a system is the visualisation of the impacts of human resource management – through revealing the consequences of inexpedient human resource management routines.

1.11.2 The basic aims of HRA are several. First, HRA improves the management of human resources from an organisational perspective – through increasing the transparency of human resource costs, investments and outcomes in traditional financial statements. Second, HRA attempts to improve the bases for investors company-valuation.

1.11.3 Unfortunately, for several reasons, the accuracy of HRA is often called into suspicion. This doubt stems from difficulties with several major human resource evaluation methods:

1. Input Measurement. Inputs (such as training) are not necessarily effective, so cost is not always a good proxy measure of output value. Trained personnel may also move to another employer through higher labour mobility – thus inhibiting the returns from corporate training investment.



2. Output Measurement. Virtually no firm actively measures the output benefits from training.
3. Replacement Values. Such values are rare, usually calculated to help product sales or the sale of the company, and are often highly debatable.

1.12 Intangible Asset Monitor:

1.12.1 The Intangible Assets Monitor (IAM) was developed by Karl-Erik Sveiby as a management tool for organisations that wish to track and value their intangible assets. Sveiby was one of the first to develop a method for measuring intangible assets in the 1980's, in an attempt to demonstrate how the intangible assets account for the difference between a company's market value and book value. The "Konrad Group", to which Sveiby belonged, introduced the "family of three" concept of intellectual capital – the division of IC into:

1. External structures, or customer capital: This consists of relationships with customers and suppliers, brand names, trademarks and organisational reputation or "image".
2. Internal structures, or organisational capital: They include patents, processes, systems, concepts, and computer and administrative systems. Such structures are generally created by the employees and are thus generally 'owned' by the organisation, and adhered to. A key feature of such structures, is that they largely remain intact even if people leave the organisation.
3. Individual competence, or human capital: This is one's ability to act in various situations. It includes skills (including social skills), education, experience, and values.

This concept has become the basis for many IC measurement systems, including Sveiby's Intangible Asset Monitor.

1.12.2 The IAM is based on the fundamental premise of people being an organisation's only profit generators. According to Sveiby, people are the only true agents in business; all assets and structures, whether tangible physical products or intangible relations, are the result of human action and depend ultimately on people for their continued existence. Therefore, according to the IAM, human actions are converted into both tangible and intangible knowledge "structures". Such structures are either directed outwards (external structures) or inwards (internal structures). These structures are assets, because they affect the organisation's revenue streams. According to the IAM, the profits generated from people's actions are signs of that success, but not the originators of it.

1.12.3 The IAM is a stock/flow theory. It assumes that some of the organisation's assets are intangible assets and the purpose of the IAM is to guide managers in how they utilise the intangible assets, identify the flows that are increasing and renewing them and guard against the risk of losing them.

1.13 The Skandia Navigator:

1.13.1 The world's first annual intellectual capital report was prepared by the Swedish financial services firm, Skandia. Skandia's 1994 IC report, *Visualising Intellectual Capital*, represented a coherent first attempt to report the value of intellectual capital in an organisation. The Skandia "Navigator" is



perhaps the best known business model developed to identify the intangible assets that are key to company performance. A feature of the Skandia Navigator is its definition of the intellectual capital as not just the skills and expertise of its workforce, but also the systems and processes that it has put in place to capture and exploit all the knowledge it can. The Navigator is based upon the same broad conceptual framework as the IAM.

- 1.13.2 The Navigator is designed to provide a balanced picture of the financial and intellectual capital. Consequently, it incorporates measures in categories similar to those of the balanced scorecard. The focus on financial results, capital, and monetary flows, is complemented by a description of intellectual capital and its development. The Navigator framework, as expected, has at its top end a series of measures relating to the *financial focus*. But it also has “below the line” measures of intellectual capital. These involve four areas and two dimensions. The four areas are:
1. *Customer Focus* – which quantifies how the organisation is to look to its customer.
 2. *Process Focus* – which quantifies key aspects of the organisation’s process performance.
 3. *Renewal and Development Focus* – which quantifies what is being done to renewal and develop the intellectual asset base.
 4. *Human Focus* – the “virtual” binding force of customer, process, renewal and development and finance.
- 1.13.3 The Navigator incorporates a total of about 30 key indicators in the various areas, which are monitored internally on a yearly basis. The key indicators for customer focus include number of accounts, number of brokers and number of lost customers. The key indicators for process focus include number of accounts per employee and administrative costs per employee. The key indicators for human focus include personnel turnover, proportion of managers, proportion of female managers and training and/or education costs per employee. The key indicators for development/renewal focus include satisfied employee index, marketing expense/customer, share of training hours. Almost more importantly, the Navigator includes two dimensions. The measures in each focus area specified in terms of today’s performance and tomorrow’s performance - a clear view of articulating “targets” for the Navigator.
- 1.13.4 The Skandia Navigator is used to identify, the important areas of know-how in the organization which need to be developed and shared. Each of Skandia’s strategic business units have used the Navigator framework to develop their own specific measures of intellectual capital. By identifying important assets like its customer and innovation capital more systematically, Skandia says the Navigator has improved its management of these assets, benefited overall performance and increased its share value. Skandia says that its ability to identify and draw upon the relevant know-how easily has enabled it to set up foreign offices much more quickly than in the past. The Skandia Navigator model has been applied by the Swedish Government and also developed by other companies.
- 1.13.5 *Criticisms of the Intangible Assets Monitor and Skandia Navigator* The Skandia Navigator and Intangible Assets Monitor are two popular methods for calculating and visualising the value of the intangible capital. Despite this widespread popularity both approaches are not without their critics. Both approaches share the presupposition that IC represents the difference between market and book value of a company. Some authors, however, have expressed concerns that two other important aspects of evaluation and value creation remain unresolved by the Navigator and IAM:



1. Market based IC value can not be calculated for the companies, which are not on the stock market so that these companies need an alternative way to determine their market based IC value.
2. There is no adequate system monitoring the efficiency of current business activities performed by the employees, indicating whether their potential is directed towards value creation or value destruction.

Another criticism of these two models revolves around how they define intellectual capital. Both models define IC as being divided into essentially three parts: human, customer and structural capital. The problem arising from this approach, critics argue, is how to measure IC performance defined as such. For the analysis of human, customer and structural capital many indicators have been developed, but most of them are subjective. Many critics argue that one common objective indicator is needed - as to facilitate comparisons between companies.

1.14 The Balanced Scorecard:

- 1.14.1 The Balanced Scorecard (BSC), developed by Prof. Robert Kaplan of Harvard Business School, is an organisational framework for implementing and managing a strategy at all levels of an enterprise by linking objectives, initiatives and measures to an organisation's vision and strategy.
- 1.14.2 The BSC translates a business's vision and strategy into objectives and measures across four balanced perspectives – financial performance, customers, internal business processes, and organisational growth, learning and innovation. A BSC is a structured way of communicating measurements and targets, and is becoming a widespread way of how to manage, measure and communicate the financial, non-financial and intangible assets of a company. The BSC allows an organisation to monitor both its current performance (financial, customer satisfaction and business process) and its efforts to improve processes, motivate and educate employees and enhance its ability to learn and improve. The BSC is closely related to the concept of intellectual capital and comprises not only tools for the measurement of intangible resources but also a vision of continuous learning and change as to create value for the future. Since being introduced in 1992, the balanced scorecard concept has been implemented at the corporate, strategic business unit and even individual level in hundreds of public and private sector organisations worldwide.
- 1.14.3 Despite its widespread use, the balanced scorecard concept does suffer from several shortcomings. Firstly, the creation of a BSC can involve a considerable amount of time on the part of everyone whose performance is to be measured. The selection of appropriate measures for the four perspectives can be especially time consuming. This is due to that fact that in any company there are a large number of potential goals and targets, and even more ways to measure them. People are likely to disagree about which objectives should be measured and how to measure those objectives, and it will take time until consensus is achieved. Secondly, a well-designed scoreboard will be useless without the participation and commitment of staff in implementing and using it. Thirdly, companies using BSC often come up with too many measures. For example, a division of one company came up with 500 important measures for its scorecard on the first pass. This is a problem because it is very difficult to accurately track a large number of measures. Fourthly, the BSC does not have an explicit focus on intellectual capital - unlike some later IC measurement models. Finally, the



fact that a BSC gathers all key indicators of business performance (and their linkages) into one management tool may deprive a company's executives of the various information flows required to remain competitive in today's challenging business environment.

1.15 Performance Prism:

- 1.15.1 The performance prism is a second-generation performance measurement and management approach developed by Cranfield School of Management in collaboration with consultancy Accenture. It recognises the importance of companies taking a holistic approach to stakeholder management in today's culture of involvement. Its advantages are that it addresses all stakeholders – not only investors but customers and intermediaries, employees, suppliers, regulators and communities. It does this in two ways: by considering the requirements of those stakeholders and, uniquely, what the organisation wants and needs from its stakeholders. In this way, the reciprocal relationship and the exchange process with each stakeholder is examined. The performance prism addresses the strategies, processes and, importantly, the capabilities that are needed to satisfy these two critical sets of wants and needs.
- 1.15.2 The flexibility of the performance prism allows it to be applied to any organisation or organizational component. The focus on intangible performance drivers makes the framework useful for companies attempting to measure their intellectual capital. Also, it creates a visual map of how the different areas of performance interrelate. It explicitly acknowledges that all five facets of the performance prism should be covered in a so-called success map. This way, it avoids the often-criticised narrowness of the balanced scorecard.



Intellectual Capital at Skandia

Maylun Bucklew

Ernst & Young Center for Information Technology and Strategy

Leif Edvinsson, Skandia AFS

The Hidden Value of Companies

The “dawning of new insight” has struck executives after they have spent a decade running companies based on bottomline. Executives are rethinking quality management, core competencies, and the value of employees, their knowledge, and experience on the job. This profile looks at what Skandia, an international, knowledge intensive company, has done since 1991 to highlight the hidden value of a company. Skandia uses, in addition to the standard book value of the official balance sheet, a new systematised approach to make tangible these hidden values. Factors such as competence base and well managed performance procedures contribute to the total value of a company. Competence base is defined as employees’ professional insights, applied experience, and organisational learning. Performance procedures are defined as how customers are handled, and how the operations, processes, business development and logistics are conducted. The more knowledge intensive a company is, the more important are these soft dimensions.

Skandia and its Growth

Skandia, a multinational insurance and financial services company, is based in Stockholm, Sweden. In 1855, Skandia was founded as an international insurance company. In 1900, Skandia was the first non-British reinsurer to have a New York office. Today, five divisions comprise Skandia: Skandia Norden, Direct Insurance Nonlife, Assurance and Financial Services, Skandia Investment Management, and Reinsurance. Employing approximately 11,000 people worldwide, Skandia has total assets of \$35 billion.

Assurance and Financial Services, AFS is the division with which this profile is concerned. AFS addresses individual clients’ financial well being through programs of long-term savings solutions. The most rapidly growing division within Skandia, AFS has grown swiftly more than 30% annually during the last six years. Spanning 10 countries with 1,200 employees and actively engaging more than 12,000 brokers, AFS takes care of almost 500,000 customers. True of most growth companies, Skandia is interested in attracting investors, and in having current as well as prospective investors understand and recognize the full value of the company.

While most companies appoint directors of finance and operations and focus company valuation on finance and operations, they lack a function to deal with hidden values. To address this, AFS created a position that focuses on developing and applying a systematic approach to hidden values. It has a director of intellectual capital. The mission of this function is to identify and improve the visibility of intangible and non material items, to capture and package these items for transfer to users, to cultivate and develop these items through training and knowledge networking, and to capitalize and economize on these items through rapid recycling of knowledge and increased commercialization.

The Director of Intellectual Capital at Skandia AFS, Leif Edvinsson, reports to the Chief Operating Officer of the AFS division and is a member of the COO team. Charged with enhancing and systematically developing the intellectual capital of the division, Leif Edvinsson works through project teams. He faces the challenge of leveraging work related to intellectual capital through other functions such as human resources, information technology, and business development (Figure 1).



With this approach, AFS is trying to build more than a “learning organization.” AFS strives for an “intelligent organization.” This is a dynamic learning and teaching organization that continuously renews its performance. Critical for this development is a federated global organization with competencies and alliances built on intellectual capital, information technology, and leadership around core cultural values.

Defining Intellectual Capital

Traditionally, companies have been assigned book values which appear in Dun and Bradstreet and Moody’s. These values are assumed to reflect the worth of the respective company, based on the financial value and the confidence in the company. Such book values are frequently referenced in traditional reporting. However, some companies can be undervalued, because they possess considerable hidden values that are not accounted for in the book value. According to Leif Edvinsson, these hidden values differentiate companies and give them a competitive edge. Therefore, grasping and systematically managing the resources that contribute to intellectual capital is essential. For companies in the knowledge area, development of new measurement approaches and indicators, in addition to traditional financial indicators, has become critical.

The AFS definition of intellectual capital is the knowledge, skill, and technologies used to create a competitive edge for Skandia. Intellectual capital encompasses the access to and use of all employees’ knowledge and applied experience, and the organizational structure, technology, and professional systems within a firm. These elements translate into competitive advantage and monetary gains.

Intellectual capital is the soft and intangible part of the value of the company in addition to the financial balance sheet (Figure 2). It is sometimes referred to as goodwill, technologies, competence, etc. A more managerial definition of **Intellectual capital is the sum of structural capital and human capital**. Human capital refers to the knowledge, skill, and experience of the employees. Structural capital refers to the extension and manifestation of human capital. It includes tangibles such as the information technology systems, brand and company images, customer databases, organizational concepts and manuals.

Describing Intellectual Capital

Leif Edvinsson uses the metaphor of a tree to describe hidden value. “Hidden value,” he says, “is the root system for the tree.” In order for it to flourish and bear fruit, the tree must have healthy, strong roots to provide the nutrients and nourishment necessary for its growth and production of fruit. The quality of the fruit, which you can see, is dependent on the roots, which you cannot see. The same goes for financial capital. To get it to flourish, you must cultivate the roots. In effect, this search for new indicators in the knowledge area turns traditional bottom line accounting upside down. Since Leif has been director, recognition of the importance of hidden values and their systematic management has increased within Skandia and AFS.

To demonstrate what intellectual capital is, take the following example. A software company has a value 15 times greater than the published book value. This greater value goes beyond the finite software products delivered. The accounting gap is due to unaccounted factors such as the millions of customers, intensive research and development, a strong market position, company brand name, etc. Very detailed financial accounting exists for the sales of software products. Rare, however, is any systematic accounting for the hidden value of customer bases, knowledge levels of people,



replacement costs of information technology systems, and the return on investment for training and development. Each employee comes equipped with his/her unique set of experiences, education, background, skills, and outside interests that amplify intelligence and combine knowledge. This set is called a competence base. What does not appear in the book value is the inherent value of the existing people, their bright ideas and competence bases, the systems, the organizational infrastructure, R&D portfolios, and customer base.

As another example, consider a film processing company. Once a chemically based operation, the company has had to transform its operations to use computer technology and electronic processing to stay competitive. This has caused the company to shift its competence base from chemistry to electronics. Such a shift is costly and not positively reflected in traditional accounting procedures. In fact, the valuation of the company may even decrease with current accounting practices. The costs of replacing staff, developing or acquiring new talent to accommodate and support the shift, maintaining that talent, and transferring the knowledge are significant. However, in terms of the company's future in image and film processing industry, such costs are necessary and positive to the well being of the company.

What led AFS to the concept of intellectual capital is the concern with speed of learning, recycling of applied experience, and international transfer of skill. Ironically, intellectual capital is invaluable to a company, and yet is assigned no value. Intellectual capital is the essential root system of companies but is often invisible in the accounting systems. Such systems show historical statistics. Intellectual capital indicates the future. Traditional systems seldom account for and measure the worth of concepts, competence, and innovation. AFS, therefore, is consciously making sure that the transfer of skills, learning, and experience takes place through the procedures it puts in place. However, managing intellectual capital is cross-functional. It is a combination of human resources development, business development and strategy, and information technology development. So, to reveal hidden value, AFS defines what performance items must be measured and how those items can be made tangible. Through this process, intellectual capital is transformed into added value.

Promoting Intellectual Capital

How does Mr. Edvinsson spend time as the Director of Intellectual Capital? Initially, much time was spent developing a language, or taxonomy, to increase awareness and share insights on the four functions of intellectual capital development. These functions are: to identify, capture, cultivate, and capitalize on intellectual capital. As part of his responsibility, Mr. Edvinsson meets with colleagues to do "missioning". A portion of his time is spent implementing information technology with the systems group for knowledge networking. This means communication technology is used to knit together employees and give them access to knowledge inside and outside the company. To refine company culture, cultivate core values, and channel leadership, he cooperates with human resources. With people in accounting he works to develop ways to measure hidden value and create intellectual capital ratios. And to initiate and implement projects, programs, and joint activities that will add to the business of AFS, he works with operating units. Another important role for the Director is to make people within and outside of Skandia aware of the hidden value of AFS, and engender cooperation for joint business growth beyond the published book value. A primary focus is to identify and measure, or "map," critical intellectual capital items within each operating unit of AFS. Through this, the importance of information technology (IT) in developing intellectual capital has become evident.



Using IT to Fertilize Intellectual Capital

A critical part to growing intellectual capital is the technological and organizational structure of the company. Hierarchically structured organizations tend to kill intellectual capital growth unless they are changed to more interactive structures which are process oriented and knowledge transfer oriented. Information technology fosters such knowledge sharing among employees and promotes efficient processes, in the case of AFS. Information technology is augmenting both the AFS operations and business.

Because IT is strategically important for the growth of AFS, it is essential to note how IT intensive AFS is. Today AFS spends twice as much, and some AFS units four times as much, as the industry average. This has led to higher administrative processing efficiency, which is measured and reported. Productivity gains there have grown about 54% over the last two years, combined with a gross income growth of over 200%.

In its growth, AFS does not acquire companies but starts them up from scratch. To minimize the startup costs of new operations and promote productivity throughout the company, AFS has developed a special prototyping system to set up AFS companies. This IT based process supports employees in opening and operating an office. Prototyping involves installing a composite of standard modules into an office. Used for a new office, these modules contain procedures and routines needed in the business. Among other things, the modules will cover how to design contracts, how to set up accounting procedures, and how to administer the product. These modules shorten time for local product customizing. Prototyping has reduced startup time by as much as 50% for some operations.

Accounting, invoicing, and financial reporting are standardized through the same body of software that supports all operations. Existing companies as well as startups use the software. Some adaptation is necessary for each location, because the computer technology used varies greatly in the already established companies. As a practical matter, Skandia has chosen to retain the existing hardware (mainframes, AS400's, IBM PC's and compatibles, and Macintoshes) and make the software work on a variety of platforms. New companies install IBM PC's and compatibles. Because the software forces standardization, employees can transfer their skills in using the software from one location to another. The AFS information technology system will integrate business units to increase the range of financial services for the client and produce a package of financial services at a lower cost than competitors.

Another way that AFS uses technology to support intellectual capital is found in the computer based training for employees. Skandia Life, an AFS daughter company, maintains one training center in England, which has specialized in self instruction training systems. Employees can choose among some 30 different computer based packages from the center and learn about product information, sales techniques, customer development, and other topics.

To facilitate knowledge sharing and transnational communication among employees, AFS is building an electronic knowledge networking and transfer system for the competence base. Plans are to make available customer and sales information and to have applications which do the processing for services that AFS provides. Employees will be able to access databases internal and external to AFS. Some of the internal databases contain overheads and other audiovisual materials, which are used in presentations. These are examples of knowledge tools. Others contain fund performance information. An IT based competence network will connect AFS worldwide and provide access to the knowledge tools and systems to transnational competencies.



Measuring Intellectual Capital

Skandia has started to describe intellectual capital through measurement of new indicators. Periodically, a balance scorecard for measuring performance on financial capital and various intellectual capital dimensions is presented to Skandia management. To define what to measure, each of the operating units of Skandia (located in the U.S., England, Columbia, Spain, Germany, and Switzerland) identified the five most relevant and critical intellectual capital items for itself, using a proprietary list of over 30 intellectual capital items. Identification was done through dialogue with local management. From these sets of the five most relevant and critical items, a set of three major intellectual capital dimensions (or categories) was derived. These are **customer** capital ratios, human capital ratios, and structural capital ratios. Within each of these dimensions, a number of intellectual capital ratios can be defined. Each intellectual capital item was discussed with management and accounting to establish a baseline ratio.

As an example, suppose the number of existing customer accounts is one ratio for which a baseline is established. That ratio can be used to measure how well the business is doing in terms of that intellectual capital item. We would score the number of new customer accounts or the growth per account. This number would be compared with the strategic goal, and then, we would look at the effect on the business by examining the profit per customer. By computing the ratio periodically, a performance controller or manager can plot the trend of the ratio and determine what intellectual capital factors should be focused on and changed in the business to improve the performance of the company.

In the interest of intellectual capital AFS invests in training and development of its employees, **places value on their** applied experience and competence, and seeks crossfertilization within the organization. Such crossfertilization adds to another critical ratio, innovation and development. This is one of the most important ratios to follow for the future value of a company.

This procedure produces more balanced reporting through the addition of intellectual capital items to traditional financial ones. Such reporting leads to more systematic management of hidden values. To sum up, this whole intellectual capital and hidden value pursuit is very much a pedagogical one. The hidden value of the company, which is not shown in traditional accounting is articulated and made tangible to provide deeper insight into future growth. The mission is to reveal hidden values which are strategic to the company's future, in order to fertilize continued growth of AFS. Transnational and global development of AFS as an entity is heavily based on further development of concepts, systems, competencies, alliances, customer bases, and organizational issues, and on packaging and dissemination of nonmaterial values throughout AFS. The speed of development relies on linking human capital to structural capital. This calls for systematic management of human and structural capital.

Intellectual capital managed this way also cultivates investors' relationships. The first time information about intellectual capital values was presented, verbally, was in the 1992 Skandia annual report. Now, such information supplements are provided quarterly as a number of balanced performance indicators for AFS. These supplements also serve to deepen the perspectives of analysts and investors.

Costs and Gains from Intellectual Capital

The intellectual capital effort is expected to save a significant amount of money over time. By using the prototyping process, AFS has reduced startup time for a new office by one-third or more. For a 30%



growth rate in new businesses, this amounts to sizable savings. In the area of competence development, the computer based training and network are expected to reduce traveling and expenditures for training. The savings each year are projected to be several times the cost of developing the systems. Other major gains are increased speed of strategic learning, systematic focusing of leadership, and increases in valuation of the company over the **book value**.

The Reach on to Intellectual Capital

Externally and internally, reactions to intellectual capital have been very good. Senior **managers** have been very supportive. They agree with the concept, appreciate the new insights, and promote key activities related to intellectual capital. Middle managers have also been supportive. They have experienced a growing need for a formal approach to intellectual capital issues in recent years. Frontline staff and the union agree with the concept and actively participate.

Many people still mistakenly view intellectual capital as a resurrection of **human resource** accounting of companies. Twenty years ago, European companies tried to establish connected audit systems to monitor training and people's attitudes, behavior, and performance. Eventually, the effort was abandoned. In contrast, the intellectual capital approach covers both human and structural capital, joining them together for more rapid growth.

The Importance of Intellectual Capital

Systematic treatment of intellectual capital at AFS highlights how important intellectual capital is. Company value depends on and includes the total worth of individuals plus company structure. That worth encompasses the knowledge, skills, and inhouse experience of each person, as well as the shared knowledge, skills and experience of all employees combined, and the organizational procedures followed in the business. That worth is dynamic and difficult to measure. AFS, however, has started to articulate and make tangible, ratios for systematic management of these factors. For AFS, intellectual capital increases company value and makes business operations more efficient. AFS is showing investors that the value of a company is dynamic and is more than just hard financial ratios. In addition, the sharing of competencies requires management of information. Information management and intellectual capital are, therefore, related. Intellectual capital at AFS involves human resources, information technology, business strategy, and the participation of employees, in order to rapidly transfer experience in the company. It is energizing and charging both the national and transnational operations at AFS.

To get people to share competencies, a company must facilitate exchange of knowledge among employees. The company must inform people of intelligence that is available, make people and intelligence accessible, and train everyone to use the information and any supporting technology.

AFS has developed vehicles to do this, using technology when appropriate. The technology and its degree of sophistication are less important than the organizational intelligence and competence of the employees. Leadership and organizational design are crucial to this process.

Measuring and valuing intellectual capital, as AFS does, promotes strategic organizational learning and teaching, and a balanced management focus on hidden values which encourages organizational survival. Intellectual capital gives sharing of knowledge legitimacy, establishes the worth of competence in a company, and places value on combined and individual skills and experience of



coworkers. Intellectual capital is invaluable and intangible. However, it manifests itself in business through productive, consistent, and efficient operations, and management that adds value. Leadership must focus on linking human capital to structural capital and producing sustained value (Figure 3). The ultimate target is to transform IQ into ECU (European Currency Units). In other words, the gray cells and intelligence are translated into hard currency.

ABOUT THE AUTHORS

Maylun BuckLew works at the Ernst Young Center for Information Technology and Strategy in Boston, Massachusetts. Leif Edvinsson is the Director of Intellectual Capital at Skandia AFS in Stockholm, Sweden.



Chapter 2

VALUATION OF FIXED ASSETS

2.1 Determining Book Value:

- 2.1.1 In asset valuation, we are interested in knowing the types of assets an organization owns, the value of these assets, and the extent or degree of uncertainty about this value. According to Damodaran, "Accounting statements do a reasonably good job of classifying the assets owned by a firm, a partial job of assessing the value of these assets, and a poor job of reporting uncertainty about asset value".
- 2.1.2 An asset is any resource that has the potential either to generate future cash inflows or to reduce future cash outflows. Thus, assets are capital items and the key resources of a firm that have the potential to confer benefits over a long period of time. They represent the infrastructure and productive assets a firm can use in producing and delivering its products and services.
- 2.1.3 The accounting view of asset value is to a great extent grounded in the notion of historical cost, which is the original cost of the asset, adjusted upward for improvements made to the asset since purchase and downward for the loss in value associated with the aging of the asset. This historical cost is called the book value.
- 2.1.4 While the generally accepted accounting principles (GAAP) for valuing an asset vary across different kinds of assets, the following three principles underlie the way assets are valued in accounting statements:
1. An abiding belief in book value as the best estimate of value. Accounting estimates of asset value begin with the book value, and unless there are compelling reasons, accountants view historical cost as the best estimate of the value of an asset.
 2. A distrust of market or estimated value. The market price of an asset is often viewed as both too volatile and too easily manipulated to be used as an estimate of value for an asset.
 3. A preference for underestimating value rather than overestimating it. A conservative approach calls for using the lower of two estimates, and therefore, when both market and book values are available for an asset, accounting rules often require that you use the lesser of the two numbers.

2.2 Measuring Asset Value:

- 2.2.1 In asset based valuation, the value of a company is equal to the net assets attributable to the equity shareholders. Asset values can be of many types:
1. Book Value
 2. Net present value based on future cash flows to be derived from the assets, and
 3. Replacement Value based on worth to be derived from the future use of the asset.
- 2.2.2 All countries have internal accounting standards and guidelines in regard to accounting for assets. The classification and codification of assets are done as per these standards, while, however, valuing these assets and determining the reliability of these values are areas still weak.



- 2.2.3 Determining Book value is centred around the balance sheet value of a company as presented in the latest Annual Report.
- 2.2.4 In terms of book-value based valuation, the principle is that a company is worth to its ordinary shareholders the value of its assets less the value of any liabilities to third parties. This is also referred to as net asset value, shareholders' funds or the book value of the equity.

2.3 Adjusting Book Value:

- 2.3.1 In the books of accounts the assets are classified according to various groups, the primary groups being fixed assets which have long-term value, current assets with short-term value, financial investments, and intangible assets.
- 2.3.2 Almost all countries, according to their GAAP, require valuation of fixed assets at historical cost, adjusted for any estimated loss in value from the aging of these assets.
- 2.3.3 Assets are thus valued at historical cost, i.e., the cost of acquisition. Costs incurred towards upgradation are added and depreciation is applied for usage of the assets. Thus, we have the gross block (original cost) and the net block (gross block - depreciation) available as book value in the accounting books.
- 2.3.4 The asset values in the books of accounts need to be adjusted to offer a closer estimate of economic value than does the conventional book value.

2.4 Tangible Assets:

- 2.4.1 Tangible assets are valued at historical cost, and depreciation is applied for diminution in value. Determining the depreciation to be charged is governed more by accounting standards, company law and income tax rules, and not by any technical estimation of the life of the asset. There are two methods by which depreciation can be charged: the straight line method and the written down value method.
- 2.4.2 Therefore, the choice of depreciation method employed and the rate of depreciation adopted can greatly influence the book value of an asset.
- 2.4.3 Land is not depreciated as it is not expected to wear out as in the case of buildings and plant and machinery.
- 2.4.4 Depending on the accounting jurisdiction, property assets such as land, buildings and plant and machinery, may be carried on the balance sheet either at historic cost or at recent market valuation, and this choice can radically affect book value.
- 2.4.5 While in India the assets are shown at historic cost, in the U.K. property owned by companies is often revalued on a regular basis and included in the accounts at close to current values. The practice in the USA, France and Germany are similar to that in India, and in all these cases of historical cost accounting, the book value will be lower than the current value.
- 2.4.6 Where properties are valued by expert valuers or surveyors using, for instance estimates of rental income, they can be considered to be included at economic value (the present value of future income generated) rather than historic cost.



- 2.4.7 However, the practice in U.K., where tangible assets are shown at lesser of depreciated book value or market value, gives a better indicator of current values, though not very accurate. The book value of assets does not take into account factors such as inflation or obsolescence. If the valuer has more detailed information on the type and age of assets than is available from the accounts, it is possible to adjust book values of fixed and, indeed current, assets to a closer estimate of current value.
- 2.4.8 Another fixed asset which may be included at other than historic cost is property-under-construction. In some countries, including India, companies are allowed to capitalize the interest they pay on debt related to the construction rather than write it off as an expense.

2.5 Factors in Fixed Asset Valuation:

2.5.1 The factors to be considered for valuation of Fixed Assets are given below:

1. Type of Buildings, Plant and Equipment
2. Specifications or Ratings of the assets
3. Make and Model
4. Year of construction/installation
5. Service conditions
6. Extent of upkeep/maintenance
7. Upgradation, Retrofits, Modifications and Modernisation of assets, if any

2.5.2 In very large projects or when time is a constraint, it is possible to estimate assets values based on certain commonly used 'rules'. Capacity costs are non-linear and follow an exponential equation. 'Factor Estimating' is an established method of estimating the cost of a project, and is widely used in Project Cost Estimation. If the cost of a given unit (C₁) is known at one capacity (Q₁) and it is desired to estimate the cost at another capacity (Q₂), the cost at the second capacity (C₂) can be determined using the following equations:

$$C_2 = C_1 * (R)^x$$

$$R = (Q_2 / Q_1)$$

This is popularly known as the 6/10 Rule. The exponent varies from 0.6 to 1, where at 1 the relationship becomes linear.

Ref: p.62-64 from The Engineer's Cost Handbook, Edited by Richard E. Westney, published by Marcel Decker, Inc., New York, USA.

- 2.5.3 Building and Civil Costs can be worked out from an *ab initio* estimation based on technical specifications and current construction costs. The Building Costs will include foundation costs (to the extent of about 15%).
- 2.5.4 Basis of Asset Valuation:
1. Replacement Cost/Value
 2. Market Value = Replacement Cost – Depreciation
 3. Agreed Value



- 2.5.5 Replacement Cost/Value is the Current Cost of a new asset of same kind – Value of similar new property, and is based on current prices/quotes. However, it is costly to determine, time consuming, and is not always feasible.
- 2.5.6 The factors that need to be taken into account in arriving at the replacement cost are:
1. Current F.O.B/F.O.R Cost of a new asset
 2. Price escalation
 3. Foreign Currency rate
 4. Duties & Taxes : Customs/Excise / S.Tax
 5. Set off as Cenvat credit
 6. Freight, Insurance, Handling, Inland transit
 7. Erection costs
- 2.5.7 Market Value: It is the amount at which a property of the same age and description can be bought or sold.
- 2.5.8 Estimating of replacement costs can be done by indexing the original acquisition costs, or through an *ab initio* estimating from technical specifications. Determination of market value requires estimating depreciation or the life of an asset and the residual life of an asset.
- 2.5.9 Agreed Values are arrived at for properties whose Market Value cannot be ascertained, such as Curios, Works of art, Manuscripts, and Obsolete machinery. However, such valuations require Valuation certificate from expert valuers.

Valuation of Fixed Assets

ILLUSTRATIONS

- Q 1. On 1-4-2008 B Ltd. had sold some of its fixed assets for Rs. 200 lakhs [written down value Rs. 500 lakhs, these assets were revalued earlier. As on 1-4-2008 the revaluation reserve corresponding to these assets stood at Rs. 400 lakhs. The profit on sale of property Rs. 400 lakhs shown in the profit and loss statement represented the transfer of this amount. Loss on sale of asset was included in the cost of goods sold. Comment.

Solution : As per Para 32 of AS-10, on accounting for fixed assets. On disposal of a previously revalued item of fixed assets, the difference between net disposal proceeds and the net book value is normally charged or credited to the profit and loss statement except that to the extent such a loss is related to an increase which was previously recorded as a credit to revaluation reserve and which has not been subsequently reversed or utilized, it is charged directly to that account. The amount standing in revaluation reserve following the retirement or disposal of an asset, which relates to that asset, may be transferred to general reserve. Accordingly, the following journal entries are to be passed



(Rs. in lakhs)

Profit on sale of property Dr. 400	Dr	400	
To Cost of goods sold			300
To General Reserve			100

- Q 2. Sharma Ltd. expects that a plant has become useless which is appearing in the books at Rs. 20 lakhs gross value. The company charges SLM depreciation on a period of 10 years estimated life and estimated scrap value of 3%. At the end of 7th year the plant has been assessed as useless. Its estimated net realisable value is Rs. 6,20,000. Determine the loss/gain on retirement of the fixed assets.

Solution: Cost of the plant Rs. 20,00,000

Estimated realisable value Rs. 60,000

Depreciable amount Rs. 19,40,000

Depreciation per year Rs. 1,94,000

Written down value at the end of 7th Year = $20,00,000 - (1,94,000 \times 7) = \text{Rs. } 6,42,000$

As per Para 14.2 of AS-10, items of fixed assets that have been retired from active use and are held for disposal are stated at the lower of their net book value and net realisable value and are shown separately in the financial statements. Any expected loss is recognized immediately in the profit and loss statement. Accordingly, the loss of Rs. 22,000 ($6,42,000 - 6,20,000$) to be shown in the profit and loss account and asset of Rs. 6,20,000 to be shown in the balance sheet separately.

- Q 3. A company has purchased plant and machinery in the year 2006-07 for Rs. 90 lakhs. A balance of Rs. 10 lakhs is still payable to the suppliers for the same. The supplier waived off the balance amount during the financial year 2008-2009. The company treated it as income and credited to profit and loss account during 2008 -2009.

Whether accounting treatment of the company is correct. If not, state with reasons.

Solution : As per Para 9.1 of AS-10 the cost of fixed assets may undergo changes subsequent to its acquisition or construction on account of exchange fluctuation, price adjustments, changes in duties or similar factors. Considering Para 9.1 the treatment done by the company is not correct. Rs. 10 lakhs should be deducted from the cost of fixed assets.

- Q 4. J Ltd. purchased a machine costing Rs. 2,50,000 for its manufacturing operations and paid shipping costs of Rs. 40,000. J Ltd. spent an additional amount of Rs. 20,000 for testing and preparing the machine for use. What amount should NDA record as the cost of the machine?

Solution : As per Para 20 of AS-10, the cost of fixed asset should comprise its purchase price and any attributable cost of bringing the asset to its working condition for its intended use. In this case the cost of machinery includes all expenditures incurred in acquiring the asset and preparing it for use. Cost includes the purchase price, freight and handling charges, insurance cost on the machine while in transit, cost of special foundations, and costs of assembling, installation, and testing. Therefore the cost to be recorded is Rs. 3,10,000 ($\text{Rs. } 2,50,000 + \text{Rs. } 40,000 + \text{Rs. } 20,000$)



- Q 5. On April 1, 2009, Hyatt Ltd. purchased Rs. 12,00,000 worth of land for a factory site. Induga razed an old building on the property and sold the materials it salvaged from the demolition. Hyatt incurred additional costs and realized salvage proceeds during April 2009 as follows :

Demolition of old building	Rs. 1,50,000
Legal fees for purchase contract and recording ownership	Rs. 30,000
Title guarantee insurance	Rs. 36,000
Proceeds from sale of salvaged materials	Rs. 24,000

In its April 30, 2009 Balance Sheet, Hyatt Ltd. should report a balance in the land account.

Solution: As per Para 20 of AS-10, the cost of land should include all expenditure incurred preparing it for its ultimate use (such as factory site) is considered part of the cost of land. Before the land can be used as a building site, it must be purchased (involving costs such as purchase price, legal fees, and title insurance) and the old building must be razed (cost of demolition less proceeds from sale of scrap). The total balance in the land account should be Rs. 13,92,000.

Purchase price	Rs. 12,00,000
Legal Fees	Rs. 30,000
Title Insurance	Rs. 36,000
Net cost of demolition (Rs. 1,50,000 – Rs. 24,000)	Rs. 1,26,000
	Rs. 13,92,000

- Q 6. On March 31, 2009, Hero Ltd. traded in an old machine having a carrying amount of Rs. 8,400, and paid cash difference of Rs. 3,000 for a new machine having a total cash price of Rs. 10,250. On March 31, 2009, what amount of loss should Winn Company recognize on this exchange?

Solution : As per Para 22 of AS-10, — When a fixed asset is acquired in exchange or in part exchange for another asset, the cost of the asset acquired should be recorded either at fair market value or at the net book value of the asset given up, adjusted for any balancing payment or receipt of cash or other consideration. The cash price of the new machine represents its fair market value (FMV). The FMV of the old machine can be determined by subtracting the cash portion of the purchase price (Rs. 3,000) from the total cost of the new machine. $Rs. 10,250 - Rs. 3,000 = Rs. 7,250$. Since the book value of the machine [Rs. 8,200] exceeds its FMV on the date of the trade in (Rs. 7,250), the difference of Rs. 1,150 must be recognized as a loss, however, if the FMV of the old machine had exceeded its book value, the gain would not be recognized.

- Q7. A building suffered uninsured fire damage. The damaged portion of the building was renovated with higher quality materials. The cost and related accumulated depreciation of the damaged portion are identifiable. To account for these events, the owner should
- Reduce accumulated depreciation equal to the cost of renovation.
 - Record a loss in the current period equal to the sum of the cost of refurbishing and the carrying amount of the damaged portion of the building.
 - Capitalize the cost renovation and record a loss in the current period equal to the carrying amount of the damaged portion of the building.



(d) Capitalize the cost of renovation by adding the cost to the carrying amount of the building.

Solution: (c) When an entity suffers a casualty loss to an asset; the accounting loss is recorded at the net carrying value of the damaged asset, if known. In this case, the cost and related accumulated depreciation are identifiable. The entity should therefore recognize a loss in the current period equal to the carrying amount of the damaged portion of the building. The renovation of the building, which is an economic event separate from the fire damage, should be treated similarly as the purchase of other assets or betterments. The cost of renovating the building should therefore be capitalized and depreciated over the shorter of the renovation's useful lives or the useful life of the building.

Loss A/c Dr.

Accumulated Depreciation A/c Dr.

To Building A/c

Building A/c Dr.

Cash A/c

Therefore, answer (c) is correct and answer (b) is incorrect. Answer (d) is incorrect because in order to reduce the accumulated depreciation account, the useful life of the asset must be extended. In this case, there is no mention of this fact. Answer (d) is incorrect because it fails to recognize the casualty loss and properly remove the cost and accumulated depreciation on the damaged portion of the building from the accounting records.

Note: If the components of the damaged portion were not identifiable, the following entry would be made:

Loss A/c Dr.

To Cash A/c

Q 8. A conveyor system was capitalized on 01-01-09 with value of Rs. 82.74 lakhs. The break-up of the capital cost was as follows :

Civil & Mechanical structure	23.44
Driving units and plumbing	10.80
Rope	5.66
Belt	22.34
Safety and electrical equipments	12.30
Other accessories	8.20
	82.74

During the financial year 2008-2009 due to wear and tear, the rope used in the conveyor system was replaced by a new one at cost of Rs. 16 crores. As new rope did not increase the capacity and is a component of the total assets. The company charged the full cost of the new rope to repairs and maintenance. Old rope continues to appear in the books of account and is charged with depreciation every year.



Whether the above accounting treatment is correct. If not, give the correct accounting treatment with explanation.

Solution : As per Para 23 of AS-10 - Subsequent expenditure relating to an item of fixed asset should be added to its book value only if it increases the future benefits from the existing asset beyond its previously assessed standard of performance. In the instant case, the new replaced rope does not increase the future benefits from the assets beyond their previously assessed performance, therefore the cost of replacement of rope should be charged to revenue, however in doing so the estimated scrap value of the old rope should be deducted from the cost of new rope.

- Q9. One customer from whom Rs. 15 lakhs are recoverable for credit sales given a motor car in full settlement of dues. The directors estimate that the market value of the motor car transferred is Rs. 15.75 lakhs. As on the date of the balance sheet the car has not been registered in the name of the auditee. As an auditor, what would you do in the following situations?

Solution : The motor car has been acquired in exchange for another assets i.e. receivables. The fair value of motor car is Rs. 15.75 lakhs and that of receivable Rs. 15 lakhs. As per AS-10 the asset acquired in an exchange of assets should be valued at the fair market value of assets acquired or the asset given up, whichever is more clearly evident. Here fair market value of the assets given up obviously more clearly evident. Hence, the motor car should be valued at Rs. 15 lakhs. Also the motor car should be recognised as an asset even though it is not yet registered in auditee's name. This is because legal title is not necessary for an asset to exist. What is necessary is control as per the framework for preparation and presentation of financial statements. Applying substance over form we find since price has been settled, the auditee has control, hence it should be reflected as an asset along with a note to the effect that the registration in auditee name is pending.

- Q10. NDA Limited purchased a machine of Rs. 50 lakhs including excise duty of Rs. 10 lakhs. The excise duty is Cenvatable under the excise laws. The enterprise intends to avail CENVAT credit and it is reasonably certain to utilize the same within reasonable time. How should the excise duty of Rs. 10 lakhs be treated?

Solution : (Rs. in lakhs)

Year of acquisition

Machine Account	Dr.	40
CENVAT Credit Receivable Account	Dr.	5
CENVAT Credit Deferred Account	Dr.	5
To Supplier's Account		50
Next Year		
CENVAT credit receivable Account	Dr.	5
To CENVAT credit deferred Account		5



Chapter 3

VALUATION OF INVENTORIES

3.1 Current Assets:

- 3.1.1 Current assets include inventories, cash, accounts receivables and marketable securities.
- 3.1.2 **Accounts Receivables** are the sums owned by the customers to whom products have been sold or services rendered on credit. The accounting convention is for accounts receivables to be recorded as the amount owed to the company based on the billing at the time of the credit sale. The only major valuation and accounting issue is when the company has to recognize accounts receivable that are not collectible. Companies can set aside a portion of their income to cover expected bad debts from credit sales, and accounts receivables will be reduced by this reserve. Alternatively, the bad debts can be recognized as they occur, and the company can reduce the accounts receivable accordingly.
- 3.1.3 **Cash:** While valuing cash should not pose any problem in the normal course, problem will arise when is deployed in short-term interest-bearing deposits or treasury deposits. These are generally risk-free and there is no default risk. However, interest rate movements can affect their value.

3.2 Valuation of Inventories:

- 3.2.1 Inventories are generally valued on the three commonly bases:
- FIFO (First-In-First-Out)
 - LIFO (Last-In-First-Out), and
 - Weighted Average.
- 3.2.2 The method adopted will have a bearing on the cost of goods sold as well as the closing stock. Under FIFO, the cost of goods sold will bear more of the cost of materials bought during earlier periods, while the closing stock will reflect the more recent or current replacement cost. In LIFO, the converse will hold good. Under Weighted average method, both the cost of goods sold and closing inventory will bear the average cost of materials purchased during the period.
- 3.2.3 Raw materials purchased at Rs.10 per kg. price of materials is on the decline. The finished goods in which the raw material is incorporated are expected to be sold at below cost. 1,000 kgs of raw material is in stock at the year-end. Replacement cost is Rs.8 per kg. How will you value the inventory?

Answer: As per para 24 of AS-2, on valuation of inventories, material and other supplies held for use in the production of inventories are not written down below cost if the finished products in which they will be incorporated are expected to be sold at or above cost. However, when there is a decline in the price of materials and it is estimated that the cost of the finished products will exceed net realizable value, the materials are written down to net realizable value.

Hence, the value of stock of 1,000 kgs. of raw materials will be valued at Rs.8 per kg. The finished stock should be valued at cost or net realizable value, whichever is lower.



3.2.4 Cost of Production of product A is given below:

Raw material per unit	Rs.150
Wages per unit	Rs.50
Overhead per unit	Rs.50
	Rs.250

As on the balance sheet date the replacement cost of raw material is Rs.110 per unit. There are 100 units of raw material on 31.3.08.

Calculate the value of closing stock of raw materials in the following conditions:

- (i) If finished product is sold at Rs.275 per unit, what will be the value of closing stock of raw material?
- (ii) If finished product is sold at Rs.230 per unit, what will be the value of closing stock of raw material?

Answer: (i) The realizable value of the product is more than the total cost of the product. The cost of raw material per unit is more than the replacement cost, hence, raw materials should be valued on actual cost.

Therefore, the value of raw materials: 100 units x Rs.150 per unit= Rs.15,000

- (ii) The realizable value of the product is less than the total cost of the product. Though the cost of raw material per unit is more than the replacement cost, hence, raw materials should be valued on replacement cost.

Therefore, the value of raw materials: 100 units x Rs.110 per unit= Rs.11,000



Chapter 4

VALUATION OF INVESTMENTS

4.1 Financial Investments and Marketable Securities:

(Adapted from Investment Valuation by Aswath Damodaran, Wiley Finance)

4.1.1 Financial Investments and Marketable Securities include investments made by companies in the securities or assets of other firms or companies, as well as marketable securities including treasury bills or bonds. The valuation approach in respect of these assets depends on the way the investment is categorized and the motive behind the investment.

4.1.2 An investment in the securities of another organization can be categorized as follows:

1. A minority passive investment
2. A minority active investment
3. A majority active investment

4.1.3 **A minority passive investment:**

An investment is treated as a minority passive investment when the securities or assets owned in another organization is less than, say, 20% of the overall ownership of that organization. These investments have an acquisition value, which represents what the organization originally paid for the securities, and often a market value. Accounting principles require that these assets be sub-categorized into the following groups:

a. **Investments that will be held to maturity:**

For these investments, the valuation is at historical cost or book value, and interest or dividends from these investments are shown in the income statement.

b. **Investments that are available for sale:**

For these investments, the valuation is at market value, but the unrealized gains or losses are shown as part of the equity in the balance sheet and not in the income statement. Thus, unrealized losses reduce the book value of the equity in the company, and unrealized gains will increase the book value of the equity.

c. **Trading investments:**

For these investments, the valuation is at market value, and the unrealized gains or losses are shown in the income statement.

4.1.4 **A minority active investment:**

An investment is treated as a minority active investment when the securities or assets owned in another organization lies between, say, 20% and 50% of the overall ownership of that organization. These investments have an acquisition value, a proportional share based on ownership proportion of the net income and losses made by the company in which the investment was made is used



to adjust the acquisition cost. Besides, the dividends received from the investment reduce the acquisition cost. This approach to valuing investments is called the equity approach.

The market value of these investments is not considered until the investment is liquidated, at which point the gain or loss from the sale relative to the adjusted acquisition cost is shown as part of the earnings in that period.

4.1.5 A majority active investment:

An investment is treated as a majority active investment when the securities or assets owned in another organization represents more than, say, 50% of the overall ownership of that organization.

In this case, the investment is no longer shown as a financial investment but is instead replaced by the assets and liabilities of the company in which the investment was made. This approach leads to a consolidation of the balance sheets of the two companies, where the assets and liabilities of the two companies are merged and presented as one balance sheet. The share of the equity owned by the other investors is shown as a minority interest on the liability side of the balance sheet. A similar consolidation occurs in all the other financial statements of the company, with the statement of cash flows reflecting the cumulative cash inflows and outflows of the combined company. This is in contrast to the equity approach used for minority active investments, in which only the dividends received on the investment are shown as a cash inflow in the cash flow statement.

Here again, the market value of these investments is not considered until the investment is liquidated, at which point the difference between the market price and the net value of the equity stake in the company is treated as a gain or loss for that period.

4.1.6 In preparing the financial statements of X Ltd. for the year ended 31st March,2007, you come across the following information. State with reasons, how would you deal with them in the financial statements:

“ An unquoted long term investment is carried in the books at a cost of Rs.5 lakhs. The published accounts of the unlisted company received in June 2008 showed that the company was incurring cash losses with declining market share and the long term investment may not fetch more than Rs.1 lakh”.

Answer: As per AS-13, the long term investments should be carried in the financial statements at cost. If there is a diminution in the value of long term investments, which is not temporary in nature, provision should be made for each investment individually. Any reduction in the carrying amount should be charged to the Profit and Loss Account.

The long term investments are carried at a cost of Rs.5 lakhs in the books of accounts. The value of investments fall down to Rs.1 lakh due to cash losses and the declining market share of the company in which the investments were made.

In view of the provision contained in AS-13, the carrying amount of long-term investments should be brought down to Rs.1 lakh and Rs.4 lakhs should be charged to Profit and Loss Account for the year ended 31st March,2008.

4.1.7 A company has invested a substantial amount in the shares of another company under the same management. The market price of the shares of the aforesaid company is about half of that at



which these shares were acquired by the company. The management is not prepared to provide for the fall in the value of shares on the ground that the loss is only notional till the time the shares are actually sold?

Answer: As per AS-13, for the purpose of determining carrying amount of shares the investment has to be classified into long-term and current; in the instant case, it appears that the investment is long-term, hence it should be carried at cost, unless there is a permanent diminution in value of investment. At the market price, investment is half of its cost. The reduction appears to be heavy and permanent, hence the provision for permanent diminution(decrease) in value of investment should be made. The contention of management is not as per AS-13.

- 4.1.8 MAGIC Bank has classified its total investment on 31.3.2008 into three categories: (a) held to maturity (b) available for sale (c) held for trading.

Held to maturity investment is carried at acquisition cost less amortised amount. Available for sale are carried at marked to market. Held for trading investments are valued at weekly intervals at market rates or as per the prices declared by FIMMDA. Net depreciation, if any, is charged to revenue and net appreciation, if any, is ignored. Comment on the policy of the bank in accordance with AS-13.

Answer: As per para 2(d) of AS-13, the accounting standard is not applicable to bank, insurance company, mutual funds. In this case, MAGIC Bank is a bank, therefore AS-13 does not apply here. For the banks, the RBI has issued guidelines for classification and valuation of the investment. Therefore, the MAGIC Bank should comply with RBI guidelines.



Chapter 5

VALUATION OF SHARES

Basic Definitions:

Common Stock - Ownership shares in a publicly held corporation.

Secondary Market - market in which already issued securities are traded by investors.

Dividend - Periodic cash distribution from the firm to the shareholders.

P/E Ratio - Price per share divided by earnings per share.

Book Value - Net worth of the firm according to the balance sheet.

Liquidation Value - Net proceeds that would be realized by selling the firm's assets and paying off its creditors.

Market Value Balance Sheet - Financial statement that uses market value of assets and liabilities.

Expected Return - The percentage yield that an investor forecasts from a specific investment over a set period of time. Sometimes called the *market capitalization rate*.

Payout Ratio - Fraction of earnings paid out as dividends.

Plowback Ratio - Fraction of earnings retained by the firm.

Present Value of Growth Opportunities (PVGO) - Net present value of a firm's future investments.

Sustainable Growth Rate - Steady rate at which a firm can grow: plowback ratio X return on equity.

5.1 Basics of Company Analysis and Stock Selection:

- 5.1.1 It should be remembered that good companies are not necessarily good investments. As an investor we are interested in comparing the intrinsic value of a stock to its market value. A prudent investor should bear in mind that the stock of a great company may be overpriced, while the stock of a lesser company may be a superior investment since it is undervalued.
- 5.1.2 What are growth companies and growth stocks? Companies that consistently experience above-average increases in sales and earnings have traditionally been thought of as growth companies. Financial theorists define a growth company as one with management and opportunities that yield rates of return greater than the firm's required rate of return.
- 5.1.3 Growth stocks do not necessarily refer to shares in growth companies. A growth stock has a higher rate of return than other stocks with similar risk. Superior risk-adjusted rate of return occurs because of market under-valuation compared to other stocks. Studies indicate that growth companies have generally not been growth stocks.
- 5.1.4 Defensive companies' future earnings are more likely to withstand an economic downturn, due to low business risk and not excessive financial risk. Defensive stocks' returns are not as susceptible to changes in the market, as they represent stocks with low systematic risk.
- 5.1.5 Cyclical companies' sales and earnings heavily influenced by aggregate business activity, due to high business risk and sometimes high financial risk as well. Cyclical stocks experience high returns in up markets, low returns in down markets. They are stocks with high betas.
- 5.1.6 Speculative companies invest in assets involving great risk, but with the possibility of great gain as



they have very high business risk. Speculative stocks have the potential for great percentage gains and losses. They may be firms whose current price-earnings ratios are very high.

- 5.1.7 Growth stocks will have positive earnings surprises and above-average risk adjusted rates of return because the stocks are undervalued. Value stocks appear to be undervalued for reasons besides earnings growth potential. They usually have low P/E ratio or low ratios of price to book value.

5.2 Theory of Valuation:

- 5.2.1 The value of a financial asset is the present value of its expected future cash flows. The inputs required for valuation are:

- a. The stream of expected future returns, or cash flows,
- b. The required rate of return on the investment.

- 5.2.2 Stream of Expected Returns (Cash Flows): Depending on the investment, returns can be in the form of:

- Earnings
- Dividends
- Interest payments
- Capital gains

The time period and growth rate of returns are important. This essentially means when the cash flows from the investment will be received.

- 5.2.3 Required Rate of Return:

This is determined by the risk of an investment and available returns in the market. Therefore, this is determined by:

1. The real risk-free rate of return, plus
2. The expected rate of inflation, plus
3. A risk premium to compensate for the uncertainty of returns

Sources of uncertainty, and therefore risk premiums, vary by the type of investment.

- 5.2.4 Investment Decision Process:

Once the expected (intrinsic) value is calculated, the investment decision is rather straightforward and intuitive:

- If Estimated Value > Market Price, buy
- If Estimated Value < Market Price, do not buy

The particulars of the valuation process vary by type of investment.



5.3 Valuation of Alternative Investments:

5.3.1 We will consider the valuation of two important types of investments:

- a. The valuation of bonds
- b. The valuation of common stock

5.3.2 Valuation of Bonds:

The cash flows for Bond are typically fixed:

- a. Interest payments, for example, every six months equal to one-half of: (Coupon rate x Face value).
- b. The payment of principal (Face or par value) at maturity.

Discount at the required rate of return to find the bond's value. The process made relatively easy with a financial calculator or spreadsheet software.

5.3.3 Approaches to Common Stock Valuation:

There are a number of methods when it comes to common stock valuation. They are given below:

1. Discounted Cash Flow Techniques:
 - Present value of Dividends (DDM)
 - Present value of Operating Cash Flow
 - Present value of Free Cash Flow
2. Relative valuation techniques:
 - Price-earnings ratio (P/E)
 - Price-cash flow ratios (P/CF)
 - Price-book value ratios (P/BV)
 - Price-sales ratio (P/S)

5.3.4 Discounted Cash Flow Techniques:

This is based on the basic valuation model: the value of a financial asset is the present value of its expected future cash flows:

$$V_j = \sum CF_t / (1+k)^t$$

The different discounted cash flow techniques consider different cash flows and also different appropriate discount rates.

5.4 Dividend Discount Models:

5.4.1 Simplifying assumptions help in estimating present value of future dividends:

$$V_j = \sum D_t / (1+k)^t$$

Can also assume various dividends for a finite period of time with a reselling price, and simply calculate the combined present value of the dividends.

Alternative dividend assumptions:



5.4.2 Constant Growth Model:

- Assumes dividends started at D_0 (last year's dividend) and will grow at a constant growth rate
- Growth will continue for an infinite period of time
- The required return (k) is greater than the constant rate of growth (g)

$$V = D_1 / (k - g)$$

$$\text{where } D_1 = D_0(I + g)$$

The growth rate can be estimated from past growth in earnings and dividends, using the sustainable growth model. The discount rate would consider the systematic risk of the investment (beta).

5.4.3 Valuation with Temporary Supernormal Growth:

If you expect a company to experience rapid growth for some period of time:

- Find the present value of each dividend during the supernormal growth period separately.
- Find the present value of the remaining dividends when constant growth can be assumed.
- Find the present value of the remaining dividends by finding the present value of the estimate obtained in step 2.

5.5 Present Value of Operating Cash Flows:

5.5.1 Another discounted cash flow approach is to discount operating cash flows. Operating cash flows are pre-interest cash flows, so the required rate of return would be adjusted to incorporate the required returns of all investors (use the WACC)

$$V_{Fj} = \sum OCF_t / (1 + WACC_j)^t$$

5.5.2 If we further assume a growth rate of g_{OCF} for operating cash flows, we can value the firm as:

$$V_{Fj} = OCF_t / (WACC_j - g_{OCF})$$

5.6 Present Value of Free Cash Flow to Equity:

5.6.1 A third discounted cash flow technique is to consider the free cash flows of a firm available to equity as the cash flow stream to be discounted. Since this is an equity stream, the appropriate discount rate is the required return on equity:

$$V_{Sj} = \sum FCF_t / (1 + k_j)^t$$

Once again, if we want constant growth in free cash flows, this expression reduces to the following:

$$V_{Sj} = FCF_t / (k_j - g_{FCF})$$

5.7 Relative Valuation Techniques:

5.7.1 These techniques assume that prices should have stable and consistent relationships to various firm variables across groups of firms:



- a. Price-Earnings Ratio
- b. Price-Cash Flow Ratio
- c. Price-Book Value Ratio
- d. Price-Sales Ratio

5.7.2 Price – Earnings Ratio:

The Price-Earnings ratio, popularly known as P/E ratio, is affected by two variables:

1. Required rate of return on its equity (k)
2. Expected growth rate of dividends (g)

$$P/E_1 = \frac{D_1/E}{k - g}$$

Look at the relationship between the current market price and expected earnings per share over the next year. The ratio is the earnings multiplier, and is a measure of the prevailing attitude of investors regarding a stock's value.

Using the P/E approach to valuation:

1. Estimate earnings for next year
2. Estimate the P/E ratio (Earnings Multiplier)
3. Multiply expected earnings by the expected P/E ratio to get expected price

$$V = E_1 \times (P/E)$$

5.7.3 Price - Cash Flow Ratio:

Cash flows can also be used in this approach, and are often considered less susceptible to manipulation by management. The steps are similar to using the P/E ratio.

$$V = CF_1 \times (P/CF)$$

5.7.4 Price-Book Value Ratio:

Book values can also be used as a measure of relative value. The steps to obtaining valuation estimates are again similar to using the P/E ratio.

$$V = BV_1 \times (P/BV)$$

5.7.5 Price-Sales Ratio:

Finally, sales can be used in relation to stock price. There are some drawbacks, in that sales do not necessarily produce profit and positive cash flows. The advantage is that sales are also less susceptible to manipulation. The steps are similar to using the P/E ratio.

$$V = S_1 \times (P/S)$$

Examples:

$$\text{Expected Return} = r = (\text{Div}_1 + P_1 - P_0) / P_0$$



Example: If Modern Electronics is selling for Rs.100 per share today and is expected to sell for Rs.110 one year from now, what is the expected return if the dividend one year from now is forecasted to be Rs.5.00?

$$\text{Expected Return} = r = (5 + 110 - 100) / 100 = 0.15$$

The formula can be broken into two parts:

Dividend Yield + Capital Appreciation

$$\text{Expected Return} = r = (\text{Div}_1 / P_0) + [(P_1 - P_0) / P_0]$$

Capitalization Rate can be estimated using the perpetuity formula, given minor algebraic manipulation.

$$\begin{aligned} \text{Capitalization Rate} = P_0 &= [\text{Div}_1 / (r - g)] \\ r &= (\text{Div}_1 / P_0) + g \end{aligned}$$

$$\text{Dividend Yield} = \text{Div}_1 / P_0$$

$$\text{Return on Equity} = \text{ROE} = \text{EPS} / \text{Book Value per share}$$

Dividend Discount Model - Computation of today's stock price which states that share value equals the present value of all expected future dividends.

$$i = n$$

$$P_0 = \sum_{i=1}^n [\text{Div}_i / (1+r)^i]$$

$$i = 1$$

i = the time horizon of the investment.

Example:

Current forecasts are for XYZ Company to pay dividends of Rs.3, Rs.3.24, and Rs.3.50 over the next three years, respectively. At the end of three years you anticipate selling your stock at a market price of Rs.94.48. What is the price of the stock given a 12% expected return?

$$PV = \frac{3.00}{(1+0.12)^1} + \frac{3.24}{(1+0.12)^2} + \frac{3.50+94.48}{(1+0.12)^3}$$

$$PV = \text{Rs.75/-}$$

If we forecast no growth, and plan to hold out stock indefinitely, we will then value the stock as a **PERPETUITY**.

$$\text{Perpetuity} = P_0 = (\text{Div}_1 / r)$$

$$= \text{EPS}_1 / r \text{ [Assumes all earnings are paid to shareholders]}$$

Constant Growth DDM - A version of the dividend growth model in which dividends grow at a constant rate (*Gordon Growth Model*).



Example - continued

If the same stock is selling for Rs.100 in the stock market, what might the market be assuming about the growth in dividends?

$$100 = 3 / (0.12 - g)$$

$$g = 0.09$$

The market is assuming the dividend will grow at 9% per year, indefinitely.

If a firm elects to pay a lower dividend, and reinvest the funds, the stock price may increase because future dividends may be higher.

Growth can be derived from applying the return on equity to the percentage of earnings plowed back into operations.

$$g = \text{return on equity} \times \text{plowback ratio}$$

Example:

Our company forecasts to pay a Rs.5.00 dividend next year, which represents 100% of its earnings. This will provide investors with a 12% expected return. Instead, we decide to plow back 40% of the earnings at the firm's current return on equity of 20%. What is the value of the stock before and after the plowback decision?

No Growth

$$\begin{aligned} P_0 &= (5 / 0.12) \\ &= \text{Rs.41.67/-} \end{aligned}$$

With Growth

$$\begin{aligned} g &= 0.2 \times 0.4 = 0.08 \\ P_0 &= [3 / (0.12 - 0.08)] \\ &= \text{Rs.75/-} \end{aligned}$$

If the company did not plowback some earnings, the stock price would remain at Rs.41.67. With the plowback, the price rose to Rs.75.00.

The difference between these two numbers (75.00-41.67=33.33) is called the Present Value of Growth Opportunities (PVGO).

Free Cash Flows (FCF) should be the theoretical basis for all PV calculations.

FCF is a more accurate measurement of PV than either Div or EPS.

The market price does not always reflect the PV of FCF.

When valuing a business for purchase, always use FCF.



Valuing a Business

The value of a business is usually computed as the discounted value of FCF out to a **valuation horizon (H)**.

The valuation horizon is sometimes called the terminal value and is calculated like **PVGO**.

$$PV = \frac{FCF_1}{(1+r)^1} + \frac{FCF_2}{(1+r)^2} + \dots + \frac{FCF_i}{(1+r)^i} + \frac{PV_i}{(1+r)^i}$$

$$PV \text{ (free cash flows)} = \frac{FCF_1}{(1+r)^1} + \frac{FCF_2}{(1+r)^2} + \dots + \frac{FCF_i}{(1+r)^i}$$

$$PV \text{ (horizon value)} = \frac{PV_i}{(1+r)^i}$$

Example

Given the cash flows for Modern Manufacturing Division, calculate the PV of near term cash flows, PV (horizon value), and the total value of the firm. $r = 10\%$ and $g = 6\%$

	Year									
	1	2	3	4	5	6	7	8	9	10
Asset Value	10.00	12.00	14.40	17.28	20.74	23.43	26.47	28.05	29.73	31.51
Earnings	1.20	1.44	1.73	2.07	2.49	2.81	3.18	3.36	3.57	3.78
Investment	2.00	2.40	2.88	3.46	2.69	3.04	1.59	1.68	1.78	1.89
Free Cash Flow	-.80	-.96	-1.15	-1.39	-.20	-.23	1.59	1.68	1.79	1.89
.EPS growth (%)	20	20	20	20	20	13	13	6	6	6

$$PV(\text{horizon value}) = \frac{1}{(1.1)^6} \left(\frac{1.59}{.10-.06} \right) = 22.4$$

$$PV(\text{FCF}) = -\frac{.80}{1.1} - \frac{.96}{(1.1)^2} - \frac{1.15}{(1.1)^3} - \frac{1.39}{(1.1)^4} - \frac{.20}{(1.1)^5} - \frac{.23}{(1.1)^6}$$

$$\begin{aligned} PV(\text{business}) &= PV(\text{FCF}) + PV(\text{horizon value}) \\ &= -3.6 + 22.4 \\ &= \$18.8 \end{aligned}$$

ILLUSTRATION

Illustration 1 - Z Ltd. has an issued and paid-up capital of 50,000 shares of Rs. 100 each. The company declared a dividend of Rs. 12.50 lakhs during the last five years and expects to maintain the same level of dividends in the future. The control and ownership of the company is lying in the few hands of Directors and their family members. The average dividend yield for listed companies in the same line of business is 18%.



Calculate the value of 3,000 shares in the company.

Solution:

$$\text{Dividend per share} = \frac{\text{Rs. } 12,50,000}{50,000} = \text{Rs. } 25$$

$$\text{Dividend yield} = 18\%$$

$$\text{Value per share} = \frac{2.5}{0.18} = \text{Rs. } 138.90$$

$$\text{Value of 3,000 shares} = 3,000 \times \text{shares Rs. } 138.90 = \text{Rs. } 4,16,700/-$$

Illustration 2 - C Ltd. has declared dividend during the past five years as follows:

Year	Rate of Dividend %
2004-05	12
2005-06	14
2006-07	18
2007-08	21
2008-09	24

The average rate of return prevailing in the same industry is 15%. Calculate the value per shares of Rs. 10 of C Ltd. based on the dividend yield method.

Solution:

The dividend rate is calculated based on the weighted average method as follows:

Year	Rate of Dividend %	Weight	Product
2004-05	12	1	12
2005-06	14	2	28
2006-07	18	3	54
2007-08	21	4	84
2008-09	24	5	120
Total		15	298

Weighted average rate of dividend = $298/15 = 19.87\%$

$$\begin{aligned} \text{Value of Equity Share} &= \frac{\text{Company's rate of dividend}}{\text{Industry's normal dividend}} \times \text{Nominal value of share} \\ &= \frac{19.87}{15} \times 10 = \text{Rs. } 132.50 \end{aligned}$$



Illustration 3 - The Balance Sheet of Y Ltd. as at 31st March, 2009 is given below:

<i>Liabilities</i>	<i>Rs.</i>	<i>Assets</i>	<i>Rs.</i>
Equity Share capital (5,00,000 shares of Rs. 10 each)	50,00,000	Land	14,00,000
General Reserve	15,00,000	Buildings	23,00,000
Debentures (14%)	10,00,000	Plant and Machinery	28,00,000
Sundry Creditors	5,00,000	Sundry Debtors	6,00,000
Bank Overdraft	4,00,000	Inventory	8,00,000
Provision for Taxation	1,00,000	Cash and Bank	2,00,000
		Patents and Trademarks	3,00,000
		Preliminary expenses	1,00,000
	85,00,000		85,00,000

The profits of the company for the past four years are as follows:

	<i>(Rs.)</i>
2005 - 06	12,00,000
2006 - 07	15,00,000
2008 - 08	21,00,000
2009 - 09	23,00,000

Every year, the company transfers 20% of its profits to the general reserve. The industry average rate of return is 15% of the share value.

On 31st March, 2009 Independent expert valuer has assessed the values of the following assets:

	<i>(Rs.)</i>
Land	26,00,000
Buildings	40,00,000
Plant and Machinery	32,00,000
Debtors (after bad debts)	5,00,000
Patents and Trademarks	2,00,000

Based on the information given above, calculate the fair value of Y Ltd.'s share.

Solution:

(i) **Calculation of Share Value based on Net Assets Method**

	<i>(Rs.)</i>
Assets:	
Land	26,00,000
Buildings	40,00,000
Plant and Machinery	32,00,000
Debtors (after bad debts)	5,00,000



Inventory		8,00,000
Cash and Bank		2,00,000
Patents and Trademarks		2,00,000
		<u>1,15,00,000</u>
Less: Liabilities:		
Debentures (14%)	10,00,000	
Sundry creditors	5,00,000	
Bank overdraft	4,00,000	
Provision for taxation	1,00,000	20,00,000
Net assets		<u>95,00,000</u>

$$\text{Intrinsic value of share} = \frac{\text{Net assets}}{\text{No. of shares}} = \frac{\text{Rs. } 95,00,000}{50,000} = \text{Rs. } 19$$

(ii) Calculation of Share Value based on Yield Method

(Rs.)

Total profits of last 4 years		71,00,000
Less : Bad debts		1,00,000
Total		70,00,000
Average profit	(Rs. 70,00,000/4)	17,50,000
Less : Transfer to reserve	(20% of Rs. 17,50,000)	3,50,000
Profit available for dividend		14,00,000

$$\text{Rate of dividend} = \frac{14,00,000}{50,00,000} \times 100 = 28\%$$

Valuation of share based on dividend yield

$$= \frac{\text{Rate of dividend}}{\text{Normal rate of return}} \times \text{Nominal value of share} = \frac{28}{15} \times 100 = \text{Rs. } 186.67$$

$$\begin{aligned} \text{(iii) Fair value of share} &= \frac{\text{Intrinsic value} + \text{Dividend yield value}}{2} = \frac{19 + 15.55}{2} = \text{Rs. } 17.28 \\ &= \frac{190 + 186.67}{2} = \text{Rs. } 188.33 \end{aligned}$$



Illustration 8 - From the following data available from the books of X Ltd. Calculate the value of its equity shares based on return on capital employed :

Rs. Lakhs

Year	Capital employed	Profit
2004 - 05	20	3
2005 - 06	26	5
2006 - 07	33	6
2007 - 08	35	8
2008 - 09	41	11

The market expectation being 16%.

Solution:

The rate of return on capital employed is calculated by adopting weighted average method is as follows:

Year	Capital Employed (Rs. lakhs)	Profit (Rs. lakhs)	Return on capital employed % (profit/Cap.emp)	Weight	Product
2005	20	3	15.0	1	15.0
2006	26	5	19.2	2	38.4
2007	33	6	18.2	3	54.6
2008	35	8	22.9	4	91.6
2009	41	11	26.8	5	134.0
				15	333.6

Weighted average rate of return on capital employed = $333.6/15 = 22.24\%$

$$\text{Value of Share} = \frac{\text{Rate of return}}{\text{Market expected rate of return}} \times \text{Nominal value of share} = \frac{22.24}{18} \times 10 = \text{Rs. } 12.36$$

Illustration 18 : XY Pvt. Ltd., a retail florist, is for sale at an asking price of Rs. 31,00,000. You have been contacted by a potential buyer who has asked you to give him opinion as to whether the asking price is reasonable. The potential buyer has only limited information about XY Pvt. Ltd. He does not know that annual gross sales of XY Pvt. Ltd. is about Rs. 41,00,000 and that last year's tax return reported an annual profit of Rs. 4,20,000 before tax.

You have collected the following information from the financial details of several retail florists that were up for sale in the past:

TABLE I

	Price-to-sale (P/S) Ratio	Price-to earnings (P/E)
Number of firms	38	33
Mean Ratio	0.55	3.29
Coefficient of Variation	0.65	1.52
Maximum Ratio	2.35	6.29



TABLE 2 : TOP 10 PLAYERS (IN DESCENDING P/S ORDER)

Firm	(P/S) Ratio	(P/E) Multiple
1	2.35	5.65
2	1.76	6.29
3	1.32	5.31
4	1.17	4.60
5	1.09	3.95
6	1.01	3.25
7	0.96	3.10
8	0.85	2.96
9	0.72	2.90
10	0.68	2.75

Offer your opinion on the reasonableness of the asking price.

Solution:

Average P/S ratio of Industry = 0.55

Average P/E ratio of Industry = 3.29

Coefficient of variation of P/S ratio = 0.65

Coefficient of variation of P/E ratio = 1.52

The coefficient of variation of P/S ratio is much lower than the coefficient of variation of P/E ratio. From this we can infer that there is a wider dispersion in case of P/E ratio than in case of P/S ratio.

Therefore, while defining the market, it is preferable to take P/S as guiding factor.

Asking price of XY Pvt. Ltd. = Rs. 31,00,000

Annual sales of XY Pvt. Ltd. = 41,00,000

Asking P/S ratio of XY Pvt. Ltd. = $31,00,000 / 41,00,000 = 0.76$

P/S ratio of XY Pvt. Ltd. 0.76 is much higher than industry average 0.55, it is far below than the maximum P/S ratio of 2.35.

The P/S ratio of XY Pvt. Ltd. is lying between 8th and 9th highest of the top ten players of the industry.

In other words, XY Pvt. Ltd. would need to be among the 22% ($8.5/35 \times 100$) most desirable first business to justify the asking price of Rs. 31,00,000 with annual gross sales of Rs. 41,00,000. If the sales are likely to hold in the coming years, the price may be $(.85 + .72)/2 \times Rs. 41 \text{ lakhs} = Rs. 32.18 \text{ lakhs}$.

Provided the buyer believes that XY Pvt. Ltd. is a superior retail florist (among the top quartile), and the future sales are not likely to fall, the asking price of Rs. 31 lakhs appears to be reasonable. However, the buyer should make sure that the florist's accounts reflect a true and fair view of the business before he arrives at a final decision.

Calculation of Yield on Equity Shares

Yield on equity shares is calculated at 50% of profits distributed and 5% on undistributed profits.



(Rs.)

50% on distributed profits	(Rs. 6,40,000 × 50/100)	3,20,000
5% on undistributed profits	(Rs. 6,20,800 × 5/100)	31,040
Yield on equity shares		<u>3,51,040</u>

$$\text{Yield on equity shares \%} = \frac{\text{Yield on shares}}{\text{Equity share capital}} \times 100 = \frac{\text{Rs. 3,51,040}}{\text{Rs. 80,00,000}} \times 100 = 4.388\%$$

Calculation of Expected Yield on Equity shares

Note: There is a scope for assumptions regarding the rates (in terms of percentage for every one time of difference between Sun Ltd. and Industry Average) of risk premium involved with respect to Interest and Fixed Dividend Coverage and Capital Gearing Ratio. The below solution has been worked out by assuming the risk premium as:

(i) 1% for every one time of difference for Interest and Fixed Dividend Coverage.

(ii) 2% for every one time of difference for Capital Gearing Ratio.

(i) Interest and Fixed Dividend Coverage of Sun Ltd. is 2.16 times but the Industry Average is 3 times. Therefore, risk premium is added to Sun Ltd. share @ 1% for every 1 time of difference.

$$\text{Risk premium} = 3.33 - 2.16 (1\%) = 0.84 (1\%) = 0.84\%$$

(ii) Capital Gearing Ratio of Sun Ltd. is 0.93 but the Industry Average is 0.75 times. Therefore, risk premium is added to Sun Ltd. shares @ 2% for every 1 time of difference.

$$\text{Risk premium} = 0.75 - 0.93 (2\%) = 0.18 (2\%) = 0.36\%$$

	(%)
Normal return expected	9.60
Add: Risk premium for low Interest and Fixed Dividend Coverage	0.84
Add: Risk premium for high Interest Gearing Ratio	<u>0.36</u>
	10.80

Value of Equity Share

$$= \frac{\text{Actual yield}}{\text{Expected yield}} \times \text{Paid-up value of share} = \frac{4.39}{10.80} \times 100 = \text{Rs. 40.65}$$



Chapter 6

VALUATION OF INTANGIBLES

6.1 Intangible Assets:

6.1.1 Definition of Intangible Assets:

Intangible assets are assets with the following characteristics:

- a. with future economic benefits,
- b. no physical substance,
- c. with high degree of uncertainty concerning the future benefit.

6.1.2 Intangible assets include Brands, expenditure on research and development (R&D), intellectual capital, technology, patents, copyrights, people, franchises, goodwill, organization costs, trade names, trademarks, etc.

6.1.3 Value of Intangibles has now become important as there is an increasing recognition of the value of intangibles, a continuous increase in the gap between companies' book values and their stock market valuations, and sharp increases in premiums above the stock market value that were paid in mergers and acquisitions in the late 1980's.

6.1.4 The shift to a knowledge based economy has created a whole new category of assets which are not recognized in financial statements. Information is the essence of these soft assets.

6.1.5 The rise of an interest in intangibles has been due to change in the bases of creation of firm value from industrial to post-industrial economy (eg. advanced service firms), interactive mode of production, and decentralization/diffusion of knowledge; from unidimensional to multidimensional performance of an organisation; obsolescence of traditional accounting systems; and scarcity of data on intangibles in National Accounts.

6.1.6 The new value creation process and its implications:

- a. Change in production processes: strategic phases are research, marketing and know-how, and not so much manufacturing. Phases where intangible assets are created are the key.
- b. Today, main determinants of growth at firm (micro) and country (macro) levels are therefore intangible assets.

6.1.7 Intangible assets are a big part of contemporary business, and many executives think innovation and related intangible assets now represent the principal basis for growth. Management Accountants need to be able to value intangible assets for reasons that include the sale of a business, financial reporting, litigation, licensing, bankruptcy, taxation, financing and strategic planning.

6.2 Criteria for the identification of Intangible Assets:

6.2.1 Till now, most guidance and literature relating to the recognition and valuation of intangible assets come from accounting and tax regulations. For instance, in the US, Congress and FASB have pushed for greater disclosure and clarity in recent legislation such as the Sarbanes-Oxley



Act, FASB Statement no. 141, Business Combinations, and FASB Statement no. 142, Goodwill and Other Intangible Assets. In particular, statements no. 141 and no. 142 give specific guidance on defining and measuring intangible assets.

- 6.2.2 There are numerous accounting, legal and tax-related definitions of an intangible asset. The criteria for identification of intangible assets include legal existence and protection (that is, it may be identified apart from goodwill if it arises from contractual or other legal rights), private ownership, transferability, and evidence of its existence such as a contract, license, registration, listing or documentation. Most intangible assets fall into one of five categories: marketing-related, customer-related, artistic-related, contract-related or technology-related.
- 6.2.3 Under Statement no. 141, cited above, in the US, to recognize an acquired intangible asset apart from goodwill, one of two criteria needs to be met (either or both criteria can meet the requirements). The first test, which is known as the contractual/legal test, states that an intangible asset may be identified apart from goodwill if it arises from contractual or other legal rights. The second criterion is the separability test, which states that if an intangible asset is capable of being separated or divided from the acquired entity (that is, it can be sold, transferred, licensed, rented or exchanged regardless of whether there is an intent to do so) it should be identified as an intangible asset. For example, technology is typically developed in-house and thus does not meet the contractual test; however, it can be separated from the acquired entity and is frequently licensed, rented or sold from one entity to another in the course of general operations.

6.3 Cost of Intangibles:

- 6.3.1 Intangibles are recorded at cost and are also reported at cost at the end of an accounting period but are subject to amortization (a process of cost allocation). Cost of Intangibles includes acquisition costs plus any other expenditure necessary to make the intangibles ready for the intended uses (i.e., purchase price, legal fees, etc.). Essentially, the accounting treatment of valuation for intangibles closely parallels that followed by tangible assets.

Examples:

1. Issuance of stock to acquire intangibles.
2. Lump-sum purchase of intangibles.

Costs will be allocated in accordance with the fair market value of each individual intangible.

- 6.3.2 Amortization of Intangibles:

Amortization is a systematic method to allocate the costs of intangibles over the estimated life of the intangibles.

Current practice is to amortize over the shorter of the legal or useful life, not to exceed 40 years, except for goodwill.

Amortization Method: Normally Straight-line method is used. Other method can be applied if it is more appropriate than the S-L method.

- 6.3.3 R&D expenditure represents cash spent on a knowledge base which may generate future revenues. Treatment of R&D expenses varies from country to country.



- 6.3.4 Similarly, there is some argument for capitalizing expenditure on other forms of knowledge, as in database systems within consultancy firms or expertise provided by professional employees in investment banks. This is known as intellectual capital and firms such as Scandia, a Swedish insurance company, have pioneered approaches to the valuation of intellectual capital for inclusion in the balance sheet.
- 6.3.5 Another type of intangible asset over which there has been controversy is capitalization of brand values in the balance sheet, as done by Coca Cola or Amazon.com. The methods for valuing brands are linked to forecast cash flows related to the brands and hence to economic value. Therefore, capitalization of brands will give a closer approximation to market value than would the exclusion of the brands.
- 6.3.6 The difference between the price paid for a company and its book value is known as good will. This is because good will is an intangible asset, which arises as a result of the fact that book values of companies typically do not reflect their economic values, and hence the prices paid for companies, especially for high value-added firms such as advertising agencies and consulting firms.

6.4 Valuation of Intangibles:

The four methodologies for valuation of intangibles are: discounted cash flows, relief-from-royalty, comparable transactions and avoided-cost. The first two methods are the income approach, and the other two are the market and asset-replacement approach, respectively. The income approach – commonly used to value intangible assets – calls for methods that include direct capitalization, profit split, excess earnings and loss of income. An asset-replacement cost approach also should consider the reproduction and replacement cost as well as the cost avoidance method.

- 6.4.1 **Discounted cash flow method**: One of the most popular means to value intangible assets is the discounted cash flow methodology. This method typically is used to value some of the more widely known intangible assets such as technology, software, customer relationships, covenants not-to-compete, strategic agreements, franchises and distribution channels. Under this methodology, the value of an asset reflects the present value of the projected earnings that will be generated by the asset after taking into account the revenues and expenses of the asset, the relative risk of the asset, the contribution of other assets, and a discount rate that reflects the time value of invested capital.
- 6.4.2 **Relief-from-royalty**: Another commonly used methodology is the relief-from-royalty approach. This methodology often is used to value trade names and trademarks. Under this method, the value of an asset is equal to all future royalties that would have to be paid for the right to use the asset if it were not acquired. A royalty rate is selected based on discussions with management regarding, among other factors, the importance of the asset, effectiveness of constraints imposed by competing assets, ability of competitors to produce similar assets, and market licensing rates for similar assets. The royalty rate is applied to the expected revenues generated or associated with the asset. The hypothetical royalties are then discounted to their present value.

For example, a company recently relied on this method to value a portfolio of trade names and trademarks of a health services provider that was acquired by a major publicly traded company specializing in health care and wellness services. The most difficult and time-consuming component of this approach typically involves determining what to record as the appropriate royalty rate for the right to use the asset.



Royalty rates for trade names and trademarks vary widely among industries depending on the nature of the proprietary property, its role in the business, the specific industry and the marketplace. Relying on benchmarks from health services journals, royalty rate studies and discussions with licensing professionals, it was observed that the rates for health-service trademarks ranged from 0% to 5%. The company selected a rate on the low end of this range after considering a number of factors, including the trademarks' newness (brief track record), intense market competition, certain technology risks, profitability and limited name recognition. Guided by these factors the company calculated future expected cash flows and, thus, the value of this portfolio.

6.4.3 Comparable (Guideline) Transactions: A comparable transactions approach is typically employed to value marketing-related intangible assets. The value of an asset is based on actual prices paid for assets with functional or technical attributes similar to the subject asset. Using this data, relevant market multiples or ratios of the total purchase price paid are developed and applied to the subject asset. Since no two assets are perfectly comparable, premiums or discounts may be applied to the subject asset given its attributes, earnings power or other factors. Internet domain names and newspaper mastheads sometimes are valued with a comparable transactions approach. The management accountant or other valuation analyst can gather data from various industry sources and use them to create information relating to key sale characteristics. For example, in the valuation of Internet domain names, purchasers look for brand recognition, e-commerce value, recall value, frequency of name-related searches, letter count and pay-per-click popularity.

6.4.4 Avoided cost: This method is popular as it is based on historical data, which is usually available and does not rely on the subjective assumptions employed under the other, previously mentioned methodologies. Under the avoided-cost method, the value of an asset is based on calculating the costs avoided by the acquiring company when obtaining a pre-existing, fully functional asset rather than incurring the costs to build or assemble the asset. The savings realized may include actual and opportunity costs associated with avoided productivity losses.

The avoided-cost approach can be a useful method to value technology. Using the economic principle of substitution, whereby an informed purchaser would pay no more for an asset than the cost of purchasing or producing a substitute asset with the same utility as a company's current technology, the management accountant and other valuation analysts will collect estimates from company management on the number of employees and salaries associated with developing the technology, potential benefits associated with those employees/programmers, and ancillary expenses such as overhead, administrative, travel and meal costs associated with the technology.

In addition, the management accountant or valuer needs to consider replacement costs, reproduction costs, depreciation and obsolescence when utilizing this approach. Lastly, it is necessary to calculate tax effects on expected cash flows, while accounting for any amortization tax benefit, to ascertain the final value of technology for the avoided-cost approach.

6.4.5 When valuing any single intangible asset, two final points are important. First, an intangible asset should be valued using multiple approaches, as applicable. As noted, the process of valuing intangible assets is prone to subjectivity and the use of several approaches will help to zero in on a credible value. For example, while the avoided-cost methodology may capture the historical development cost as well as the individual facts and circumstances surrounding the creation of an asset, it will not capture the future economic benefit of an asset that a discounted cash flow methodology would address.



Second, depending on the asset under review, it will be necessary to address and consider other components that may have a material effect on the final intangible asset value such as capital charges, functional and economic obsolescence, product sales cycles, synergistic opportunities and tax issues, to name a few. Valuation analysts often are very helpful in sorting through these complex matters.

- 6.4.6 Credible valuations of intangible assets (including intellectual properties) are grounded in consistent application of approaches and methodologies accepted by the business valuation community at large. Three common approaches for appraising intangible assets are: income, market, and asset-replacement cost, for example. A management accountant or other valuation analyst needs to know the strengths and weaknesses of each approach (and the related methodologies) specific to the property/asset being valued.
- 6.4.7 Success in valuation is in the details.

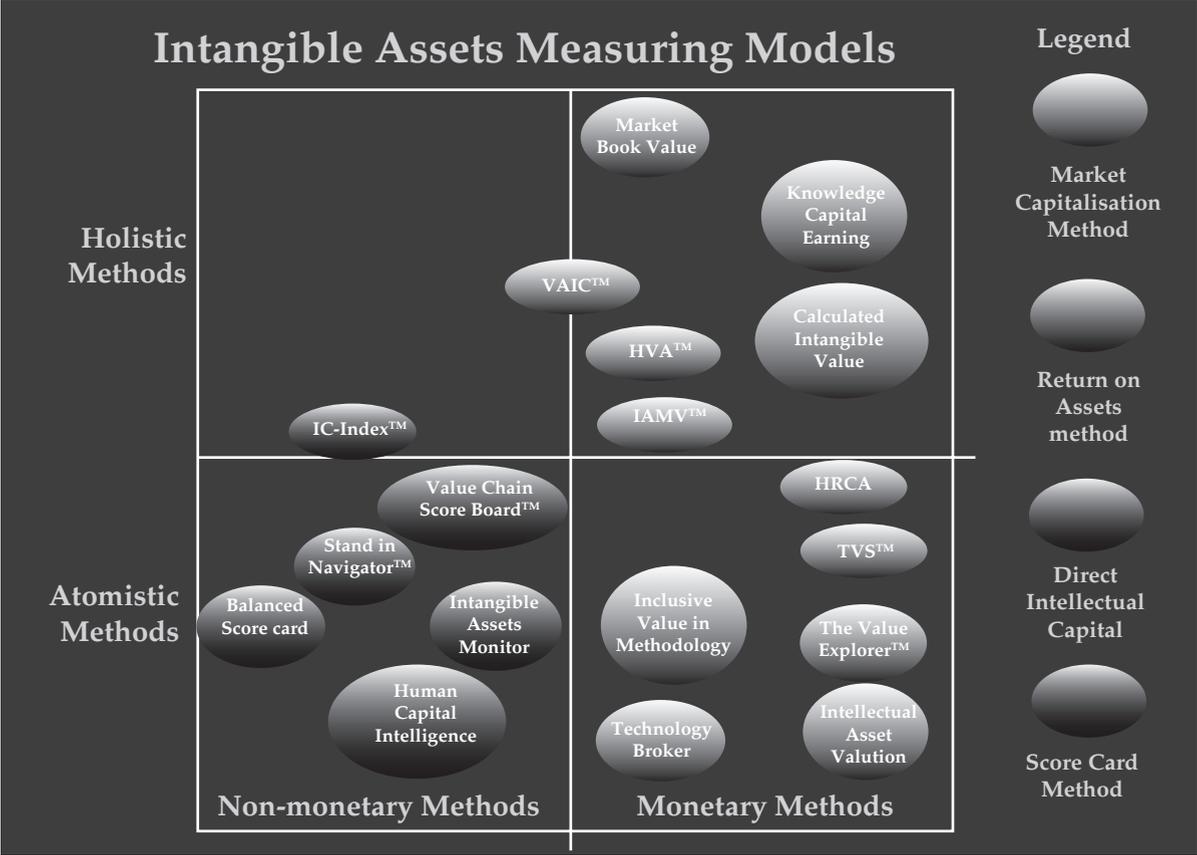
6.5 Current Developments:

- 6.5.1 Accounting and financial pronouncements are ever-changing. As a result, the manner to identify and measure intangible assets is also changing.
- 6.5.2 Currently, intangibles are identified from a buyer's perspective. For example, in a business combination, an acquirer will only recognize the assets it seeks from the acquisition (that is, a buyer will not recognize a seller's trade name, even if that asset possesses value in the market, if it knows at the time of the acquisition that it will drop the name). The recent pronouncements, however, shift the perspective from that of a buyer to that of a market participant, which will require the buyer to recognize all assets that possess a value, whether or not the buyer will retain or utilize the intangible assets it acquires.
- 6.5.3 Consequently, this shift in perspective is having a significant impact on how items are reported, specifically in two principal areas. First, from the eyes of a market participant, a greater number of intangible assets may need to be identified. No longer will buyers be at liberty to exclude intangible assets that management teams view as valueless to their particular organizations. Correspondingly, goodwill on a buyer's balance sheet will decrease. Second, as a result of having more intangible assets recorded on their balance sheets, buyers will be forced to amortize those previously unidentified intangible assets according to their useful lives. Thus, under this new perspective, buyers may see more identified intangible assets on their balance sheets and less earnings on their income statements as a result of higher non-cash charges.
- 6.5.4 The identification and measurement of intangible assets are not simple tasks, and as the proposed changes in standards and statements take effect, they will arguably make the process more complicated for management and their advisers. However, as the approaches and methods used to both identify and value intangible assets are more frequently practiced and refined, the process likely will become easier - less a matter of delineating between shades of gray and more one of dotting the i's and crossing the t's.



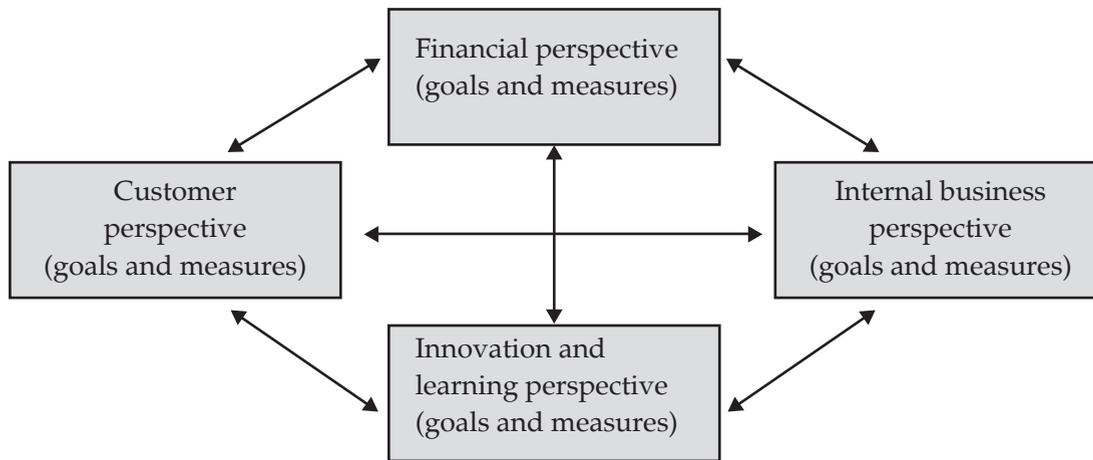
6.6 Various Frameworks of Analysis:

6.6.1 A number of frameworks have been developed in recent years, and these are given below:

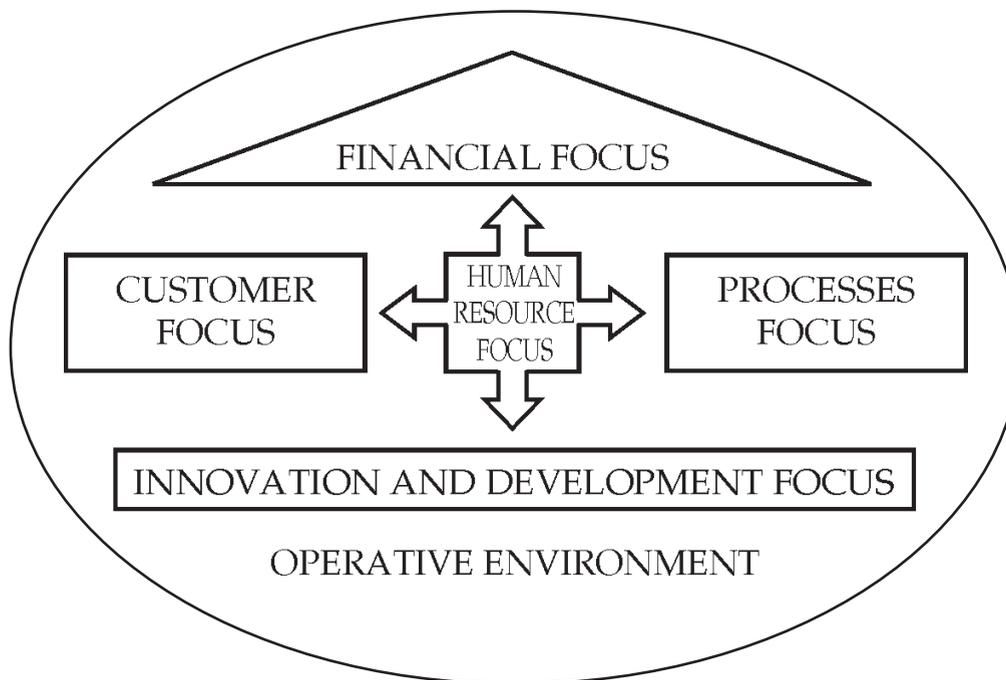




Balanced Scorecard, Norton & Kaplan 1992



Skandia Navigator, Edvinsson & Malone 1998





Intangible assets Monitor, Sveiby 1997

INTANGIBLE ASSETS

External Structure	Internal Structure	Personnel Competence
Growth/Renewal	Growth/Renewal	Growth/Renewal
<ul style="list-style-type: none"> - Growth of personnel - Growth of Market share - Customer satisfaction or quality 	<ul style="list-style-type: none"> - Investment in IT - Time for R & D - Personnel behaviour culture, customers 	<ul style="list-style-type: none"> - Competence-enhancing customers - Growth of average professional competence (years) - Turnover of competence
Efficiency	Efficiency	Efficiency
<ul style="list-style-type: none"> - Revenues per customer - Sales per agent 	<ul style="list-style-type: none"> - Sales per agent 	<ul style="list-style-type: none"> - Value added per employee - Changes in the proportion of highest competence employees
Stability	Stability	Stability
<ul style="list-style-type: none"> - Repeat orders - Age of structure 	<ul style="list-style-type: none"> - Age of organisation - Rookie ratio 	<ul style="list-style-type: none"> - Employees turnover

Value Chain Scoreboard, Lev 2001

Disc. and learning	Implementation	Commercialisation
1. Internal renewal <ul style="list-style-type: none"> - Research and development - Work force training and development - Organizational Capital Processes 	4. Intellectual property <ul style="list-style-type: none"> - Patents, trademarks and copyrights - Licensing agreements - Coded know-how 	7. Customers <ul style="list-style-type: none"> - Marketing alliances - Brand values - Customer churn
2. Acquired capabilities <ul style="list-style-type: none"> - Technology purchase - Spillover utilization - Capital expenditure 	5. Technological feasibility <ul style="list-style-type: none"> - Clinical tests, Food and Drug Administration approvals - Beta tests, working pilots - First mover 	8. Performance <ul style="list-style-type: none"> - Revenues, earnings and market share - Innovation revenues - Patent and know-how royalties - Knowledge earning and capital
3. Networking <ul style="list-style-type: none"> - R & D alliances and joint Ventures - Supplier and customer Integration - Communities of practice 	6. Internet <ul style="list-style-type: none"> - Threshold traffic - Online purchases and sales - Major internet 	9. Growth prospects <ul style="list-style-type: none"> - Product pipeline and launch dates - Expected efficiencies and savings - Planned initiatives - Expected breakeven and



Balance Sheet including intangible assets

Extracted from Infosys Annual Report, 2007

As of March 31,

	<i>in Rs. crore</i>	
	2007	2006
SOURCES OF FUNDS		
Shareholders' funds		
Share capital	286	138
Reserves and surplus		
Capital reserves – Intangible assets	89,069	69,552
Other reserves	10,969	6,828
	1,00,038	76,380
Minority interest	4	68
	1,00,328	76,586
APPLICATIONS OF FUNDS		
Fixed assets		
At cost	4,642	2,983
<i>Less:</i> Accumulated depreciation	1,836	1,328
Net block	2,806	1,655
<i>Add:</i> Capital work-in-progress	965	571
	3,771	2,226
Intangible assets		
Brand value	31,617	22,915
Human resources	57,452	46,637
	89,069	69,552
Investments	25	755
Deferred tax assets	92	65
Current assets, loans and advances		
Sundry debtors	2,436	1,608
Cash and bank balances	5,871	3,429
Loans and advances	1,214	1,297
	9,521	6,334
<i>Less:</i> Current liabilities and provisions		
Current liabilities	1,469	934
Provisions	681	1,412
Net current assets	7,371	3,988
	1,00,328	76,586

Note:

1. The figures above are based on consolidated Indian GAAP financial statements.
2. This balance sheet is provided for the purpose of information only. We accept no responsibility for any direct, indirect or consequential losses or damages suffered by any person relying on the same.



Intangible assets score sheet

Extracted from Infosys Annual Report, 2007

We caution investors that this data is provided only as additional information to investors. We are not responsible for any direct, indirect or consequential losses suffered by any person using this data.

From 1840s to early 1990s, a corporate's value was mainly driven by its tangible assets – values presented in the corporate balance sheet. The managements of companies valued those resources and linked all their performance goals and matrices to those assets – Return on Investment, capital turnover ratio, etc. The market capitalization of companies also followed the value of tangible assets shown in the balance sheet with the difference being seldom above 25%. In the latter half of the 1990s, the relationship between market value and tangible asset value changed dramatically. By early 2000, the book value of the assets represented less than 15% of the total market value. So, what are the key drivers of the market value in this new economy? It is the intangible assets.

A knowledge-intensive company leverages know-how, innovation and reputation to achieve success in the marketplace. Hence, these attributes should be measured and improved upon year after year to ensure continual success. Managing a knowledge organization necessitates a focus on the critical issues of organizational adoption, survival, and competence in the face of ever-increasing, discontinuous environmental change. The profitability of a knowledge firm depends on its ability to leverage the learnability of its professionals, and to enhance the reusability of their knowledge and expertise. The intangible assets of a company include its brand, its ability to attract, develop and nurture a cadre of competent professionals, and its ability to attract and retain marquée clients.

Intangible assets

The intangible assets of a company can be classified into four major categories: human resources, intellectual property assets, internal assets and external assets.

Human resources

Human resources represent the collective expertise, innovation, leadership, entrepreneurship and managerial skills in the employees of an organization.

Intellectual property assets

Intellectual property assets include know-how, copyrights, patents, products and tools that are owned by a corporation. These assets are valued based on their commercial potential. A corporation can derive its revenues from licensing these assets to outside users.

Internal assets

Internal assets are systems, technologies, methodologies, processes and tools that are specific to an organization. These assets give the organization a unique advantage over its competitors in the marketplace. These assets are not licensed to outsiders. Examples of internal assets include, methodologies for assessing risk, methodologies for managing projects, risk policies, and communication systems.



External assets

External assets are the market-related intangibles that enhance the fitness of an organization for succeeding in the marketplace. Examples are customer loyalty (reflected by the repeat business of the Company) and brand value.

The score sheet

We published models for valuing our two most valuable, intangible assets of Infosys – human resources and the “Infosys” brand. This score sheet is broadly adopted from the intangible asset score sheet provided in the book titled *The New Organizational Wealth*, written by Dr. Karl-Erik Sveiby and published by Berrett-Koehler Publishers Inc., San Francisco. We believe such representation of intangible assets provides a tool to our investors for evaluating our market – worthiness.

Clients

The growth in revenue is 44% this year, compared to 35% in the previous year (in US \$). Our most valuable intangible asset is our client base. Marqué clients or image-enhancing clients contributed 44% of revenues during the year. They give stability to our revenues and also reduce our marketing costs.

The high percentage (95%) of revenues from repeat orders during the current year is an indication of the satisfaction and loyalty of our clients. The largest client contributed 7.0% to our revenue as compared to 4.4% during the previous year. The top five and 10 clients contributed around 19.4% and 31.4%, of our revenue respectively, as compared to 17.8% and 30.3%, respectively, during the previous year. Our strategy is to increase our client base, and, thereby, reduce the risk of depending on a few large clients. During the year, we added 160 new clients compared to 144 in the previous year. We derived revenue from customers located in 54 countries against 51 countries in the previous year. Sales per client grew by around 32% from \$ 4.7 million in the previous year to \$ 6.2 million this year. Days Sales Outstanding (DSO) was 64 days this year compared to 62 in the previous year.

Organization

During the current year, we invested around 4.01% of the value-added (3.44% of revenues) on technology infrastructure, and around 1.40% of the value-added (1.20% of revenues) on R&D activities. A young, fast-growing organization requires efficiency in the area of support services. The average age of support employees is 30.9 years, as against the previous year average age of 30.8 years. The sales per support staff, as well as the proportion of support staff to the total organizational staff, have improved over the previous year.

People

We are in a people-oriented business. We added 30,946 employees this year on gross basis (net – 19,526) from 22,868 (net – 15,965) in the previous year. We added 8,023 laterals this year against 4,842 the previous year. The education index of employees has gone up substantially to 2,03,270 from 1,48,499. This reflects the quality of our employees. Our employee strength comprises people from 65 nationalities. The average age of employees as of March 31, 2007 was 26, the same as in the previous year. Attrition was 13.7% for this year compared to 11.2% in the previous year (excluding subsidiaries).

**Notes:**

- * Marqué or image-enhancing clients are those who enhance the Company's market-worthiness – typically Global 1,000 clients. Often, they are reference clients for us.
- * Sales per client is calculated by dividing total revenue by the total number of clients
- * Repeat business revenue is the revenue during the current year from those clients who contributed to our revenue during the previous year also.
- * Value-added statement is the revenue less payment to all outside resources. The value-added statement is provided in the *Additional information to shareholders* section in this report.
- * Technology investment includes all investments in hardware and software, while total investment in the organization is the investment in our fixed assets.
- * Average proportion of support staff is the average number of support staff to average total staff strength.
- * Sales per support staff is our revenue divided by the average number of support staff (support staff excludes technical support staff).
- * Education index is shown as at the year-end, with primary education calculated as 1, secondary education as 2, and tertiary education as 3.

Intangible assets score sheet

External structure – our clients			Internal structure – our organization			Competence – our people		
	2007	2006		2007	2006		2007	2006
Growth / renewal								
Revenue growth (%)			R&D			Total employees	72,241	52,715
– in US Dollar terms	44	35	– R&D / total revenue (%)	1.20	1.07	Added during the year		
– in Rupees terms	46	34	– R&D / value-added (%)	1.40	1.28	– Gross	30,946	22,868
Exports / total revenue (%)	98	98	Technology investment			– Net	19,526	15,965
Clients			– Investment / revenue (%)	3.44	3.78	Laterals added	8,023	4,842
– Total	500	460	– Investment / value-added (%)	4.01	4.48	Staff education index	2,03,270	1,48,499
– Added during the year	160	144	Total investment			Employees – No. of nationalities	65	59
Marque clients			– Total investment / total revenue (%)	10.87	11.45	Gender classification (%)		
– Total	114	101	– Total investment / value-added (%)	12.71	13.58	– Male	69.1	72.4



Business Valuation Basics

- Added during the year	26	26				- Female	30.9	27.6
- Revenue contribution (%)	44	48						
Revenue derived - No. of countries	54	51						
Efficiency								
Sales / Client			Sales per support staff			Value added/ employee (Rs. crore)		
- US\$ million	6.18	4.68	- US\$ million	0.92	0.85	- Software professionals	0.19	0.19
- Rs. crore	27.79	20.70	- Rs. crore	4.14	3.76	- Total employees	0.18	0.18
Sales & marketing expenses / revenue (%)	6.69	6.30	General & admin expenses / revenue (%)	8.03	8.02	Value-added/ employee (\$ million)		
DSO (days)	64	62	Average proportion of support staff (%)	5.18	5.60	- Software professionals	0.04	0.04
						- Total employees	0.04	0.04
Stability								
Repeat business (%)	95	95	Average age of support staff (years)	30.87	30.76	Average age of employees (years)	26.0	26.0
No. of clients accounting > 5% of revenue	1	-				Attrition - excluding subsidiaries (%)	13.7	11.2
Client concentration								
Top client (%)	7.0	4.4						
Top five clients (%)	19.4	17.8						
Top 10 clients (%)	31.4	30.3						
Client distribution								
1-million-dollar +	275	221						
5-million-dollar +	107	81						
10-million-dollar +	71	54						
20-million-dollar +	36	26						
30-million-dollar +	25	19						
40-million-dollar +	16	14						
50-million-dollar +	12	9						
60-million-dollar +	11	5						
70-million-dollar +	9	4						
80-million-dollar +	4	1						
90-million-dollar +	4	1						
100-million-dollar +	3	-						
200-million-dollar +	1	-						

The above figures are based on Indian GAAP consolidated financial statement.



Hidden Treasures

Even with new accounting treatments, financial systems don't allow companies to say much about their intangible assets. Finance chiefs are finding ways to address this conundrum.

Ben McLannahan, CFO Europe

December 30, 2003

"Intangible assets are at the core of what we do," says Steve Ruffini, CFO of HIT Entertainment. "Our business is owning and managing intellectual property."

But as anyone who has observed the growing gap between the market and book values of knowledge-intensive companies will testify, getting an idea of the real value of HIT's business isn't easy. Poring over the balance sheets of the small London-listed children's entertainment company certainly won't help.

The frustration now is that even after new international financial reporting standards (IFRS) go into effect next year, HIT's financial statements still won't be able to convey the value of its biggest assets—the brand ownership of Bob the Builder, Barney the Dinosaur, Angelina Ballerina and a host of other characters popular among pre-school children around the world.

HIT's situation is by no means unique. Increasingly, intangibles—ranging from intellectual property and brands to licences and R&D pipelines—dwarf the tangible book assets of all sorts of companies in all sorts of industries. That's left many CFOs in a bind. Most finance chiefs agree that the new accounting standards will not help them supply the depth and breadth of information that the investor community is clamouring for.

Reporting above and beyond the book assets appearing in financial statements "should be a critical exercise for every company wholly or partly dependent on intangibles for its value creation," says Marie-Ange Andrieux, a partner at accounting firm Mazars in Paris. CFOs should be "at the forefront of this process, using their skills in measurement and control to provide additional information to the financial markets to allow them to judge companies more precisely."

But can finance chiefs rise to the challenge to bring intangibles into sharper focus? The jury is out, amid plenty of debate within finance circles on how—and even whether—it can be done.

One thing is for sure, the debate will heat up soon. Starting next year, new rules on accounting for business combinations from the International Accounting Standards Board (IASB) will bring the issue of intangibles reporting to the fore. According to Stuart Whitwell, a partner at Intangible Business, a London-based consultancy, the proposed standards "will focus the minds of management, forcing them to manage brands and other intangibles as they would manage any other type of asset."

On the evidence of the exposure draft and subsequent announcements, the IASB's line of thinking is very similar to two US standards approved in 2001—FAS 141 on business combinations and FAS 142 on goodwill and other intangible assets. As in the US standards, there are three changes under discussion—the abolition of merger accounting, otherwise known as pooling of interests; the non-amortisation of goodwill; and a new impairment test for goodwill and other intangible assets. The latest word from the IASB is that the new standards—revising IAS 22 on business combinations, IAS 36 on asset impairment and IAS 38 on intangible assets—will be in place by the end of the first quarter 2004.



Among CFOs the reaction has been mixed. One of the three changes in particular—the impairment test—is drawing a lot of fire. As far as Kurt Bock, CFO of BASF, the German chemicals giant, is concerned, the tests promise to be “a very cumbersome and laborious process.”

If the IASB has its way, companies will have to undertake impairment tests at least once a year. First, all goodwill and intangibles with an indefinite useful life acquired in an acquisition must be allocated to a company’s smallest individual cash-generating unit—which is something that most companies are not accustomed to doing. The fair value of the reporting unit must then be calculated and compared to its book value. If the fair value is less than the book, the fair value of each of the assets and liabilities of the reporting unit must be calculated, including internally-generated intangible assets that are not recorded on the balance sheet and therefore may never have been valued before.

This doesn’t sit well with Bock. “How is it possible to value intangibles in a consistent way across companies and countries, and in a way that a third party can claim is a due process and really works correctly?” Bock asks. “The lack of a theoretical foundation cannot be overcome—it exposes accounting to a grey area of guesswork and speculation, and that’s probably the last thing we need right now.” For the time being, Bock says BASF, which carried around €3.5 billion of intangibles on its balance sheet as of December last year—or around 10% of the firm’s total asset base—is content not to capitalise anything “unless we really have to.”

Ruffini of HIT shares Bock’s concerns—to a point. HIT, currently reporting under UK GAAP, is “saddled with taking a goodwill charge, which our US competitors don’t have in their earnings per share,” he says.

Yet, what’s troubling Ruffini is that the new IFRS standards still won’t enable companies to capitalise the costs of creating and developing their own intangible assets in the same way that they do with home-grown tangible assets such as software. The new rules alone, he concludes, aren’t able to provide the “full picture” of how a company is creating value from its intangibles.

So Ruffini is taking a route that other CFOs are being forced down—moving beyond the realm of accounting standards to share with external stakeholders the impact that specific intangibles have on earnings. This, of course, is easier said than done, particularly if a CFO has trouble extracting credible, consistent numbers from business units about their intangibles.

The task was made a bit easier for Ruffini after the firm bought UK-based Gullane Entertainment last year. After that deal, which added Thomas the Tank Engine, Sooty and Captain Pugwash to HIT’s brand portfolio, the firm decided it needed to improve the way specific intangibles—namely its brands—are managed. On the advice of international brand experts from rivals Mattel and Disney, HIT is no longer organised along general business divisions, such as home entertainment and consumer products. Instead the firm is divided into “brand teams” within its core territories (the US, Canada, Europe and Japan), each with its own P&L and five-year plan.

“Before, home entertainment did what was best for Bob and Barney, while consumer products did what it thought was best,” says Ruffini. “It became apparent after the Gullane deal that we really needed brand champions who focus specifically on co-ordinating efforts between products, home entertainment and marketing.”

A big benefit of the reorganisation for Ruffini: he now has greater visibility into the performance of each brand, which he’s been able to demonstrate to investors and analysts.



In its annual report for the latest fiscal year ending July 31st, the company provided not only data on revenues and growth plans for each of the firm's core territories, but also "softer" information such as brand awareness and customer loyalty. HIT is considering further disclosures, too, in response to requests from analysts to break down footnotes by brand, rather than by division.

Benchmark This

In an industry dominated by the US home entertainment giants Disney and Viacom, Ruffini reckons HIT's intangibles disclosure puts it in a league of its own. "I'm a big believer in benchmarking, but these big boys are so large and so vertically integrated that I can't tell a darned thing when I look at their financials," he says.

But even Ruffini concedes there are limits to how much HIT wants to disclose publicly. "From a commercial standpoint, our competitors might benefit if we were to disclose very specific brand information," he says. There are also trading partners like Wal-Mart, the US retail giant, who wouldn't mind finding out what percentage of sales they were driving. "Not that they won't try anyway, but I certainly wouldn't want to give them audited financial information to strengthen their bargaining power," says Ruffini.

Competitive sensitivities are also always at the back of Carsten Lønfeldt's mind when intangibles reports are prepared at Coloplast, the Dkr5.6 billion (€753m) medical products provider where he's CFO. But that certainly hasn't stopped the company going further than conventional reporting requirements.

According to Per Nikolaj Bukh, professor of accounting at the Aarhus School of Business, Coloplast's reporting outstrips anything that regulatory models require. And that's by the high standards of Denmark, which last year became the first country in Europe to require companies to disclose an "intellectual capital" statement in addition to traditional financial reports. The Danish Financial Statements Act, which came into effect last year, requires two new additions to management's review: a description of the intangible assets of the company, "if they are of special importance to future earnings," and a description of the company's impact on the environment and measures for the prevention, reduction or remedy of environmental damage.

But as Lønfeldt recalls, Coloplast didn't wait for mandates from regulators to launch its intangibles reporting. Its foray into the area began in 1997, when the company was asked to join 19 other Danish firms in a project examining corporate intellectual capital sponsored by the Ministry of Industry. But while Coloplast was enthusiastic about the project and its results, Lønfeldt recalls with bemusement that when he announced to investors that the company would begin publishing intellectual capital reports alongside its financial statements, "you could literally see some of them rolling their eyes to the skies," he says.

With good reason. For the most part, the investor community tends collectively to cringe if they hear of any attempt to mix tangible assets with intangible assets on a balance sheet. "You can't express intangibles in monetary terms," contends Bernard Marr, a professor at Cranfield School of Management in the UK and head of the intellectual capital group of the Performance Measurement Association. "The best way to do this is to try and create a narrative for intellectual capital."

And that's precisely what Coloplast set out to do. Its intangibles reports aim to tailor its information to four groups—shareholders, customers, employees and customers. In its latest annual report for the



fiscal year ended October 31st, 2002, 18 pages out of a total of 55 were devoted to a range of metrics for each of those groups, providing five years of data on, among other things, product and service performance, customer satisfaction, new products brought to market and patent licensing. In addition, the firm served up data on employee satisfaction measurements, job rotations, managerial positions filled internally, absence rates and other human resources related information.

As for the CFO's concern about giving away too much data to competitors, the firm withholds "sensitive information" on co-operation with customers and user-groups, preferring, for example, to give certain data in indexes rather than absolute numbers.

Seeing is Believing

Not all CFOs are keen to go to the same lengths as Lønfeldt of Coloplast. But given the limitations of accounting structures, CFOs should aim to "present the fullest picture possible of their companies, so that investors can see the firm through the eyes of management," says Thibault de Tersant, CFO of Dassault Systèmes, the €774m French software maker. For his part, de Tersant is adamant that intangibles don't belong on the balance sheet.

The Nasdaq-listed firm, which designs software to facilitate the design, simulation and production of complex goods such as cars and aircraft, is intensely R&D-focused—between 28% and 30% of the firm's annual revenues are reinvested in R&D, compared to the typical industry range of between 10% and 15%. And yet de Tersant doesn't rely on the balance sheet to tell this story—since R&D costs are such a nightmare to capitalise, his policy is to run them through the P&L, while "aggressively" amortising the firm's acquired goodwill and technology.

De Tersant claims the market is "quite happy" that the firm doesn't have huge amounts of intangibles on its balance sheet—the firm has €11m of intangibles in a total asset base of €867m. "From a theoretical standpoint, we have far more assets than those that appear on the balance sheet, but when dealing with investors, I always stress that everything they see is real," he notes.

While the balance sheet won't, or can't, provide the insights into intangibles that investors might want, the CFO says more and more presentations and meetings are devoted to disseminating information that aims to give shareholders a better understanding of the business behind the numbers.

"If you look at our presentations to investors, we spend at least half our time talking about product innovations, rather than focusing on backward-looking financials," he says. Put another way, the firm's financial statements are nothing more than "a point of departure."

Reality Check

All the talk of intangible reporting is fine in theory, but does a greater focus on non-financial metrics benefit a company financially? According to Carsten Lønfeldt, there's compelling evidence that it does. In August this year, the CFO of Coloplast, a Danish medical products maker that began intangibles reporting in the late 1990s, recently took part in an experiment conducted jointly by Schroders, a London-based fund manager, and accountants PricewaterhouseCoopers (PwC).

Taking Coloplast's annual report from 2002, PwC stripped out all of the quantified non-financial data. The final document complied with Danish GAAP, and included the narrative provided in the front of the report and accounts, but excluded Coloplast's own metrics relating operational performance to economic outcomes.



Armed with two versions—a complete document along with the abridged one, both with the name of the firm concealed—PwC gave each investment manager at Schrodgers who was participating in the exercise one of the two versions of the report. The managers were asked to come up with forecasts of revenue and earnings for the next two years and decide on a recommendation for the stock based on the document they were given. They had two hours to complete the task—no conferring with other participants or access to external sources was allowed.

According to Lønfeldt, the results were “startling.” More often than not, the participants with the full set of supporting intangible measures generated a lower, but much tighter, range of estimates than those who used financial performance information only. Moreover, the group with the undoctored report were overwhelmingly in favour of buying the stock. Those with the incomplete information set were less enthusiastic about the company—nearly 80% gave a sell recommendation.

“That tells us that this extra transparency is a good thing, since it leads to a much better understanding of the company,” says Lønfeldt. “Higher earnings estimates with a bigger variance are not as attractive as a more consistent view on the value of the company.” To Lønfeldt—a CFO with fifteen years of intangibles reporting under his belt—the results were “vindication of our approach.”



Goodwill to All Pieces

Are companies properly valuing and assigning acquired intangibles to business units?

Tim Reason, CFO Magazine

July 01, 2003

Two years ago, the Financial Accounting Standards Board seemed to hand a rare gift to companies when it eliminated the amortization of goodwill. No longer would the premium paid for acquiring a company chip away at earnings for decades — instead, it could be carried on the balance sheet as a non-wasting asset.

There was, of course, a catch: goodwill and other intangibles must be allocated to the appropriate reporting unit and tested regularly for impairment. Moreover, goodwill excludes many types of intangibles with definite lives, which still must be recognized and amortized. And any impairment charges are a straight hit to earnings.

Then there's the cost: to ensure compliance and avoid unexpected charges, many companies are paying more for professional valuation services to value goodwill and other intangibles.

With FASB emphasizing fair value as the best measure of worth in many types of accounting transactions, valuation services are booming. And thanks to the Sarbanes-Oxley Act, companies can no longer rely on their auditors to produce any valuation that they might subsequently have to audit. Hiring an outside valuation expert to perform a purchase-price allocation can cost a public company anywhere from \$50,000 to \$500,000, depending on the size of the deal. And the bucks don't stop there — FAS 142 requires impairment testing at least once a year.

"FAS 142 has been good for [our valuation] business, and it will continue to be because of ongoing testing," says George D. Shaw, Boston-based managing director of Grant Thornton Corporate Finance LLC, the accounting firm's M&A advisory subsidiary. Typically, he says, costs come down after the first "couple of rounds" of valuation.

Old Habits Die Hard

Paying outsiders for such services isn't required, of course, although auditors may demand it for particularly complex deals. Before FAS 141 and 142, companies either didn't need to do valuations at all (if they used the pooling method) or often could do them without help. Those that used purchase accounting often simply lumped intangibles with goodwill. Instead of assessing a fair value for each identifiable intangible, they shortened the maximum 40-year amortization period of actual goodwill by a weighted average life to account for other intangibles. This simple residual approach wasn't technically correct, but it was cheap and, in practice, accepted by both auditors and the Securities and Exchange Commission. "The majority of companies did this," says Steve Gerard, Boston-based managing director of Standard & Poor's Corporate Value Consulting unit. "It was an inexpensive way to achieve a reasonable, if not exactly rigorous, result."

The danger today is that firms sometimes continue to use variations of that formula for back-of-the-envelope calculations early in a deal. Whether deliberate or not, overstating goodwill can make an otherwise marginally dilutive deal look accretive — until more-rigorous accounting is applied.

A purchase price that requires revision because it underestimates the amount of amortizable intangibles can put CFOs, controllers, or auditors in an awkward spot as a deal moves toward closing. In fact,



valuation services quietly market their outsider status as a way to take some of the heat off of internal financial folks who don't want to be seen as potential deal-breakers. Even then, there are cases when the conflict between FAS 141 compliance and pressure to get a deal done has boiled over. "We have encountered situations where clients were clearly ignoring the rules, and at that point, we have walked away from assignments," says Gerard.

Fortunately, CFOs or controllers who find themselves at odds with a deal-making CEO or an aggressive investment – bank estimate have another powerful ally. "Boards are paying more attention to acquisitions since Sarbanes-Oxley," says Shaw. They, too, are quick to seek outside help. "It used to be that if a CEO wanted to do a deal, it was his ball game," Shaw explains. "Now, boards are putting the deal makers under more pressure."

Not A Big Deal?

Impairment testing, adds Shaw, has introduced "a more uncertain, volatile treatment of goodwill" than the straight-line depreciation of the past. That's another argument in favor of professional valuation — goodwill impairment can play havoc with a company's books. That was particularly true of stock deals done during the boom, when inflated stock prices led to inflated goodwill. A case in point: AOL Time Warner — a deal done with AOL's high-flying stock as currency — took a goodwill impairment charge of \$54 billion after adopting FAS 142.

Business reorganizations can also result in impairment. FAS 142 does not rely specifically on business segments as defined by FAS 131, but on often smaller "reporting units." To make sure that companies don't reshuffle reporting units simply to shield goodwill from impairment, FASB declared that any restructuring will automatically trigger an impairment test. Boeing, for example, recorded a charge of \$2.4 billion when it adopted FAS 142 in the first quarter of 2002, then took another \$931 million this April after a January reorganization triggered an early round of impairment testing.

CFOs are quick to note that changes in accounting haven't changed the way they do deals. The ultimate measure is still the cash generated by the deal, and impairments, if they occur, are a noncash charge.

"The reality is that you have already spent the cash," says Tom Manley, CFO of Burlington, Massachusetts-based Cognos Inc., which recently acquired planning-software provider Adaytum for \$157 million in cash. "I think shareholders understand that impairment is not going to be an incremental cash expense." However, he adds, "it is obviously a very big negative if a company is writing off a substantial amount of goodwill because [the acquisition] is not living up to expectations."

Despite the notable charges by some firms last year — which, not coincidentally, could be attributed to a one-time accounting change — the perceived and actual risk of impairment seems low for many companies. Cognos, for example, will amortize \$27.5 million in intangibles over the next five to seven years, but as a midsize company, it has only one reporting unit. Thus, Cognos's market value would have to fall below the company's book value before the Adaytum goodwill would be subject to further impairment testing. "Although it is a lot of goodwill on our balance sheet, it is small relative to the value of our company. It would be very difficult to find an impairment, given that I have one reporting unit," says Manley, who nonetheless brought in outside valuation experts for the Adaytum deal.

Large companies with multiple units would seem more vulnerable, but those units can often provide a substantial cushion against impairments. "Hopefully, the accounting isn't influencing how people do acquisitions," observes Manley.



Goodwill accounting is, however, influencing the way the SEC looks at companies. This may be the most powerful argument for getting outside help. While external valuations do not absolve companies of liability, regulators are likely to view them more favorably.

Moreover, valuation firms offer a structured process and a paper trail that can come in handy if a company's valuation practices are challenged — as they increasingly are. In February, the SEC released a review of 2002 filings by Fortune 500 companies, noting that goodwill impairment was among the critical disclosures that often “seemed to conflict significantly with generally accepted accounting principles or SEC rules, or to be materially deficient in explanation or clarity.” Among the additional information the SEC demanded were clearer descriptions of accounting policies for measuring impairment, as well as better information on how reporting units are determined and how goodwill is allocated to those units.

Immortal Danger

Under FAS 142, identifiable intangibles must be recognized separately from goodwill. But that doesn't necessarily mean they must be amortized. Assets considered to have indefinite lives — powerful brand names such as Coca-Cola, for example — can escape amortization.

But CFOs should think twice before considering that a plus — declaring an intangible to be immortal subjects it to regular impairment testing. “You could be replacing periodic, known amortization with a lot of lumpy, unpredictable impairment,” notes Paul Barnes, managing director of Standard and Poor's Corporate Value Consulting unit. Paragraph 11 of FAS 142 requires that “no legal, regulatory, contractual, competitive, economic, or other factors” limit the asset's useful life. And unlike goodwill or intangibles allocated to business units, there's no way to cushion an indefinite-lived intangible. “The indefinite-lived intangible asset stands naked in its impairment testing, so its impairment could be very visible,” says Barnes.

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Q.1 During 2008, A Ltd. had the following transactions:

On January 2, A Ltd. purchased the net assets of J Ltd. for Rs. 3,60,000. The fair value of J Ltd. identifiable net assets was Rs. 1,72,000. A Ltd. believes that, due to the popularity of J Ltd. consumer products, the life of the resulting goodwill is unlimited. (AS-14 not applicable)

On February 1, A Ltd. purchased a franchise to operate boating service from the State Government for Rs. 60,000 and an annual fee of 1% of boating revenues. The franchise expires after 5 years. Boating revenues were Rs. 20,000 during 2008. A Ltd. projects future revenues of Rs. 40,000 in 2009, and Rs. 60,000 per annum for the 3 years thereafter.

On April 5, A Ltd. was granted a patent that had been applied for by Induga. During 2002, A Ltd. incurred legal costs of Rs. 51,000 to register the patent and an additional Rs. 85,000 to successfully prosecute a patent infringement suit against a competitor. A Ltd. estimates the patent's economic life to be 10 years.

A Ltd. accounting policy is to amortize all intangibles on the straightline basis over the maximum period permitted by generally accepted accounting principles, taking a full year's amortization in the year of acquisition.



Required:

- A (i) Describe the characteristics of intangible assets. Discuss the accounting for the purchase or internal development of intangible assets with an indeterminable life such as goodwill.
- (ii) Over what period should intangible assets be amortized? How should this period be determined? Discuss the justification for amortization of intangible assets with indeterminable lives.
- (iii) Describe the financial statement disclosure requirement relating to A Ltd. intangible assets and expenses. Do not write the related footnotes. B Prepare a schedule showing the intangibles section of A Ltd. balance sheet at December 31, 2008 and a schedule showing the related expenses that would appear on A Ltd. 2008 income statement. Show supporting computations.

Solution :

- (i) The main characteristics of intangible assets are their lack of physical substance, the difficulty of estimating their value, and the high degree of uncertainty regarding their future life. Accounting for intangible assets depends on whether they have been purchased or developed internally.
- (ii) Intangible assets purchased from others should be recorded at cost. The costs of developing intangible assets with indeterminable lives, such as goodwill, are ordinarily not distinguishable from the current costs of operations and thus are not assignable to specific assets but are expensed immediately.
- (iii) Intangible assets should be amortized over their estimated useful life. Estimated useful life should be determined by consideration of such factors as legal costs; provisions for renewal or extensions of contracts; the effects of obsolescence, demand and competition; and other economic factors. Para 63 of AS-26 presumes 10 years as useful life unless otherwise proved.
- (iv) The financial statements should disclose the method and period of amortization of all intangible assets.

INTANGIBLES SECTION OF BALANCE SHEET

December 31, 2008

Amortization :	Rs. 18,800
Goodwill	12,000
Franchise	13,600
Patent 13,600	Rs. 44400
Franchise fee 1% of 20,000	200
	Rs. 44,600

Q.2. On January 2, 2009 B Ltd. bought a trademark from C Ltd. for Rs. 500,000. B Ltd. retained an independent consultant, who estimated the trademark's remaining life to be 20 years. Its unamortised cost on C Ltd. accounting records was Rs. 380,000. B Ltd. decided to amortize the trademark over the maximum period allowed. In B Ltd.'s December 31, 2008 balance sheet, what amount should be reported as accumulated amortization?

- a. Rs. 7,600 b. Rs. 9,500 c. Rs. 25,000 d. Rs. 50,000.



Solution: (d)

As per para 23 of AS-26, intangible assets should be measured initially at cost therefore, B Ltd. Company should amortize the trademark at its cost of Rs. 500,000. The unamortised cost on the seller's books (Rs. 3,80,000) is irrelevant to the buyer. Although the trademark has a remaining useful life of 20 years, intangible assets are generally amortized over a maximum period of 10 years per AS-26. Therefore, the 2008 amortization expense and accumulated amortization is 50,000 (Rs. 5,00,000 / 10 years).

Q.3 On January 2, 2009, D Ltd. purchased F Ltd. at a cost that resulted in recognition of goodwill of Rs. 2,00,000 having an expected benefit period of 10 years. During the first quarter of 2002, D Ltd. spent an additional sum of Rs. 80,000 on expenditures designed to maintain goodwill. At December 31, 2008, D Ltd. estimated that the benefit period of goodwill was 20 years. In its December 31, 2008 Balance sheet, what amount should D Ltd. report as goodwill? (AS-14 not applicable)

- a. Rs. 1,80,000 b. Rs. 1,90,000 c. Rs. 2,52,000 d. Rs. 2,73,000.

Solution: (b)

As per paras 23 and 27 of AS-26, the company should record as an asset the cost of intangible assets such as goodwill acquired from other entities. Para 60 of AS-26 also states that subsequent expenditure on a recognized intangible asset is recognized as an expense if this expenditure is required to maintain the asset at its originally assessed standard of performance. In addition, it is difficult to attribute Rs. 80,000 expenditure directly to goodwill rather than the business as a whole. Cost of developing intangible assets such as goodwill "which are not specifically identifiable, have indeterminate lives, or are inherent in a continuing business and related to an enterprise as a whole" should be expensed when incurred. Therefore, only Rs. 2,00,000 (and not the additional Rs. 80,000) should be capitalized as goodwill. Amortization at 31-12-2008 is recorded using the best estimate of useful life at that time (20 years). Therefore, the net amount reported for goodwill at 31-12-2008 is Rs. 1,90,000 [Rs. 2,00,000 - Rs. 2,00,000 X 1 / 20]. Goodwill has been amortized presuming that D Ltd. has sufficient evidence that benefit of goodwill is 20 years instead of 10 year.

Q.4 During 2008, N Ltd. incurred costs to develop and produce a routine, lowrisk computer software product, as follows :

Completion of detailed program design	Rs. 13,000
Costs incurred for coding and testing to establish technological feasibility	10,000
Other coding costs after establishment of technological feasibility	24,000
Other testing costs after establishment of technological feasibility	20,000
Cost of producing product masters for training materials	15,000
Duplication of computer software and training materials from product masters (1,000 units)	25,000
Packaging product (500 units)	9,000

(i) In N Ltd. December 31, 2008 Balance sheet, what amount should be capitalized as software cost, subject to amortization?

- a. Rs. 54,000 b. Rs. 57,000 c. Rs. 40,000 d. Rs. 49,000.



(ii) In N Ltd. December 31, 2008 Balance sheet, what amount should be reported in inventory?

Solution:

- (i) (c) As per para 44 of AS-26, costs incurred in creating a computer software, should be charged to research and development expense when incurred until technological feasibility/asset recognition criteria have been established for the product. Technological feasibility/asset recognition criteria are established upon completion of detailed program design or working model. In this case, Rs. 23,000 would be recorded as expense (Rs. 13,000 for completion of detailed program design and Rs. 10,000 for coding and testing to establish technological feasibility/asset recognition criteria). Cost incurred from the point of technological feasibility/asset recognition criteria until the time when products costs are incurred are capitalized as software costs. In this situation, Rs. 59,000 is capitalized as software cost (Rs. 24,000 + Rs. 20,000 + Rs. 15,000).
- (ii) (b) Product costs, which can be easily associated with the inventory items, are reported as inventory (in this case, Rs. 25,000 for duplication of computer software and training materials and Rs. 9,000 of packaging costs, for a total of Rs. 34,000).

Q.5 M Ltd. has two patents that have allegedly been infringed by competitors. After investigation, legal counsel informed M Ltd. that it had a weak case on patent A34 and a strong case in regard to patent B19. M Ltd. incurred additional legal fees to stop infringement on B19. Both patents have a remaining legal life of 8 years. How should M Ltd. account for these legal costs incurred relating to the two patents?

- a. Expense costs for A34 and capitalize costs for B19.
- b. Expense costs for both A34 and B19.
- c. Capitalize costs for both A34 and B19.
- d. Capitalize costs for A34 and expense costs for B19.

Solution: (a)

As per para 59 of AS-26, subsequent expenditure on an intangible asset after its purchase or its completion should be recognized as an expense when it is incurred unless:

- (a) It is probable that the expenditure will enable the asset to generate future economic benefits in excess of its originally assessed standard of performance; and
- (b) The expenditure can be measured and attributed to the asset reliably.

If these conditions are met, the subsequent expenditures should be added to the cost of the intangible asset.

Because M Ltd. has a weak case on patent A34; the legal fees incurred in its defence should be expensed, rather than capitalized as an asset. This is in accordance with the doctrine of conservatism. As a result of this occurrence, M Ltd. should also consider whether the patent would provide benefit to future periods. M Ltd. has a strong case in regard to patent B19, however, and can expect to receive benefits in the future as a result of its successful defence. Consequently, the legal fees to stop infringement on B19 should be capitalized as an asset and answers (b), (c) and (d) are incorrect.



Q 6. On January 1, 2009, K Ltd. incurred organization costs/preliminary expenses of Rs. 24,000. What portion of the organization costs will K Ltd. defer to years subsequent to 2009?

- a. Rs. 23,400 b. Rs. 19,200 c. Rs. 4,800 d Rs. 0.

Solution: (d)

As per para 56(a) of AS-26, organization costs/preliminary expenses are those incurred in the formation of a corporation. Since uncertainty exists concerning the future benefit of these costs in future years, they are properly recorded as an expense in 2009.

Q 7. J Ltd. is developing a new distribution system of its material, following are the costs incurred at different stages on research and development of the system

Year	Phase / Expenses	Amount (Rs. in crores)
2004	Research	8
2005	Research	10
2006	Development	30
2007	Development	36
2008	Development	40

On 31-12-2008, J Ltd. identified the level of cost savings at Rs. 16 crores expected to be achieved by the new system over a period of 5 years, in addition this system developed can be marketed by way of consultancy which will earn cash flow of 10 crores per annum. J Ltd. demonstrated that new system meet the criteria of asset recognition on 01-01-2006.

Determine the amount/cost which will be expensed and to be capitalized as intangible assets, presuming that no active market exist to determine the selling price of product i.e. system developed. System shall be available for use from 2009.

Solution:

As per AS-26 research cost of Rs. 8 and Rs. 10 crores to be expensed in respective years i.e. 2004 and 2005.

The development expenses can be capitalized from the date the internally generated assets (New distribution system in this case) meet the recognition criteria on and from 01-01-2006. Therefore cost of Rs. $30+36+40=106$ crores is to be capitalized as an intangible asset.

However as per para 62 of AS-26, the intangible should be carried at cost less accumulated amortization and accumulated impairment losses.

At the end of 2008 J Ltd. should recognize impairment loss of Rs. 7.46 crores $106-98.54$ and carry the 'new distribution system' (intangible asset) at 98.54 crores in Balance Sheet as per calculation given below.

Impairment loss is excess of carrying amount of asset over recoverable amount. Recoverable amount is higher of the two i.e. value in use (discounted future cash inflow) and market realisable value of asset.

The calculation of discounted future cash flow is as under assuming 10% discount rate.



Year	Cost Saving Marketing the System	Inflow by Cash inflow	Total at 10%	Discounted Cash flow	Discounted
2009	16	10	26	0.909	23.634
2010	16	10	26	0.826	21.476
2011	16	10	26	0.751	19.526
2012	16	10	26	0.683	17.758
2013	16	10	26	0.621	16.146
					98.540

No amortization of asset shall be done in 2008 as amortization starts after use of asset, which is in 2009.

Q.8 Ganguly International Ltd. is developing a new production process. During the financial year 31 st March, 2008, the total expenditure incurred on this process was Rs. 50 lakhs. The production process met the criteria for recognition as an intangible asset on 1 st December, 2007. Expenditure incurred till this date was Rs. 22 lakhs.

Further expenditure incurred on the process for the financial year ending 31 st March, 2009 was Rs. 80 lakhs. As at 31 March, 2009, the recoverable amount of know-how embodied in the process is estimated to be Rs. 72 lakhs. This includes estimates of future cash outflows as well as inflows.

You are required to work out:

- What is the expenditure to be charged to the profit and loss account for the financial year ended 31st March, 2008? (Ignore depreciation for this purpose)
- What is the carrying amount of the intangible asset as at 31st March, 2008?
- What is the expenditure to be charged to profit and loss account for the financial year ended 31 st March, 2009? (Ignore depreciation for this purpose)
- What is the carrying amount of the intangible asset as at 31st March, 2009?

Solution:

- Expenditure incurred up to 1-12-2007 will be taken up to profit and loss account for the financial year ended 31-3-2008 = Rs. 22 lakhs
- Carrying amount as on 31-3-2008 will be the expenditure incurred-after 1-12-2007 = Rs. 28 lakhs
- Book cost of intangible asset as on 31 -3-2009 is worked out as:
 - Carrying amount as on 31-3-2008 - Rs. 28 lakhs
 - Expenditure during 2008-09 - R.s. 80 lakhs
 - Total Book Cost - Rs. 108 lakhs
 - Recoverable Amount, as estimated - Rs. 72 lakhs
 - Difference to be charged to profit and loss account as impairment - Rs. 36 lakhs
- Carrying amount as on 31-3-2009 will be (Cost less impairment loss) Rs. 72 lakhs



Chapter 7

HUMAN RESOURCE ACCOUNTING

7.1 Introduction:

- 7.1.1 The past few decades have witnessed a global transition from manufacturing to service based economies. The fundamental difference between the two lies in the very nature of their assets. In the former, the physical assets like plant, machinery, material etc. are of utmost importance. In contrast, in the latter, knowledge and attitudes of the employees assume greater significance. For instance, in the case of an IT firm, the value of its physical assets is negligible when compared with the value of the knowledge and skills of its personnel. Similarly, in hospitals, academic institutions, consulting firms, etc., the total worth of the organisation depends mainly on the skills of its employees and the services they render. Hence, the success of these organizations is contingent on the quality of their Human Resource – its knowledge, skills, competence, motivation and understanding of the organisational culture.
- 7.1.2 In knowledge – driven economies, therefore, it is imperative that the humans be recognized as an integral part of the total worth of an organisation. However, in order to estimate and project the worth of the human capital, it is necessary that some method of quantifying the worth of the knowledge, motivation, skills, and contribution of the human element as well as that of the organisational processes, like recruitment, selection, training etc., which are used to build and support these human aspects, is developed. Human Resource Accounting (HRA) denotes just this process of quantification/measurement of the Human Resource.
- 7.1.3 Human resource management activities include attraction, selection, retention, development and utilization. In the past, these activities were evaluated in behavioral and statistical terms. Behavioral measures were the reactions of various groups of what individuals have learned or of how their behaviors have changed on the job. Statistical Measures were ratios, percentages, measures of central tendency and variability, and measures of correlation.
- 7.1.4 Today, because of rising costs, there is a need to evaluate HR management activities in economic terms. This requires gathering information from Accounting, Finance, Economics and Behavioral Science.

7.2 Definition of Human Resource Accounting (HRA):

- 7.2.1 There are no generally accepted accounting procedures for employee valuation. The first major attempt at employee valuation was made by R.G. Barry Corporation of Columbus, Ohio in their 1971 annual report, to enable the company to report accurate estimates of the worth of the organization's human assets.
- 7.2.2 The American Accounting Association's Committee on Human Resource Accounting (1973) has defined *Human Resource Accounting* as "the process of identifying and measuring data about human resources and communicating this information to interested parties". HRA, thus, not only involves measurement of all the costs/investments associated with the recruitment, placement, training and development of employees, but also the quantification of the economic value of the people in an organisation.



- 7.2.3 Flamholtz (1971) too has offered a similar definition for HRA. They define HRA as “the measurement and reporting of the cost and value of people in organizational resources”.
- 7.2.4 In India, the Companies Act, 1956 does not mandate furnishing of HRA related information in the financial statements of the companies. The Institute of Chartered Accountants of India too, has not brought out any definitive standard or measurement in the reporting of human resources costs. Some general qualitative pronouncements are made by the top management in major forums such as an annual general meeting on the importance of human resources, which have sounded more like platitudes and prosaic. However, some organizations in India such as Infosys, BHEL and ACC have furnished the value of their human resources and related information in their annual reports.

7.3 Benefits of HRA:

- 7.3.1 According to Likert (1971), HRA serves the following purposes in an organisation:
- It furnishes cost/value information for making management decisions about acquiring, allocating, developing, and maintaining human resources in order to attain cost-effectiveness;
 - It allows management personnel to monitor effectively the use of human resources;
 - It provides a sound and effective basis of human asset control, that is, whether the asset is appreciated, depleted or conserved;
 - It helps in the development of management principles by classifying the financial consequences of various practices.
- 7.3.2 Basically, HRA is a management tool which is designed to assist senior management in understanding the long term cost and benefit implications of their HR decisions so that better business decisions can be taken. If such accounting is not done, then the management runs the risk of taking decisions that may improve profits in the short run but may also have severe repercussions in future. For example, very often organisations hire young people from outside on very high salaries because of an immediate business requirement. Later on, however, they find that the de-motivating impact of this move on the existing experienced staff has caused immense long – term harm by reducing their productivity and by creating salary distortions across the organisational structure.
- 7.3.3 HRA also provides the HR professionals and management with information for managing the human resources efficiently and effectively. Such information is essential for performing the critical HR functions of acquiring, developing, allocating, conserving, utilizing, evaluating and rewarding in a proper way. These functions are the key transformational processes that convert human resources from ‘raw’ inputs (in the form of individuals, groups and the total human organization) to outputs in the form of goods and services. HRA indicates whether these processes are adding value or enhancing unnecessary costs.
- 7.3.4 In addition to facilitating internal decision making processes, HRA also enables critical external decision makers, especially the investors in making realistic investment decisions. Investors make investment decisions based on the total worth of the organisation. HRA provides the investors with a more complete and accurate account of the organisations’ total worth, and therefore, enables



better investment decisions. For example, conventional financial statements treat HR investments as “expenditures, Consequently, their income statement projects expenditures to acquire, place and train human resources as expenses during the current year rather than capitalizing and amortizing them over their expected service life. The balance sheet, thus, becomes distorted as it inaccurately presents the “total Assets” as well as the “net income” and, thereby, the “rate of return” which is the ratio of net income to the total assets. HRA helps in removing this distortion.

7.3.5 Furthermore, in a business environment where corporate social responsibility is rapidly gaining ground, HRA reflects the extent to which organisation contributes to society’s human capital by investing in its development.

7.3.6 Finally, in an era where performance is closely linked to rewards and, therefore, the performance of all groups/departments/functions needs to be quantified to the extent possible, HRA helps in measuring the performance of the HR function as such.

7.4 HRA Measurements:

7.4.1 The two main approaches usually employed in HRA are:

1. The cost approach which involves methods based on the costs incurred by the company, with regard to an employee.
2. The economic value approach which includes methods based on the economic value of the human resources and their contribution to the company’s gains. This approach looks at human resources as assets and tries to identify the stream of benefits flowing from the asset.

7.5 Cost Approach to Employee Valuation:

7.5.1 The historical cost approach follows the asset model of accounting, and measures the organization’s investment in its employees, and is viewed most appropriate when used for external reporting and considered quite objective.

7.5.2 The disadvantages of the Historical Cost Approach are:

This approach is based on the false assumption that the monetary value is stable.

Deleting and writing off abortive expenditures involve a great deal of subjectivity.

The assets valued are not saleable, and there is no independent check of valuation.

This approach measures only costs to the organization. It ignores any measure of the value of the employee to the organization.

7.5.3 Alternatives to the Historical Cost Approach are:

- a. Replacement Cost
- b. Present Value of Future Earnings
- c. Present Value to the Organization

7.5.4 Replacement Cost Approach: It measures only the cost of replacing the employee. Replacement Costs include recruitment, selection, compensation and training cost (income forgone during the training period). This approach provides biased estimates, as an inefficient firm may incur greater cost.



7.6 The Economic Value Approach:

7.6.1 The value of an object, in economic terms, is the present value of the services that it is expected to render in future. Similarly, the economic value of human resources is the present worth of the services that they are likely to render in future. This may be the value of individuals, groups or the total human organisation. The methods for calculating the economic value of individuals may be classified into monetary and non-monetary methods.

7.6.2 Monetary Measures for assessing Individual Value:

a. Flamholtz's model of determinants of Individual Value to Formal Organisations:

As per this model, the *value of an individual* is the present worth of the services that he is likely to render to the organisation in future. As an individual moves from one position to another, at the same level or at different levels, the profile of the services provided by him is likely to change. The present cumulative value of all the possible services that may be rendered by him during his/her association with the organisation, is the value of the individual.

Typically, this value is uncertain and has two dimensions. The first is the **expected conditional value** of the individual. This is the amount that the organisation could potentially realize from the services of an individual during his/her productive service life in the organization. It is composed of three factors:

- a. productivity or performance (set of services that an individual is expected to provide in his/her present position);
- b. transferability (set of services that he/she is expected to provide if and when he/she is in different positions at the same level);
- c. promotability (set of services that are expected when the individual is in higher level positions).

These three factors depend, to a great extent, on *individual determinants* like activation level of the individual (his motivation and energy level) and *organizational determinants* like opportunity to use these skills or roles and the reward system.

The second dimension of an individual value is the **expected realizable value**, which is a function of the expected conditional value, and the *probability that the individual* will remain in the organisation for the duration of his/her productive service life. Since individuals are not owned by the organisation and are free to leave, ascertaining the probability of their turnover becomes important.

The interaction between the individual and organizational determinants mentioned above, leads to job satisfaction. The higher is the level of job satisfaction, the lower is the probability of employee turnover. Therefore, higher is the expected realizable value.

b. Flamholtz's Stochastic Rewards Valuation Model:

The movement or progress of people through organizational 'states' or roles is called a *stochastic process*. The Stochastic Rewards Model is a direct way of measuring a person's expected conditional value and expected realizable value. It is based on the assumption that



an individual generates value as he occupies and moves along organizational roles, and renders service to the organisation. It presupposes that a person will move from one state in the organisation, to another, during a specified period of time. In this model, exit is also considered to be a state. Use of this model necessitates the following information:

1. The set of mutually exclusive states that an individual may occupy in the system during his/her career;
2. The value of each state, to the organisation;
3. Estimates of a person's expected tenure in the organization,
4. The probability that in future, the person will occupy each state for the specified time,
5. The discount rate to be applied to the future cash flows.

A person's expected conditional value and expected realizable value will be equal, if the person is certain to remain in the organisation, in the predetermined set of states, throughout his expected service life.

The main drawback of this model, however, is the extent of information required to make the necessary estimates of the values of the service states, the expected tenure, and the probability that the individual will occupy the state for the specified period of time. However, if this information can be made available, this model emerges as one of the most sophisticated models for determining the value of individuals.

c. **The Lev and Schwartz Model:**

The Lev and Schwartz model is the basic model employed by most Indian organisations. According to this model, the value of human capital embodied in a person who is 'y' years old, is the present value of his/her future earnings from employment. This can be calculated by using the following formula:

$$E(V_y) = \sum_{T=Y}^{T} P_y(t+1) \sum_{T} I(T) / (I+R)^{t-y}$$

where $E(V_y)$ = expected value of a 'y' year old person's human capital

T = the person's retirement age

$P_y(t)$ = probability of the person leaving the organisation

$I(t)$ = expected earnings of the person in period I

R = discount rate

The basic theme of Lev, Schwartz model is to compute the present value of the future direct and indirect payments to their employees as a measure of their human resource value. While doing so, the common assumptions set by the Indian companies are the *pattern of employee compensation, normal career growth, and weightage for efficiency*. Moreover, companies adapt this model to their practical requirements by making necessary alterations. For instance, different organisations use different discount rates for ascertaining the present value of future cash flows.



This method of accounting is basically oriented towards measuring changes in the employees' value rather than employers' gains from the employees. Unless the employees' payments are directly linked to employee productivity or the company performance, the changes in the value of employees will not reflect the changes in the employees' contribution. Under the Lev, Schwartz model, the value of human resources will be more or less increasing, even if the organisations continuously incur losses/decrease in profitability. The attitude and morale of the employees, the contribution of the employees to the organisation, and such other factors are out of the purview of the Lev, Schwartz model.

d. Hekimian and Jones Competitive Bidding Model:

In this method, an internal market for labor is developed and the value of the employees is determined by the managers. Managers bid against each other for human resources already available within the organisation. The highest bidder 'wins' the resource. There is no criteria on which the bids are based. Rather, the managers rely only on their judgement.

7.6.3 **Non-monetary methods:**

The non-monetary methods for assessing the economic value of human resources also measure the Human Resource but not in dollar or money terms. Rather they rely on various indices or ratings and rankings. These methods may be used as surrogates of monetary methods and also have a predictive value. The non-monetary methods may refer to a simple inventory of skills and capabilities of people within an organization or to the application of some behavioral measurement technique to assess the benefits gained from the Human resource of an organisation.

1. *The skills or capability inventory* is a simple listing of the education, knowledge, experience and skills of the firm's human resources.
2. *Performance evaluation* measures used in HRA include ratings, and rankings. *Ratings* reflect a person's performance in relation to a set of scales. They are scores assigned to characteristics possessed by the individual. These characteristics include skills, judgment, knowledge, interpersonal skills, intelligence etc. *Ranking* is an ordinal form of rating in which the superiors rank their subordinates on one or more dimensions, mentioned above.
3. *Assessment of potential* determines a person's capacity for promotion and development. It usually employs a *trait approach* in which the traits essential for a position are identified. The extent to which the person possesses these traits is then assessed.
4. *Attitude measurements* are used to assess employees' attitudes towards their job, pay, working conditions, etc., in order to determine their job satisfaction and dissatisfaction.

7.6.4 **Read extracts of the Human Resource Valuation report of Infosys 2007 given at the end of the chapter.**



Human Resources Valuation

Extracted from Infosys Annual Report, 2007

The dichotomy in accounting between human and non-human capital is fundamental. The latter is recognized as an asset and is, therefore, recorded in the books and reported in the financial statements, whereas the former is ignored by accountants. The definition of wealth as a source of income inevitably leads to the recognition of human capital as one of the several forms of wealth such as money, securities and physical capital.

We have used the Lev & Schwartz model to compute the value of human resources. The evaluation is based on the present value of future earnings of employees and on the following assumptions:

- * Employee compensation includes all direct and indirect benefits earned both in India and abroad.
- * The incremental earnings based on group/age have been considered.
- * The future earnings have been discounted at the cost of capital of 14.97% (previous year – 12.96%).

	<i>in Rs. crore, unless stated otherwise</i>	
	2007	2006
<i>Employees (no.)</i>		
Software professionals	68,156	49,495
Support	4,085	3,220
Total	72,241	52,715
<i>Value of human resources</i>		
Software professionals	53,592	43,336
Support	3,860	3,301
Total	57,452	46,637
Total income	13,893	9,521
Total employee cost	7,112	4,801
Value-added	11,879	8,030
Net profits excluding exceptional items	3,861	2,479
<i>Ratios</i>		
Value of human resources per employee	0.80	0.88
Total income/human resources value (ratio)	0.24	0.20
Employee cost/human resources value (%)	12.4	10.3
Value-added/human resources value (ratio)	0.21	0.17
Return on human resources value (%)	6.7	5.3



Value-added	in Rs. Crore			
	2007 %	2006 %		
<i>Value-added</i>				
Income	13,893		9,521	
<i>Less: Operating expenses excluding personnel costs</i>				
Software development expenses	1,187		812	
Selling and marketing expenses	371		231	
General and administration expenses	834		587	
	2,392		1,630	
Value-added from operations	11,501		7,891	
Other income (including exceptional items)	378		139	
Total value-added	11,879		8,030	
Distribution of value-added				
Human resources				
Salaries and bonus	7,112	59.9	4,801	59.8
Providers of capital				
Dividend	654	5.5	1,238	15.4
Minority interest	11	0.1	21	0.3
Interest	–	–	–	–
	665	5.6	1,259	15.7
Taxes				
Income taxes	386	3.2	313	3.9
Tax on dividend	102	0.9	174	2.2
	488	4.1	487	6.1
Retained in business				
Depreciation	514	4.3	437	5.4
Income retained in business	3,100	26.1	1,046	13.0
	3,614	30.4	1,483	18.4
Total	11,879	100.0	8,030	100.0

*Note: The figures above are based on the consolidated Indian GAAP financial statements.
Dividends for fiscal 2007 include one-time silver jubilee dividend of Rs. 827 crore.
Income taxes for fiscal 2007 include tax reversal of Rs. 125 crore.*



Chapter 8

VALUATION OF GOODWILL, PATENTS AND COPYRIGHTS

8.1 Intangible assets:

- 8.1.1 Intangible assets include a wide array of assets ranging from patents and trademarks to goodwill. The accounting standards vary across intangible assets.
- 8.1.2 In case of specifically identifiable intangibles, the cost associated with the obtaining of intangibles can be identified (i.e., patents, copyrights, trademarks, etc.).

8.2 Patents:

- 8.2.1 A patent gives the holder the exclusive right to produce, use and sell a product or process without interference or infringement from others.
- 8.2.2 Cost of patent: If purchased from an inventor, the cost will include the purchase price plus any legal fees (to successfully protect the patent). In addition, any legal fees occur after the acquisition of a patent to successfully defend the right of the patent should also be capitalized. The cost of a patent should be amortized over the legal life or the useful life, whichever is shorter.
- 8.2.3 If a patent becomes worthless, the net value of the patent should be written off as expense (or loss).
- 8.2.4 If a patent is internally developed, no cost can be capitalized. All the research and development (R&D) costs should be expensed.
- 8.2.5 Patents and Trademarks are valued differently depending on whether they are generated internally or acquired. When patents and trademarks are generated from internal research, the costs incurred in developing the assets are expensed in that period, even though the asset might have a life of several accounting periods. Thus, the intangible asset is not valued in the balance sheet of the company. In contrast, when an asset is acquired from an external party, it is treated as an asset.
- 8.2.6 Intangible assets have to be amortized over their expected lives.

8.3 Copyrights:

- 8.3.1 Copyright is a government granted right to authors, sculptors, painters, and other artists for their creations. A copyright is granted for the life of the creator plus 70 years. It gives the creator and heirs an exclusive right to reproduce and sell the artistic work or published work.
- 8.3.2 Cost of Copyright: If purchased, the cost includes the purchase price plus any legal fees. If developed by the owner (the creator), no cost can be assigned (capitalized).
- 8.3.3 Amortization is by Straight-line method or a unit-of-production method.

8.4 Trademarks & Trade Names:

- 8.4.1 Trademarks and trade names refer to a word, a phrase, or a symbol that distinguishes a product or an enterprise from another (i.e., company names such as IBM, Microsoft, Intel, and XEROX).



8.4.2 Cost is similar to that of copyrights. The owner should register at the Patent Office for 10 years life. The registration can be renewed every 10 years for unlimited times.

8.4.3 Amortization is over the shorter of the useful or legal life, not to exceed 40 years.

8.5 Leaseholds:

8.5.1 By signing a contract, the lessee acquires an exclusive right to use the property. Leasehold improvements denote the improvements made to the leased property.

8.6 Organization Costs:

8.6.1 Organization costs refer to costs associated with the formation of a corporation including fees to underwriters (for stock issuance), legal fees, promotional expenditures, etc.

8.7 Franchise & License:

8.7.1 A franchise is a contractual agreement under which the franchiser grants the franchisee the right to sell certain products or service or to use certain trade names or trademarks.

8.7.2 A license is a contractual agreement between a governmental body (i.e., city, state, etc.) and a private enterprise to use public property to provide services.

8.7.3 Costs should be capitalized.

8.7.4 Amortization is done over the shorter of the contractual life or the useful life, not to exceed 40 years.

8.8 Research and Development (R&D):

8.8.1 R&D related expenditures are expensed and disclosed, if they are incurred for internal use.

8.8.2 Costs of R&D performed under contracts are capitalized as inventory. Income from these contracts can be recognized based on percentage-of completion or complete contract method as discussed for the long-term construction contracts.

8.8.3 R&D expenditures include salaries of personnel involved in R&D, costs of materials used, equipments, facilities and intangibles used in R&D activities. If equipment has an alternative usage, only the depreciation expense will be included in the R&D expense.

8.9 Purchased R&D and Earnings Quality:

8.9.1 When acquiring another company, the purchase price is allocated to tangible assets, intangibles (developed technology) and in-process R&D. The remaining will be the goodwill. The in-process R&D is expensed.

8.9.2 The more the purchase price is assigned to the in-process R&D, the lesser will be the amount assigned to goodwill.

8.9.3 This strategy can reduce future goodwill amortization expense and increase future earnings.



8.10 Computer Software Costs:

- 8.10.1 If the software is to be sold, most of the costs need to be expensed. Costs include designing, coding, testing, documentation and preparation of training materials. All these costs should be expensed as R & D expenses.
- 8.10.2 Costs occurred after technological feasibility of the product is established (i.e., the costs of design to suit the needs of customers) should be capitalized as an intangible asset.
- 8.10.3 Costs occurred after the software is ready for general release and production: These costs should be product costs.

8.11 Goodwill:

- 8.11.1 Intangible assets are sometimes the by-products of acquisitions. When a company acquires another company, the purchase price is first allocated to tangible assets, and the excess price is then allocated to any intangible assets such as patents and trademarks. Any residual amount becomes goodwill.
- 8.11.2 Goodwill is often described as the corporate reputation of the acquired party; it might also include flagship value, customer relationships, and a range of equally difficult to describe, much less quantify, business intangibles. Goodwill is often thought of as the value of the company's trade identity. An accountant would describe goodwill as the market price of the business as a whole less fair value of other assets acquired. An economist would define goodwill as the consequence of a firm's above-normal ability to generate future earnings, or as a set of assets controlled by an acquired company.
- 8.11.3 Historically, the accounting treatment of goodwill has served as a convenient category in which to allocate intellectual assets. However, goodwill is only valued when a business is sold (acquired) and is therefore not valued for firms that have not been acquired. This does not, of course, imply that such firms do own any intellectual assets.
- 8.11.4 While accounting principles suggest that goodwill captures the value of any intangibles that are not specifically identifiable, it is really a reflection of the difference between the book value of assets and the market value of the company owning the assets. This approach is called purchase accounting, and it creates the intangible asset goodwill that is amortized over time.
- 8.11.5 Goodwill cannot be separated from the business. It can only be recognized if the whole business was purchased and the purchase price is greater than the market value of the net assets (i.e., market value of assets – market value of liabilities).
- 8.11.6 Factors that contribute to goodwill are: Outstanding sales organization, favorable tax condition, effective advertising, superior management team, good labor relations, and outstanding credit rating.
- 8.11.7 **Methods of Measuring Goodwill:**

Theoretically, estimate the value of each factor which contributes to the goodwill (not practical). There are two alternatives used in measuring goodwill:

- a. Master valuation approach:



Goodwill is measured as the excess of cost over the fair value of the identifiable net assets acquired.

Goodwill = Purchase price of a business - market value of net assets of the business.

Market value of net assets = M.V. of assets - M.V. of liabilities.

b. Capitalization of excess earnings power:

Excess earnings power = the difference between what a firm earns and what is normally earned for a similar firm in the same industry.

Goodwill = Discounting the excess earnings over the estimated life of the excess earnings.

Example:

Excess earning = Rs.100,000

Discount Rate = 10%

Estimated life = 10 years

Goodwill = Rs.100,000 × 6.145 = Rs. 61,450

8.11.8 Negative Goodwill:

Negative goodwill cannot be recognized. The negative goodwill is used to reduce the costs assigned to the non-current assets acquired. The reduction is proportionately to the relative market value of the non-current assets

8.11.9 Accounting for Goodwill:

The emerging interest in IC reporting means the relevance and appropriate use of goodwill will be subjected to greater scrutiny. While the accounting profession is still tackling with the problems of goodwill, the rise of IC reporting has added another dimension (and perhaps, a new perspective) to the way goodwill is accounted for.

Furthermore, conventional accounting only recognizes intangibles on a company's balance sheet when that company is acquired by another company. As already pointed out, in the accounts the line item 'goodwill' represents the difference between the revalued net assets of a company and what is actually paid. It represents value in the eye of the buyer – not in the company value. The buyer might perceive value in trademarks, brand names and other intangibles not recorded in the books of the company being taken over. Under conventional accounting practices, 'goodwill' is only assigned a value when a company is sold.

8.12 Issues in Valuation of Intangibles:

8.12.0 Certain issues relating to some of the intangibles are given below:

- a. Patents: jurisdictional coverage, status of registrations, breadth of patent claims, alternatives to the patented invention, risks of infringement and invalidity, and the possibility of blocking patents.
- b. Trade Secrets: the reasonableness and effectiveness of measures taken to ensure secrecy; the possibility that the secret could be legitimately discovered by competitors through



Business Valuation Basics

independent research; and if potentially patentable, the potential benefits, costs and risk of patenting versus holding the trade secret as a trade secret.

- c. Copyrights: whether the copyright is for the original work, or for a particular derivative of it.
- d. Trademarks: Ability to be extended to related products or services without infringing on the trademarks of others, the nature and status of any registrations, the possibility of abandonment due to non-use, and the possibility that a mark might have become generic.



Chapter 9

VALUATION OF BRANDS

(Adapted from Interbrand's Brand Valuation)

9.1 Value of a Brand:

- 9.1.1 The fact that the brand is an organization's capital asset scarcely needs emphasizing. In certain sectors, in fact, it forms the very lifeblood of the organization. Though factories and manpower may disappear, organizations still retain a name whose public reputation is one of enduring asset value. Think of powerful brands in India such as Dalda of Hindustan Lever's vanaspati (no longer in existence, but still being remembered by consumers), Horlicks, Dettol, Lifebuoy, and so on.
- 9.1.2 "If this business were split up, I would give you the land and bricks and mortar, and I would take the brands and trade marks, and I would fare better than you." — John Stuart, Chairman of Quaker (ca. 1900).
- 9.1.3 The brand is a special intangible that in many businesses is the most important asset. This is because of the economic impact that brands have.
- 9.1.4 Ultimately, Brands are all about trust ...
... the reason consumers flock to some brands and ignore others is that behind the brand stands an unspoken promise of value. That is why brands are becoming even more important drivers of growth. That is also why Hindustan Unilever wants Surf, Lux, Brooke Bond, Sunsilk, Knorr, ... on its plate.
- 9.1.5 A brand is an experience: "A brand is essentially a container for a customer's complete experience with the offer and the company" - Sergio Zyman.
- 9.1.6 Value of Brands:
- c. Influence customers, employees, investors and all stakeholders
 - d. Important even for non-profit organizations to attract sponsors, donations, etc.
 - e. Brands contribute significantly to market capitalization.
 - f. Companies with strong brands outperform the market in respect of several indices.

9.2 When Valuation of Brands is needed?

9.2.1 Brand valuation is needed under the following circumstances:

- a. Accounting purposes:
FAS 141 and IFRS 3 now require that the 'goodwill' in an acquisition be allocated to the intangible assets that the company is acquiring. This means that brand valuations are now a part of the commercial due diligence performed before an acquisition.



b. Transactional Purpose:

Transactions are generally of four types - licensing, acquisitions, securitization, tax-planning.

Brand licensing requires an understanding of the economic benefit provided by the brand in order to establish an appropriate royalty rate. A similar logic applies to the acquisitions of branded companies when the brand represents a major asset in the transaction. Securitization involves raising funds against the security of future revenues. However, brands have rarely been used as the collateral for asset-backed securities. Brand-based tax planning is a relatively common practice in several countries. It involves transferring the ownership of the trademark and, usually, other forms of intellectual property to a central holding company that then charges a royalty for the use of these assets to the operating companies.

c. Brand Management decisions and Value-based management

9.3 Approaches to Brand Valuation:

9.3.1 There are two broad approaches to Brand Valuation:

- a. Research-based Brand Equity Valuations
- b. Financially-driven Approaches

9.3.2 Research-based Brand Equity Valuations:

The distinct features of Research-based Brand Equity Valuations are:

- a. Consumer research to assess the relative performance of brands.
- b. These do not put a financial value on brands. They measure consumer behavior and attitudes that have an impact on the economic performance of brands.
- c. They try to explain, interpret and measure consumers' perceptions that influence purchase behavior.
- d. They include a wide range of perceptual measures such as different levels of awareness (unaided, aided, top of mind), knowledge, familiarity, relevance, specific image attributes, purchase consideration, preference, satisfaction and recommendation.
- e. Some models add behavioral measures such as market share and relative price.
- f. These approaches do not differentiate between the effects of other influential factors such as R&D and design and the brand.

9.3.3 Financially-driven Approaches:

Financially driven approaches fall under four categories:

1. **Cost-based approach:**

- a. Defines the value of a brand as the aggregation of all historic costs incurred or replacement costs required in bringing the brand to its current state.
- b. This approach fails because there is no direct correlation between the financial investment made and the value added by a brand.



2. Comparables:

- a. Arrive at a value for a brand on the basis of something comparable.
- b. Difficult - as by definition brands should be differentiated.
- c. The value creation of brands in the same category can be very different, even if most other aspects such as target groups, advertising spend, price promotions and distribution channel are similar or identical.
- d. Comparables can provide an interesting cross-check
- e. Should never be relied on solely for valuing brands.

3. Premium price:

- a. The value is calculated as the net present value of future price premiums that a branded product would command over an unbranded or generic equivalent.
- b. The primary purpose of many brands is not necessarily to obtain a price premium but rather to secure the highest level of future demand.
- c. This approach is flawed, as there are rarely generic equivalents to which the premium price of a branded product can be compared.
- d. The price difference between a brand and competing products can be an indicator of its strength, but it does not represent the only and most important value contribution a brand makes to the underlying business.

4. Economic Use Approach:

- a. Approaches that are driven exclusively by brand equity measures or financial measures lack either the financial or the marketing component to provide a complete and robust assessment of the economic value of brands.
- b. The economic use approach: developed in 1988
- c. Combines brand equity and financial measures
- d. Has become the most widely recognized and accepted methodology for brand valuation.
- e. It has been used in more than 4,000 brand valuations worldwide.

The Economic Use approach uses the following principles:

The marketing principle:

Relates to the commercial function that brands perform within businesses.

1. Brands help to generate customer demand. Customer demand translates into revenues through purchase volume, price and frequency.
2. Brands secure customer demand for the long term through repurchase and loyalty.

The financial principle:

Relates to the net present value of future expected earnings.



The brand's future earnings are identified and then discounted to a net present value using a discount rate that reflects the risk of those earnings being realized.

9.4 Steps in Valuation of a Brand:

9.4.1 Market segmentation:

Split the brand's markets into non-overlapping and homogeneous groups of consumers according to applicable criteria: e.g. product or service, distribution channels, consumption patterns, purchase sophistication, geography, existing and new customers.

The brand is valued in each segment and the sum of the segment valuations constitutes the total value of the brand.

9.4.2 Financial analysis:

Identify and forecast revenues and earnings from intangibles generated by the brand for each of the distinct segments determined in Step 1.

Intangible earnings are defined as brand revenue less operating costs, applicable taxes and a charge for the capital employed.

The concept is similar to the notion of economic profit.

9.4.3 Demand analysis:

Assess the role that the brand plays in driving demand for products and services in the markets in which it operates, and determine what proportion of intangible earnings is attributable to the brand measured by an indicator referred to as the "role of branding index."

Process:

- identifying the various drivers of demand for the branded business
- determining the degree to which each driver is directly influenced by the brand.

Branding index represents the percentage of intangible earnings that are generated by the brand. Brand earnings are calculated by multiplying the role of branding index by intangible earnings.

9.4.4 Competitive benchmarking:

Determine the competitive strengths and weaknesses of the brand to derive the specific brand discount rate that reflects the risk profile of its expected future earnings (this is measured by an indicator referred to as the "brand strength score").

This comprises extensive competitive benchmarking and a structured evaluation of the brand's market, stability, leadership position, growth trend, support, geographic footprint and legal protectability.

9.4.5 Brand value calculation:

Brand value is the net present value (NPV) of the forecast brand earnings, discounted by the brand discount rate.

The NPV calculation comprises both the forecast period and the period beyond, reflecting the ability of brands to continue generating future earnings.

A sample calculation is given at the end of the chapter.



9.4.6 Brand Valuation is useful in the following instances:

- a. predicting the effect of marketing and investment strategies;
- b. determining and assessing communication budgets;
- c. calculating the return on brand investment;
- d. assessing opportunities in new or underexploited markets; and
- e. tracking brand value management.

9.5 Brand (Market) Performance Valuation:

9.5.1 A number of indices and techniques are available to measure brand performance. Some of them are given below:

- a. Landor Power Index
- b. Interbrand Valuation model
- c. Y&R Brandasset Valuator
- d. Intangible Value Valuator

9.5.2 The Landor Power Index:

This index equated Power with strength. The two synthetic measures are awareness and esteem. Index is built on 'Share of Mind' idea (cf. Share of Market, Share of Voice, Share of Requirements, etc.). Most influencing factor is brand perceived quality.

9.5.3 Interbrand's Brand Strength Attributes:

Leadership (25%) Market share Awareness Positioning Competitor Profile	Internationality (25%) Geographic spread International positioning Relative market share Prestige Ambition
Stability (15 %) Longevity Coherence Consistency Brand Identity Risks	Trend (10 %) Long-term market share performance Projected brand performance Sensibility of brand Plans competitive actions
Market (10 %) What is the market? Nature of market (e.g. volatility) Size of market Market dynamics Barriers to entry	Support (10 %) Consistency of message Consistency of spending Above vs. below line Brand franchise
	Protection (5%) Trademark registration and registrability Common law Litigations/ disputes



9.5.4 Young & Rubicam's Brandsset Valuator PowerGrid

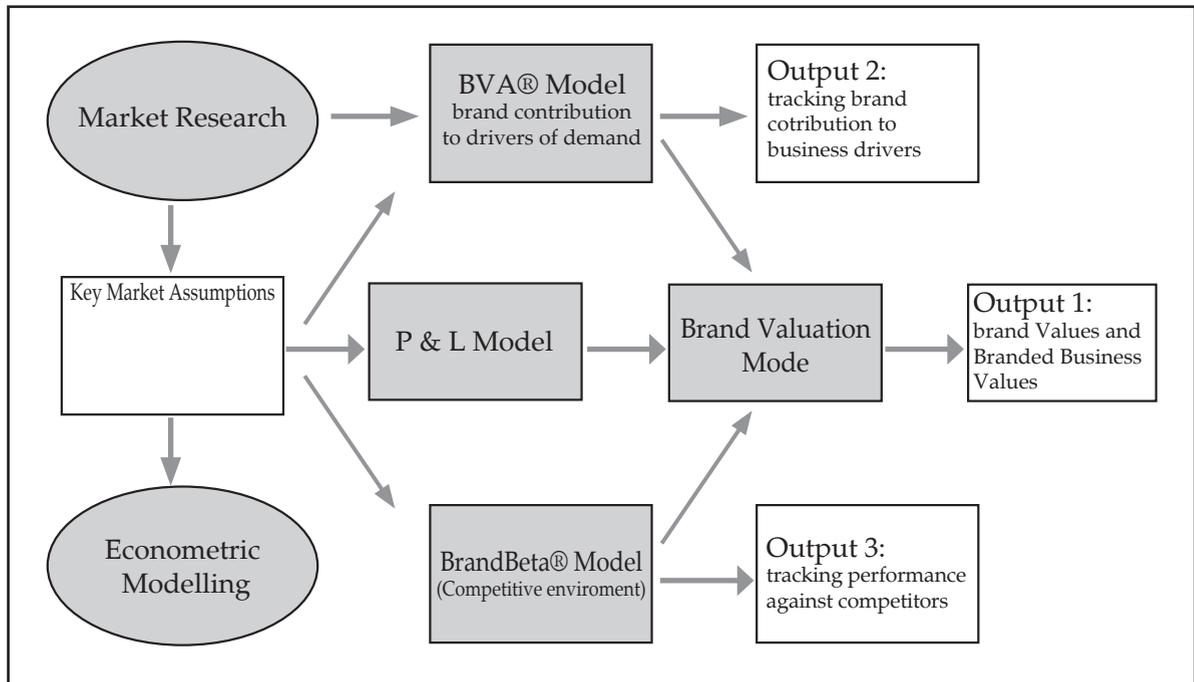
Brand Strength (Differentiation & Relevance)	Niche / Unrealized Potential	Leadership
	D R E K	D R E K
	New / Unfocussed	Eroding Potential
	D R E K	D R E K
Brand Stature (Esteem & Knowledge)		

Differentiation Relevance Esteem Knowledge

9.5.5 Dynamic brand evaluation

A dynamic valuation process can be expressed pictorially as follows

Dynamic Brand Valuation





Sample Brand Value calculation:-

	Year 1	Year 2	Year 3	Year 4	Year 5
Market (Units)	250,000,000	258,750,000	267,806,250	277,179,469	286,880,750
Market growth rate		4%	4%	4%	4%
Market share (Volume)	15%	17%	19%	21%	20%
Volume	37,500,000	43,987,500	50,883,188	58,207,688	57,376,150
Price (\$)	10	10	10	11	11
Price change		3%	2%	2%	2%
Branded Revenues	375,000,000	450,871,875	531,983,725	621,341,172	625,326,631
Cost of sales	150,000,000	180,348,750	212,793,490	248,536,469	250,130,653
Gross margin	225,000,000	270,523,125	319,190,235	372,804,703	375,195,979
Marketing costs	67,500,000	81,156,938	95,757,071	111,841,411	112,558,794
Depreciation	2,812,500	3,381,539	3,989,878	4,660,059	4,689,950
Other overheads	18,750,000	22,543,594	26,599,186	31,067,059	31,266,332
Central cost allocation	3,750,000	4,508,719	5,319,837	6,213,412	6,253,266
EBITA (Earnings Before Interest, Tax and Amortization)	132,187,500	158,932,336	187,524,263	219,022,763	220,427,638
Applicable taxes 35%	46,265,625	55,626,318	65,633,492	76,657,967	77,149,673
NOPAT (Net Operating Profit After Tax)	85,921,875	103,306,018	121,890,771	142,364,796	143,277,964
Capital Employed	131,250,000	157,805,156	186,194,304	217,469,410	218,864,321
Working capital	112,500,000	135,261,563	159,595,118	186,402,351	187,597,989
Net PPE	18,750,000	22,543,594	26,599,186	31,067,059	31,266,332
Capital Charge 8%	10,500,000	12,624,413	14,895,544	17,397,553	17,509,146
Intangible Earnings	75,421,875	90,681,606	106,995,227	124,967,243	125,768,819
Role of Branding Index 79%					
Brand Earnings	59,583,281	71,638,469	84,526,229	98,724,122	99,357,367
Brand Strength Score 66 Brand Discount Rate 7.4%					
Discounted Brand Earnings	55,477,916	62,106,597	68,230,515	74,200,384	69,531,031
NPV (Net Present Value) of Discounted Brand Earnings (Years 1-5)	329,546,442				
Long-term growth rate 2.5% NPV of Terminal Brand Value (beyond Year 5)	1,454,475,639				
BRAND VALUE	1,784,022,082				



Valuation sheets for both Branded Business Value and Brand Value are as follows:

Branded Business Value (Segmented)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net Sales	500	520	550	580	620	650
Operating Earnings	75.0	78.0	82.5	87.0	93.0	97.5
Tangible Capital employed	250	260	275	290	310	325
Charge for Capital @15%	37.5	39.0	41.3	43.5	46.5	48.8
Earning	37.5	39.0	41.3	43.5	46.5	48.8
Tax Rate	33%	33%	33%	33%	33%	33%
Tax	12.4	12.9	13.6	14.4	15.3	16.1
Post tax Earning	25.1	26.1	27.6	29.1	31.2	32.7
Discount Rate	15%					
Discount Factor	1.0	1.15	1.32	1.52	1.75	2.01
Discount Cash-flow		22.7	20.9	19.2	17.8	16.2
Value to year 5	96.8					
Annuity	108.3					
Growth 0%						
Enterprise Value	205.1					

Brand Value (Segmented)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net Sales	500	520	550	580	620	650
Operating Earnings	75.0	78.0	82.5	87.0	93.0	97.5
Tangible Capital employed	250	260	275	290	310	325
Charge for Capital @15%	37.5	39.0	41.3	43.5	46.5	48.8
Earning	37.5	39.0	41.3	43.5	46.5	48.8
Brand Value Added @ 25%	9.4	9.8	10.3	10.9	11.3	12.2
Tax Rate	33%	33%	33%	33%	33%	33%
Tax	3.1	3.2	3.4	3.6	3.8	4.0
Post tax Earning	6.3	6.5	6.9	7.3	7.8	8.2
Discount Rate	15%					
Discount Factor	1.0	1.15	1.32	1.52	1.75	2.01
Discount Cash-flow		5.7	5.2	4.8	4.5	4.1
Value to year 5	24.2					
Annuity	27.1					
Growth 0%						
Brand Value	51.3					



Brand valuation

Extracted from Infosys Annual Report, 2007

The strength of the invisible

From time to time, we have used various models for evaluating assets of the balance sheet to bring certain advances in financial reporting from the realm of research to the notice of our shareholders. The aim of such modeling is to lead the debate on the balance sheet of the next millennium. These models are still the subject of debate among researchers and using such models and data in projecting the future is risky. We are not responsible for any direct, indirect or consequential losses suffered by any person using these models or data.

A balance sheet discloses the financial position of a company. The financial position of an enterprise is influenced by the economic resources it controls, its financial structure, liquidity and solvency, and its capacity to adapt to changes in the environment. However, it is becoming increasingly clear that intangible assets have a significant role in defining the growth of a high-tech company.

Valuing the brand

The wave of brand acquisitions in the late 1980s exposed the hidden value in highly branded companies and brought brand valuation to the fore. The values associated with a product or service are communicated to the consumer through the brand. Consumers no

longer want just a product or service, they want a relationship based on trust and familiarity. A brand is much more than a trademark or a logo. It is a 'trustmark' – a promise of quality and authenticity that clients can rely on. Brand equity is the value addition provided to a product or a company by its brand name. It is the financial premium that a buyer is willing to pay for the brand over a generic or less worthy brand. Brand equity is

not created overnight. It is the result of relentless pursuit of quality in manufacturing, selling, service, advertising and marketing. It is integral to the quality of client experiences in dealing with the Company and its services over a period.

The second annual BRANDZ™ Top 100 Most Powerful Brands ranking published in cooperation with the *Financial Times* was announced in April 2007 by Millward Brown. As per the report Google tops the ranking with a brand value of \$66 billion. The market capitalization of Google at that time was 108 billion. Thus, 61% of market capitalization represented its brand value. (Source: NASDAQ website)

Methodology

The task of measuring brand value is a complex one. Several models are available for accomplishing this. The most widely used is the brand-earnings-multiple model. There are several variants of this model.

We have adapted the generic brand-earnings-multiple model (given in the article 'Valuation of Trademarks and Brand Names' by Michael Birkin in the book *Brand Valuation*, edited by John Murphy and published by Business Books Limited, London) to value our corporate

brand, "Infosys". The methodology followed for valuing the brand is given below:

- * Determine brand profits by eliminating the non-brand profits from the total profits
- * Restate the historical profits at present-day values
- * Provide for the remuneration of capital to be used for purposes other than promotion of the brand
- * Adjust for taxes
- * Determine the brand-strength or brand-earnings multiple



Brand-strength multiple is a function of a multitude of factors such as leadership, stability, market, internationality, trend, support and protection. We have internally evaluated these factors on a scale of 1 to 100, based on the information available within.

Brand valuation

	<i>in Rs. crore</i>		
	2007	2006	2005
Profit before interest and tax	3,877	2,654	2,048
<i>Less:</i> Non-brand income	335	125	112
Adjusted profit before tax	3,542	2,529	1,936
Inflation factor	1.000	1.064	1.132
Present value of brand profits	3,542	2,690	2,192
Weightage factor	3	2	1
Weighted average profits	3,033		
Remuneration of capital	457		
Brand-related profits	2,576		
Tax	867		
Brand earnings	1,709		
Brand multiple	18.50		
Brand value	31,617		

Assumptions:

* The figures above are based on consolidated Indian GAAP financial statements.

* Total revenue excluding other income after adjusting for cost of earning such income is brand revenue, since this is an exercise to determine our brand value as a company and not for any of our products or services.

* Inflation is assumed at 6% per annum, 5% of the average capital employed is used for purposes other than promotion of the brand, and tax rate is at 33.66%.

* The earnings multiple is based on our ranking against the industry average based on certain parameters (exercise undertaken internally and based on available information).

	<i>in Rs. crore</i>		
	2007	2006	2005
Brand value	31,617	22,915	14,153
Market capitalization	1,15,307	82,154	61,073
Brand value as a percentage of market capitalization	27.4%	27.9%	23.2%



Need for brand valuation

The Hindu BusinessLine, 23.03.2000

Arindam Bhattacharjee & C. Prashanth

Excerpts:

Brand valuation for brand nourishment

This method of brand valuation has been developed during our research with some corporates. It is an earnings multiplier model where, the present earnings from the brand is multiplied with a factor derived from the strength of the brand to arrive at the brand's final value. The model is based on the premise that the value of a brand is the product of its present profitability and future potential. The strength of the brand is assessed from the consumers' perceptions through a consumer survey.

The brand strength assessment exercise attempts to check the health of the brand based on factors such as brand supremacy, vitality, stature, environment, safety and support. The cumulative scores on these factors are used to ascertain the multiplier. The utility of this model lies in the fact that this scoring is arrived through aggregating points awarded to the brand on several sub-parameters under each factor, which capture the state of brand equity to the fullest extent. And the ratings for most of these sub-parameters are done through an extensive consumer survey. A detailed questionnaire is used for this survey.

This model, apart from providing a more realistic brand value, would also help the brand manager identify the strengths of the brand and the opportunities lying ahead. It would also let him ascertain the weaknesses of the brand and the impending threats. The brand manager, in this case, can make more informed decisions related to brand strategy and resource allocation, as this model signals the exact areas which need immediate attention. The brand manager is no longer duped with brand values which could be based on unrealistic assumptions, which most often is the case when management inputs form the main basis of valuation.

The brand supremacy measure tries to capture the extent of leadership a brand enjoys in its market. This is captured through the brand's present market share, its ability to charge price premium, acceptability to change, in terms of trade by its channel partners, the visibility of the brand and its reach. Apart from market share, the ability to charge price premium could also be construed as a surrogate measure for superiority and strong customer loyalty. A superior brand has the ability to set price points and can charge a premium and consumers might not mind paying it. Acceptability by trade to changes in terms and conditions would also signify the strength of the brand. A strong brand has a consumer pull which might force trade to accept stringent terms and conditions in the fear of being rejected by customers for not stocking the brand.

Visibility also speaks of a brand's supremacy. A leading brand would normally be provided with maximum visibility and shelf space by trade, it being the 'traffic builder' and maximum turnover generator. In any case, higher visibility increases brand salience and helps the brand get included in the consumer's consideration set. Reach is a key success factor in any product market and brand leadership is also indicated and determined through it. Reach ascertains the availability of the brand. The first step to initiate customers into experiencing the brand and thereby develop loyalty, is to make the brand available, for what is available gets sold. All these sub-parameters are rated using various criteria and these ratings are aggregated to obtain a consolidated score for brand supremacy.



Similarly, all other factors are scored to assess the strength of the brand. Vitality of a brand is measured by finding out the extent to which the brand has differentiated itself and kept itself relevant to its consumers. Also, the stretchability of the brand is ascertained through the survey, wherein, the brand territory is drawn out and this also contributes to brand vitality. This measure indicates the brand vibrancy and lets the brand manager know the extent to which he can manoeuvre his brand in terms of extensions.

Brand stature attempts to measure the awareness level of the brand, the esteem attached to it and the consistency in brand persona. It clearly tells if the communication strategy for the brand has been effective and also indicates if the consumer perception of the brand image is in line with the desired positioning. The market realities of the brand are captured in the measure of brand environment which is a SWOT analysis of the brand, with respect to its marketplace. This exercise is a form of vulnerability analysis which provides early warning signals to the brand manager.

The extent of legal protection available to the brand is measured in the brand security factor. As a strategic asset, brands should provide sustainable competitive advantage and hence need to be secure from copying. Strong brands are built only when there is strong commitment from the management. The commitment and patronage of management is captured in the brand support measure.

Valuation as periodic brand health check

All facets of the brand are put transparently in front of the brand manager by this model. It helps him make an objective decision with respect to the brand. He knows for sure whether he should concentrate on the pricing, or go for increased promotions. If it is promotions, he is clear in his objective as to whether he should increase awareness, increase trials, or provide for visibility. He knows for certain the actual status with respect to the product quality, availability and positioning of the brand. He is also in a position to take strategic decisions like line extensions, brand extensions, or even co-branding, in a more informed way as he is aware of the brand territory.

Further, this model, at the end of the day, helps management review brand decisions on a return-on-assets basis which tries to link investment made on a brand to the increments in brand value over a reasonable period of time. Brand valuation using this method, done regularly, reveals to the management the disparities between its assumptions and the market realities pertaining to the brand, and also brings the management closer to its consumers and helps it become more responsive to market needs.

(The authors are with management consultants A. F. Ferguson & Co.)



Brand and Deliver

Faced with globalization and growing competition, CFOs in Asia are turning to brand management as a way to thrive.

Justin Wood, CFO Asia
March 30, 2004

England football captain David Beckham has probably never heard of BenQ. Nor, in all likelihood, has French midfield star Zinedine Zidane or Spanish striker Raul. But when they and their peers from 16 nations gather in Portugal this summer to compete in the UEFA European Football Championships, the brand name "BenQ" should have stuck firmly in their minds, along with the minds of millions of fans all over the world.

That, at least, is the hope of Eric Yu. As CFO of BenQ (pronounced ben-cue), he signed off on a multimillion-dollar contract last November making his electronics company one of the main sponsors of Euro 2004. "We have big expectations," enthuses Yu.

What makes the deal interesting is that, up until 2002, Taiwan-based BenQ operated solely as a contract manufacturer, churning out cheap mobile phones, digital cameras, and other electronics on behalf of brand-name clients. Today that's all changing. For two years now, BenQ has been pursuing a bold new strategy to build its own brand. And as its involvement in European football demonstrates, the NT\$109 billion (US\$3.3 billion) firm has global aspirations.

The company isn't alone. Thanks to falling trade barriers, globalization, and ever more cut-throat competition, companies across Asia are seeing their margins squeezed to the floor. As a result, many are turning to branding, both as a way to survive and as a way to expand into new markets. Of course, Asia has nurtured many famous brands already, and the likes of Singapore Airlines, Toyota, and HSBC need no introduction. But now more than ever in Asia, it seems, brands are seen as essential to a company's future health.

The logic is simple: for consumers, brands promise consistency and quality and often reinforce a personal sense of self. In return, the loyalty of customers to a particular brand gives companies more secure revenue streams, lets them charge higher prices, and enables them to expand more easily into new lines of business. But, while the benefits of brands are easily grasped, the science of creating and managing brands can be anything but. For CFOs in Asia, the challenge is working out how best to get involved in building and overseeing these intractable intangible assets.

Value Chain Pain

At BenQ, Yu recalls that the decision to build a brand was simple enough. "We felt that the value-add in [contract manufacturing] was getting smaller and smaller," he says. "When we looked at the big-name brand companies like Sony and Samsung, we saw that they were enjoying very healthy gross margins."

Benny Lo, an analyst at Primasia Securities in Taipei, puts it more bluntly. "BenQ really had no choice," he says. With contract manufacturing getting ever more competitive thanks to the influence of China, "building its own brand was the only way for BenQ to survive."

Not that the company has abandoned its original business, which Yu reckons will grow by 30 percent this year. But the company is focusing most heavily on building its brand, with sales forecast to rise 100 percent during 2004 and accounting for 40 percent of group turnover.



The new strategy has forced a big change in thinking, says Yu. “The way we made money in the past was by saving money, by cutting costs. Now we have to make money by spending money, by investing in our brand.”

From Yu’s perspective, that means micro-managing the company’s allocation of resources by working closely with BenQ’s managers and marketing teams to calculate which segments of the market and which countries are likely to generate the greatest returns. “To build brand awareness takes a lot of cash,” he sighs.

Needless to say, the job doesn’t stop there. Yu pays close attention to the performance of BenQ’s brand-building efforts too. Currently he relies on two key metrics: market share and brand position, which he defines as the average selling price of the company’s own-brand products compared to the average selling price of rival brands in each market. Yu reviews both metrics every quarter to see what progress the brand is making.

At this stage, Yu admits, he isn’t interested in gross margins. “The brand is very young, so our first priority is to create market share and awareness.” Once the brand is three years old, however, Yu plans to switch the focus to profitability, although he declines to reveal his targets. Still, if the venture goes according to plan, the benefits promise to be great.

Lo at Primasia Securities gives an indication of just how great. With mobile phones, he says, contract manufacturers are doing well if their gross margins reach 15 percent, while brand owners enjoy margins of as much as double that.

Build or Buy?

The whole foray into brands at BenQ is an enormous undertaking, and not without its risks. But for other companies looking to follow a similar path, it needn’t be so hard, says Rupert Purser, managing director in Hong Kong for Brand Finance, a consultancy. As he sees it, companies in Asia don’t necessarily need to build their own brands but instead could look at buying ready-made ones.

“Building a brand can be very hit and miss,” he notes. “It takes a lot of time and money and there’s no guarantee of success.” It’s for that reason, observes Purser, that a growing number of Asian firms are choosing to buy already established household names.

Take Zindart, a Hong Kong-based contract manufacturer of die-cast toys. In 1999, it bought Corgi Classics, a line of scale model cars cherished by collectors. Another Hong Kong company, Shriro, which distributes and markets other companies’ brands, bought Sweden’s Hasselblad brand of camera equipment in 2003. Many other companies have made similar moves, all aiming to cash in on the benefits of owning well-known names.

From Purser’s perspective, CFOs have an obvious role to play in such deals in terms of calculating how much to pay for potential brand acquisitions. But, he adds, working out how much a brand is worth is never easy. “It’s more of an art than a science,” he cautions.

That said, a handful of techniques do exist. For example, companies can try to calculate a valuation by adding up the costs of re-creating an equivalent asset, or else by combing through stockmarket data to find the value of comparable brands. Alternatively, CFOs can look to valuations based on “royalty relief”, a method based on the idea that if the brand had to be licensed from a third party the company would have to pay a royalty charge to use it. The trouble is that royalty charges are rarely disclosed,



nor are the terms of royalty contracts, so the information needed to do such valuations is frequently lacking.

Perhaps the most widely used method of valuing brands is to apply a discounted cash flow model. Such techniques add up the future earnings that can be attributed specifically to the brand in question and then discount them back to the present. That means, for example, stripping out any earnings that would flow through to the company no matter what brand it owned. As for the discount rate, this is determined by assessing the riskiness of the brand's earnings by looking at things such as the strength of the relationship with customers and how competitive the market is.

Andy Milligan, managing director in Singapore for consultancy Interbrand, acknowledges that valuing brands can be tricky and subjective, but still sees merit in the exercise — and not just in acquisitions. He believes that finance chiefs should value their brands regularly, as often as every year or two. After all, he points out, “the growing gap between the market value and the book value of many companies shows that brands are becoming more and more important assets.”

What's in a Name?

Peter Lee couldn't agree more. As CFO of Osim International, a Singapore-based healthy lifestyle brand most famous for its range of massage chairs, Lee hired Interbrand to conduct a valuation of Osim in March 2003. “We commissioned the study to help us get a better understanding of our brand,” explains Lee. “It's our most important asset.” He's not kidding, for along with a growing pile of patents and trademarks, the Osim brand is one of the few assets the S\$287 million-a-year (US\$171 million) firm does own.

The company is based around a rapidly expanding chain of shops across Asia, each dedicated to one of Osim's four product areas: health, which includes the massage chairs; hygiene, concentrating on items such as water purifiers; nutrition, selling vitamins and diet supplements; and fitness, which includes a range of gym equipment for the home. The shops only sell Osim products, and all are identical, no matter whether in Kuala Lumpur or Shanghai.

However, despite selling a vast range of own-brand products, Osim doesn't own, nor operate, a single factory — all its manufacturing is outsourced. Nor does Osim own any of its shops; all are leased. In fact, in 2003 Osim even sold off its headquarters building in a sale and leaseback deal for 12 years. The company is truly asset-light, apart that is, from its brand, and hence the desire to know how much it's worth.

Interbrand's study looked only at Osim's two biggest business lines — health and hygiene — and valued the brand at S\$203 million. Put simply, that represents the value of Osim's relationship with its customers. It also demonstrates how much could be lost should the relationship turn sour, which is why Lee and his fellow managers at Osim work tirelessly to keep the brand in good health.

Every year, for example, Osim devotes exactly 10 percent of its revenue to marketing spend. “It's **gu**ire we came up with from trial and error over the years that we feel will sustain and grow our brand,” explains Lee. Nonetheless, he warns: “Branding is a very disciplined process. It's no good spending millions of dollars on a marketing campaign if the other aspects of the brand aren't supporting that spend.”



To that end, the firm educates its staff religiously on the “drivers of the brand”, such as what the name Osim stands for – well-being and positive thought — and what sort of health advice to tell customers in the sales process. The company also requires all staff, from the CEO down, to wear the standard Osim beige polo shirt at work. And it regularly conducts brand audits, checking, for example, that all stores have the correct color scheme and layout.

And the Brand Played On...

All admirable stuff, and yet some CFOs question the need to calculate brand value. L Krishna Kumar, CFO of Indian Hotels Company (IHC), a Rs5.7 billion-a-year (US\$126 million) business that manages the Taj chain of up-market hotels, is one.

“Brand is very important to us. It helps to drive superior performance,” he says. “But we prefer to look at the value of the overall business rather than the value of the brand on its own.” In any case, adds Krishna Kumar, he could quite easily calculate brand value if he wanted to, by subtracting the replacement cost of IHC’s 65 properties from the firm’s current enterprise value.

Still, that’s not to say that IHC doesn’t pay close attention to its brand. Like hundreds of other companies across Asia, IHC finds itself in a position of increasing competition in its home market. Thanks to India’s economic liberalization, a booming economy, and a recent shortage of quality hotel rooms, the country has seen a surge of investment from the world’s major chains.

So far, Taj Hotels has managed to stave off the onslaught, even increasing its market share to between 25 and 30 percent of the luxury and business segments. Nonetheless, says Krishna Kumar, “with more and more brands operating in the market, it’s vital that we’re clear about what differentiates us.”

For that reason, Taj recently hired Landor Associates, a brand consultancy, to carry out a study of the Taj name. The idea is to articulate a new “brand architecture” for the group, setting out exactly which segments of the market the group is targeting, what sort of service levels to provide, and how to move into new segments such as budget business hotels and spa resorts. The group is also making a push into overseas markets and wants to present a unified brand image to the world.

Krishna Kumar raised US\$150 million in December via a convertible bond issue in order to fund the group’s international aspirations as well as a program of renovation at its domestic hotels. The results of the brand study will help to direct how that money is spent.

A Question of Trust

CFOs can get involved in brand strategy and management in many other ways too. A good example comes from Zuji, an internet travel booking portal headquartered in Singapore. The company was set up in 2002 by 16 airlines across Asia, and went live with its service last year. A regional advertising and marketing campaign heralded the launch of Zuji — which means “footprints” in Mandarin — and was designed to convey the handful of characteristics that define the brand, such as ease of use and breadth of choice.

Key among those attributes was the issue of trust. In part, that meant persuading customers that Zuji was no fly-by-night dot-com start-up, explains Wong Kok Kit, CFO of Zuji. Equally, though, “it meant convincing people that they could make online payments with their credit cards without having to worry about security.” Delivering on this aspect of the brand was down to Wong and his finance team, who joined forces with VeriSign, an internet trust service provider, to build the firm’s payments infrastructure.



At first, Zuji had planned to spend 20 percent of its marketing budget building brand awareness, with the remaining 80 percent being spent on tactical advertising, highlighting special deals and cheap promotions. However, within weeks of launching, Wong and his fellow managers quickly realized that they would need to shift that split. While the marketing drive was bringing people to Zuji's website, customers were using it simply to compare prices rather than actually book hotel rooms and flights.

Wong had upheld his promise to deliver a secure online payment system, but "we found that we hadn't convinced people to trust us," he recalls. In response, the company quickly raised its brand-awareness advertising from 20 percent up to 45 percent of spending. It was the right move, and business has been flowing in ever since.

The experience highlights another area where Wong gets involved with branding: measuring the effectiveness of the firm's marketing. Because Zuji is built around a web portal, it can monitor in real-time how many customers respond to current promotions. Wong keeps a close eye on how many site visits follow from each advertising campaign, and more importantly, how many booking transactions that leads to. The company's target is a "look-to-book" ratio of 1 percent, a benchmark taken from studies of similar services elsewhere in the world.

"As a finance guy, it's always tricky knowing how much to spend on marketing," he says. "But the transparency of Zuji's website makes the process much easier."

No doubt BenQ's Yu is hoping Wong sees a spike in site traffic this summer, when Asian football fans book their flights to the UEFA championships.

Justin Wood is managing editor of CFO Asia, based in Singapore.



Brand Family Values

The debate about accounting for intangible assets obscures the progress brand valuation has made in becoming a common language for finance and marketing.

Tony McAuley, CFO Europe

December 31, 2003

After more than a century in the food business, RHM knows a thing or two about what it takes to make a brand a household name. Thanks to catchy advertising and years of careful management, many of RHM's brands are so well known in Britain they have become part of the social fabric—to say Bisto gravy in the company of Britons is to evoke the “Bisto kids,” characters that appeared in advertising for the better part of the twentieth century; while RHM advertising campaigns in the early 1970s not only launched the Hollywood careers of film directors Ridley Scott (*Gladiator*) and Alan Parker (*Mississippi Burning*), but also made its Hovis bread into a brand that is as British as Chanel is French or Coca-Cola is American.

But RHM not only became part of advertising history, it also was the central player in a recent chapter of financial history. Back in 1988, when it was called Rank Hovis McDougall, the firm famously became the first publicly listed company to record non-acquired brands as intangible assets on its balance sheet, sparking off years of discussion, government studies and accounting-standards pronouncements in the UK and elsewhere.

While accounting for brands and other intangibles has been receiving plenty of attention lately, the experience at RHM since the late 1980s reflects how finance chiefs in many companies have come to use brand valuation for practical purposes, transforming it into a common language for finance and marketing.

According to Michael Schurch, current CFO of RHM, the company didn't expect the attention it received in 1988. More than anything else, the original exercise to assign numeric values to its brands was part of its bid to fend off an unwelcome advance from an Australian asset-stripper, Goodman Fielder Wattie (GFW). “There is a bit of a strange history at RHM, going back to the Goodman Fielder Wattie bid,” says Schurch. “It was a defensive mechanism in a takeover situation ... and it worked.”

GFW's bid came at the tail end of a wave of deals in the 1980s in which asset-strippers had acquired companies with strong brands at bargain-basement prices. One such deal was closed shortly before GFW's bid for Rank Hovis McDougall. In 1986 Hanson Trust paid £2.3 billion for Imperial Group, then promptly sold off the new acquisition's undervalued food portfolio for a total of £2.1 billion. It was left with a tobacco business that was hugely cash generative, having paid a net price of just £200m for it. It signalled to many managers of highly branded businesses at the time that accountants and stock analysts were undervaluing their greatest assets.

To avoid that “valuation gap” problem in the GFW bid, RHM turned to Interbrand, a consulting firm specialising in brand building. Having never been asked to value a portfolio of brands before, Interbrand began working with academics at the London Business School to develop an early set of metrics based on brand strength.

With hindsight, Jan Lindemann, currently managing director of Interbrand's global brand-valuation practice, says the metrics were unsophisticated, but they were a start. They came up with a figure



of £678m for RHM's portfolio of brands—the tangible assets already on the balance sheet had been valued at less than £400m.

The market value of RHM soared as investors re-evaluated its business, and GFW eventually withdrew its bid. Thus was born the brand-valuation consulting industry.

A Brand Bond

Later, in 1992, RHM was bought by UK conglomerate Tomkins, it came off the stockmarket and Tomkins wrote off all RHM's intangible assets. Brand valuation no longer had a use at the firm. Fast-forward to 2000. Tomkins agreed to sell RHM to Doughty Hanson, a private equity fund, for £1.1 billion in a highly leveraged deal. It was then that brand valuation was ready for a comeback.

"One of the first things I had to do was work on a refinancing of the group," recalls Schurch, who moved after the Doughty Hanson deal from his post as managing director of the food unit at Tomkins to become RHM's CFO. "During that work, we had to identify what were the underlying assets that would support the business—what assets could lenders come and take over for security." The firm was carrying assets on the balance sheet at the time totalling just £300m. "If you are offering that as security, you are not going to get £650m financing" (the amount required by Doughty Hanson to pay off a bank loan that it had taken out to acquire RHM).

So Schurch and his bankers decided to structure a financing package in such a way that they put all of the brands into separate intellectual property companies, effectively licensing the brands back to the RHM operating divisions. The result was a unique bond issue in 2001—dubbed the "Brand Bond"—which securitised five of the company's oldest brands, those with the most reliable cash flow, including its Hovis bread and Bisto gravy. It was structured in tranches of investment-grade and junk bonds, for a total of £650m, the largest-ever sterling corporate bond issue at the time. The bonds leveraged the earnings of the brands—running at an annual Ebitda of £150m—by a factor of more than 4.3. The £650m paid off the bank loan, and annual financing costs dropped to £80m from £93m.

An essential part of the bond financing was another brand-valuation exercise, for which Interbrand was brought back in. But unlike the seminal effort in 1988, the brand valuation this time round would not be a one-off exercise. It would become an important part of the company's day-to-day management.

"Having paid Interbrand nearly half-a-million pounds for their work, my aim was to make sure we really exploited that and built upon that work," says Schurch. "It gave me a tool to say to marketing, 'You are charged with protecting the value of these prize assets, the brands. You need to demonstrate year on year that you are protecting and growing them.'"

Schurch and Ginny Knox, the joint chief operating officer of consumer brands, set up a review process for the company's 20 brands based on seven metrics that were used in Interbrand's valuation. They comprise statistical measurement of: 1) how the overall market segment has changed; 2) the brand's stability; 3) market share and other "leadership" qualities; 4) long-term trends for the brand; 5) advertising spending, sales promotions and related activities to "support" the brand; 6) geographical distribution; and 7) trademarks and other legal protection.

Schurch explains that it's a "spreadsheet-driven process," which quantifies the metrics and assigns them different weightings. The most important metric, Schurch says, is brand support and how it relates to the metrics addressing trends. He says that analysis has helped shift the finance department's



perception of brand support, helping them to view spending on advertising and the like more as an investment than an expense.

“Traditional finance directors would look to reduce costs all the time—‘We can always improve short-term profitability by turning off the support tap.’ But we assess it as an investment. It is about encouraging the right behaviour in the business,” he says.

Into the Future

At least once a year now, RHM’s finance department assesses each brand’s value. To do so, Schurch uses a forecast of a brand’s annual economic value added (EVA) for five years. “The EVA figure is then adjusted to discount it for things like ‘technical functionality’—such as, a cake might be the only one of its type in the market—to distil what EVA is due purely to brand reputation,” he explains. This adjusted EVA forecast is discounted back to a net present value (NPV) using a discount rate based on a brand’s strength as calculated with the seven metrics. In practice, the discount rate usually ranges from 7% to 15%. Finance also assesses likely returns on advertising before any funding is committed, using classic discounted cash flow techniques treating advertising spend as a long-term investment.

“You are only as good as your assumptions, but you do have a rigorous framework,” says Schurch. “I use the results to test for deterioration in the brands. If there has been any, then I’ll jump all over marketing.”

A recent example he cites is Bisto. With a market share of 62% in the UK and annual sales of about £90m, it’s one of the company’s oldest and strongest brands. A brand-valuation exercise last year showed some deterioration in its scores, leading to the conclusion that RHM had been taking it for granted and not giving it sufficient support. The result was a decision to increase the annual support budget by 30%, or £1.5m.

Schurch says that he, like other CFOs, has little interest in the debate about finding a static value so that brand assets can be put on the balance sheet. “I’m much more interested in corporate value, and a lot of reporting standards seem to be going that way. We think with our system we’re at a place where the financial community can understand what we’re doing.”

The Tough Questions

Not everyone is a fan of the brand valuation concept. Patrick Barwise, professor of management and marketing at the London Business School, has long argued against putting intangible values on the balance sheet. He contends that the essence of brand value is like reputation, and is not something that can be separated properly from the business as a whole and quantified. If a company isn’t buying or selling a brand, he says, putting a theoretical value on it requires forecasting the future, which itself depends on a whole range of hard-to-quantify variables.

Though he is a critic of theoretical brand valuation, he does believe that using metrics as a management tool, as RHM does, is a good thing, but prefers the term “brand evaluation.”

“The learning that comes from brand evaluation forces you to ask the tough questions about where you are making your money and future trends in the market,” he says. “I don’t think we’ll ever be at the stage where it is fully treated as an investment, but there is more pressure for marketing people to provide more hard data.”



Whatever the accounting arguments, says David Haigh, chief executive of Brand Finance, as brand valuation moves increasingly into the domain of finance, it's becoming less "airy fairy waffle" and more about hard numbers. "Brand valuation has really come of age. You are now talking to real people about real numbers."

A Call for Creativity

Though consumer-goods companies have been at the forefront in adopting brand valuation, other sectors are catching up. Take Telefónica, Spain's €28 billion formerly state-owned phone company. Having hired FutureBrand, a consulting firm, to do its first global brand valuation in 1999, it launched its first annual brand measurement programme last year.

"This is not a food company where the market is fairly stable year to year," says Marisa Guijarro, vice general director of marketing at Telefónica. "Technology and the markets we operate in are changing all the time. The only thing that doesn't change is your brand. You need to know very well how your brand is performing to make strategic decisions."

Telefónica's initial brand valuation—covering seven countries and six business sectors—helped the company identify and act upon a number of strategic risks and opportunities. Hence its decision to reduce the number of company-owned brands in the mobile telephony market. The ongoing brand-measurement programme—a software-based scorecard, employing economic value added (EVA) evaluations—brings finance and marketing together to assess a number of key topics, including budget allocations, M&A analysis and co-branding decisions.

The result at Telefónica and other companies undertaking similar exercises is nothing short of a revolution, says Sebastian Shapiro, New York-based head of brand evaluation at FutureBrand. Before brand-management metrics began taking off, he says, "you'd get the marketing manager coming in to tell the board about an improved aspect of the 'hipness' of a brand, and the finance guy talking about the ROACE spread, and nobody would understand what the other was talking about. We're trying to put it in more of a common business and strategic planning language."

Though it is no small feat, Guijarro is in favour of such an effort. Arriving at hard numbers through brand-valuation exercises "has meant finance understands what we are doing and that it is very important to us strategically as a company."



Chapter 10

VALUATION OF REAL ESTATE

10.1 Introduction:

- 10.1.1 Real estate appraisal or property valuation is the practice of developing an opinion of the value of real property, usually its Market Value. The need for appraisals arises from the heterogenous nature of property as an investment class: no two properties are identical, and all properties differ from each other in their location - which is the most important determinant of their value. The absence of a market-based pricing mechanism determines the need for an expert appraisal/valuation of real estate/property.
- 10.1.2 A real estate valuation is performed by a licensed or certified appraiser or valuer, known as a property valuer, land valuer or surveyor.
- 10.1.3 Real estate and financial assets share several common characteristics: Their value is determined by the cash flows they generate, the uncertainty associated with these cash flows, and the expected growth in cash flows. Other things remaining equal, the higher the level and growth in the cash flows, and lower the risk associated with the cash flows, the greater is the value of the asset.
- 10.1.4 There are also differences in the cash flows generated by the two groups: In particular, real estate investments often have finite lives, and have to be valued accordingly. Many financial assets such as stocks have infinite lives. The differences in asset lives manifest themselves in the value assigned to these assets at the end of the estimation period. While the terminal value of a stock is generally much higher than the current value on account of the expected growth in the cash flows and because they are expected to continue forever, the terminal value of a building may be lower on account of usage which might depreciate its usage.
- 10.1.5 However, the land component will have an infinite life and, in many cases, may be the overwhelming component of the terminal value. This comes with a caveat. There may be instances where the land value may get depreciated on account of soil degradation and environmental pollution.

10.2 Types of value:

- 10.2.1 There are several types and definitions of value sought by a real estate appraisal. Some of the most common are:
1. **Market Value:** Market Value is usually interchangeable with Open Market Value or Fair Value. International Valuation Standards (IVS) define Market Value as: "Market Value is the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arms-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion".
 2. **Value-in-use:** The net present value (NPV) of a cash flow that an asset generates for a specific owner under a specific use. Value-in-use is the value to one particular user, and is usually below the market value of a property.
 3. **Investment Value:** It is the value to one particular investor, and is usually higher than the market value of a property.



4. Insurable Value: It is the value of real property covered by an insurance policy. Generally it does not include the site value.
5. Liquidation Value: It may be analyzed as either a forced liquidation or an orderly liquidation and is a commonly sought standard of value in bankruptcy proceedings. It assumes a seller who is compelled to sell after an exposure period which is less than the market-normal timeframe.

10.3 Price versus Value:

10.3.1 It is important to distinguish between Market Value and Price. A price obtained for a specific property under a specific transaction may or may not represent that property's market value: special considerations may have been present, such as a special relationship between the buyer and the seller, or else the transaction may have been part of a larger set of transactions in which the parties had engaged. Another possibility is that a special buyer may have been willing to pay a premium over and above the market value, if his subjective valuation of the property (its investment value for him) was higher than the Market Value. An example of this would be the owner of a neighbouring property who, by combining his own property with the subject property, could thereby obtain economies-of-scale. Such situations often arise in corporate finance, as for example when a merger or acquisition is concluded at a price which is higher than the value represented by the price of the underlying stock. The usual rationale for these valuations would be that the 'sum is greater than its parts', since full ownership of a company entails special privileges for which a potential purchaser would be willing to pay. Such situations arise in real estate/property markets as well. It is the task of the real estate appraiser/property valuer to judge whether a specific price obtained under a specific transaction is indicative of Market Value.

10.3.2 In the US, the most common definition of Market Value is the one promulgated for use in Federally regulated residential mortgage financing:

"The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller, each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby: (1) buyer and seller are typically motivated; (2) both parties are well informed or well advised, and each acting in what he or she considers his or her own best interest; (3) a reasonable time is allowed for exposure in the open market; (4) payment is made in terms of cash in U. S. dollars or in terms of financial arrangements comparable thereto; and (5) the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale".

10.4 Three Approaches to Value:

10.4.1 The three approaches to value are:

1. The cost approach
2. Comparable or Relative Valuation
3. Discounted Cash Flow (DCF) Valuation



- 10.4.2 The valuer will determine which one or more of these approaches may be applicable, based on the scope of work determination, and from that develop an appraisal analysis. Costs, income, and sales vary widely from one situation to the next, and particular importance is given to the specific characteristics of the subject.
- 10.4.3 Consideration is also given to the market for the property appraised. Appraisals of properties that are typically purchased by investors (eg. skyscrapers) may give greater weight to the income approach, while small retail or office properties, often purchased by owner-users, may give greater weighting to the sales comparison approach. While this may seem simple, it is not always obvious. For example, apartment complexes of a given quality tend to sell at a price per apartment, and as such the sales comparison approach may be more applicable. Single family residences are most commonly valued with greatest weighting to the sales comparison approach, but if a single family dwelling is in a neighborhood where all or most of the dwellings are rental units, then some variant of the income approach may be more useful.

10.4.4 **The cost approach:**

The cost approach was formerly called the summation approach. The theory is that the value of a property can be estimated by summing the land value and the depreciated value of any improvements. The value of the improvements is often referred to by the abbreviation RCNLD (reproduction cost new less depreciation or replacement cost new less depreciation). Reproduction refers to reproducing an exact replica. Replacement cost refers to the cost of building a house or other improvement which has the same utility, but using modern design, workmanship and materials. In practice, appraisers use replacement cost and then deduct a factor for any functional disutility associated with the age of the subject property.

In most instances when the cost approach is involved, the overall methodology is a hybrid of the cost and sales comparison approaches. For example, while the replacement cost to construct a building can be determined by adding the labor, material, and other costs, land values and depreciation must be derived from an analysis of comparable data.

The cost approach is considered reliable when used on newer structures, but the method tends to become less reliable for older properties. The cost approach is often the only reliable approach when dealing with special use properties.

10.4.5 **Comparable or Relative Valuation:**

The Comparable or Relative Valuation approach examines the price or price per unit area of similar properties being sold in the marketplace. Simply put, the sales of properties similar to the subject are analyzed and the sale prices adjusted to account for differences in the comparables to the subject to determine the value of the subject. This approach is generally considered the most reliable if adequate comparable sales exist. In any event, it is the only independent check on the reasonability of an appraisal opinion.

The method has the following advantages:

- a. They provide a mechanism for valuing non-cash-flow producing assets, such one's own residential property.
- b. It takes into account market trends.
- c. It is simpler as compared to the DCF method as it does not require estimation of discount rates and cash flows.



The key limitation of all approaches based on comparability is in the definition of what is comparable. In the case of stocks, differences in growth, risk, and payout ratios between stocks have to be adjusted for before price-earnings ratios are compared. Many analysts choose to restrict their comparisons of stocks to those within the same industry group, to keep it relatively homogenous.

In the case of real estate, differences in income production, size, scale, location, age, and quality of construction have to be accounted for before comparisons are made. While some of these adjustments such as differences in size are simple, others such as differences in location are subjective.

Use of standardized Value Estimates:

When valuing assets based on comparable assets, the value has to be standardized for the comparison. In stocks, this standardization is often done by dividing the price per share by the earnings per share (PE) or the book value per share (PBV). In the case of real estate, this adjustment is made by:

- a. Size: The simplest standardized measure is the price per unit area such as square metre or square foot, which standardizes value using the size of the building.
- b. Income: The value of an asset can be standardized using its income. For instance, the gross income multiplier (price of property / gross annual income) is an income-standardized value measure. The advantage of this approach is that the income incorporates differences in scale, construction quality, and location.

10.4.6 The Discounted Cash Flow (DCF) Valuation:

The Discounted Cash Flow (DCF) Valuation approach is used to value commercial and investment properties.

In a commercial income-producing property this approach, also known as income approach, capitalizes an income stream into a present value. This can be done using revenue multipliers or single-year capitalization rates of the Net Operating Income. The Net Operating Income (NOI) is gross potential income (GPI), less vacancy (= Effective Gross Income) less operating expenses (but excluding debt service or depreciation charges applied by accountants).

Alternatively, multiple years of net operating income can be valued by a discounted cash flow analysis (DCF) model. The DCF model is widely used to value larger and more expensive income-producing properties, such as large office towers.

The value of any cash-flow-producing asset is the present value of the expected cash flows on it. Just as DCF valuation models, such as the dividend discount model, can be used to value financial assets, they can also be used to value cash-flow-producing real estate investments.

In order to use DCF valuation to value real estate investments, it is necessary to:

- a. Measure the riskiness of real estate investments, and estimate a discount rate based on the riskiness.
- b. Estimate expected cash flows on the real estate investment for the life of the asset.

The risk and return models used for financial assets can be used for real estate as well, with attendant care and caution to account for the differences in the two classes of assets. There are



problems associated with the assumptions of the traditional risk and return model and difficulties with the measurement of risk for non-traded real assets in these models. The survey approach is an alternative method, wherein the cost of equity and capital are obtained by surveying potential investors in real estate on what rates of return they would demand for investing in different types of property investments.

The cash inflows from a real estate investment generally take the form of rents and lease payments. Consideration has to be given to past trends in rents, demand and supply conditions for space provided by the property, vacancy rate and general economic conditions.

Cash outflows are expenses on real estate investments which include property taxes, insurance, repairs and maintenance, security, and advertising – which are fixed expenses, unrelated to occupancy – as well as expenses such as utility (power, water, air-conditioning, etc.) which are a function of occupancy and are variable.

To estimate future cash flows, we need estimates of the expected growth rate in both rents/leases and expenses. A key factor in estimating the growth rate is the expected inflation rate.

Finally, in all DCF valuation models, a key input is the estimate of Terminal value, that is, the value of the asset being valued at the end of the investment time horizon.



Chapter 11

VALUATION OF LIABILITIES

(Adapted from Investment Valuation by Aswath Damodaran, Wiley Finance)

11.1 Categorization of Liabilities:

11.1.1 Liabilities are categorized into current liabilities, long-term debt, and long-term liabilities that are neither equity nor debt.

11.2 Current Liabilities:

1.1.1 Current liabilities include all obligations that fall due within a year. These include the following:

1.1.2 Accounts payable:

They represent the credit received from suppliers and other vendors to the firm, and the value of accounts payable represents the amounts due to these creditors. For this item, the book and market values should be the same.

11.2.3 Short-term borrowings:

They represent short-term loans due within a year. The loans are generally towards working capital needs to finance the operations. Here again, the value shown represents the amounts due on such loans, and the book and market values should be the same, unless of course the default risk of the company has changed dramatically since it borrowed the money.

11.2.4 Short-term portion of long-term borrowings:

They represent the portion of the long-term loans or bonds due within a year. Here again, the value shown represents the actual amounts due on such loans, and the book and market values should be the same.

11.2.5 Other short-term liabilities:

They represent all other short-term liabilities, due within a year, the company might have, including wages due to employees and taxes due to the government.

11.3 Long-term Debt:

11.3.1 Long-term loans are of two types:

- a. Long-term loans from financial institutions or banks
- b. Debentures or bonds issued to public

11.3.2 The value of long-term loans is measured by looking at the present value of payments due on the loan or bond at the time of borrowing. For bank loans, this will be equal to the nominal value of the loan.

11.3.3 In case of bonds, there are three possibilities as given below:



- a When bonds are issued at par value, the value of the long-term debt is measured in terms of the nominal obligation created, i.e., principal due on the borrowings.
 - b When bonds are issued at a premium or discount on par value, the bonds are recorded at the issue price, but the premium or discount is amortized over the life of the bond.
- 11.3.4 In all these cases, the value of debt is unaffected by changes in interest rates during the life of the loan or the bond. It should be noted that as market interest rates rise or fall, the present value of the loan obligations should decrease or increase. This updated market value for debt is not shown on the balance sheet. If debt is retired prior to maturity, the difference between book value and the amount paid at retirement is treated as an extraordinary gain or loss in the income statement.
- 11.3.5 Companies that have long-term debt denominated in foreign currencies have to adjust the book value of debt for changes in exchange rates. Since exchange rates reflect underlying changes in interest rates, it does imply that this debt is likely to be valued much nearer to market value than is debt in the domestic currency.

11.4 Other Long-term Liabilities:

11.4.1 Companies often have long-term obligations that are not captured under the head long-term debt. These include obligations to lessors on assets that companies have leased, to employees in the form of pensions funds and health care benefits yet to be paid, and deferred taxes due to the government. These liabilities are being shown as long-term liabilities.

11.4.2 Leases:

Leasing is a form of debt financing which provides for the effective acquisition of the asset. Unlike debt or equity financing, leasing is typically identified with particular assets. The risk to the lessor is reduced as if the lessee does not meet the contractual obligations, the lessor, as the legal owner of the asset, has a stronger legal right to reclaim the asset.

Lease payments create the same kind of obligations that interest payments on debt create, and they must be viewed in a similar light.

An Operating Lease normally includes both financing and maintenance services. Normally the lessor agrees to maintain and service the asset, the costs of which are built into the lease payments. Further, an operating lease is one where an asset is leased or hired for a period of time less than its useful life. The lessor expects to recover costs in subsequent renewal payments or on disposal. Since the lessee does not assume the risk of ownership of the asset, the lease expense is treated as an operating expense in the income statement and the lease does not affect the balance sheet.

A Financial or Capital Lease is one which lasts for the whole of an asset's estimated useful life and where the lessee in effect takes on all the risks and benefits associated with ownership. In effect, a financial lease is the purchase of an asset financed by the lessor as lender. Such leases are now required to be shown on the balance sheet as assets at fair value and as liabilities for future lease payments. The company gets to claim depreciation each year on the asset and also deducts the interest expense component of the lease payment each year. In general, financial leases recognize expenses sooner than equivalent operating leases.



The lessor uses the same criteria for determining whether the lease is a financial or operating lease and accounts for it accordingly. If it is a financial lease, the lessor records the present value of future cash flows as revenue and recognizes expenses. The lease receivable is also shown as an asset on the balance sheet, and the interest revenue is recognized over the term of the lease as paid.

From a tax point of view, the lessor can claim the tax benefits of the leased asset only if it is an operating lease.

11.4.3 Employee Benefits:

Employers provide benefits to employees in the form of pensions funds and health care, and the obligations created by these benefits are extensive, and need to be reckoned as long-term liabilities.

Pension Plans:

In a pension plan, the company agrees to provide certain benefits to its employees, either by specifying a defined contribution (wherein a fixed contribution is made to the plan each year by the employer, without any promises as to the benefits that will be delivered in the plan) or a defined benefit (wherein the employer promises to pay a certain benefit to the employee). In the latter case, the employer has to put sufficient money into the plan each period to meet the defined benefits.

Under a defined contribution plan, the company meets its obligations once it has made the prescribed contribution to the plan. Under a defined benefit plan, the company's obligations are much more difficult to estimate, since they will be determined by a number of variables, including the benefits that employees are entitled to, the prior contributions made by the employer and the returns they have earned, and the rate of return that the employer expects to make on current contributions. As these variables change, the value of the pension fund assets can be greater or less than or equal to pension fund liabilities, which include the present value of promised benefits. A pension fund whose assets exceed its liabilities is an over-funded plan, while a pension fund whose assets are lesser than its liabilities is an under-funded plan, and disclosures to that effect have to be included in the financial statements, generally as a footnote.

When a pension fund is over-funded, the company has several options. It can withdraw the excess assets from the fund, it can discontinue its contributions to the plan, or it can continue to make contributions to the plan on the assumption that the overfunding is a transitory phenomenon that could well disappear by the next period. When a fund is under-funded, the firm has a liability, though accounting standards require that companies reveal only the excess of accumulated pension fund liability over pension fund assets on the balance sheet.

Health Care Benefits:

A company can provide health care benefits to its employees, either by making a defined contribution to a health care plan without promising specific benefits or a by promising specific health benefits and setting aside the funds to provide these benefits. The accounting for health care benefits is similar to the accounting for pension obligations.



11.4.4 Deferred Taxes:

Since accelerated depreciation and favourable inventory valuation methods for tax accounting purposes lead to a deferral of taxes, the taxes on the income reported in the financial statements will generally be much greater than the actual tax paid. The same principles of matching expenses to income that underlie accrual accounting suggest that the deferred income tax be recognized in the financial statements. Thus a company that pays taxes of Rs. 5,50,000/- in its taxable income based on its tax accounting, and which would have paid Rs. 7,50,000/- on the income reported in its financial statements, will be forced to recognize the difference of Rs. 2,00,000/- as deferred taxes. Since the deferred taxes will be paid in later years, they will be recognized when paid.



Module 3

Questions

1. What do you mean by intangible assets? What are some of the examples of intangible assets? How do you account for them?
2. What do you mean by intellectual capital? What are its various components? How will you measure intellectual capital?
3. What are the various methods of valuing intellectual capital?
4. Explain the real options basis of valuation of intellectual capital with an example
5. How is Human Resources Accounting related to human capital valuation?
6. Explain skandia navigator methodology
7. Is there any relationship between EVA and Balanced score card? Explain
8. What do you mean by performance prism?
9. Explain the adjusted book value method of valuing fixed assets
10. What do you mean by mark-to-market in the context of valuing financial assets?
11. What are the various approaches to common stock valuation?
12. Explain the "Avoided cost" method of valuing intangible assets
13. How will you develop an intangible asset score sheet?
14. What are the various methods of valuing a human being?
15. Explain the various methods of valuing goodwill
16. What do you mean by a brand? Explain the various methods of valuing a brand? Why valuation of brands different from other intangible assets?
17. How is valuation of real estates different from other assets?
18. How will you value a long term debt?



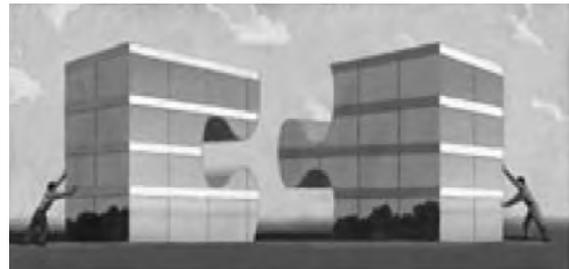
CASE STUDIES

Knowledge@Wharton

Mother and Child Reunion: Will the AT&T/SBC Merger Build or Destroy Value?

Published: March 30, 2005 in [Knowledge@Wharton](#)

SBC Communications, a so-called BabyBell, has acquired venerable Ma Bell AT&T for \$16 billion in a move that reunites the two companies after a court-mandated breakup decades ago. SBC's CEO, Edward E. Whitacre Jr., has been waxing eloquent about the synergies that will flow from the deal, saying in press releases that the combination will be "a huge step forward in our efforts to build a company that will lead an American communications revolution in the 21st century." Experts at Wharton and elsewhere, however, say the merger is likely to produce considerable static. The key question, they say, is: Could SBC really take AT&T, fix its problems and revolutionize telecommunications?



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Wharton professor [Gerald Faulhaber](#), who was the chief economist at the Federal Communications Commission from 2000 to 2001, has his doubts. "I think this deal has a great potential to destroy value," he says. "What is SBC going to bring to the table? At \$16 billion, there's a lot of downside to this merger."

While it is too early to predict whether SBC will be able to create a company that in Whitacre's words will "renew America's leadership in communications technology," the questions that need to be addressed are clear, say Wharton professors. Will SBC get regulatory approval for the merger? Will SBC be able to keep AT&T's corporate customers, a crucial factor in SBC's desire for the merger? What will SBC do with the AT&T brand? Will consumers suffer? And is SBC willing to forge ahead with new technologies such as voice over Internet Protocol (VoIP)? How will SBC compete with cable firms such as Comcast, other regional Bell operating companies like Verizon, and upstarts such as Vonage?

It may take a year or more for answers to those questions to emerge. SBC expects the AT&T deal to close in the first half of 2006 after the U.S. Justice Department, the Federal Communications Commission, state public utility commissions and foreign authorities give their approvals. Consulting firm Gartner, however, says "the deal has at least a 70% chance of approval, though the June 2006 target date is optimistic." Kevin Werbach, a Wharton professor of legal studies, says a lot could happen between now and then. "That's a long time," says Werbach. "This process could mean a 12- to 24-month period of stasis."

In the meantime, on February 1 SBC outlined its plan to meet its cost-cutting targets. In a presentation given to Wall Street analysts after the merger was announced, SBC executives outlined plans to cut 13,000 jobs, or 12% of their combined 163,000 work force. Many of those cuts are likely to occur through attrition. The annual



savings are seen at \$200 million to \$600 million by the second half of 2006, reaching \$2.4 billion to \$2.9 billion by 2009, according to the companies' executives. SBC says that just collapsing redundant sales, network and customer care costs in the two companies' enterprise businesses would save \$1.5 billion a year.

Faulhaber admits that SBC is known to be tough on costs, but the merger's long-term success doesn't necessarily depend on the company being lean and mean. The bulked-up SBC will have to find a way to grow. For 2004, SBC sales were up 0.7% to \$40.8 billion. AT&T's sales declined 11.6% to \$30.5 billion in 2004. Traditional telecommunication players like SBC are losing customers to cable firms as consumers move to VoIP and wireless companies. "This will be the year of VoIP implementation," says Faulhaber. "Half of the U.S. will soon have broadband, and voice is the killer app."

In Search of Corporate Customers

Despite his concerns about the merger, Faulhaber admits that SBC does acquire AT&T's extensive list of corporate customers. "AT&T has an enormous presence in the corporate world," he says. "None of the regional Bells have that traction." Werbach says AT&T also gives SBC a national infrastructure to acquire corporate customers and build its revenue base. AT&T's network crisscrosses the entire country while SBC's has gaps in territories dominated by other regional operators such as Verizon, BellSouth and Qwest Communications.

In addition, SBC acquires AT&T's long distance customer base, which could be used to market other services. To be sure, long distance is a dying business, but AT&T still is a major player despite its recent focus on corporate customers.

Another key -- yet underappreciated -- asset in the deal is AT&T CEO David Dorman. Werbach notes that Dorman, who will become SBC's president after the deal is closed, is likely to be the heir apparent to Whitacre. Dorman was chief executive of PointCast, a dot-com era firm that pushed content to the desktop, and is a veteran of Sprint and Pacific Bell, which was acquired by SBC. "Dorman is willing to shake things up and try new technologies," says Werbach. "He's a bit of a revolutionary."

Other key executives include AT&T's widely respected chief technology officer, Hossein Eslambolchi.

Brand New Questions

Perhaps the most unquantifiable asset in the merger is the AT&T brand. By adopting the AT&T moniker, SBC could craft an identity as a national player. SBC, however, has been silent on how it intends to use the brand.

Marketing professor David Reibstein says SBC will have to decide whether it wants to keep the AT&T brand, adopt it over SBC's, try multiple brands or create a new identity altogether. "What is the AT&T brand really worth? That's the big question," he says. Reibstein explains that AT&T's brand value is murky right now. On the positive side, it is a well-known brand that has global recognition. The negatives, however, are clear. AT&T has been in decline for years with its most recent retreat coming in July 2004. AT&T said at that time that it would stop promoting consumer local and long distance services to focus on corporate customers. Simultaneously, AT&T declared it would focus on its own VoIP service, which it dubs CallVantage.

Reibstein believes SBC might opt to create a new name. This strategy worked well for Accenture, which dropped its Andersen Consulting moniker before parent Arthur Andersen went out of business following



the Enron scandal. Bell Atlantic completed acquisitions of Nynex and GTE in 1997 and 2000, respectively, and became Verizon. "Sometimes it's easier to create a new name and change your positioning, and become Verizon. "Sometimes it's easier to create a new name and change your positioning than to keep the old name," says Reibstein, adding that SBC could "keep both brands, and it could work out."

While Werbach notes AT&T has some attractive assets, others fear that the company also has problems that could undermine the merger's synergies. The biggest challenge is that most of AT&T's businesses --with the exception of its corporate network services -- are struggling, according to Faulhaber. If that is true, it suggests that SBC may have overpaid for AT&T. "AT&T has a strong brand, but it does come with baggage," he says. "Its business is dying."

Wharton professors note that it is also unclear how much AT&T's business will continue to erode as SBC waits for regulatory approval. During the next year, AT&T's long-distance business could continue to deteriorate and corporate customers could look to rivals such as MCI and Sprint because of concerns about the SBC deal. Meanwhile, a delay in approval from regulators is not out of the question. Although approval of the deal is likely, the merger "is no slam dunk," says Faulhaber. The merger will likely be viewed as though Ma Bell is being put back together. It's possible that SBC and Verizon will eventually operate a duopoly.

The consensus view is that regulatory approval for SBC's acquisition of AT&T could be delayed. "We think that the deal will involve a rather lengthy approval process on a rapidly declining asset, with some divestiture requirements," says Merrill Lynch analyst James Moynihan in a research note.

Regarding the antitrust factor, two areas deserve close observation. One is long distance services, which both AT&T and SBC offer. Consumers could see prices rise as the industry goes through a consolidation after the merger. Moynihan, however, says the merger's effect on consumer long distance rates is "a moot point." The reason, he argues, is that SBC was likely to take AT&T's market share anyway.

Faulhaber points out that a thornier issue for regulators will be SBC's plans for VoIP. AT&T, which offers the Call Vantage VoIP service, may face pressure to shut it down after the acquisition, because it competes directly with SBC's offerings. Regulators should be concerned that SBC might squash Call Vantage in order to eliminate a future rival. "Do we really want to shut that off?" asks Faulhaber.

Werbach explains that VoIP on its own may not stop the merger. "VoIP is so tiny now, it won't be a regulatory hurdle," says Werbach. He does worry, though, that SBC's purchase of AT&T could give it and Verizon free reign over regulatory matters in Washington D.C. AT&T was one of the few companies that could oppose Verizon and SBC in Washington. In Werbach's view, the only competition the regional Bell operating companies may now face is from the cable firms.

Although the future regulatory landscape is hardly a reason to kill a deal, analysts believe SBC's purchase of AT&T will mean significant changes in the industry. "The regulatory environment has really boiled down to a showdown between AT&T vs. SBC and Verizon," says Bank of America analyst David Barden. "AT&T by and large lost this battle but fought hard. At the conclusion of the SBC/AT&T merger, these two forces will act in concert, on many issues."

Assuming SBC gets approval from all the regulatory agencies, the next challenge will be keeping AT&T's corporate account managers happy. Faulhaber says the SBC and AT&T cultures could clash and spark



an exodus of corporate account managers. Faulhaber likens the risks to what might happen at IBM if its account representatives left the company's services division en masse. "What happens to the national account managers is key. AT&T has people who are seasoned, and customers look to them," he says. "These employees are at the core of AT&T's success. If you don't have them, what will happen? This is a trust business."

Given the risks, SBC's best bet may be to leverage back-office and shared services such as human resources, and otherwise leave AT&T untouched. "The big question is whether SBC will leverage AT&T," he says. "The best thing may be to just leave AT&T alone, but that's not the sign of a good merger."

Telecom's Future

Whether SBC's acquisition of AT&T works out remains to be seen, but the merger announcement has already accelerated consolidation in the telecommunications industry. Days after the SBC/AT&T deal was announced, the Wall Street Journal reported that MCI was in talks to be acquired by Qwest Communications, a regional telecommunications company. Verizon was also reportedly in the mix and may bid. "The starting gun for another round of consolidation has gone off, and MCI and Sprint may be looking for dance partners," says Werbach.

Faulhaber agrees, but warns that not all acquisition targets are created equal. Neither MCI nor Sprint can match AT&T in the corporate market, and both have flagging long distance businesses. He favors Verizon's recent strategy, which has focused on growing its business organically through efforts such as delivering fiber optic lines directly to homes. And even if all the regional telecom players consolidate, they still have to keep customers from ditching their phone lines. Sprint has refashioned itself primarily as a wireless carrier by consolidating its Sprint PCS unit and buying Nextel.

Werbach says wireless is clearly the future, and SBC could have boxed itself into a corner with its purchase of AT&T. The reason: SBC owns wireless carrier Cingular as a joint venture with BellSouth. To jumpstart growth, SBC would ideally gain total control of Cingular. But now that SBC has acquired AT&T, consolidating Cingular by buying BellSouth is highly unlikely because regulators would shoot the deal down over competition concerns. Nevertheless, SBC will have to address the question of Cingular's ownership sooner or later. "That ownership structure will have to be resolved," says Werbach.

When singer Paul Simon famously sang about the Mother and Child Reunion in 1972, the first line of his lyrics was, "No, I would not give you false hope." That, in a nutshell, could also be the watchword for the SBC/AT&T merger.

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Knowledge@Wharton

'Getting the Models Right': How to Value Hard-to-Price Assets

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What are things worth?

The answer seems simple enough. Just look around the marketplace to see what similar items are selling for. But what if your house has a pool, while the one that sold next door doesn't? Unless you are dealing with an item with exact duplicates that are bought and sold every day, like stock in a publicly traded company, it's hard to know just what your item is worth.

It's a devilish problem in the business world, where companies need to account for the fast-changing values of complex financial instruments-- from insurance policies to employee stock options to exotic derivatives -- for which there is no ready sales history. Yet accounting standards are tightening, requiring that businesses justify valuations rather than simply use their best guess or original purchase price, as they did in the past. So firms are turning to ever more complicated financial models that attempt to deduce values using an array of indicators.



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"What you're trying to figure out is: What if you had to sell [an asset] in the market? What would somebody be willing to pay?" said Wharton finance professor [Richard J. Herring](#). "People are trading on the basis of these [models], but it is difficult, because they are extremely complex, and regulators are worried that they can be pretty easily manipulated."

This dilemma was the topic of the Tenth Annual Wharton/Oliver Wyman Institute Risk Roundtable held May 31-June 1 and sponsored by [The Wharton Financial Institutions Center](#) and Oliver Wyman Institute. The Roundtable was hosted by Herring, the Center's co-director.

International and U.S. accounting bodies are strengthening rules on how to place "fair value" on hard-to-price assets. Last September, for example, the Financial Accounting Standards Board (FASB) in the U.S. adopted Statement 157 which requires that, whenever possible, companies rely on market data rather than their own internal assumptions to value assets.

But some critics argue that computerized valuation models rely on assumptions so uncertain that the results should merely be noted in financial statements rather than included in tallies of assets and liabilities, as FASB requires. The new rules take effect with financial statements for fiscal years beginning after November 15, 2007. "Fair values are unverifiable.... Any model is an opinion embodying many judgments," said critic Mark Carey, finance project manager for the Federal Reserve Board, during remarks at the conference.

While conceding that the Fed had "lost the battle" to minimize use of fair value accounting, he warned that allowing firms to set up their own valuation models, rather than relying on standardized ones, invites



trouble. "The problem is fraud," he noted. "The reason the Fed is concerned about this is because we are worried about the state of a world in which a firm wants to conceal its insolvency. That's fairly easy to do in a fair value system."

Insuring Against Catastrophe

Insurance is one field that is using more elaborate models to calculate risks, set policy prices and figure the current value of policies issued in the past, according to panelist Jay Fishman, chairman and CEO of The Travelers Companies. "Catastrophe modeling," for example, forecasts the likelihood of earthquakes, terrorism and other events that result in claims.

In his presentation, "Insuring against Catastrophes: The Central Role of Models," Fishman noted that insurers previously assessed catastrophe risks by analyzing past events. Typically, they figured average hurricane losses on a statewide basis, not accounting for greater damage in coastal areas and failing to properly estimate the greater damage an unusually large hurricane could cause. Before Hurricane Andrew struck the U.S. in 1992, the most damaging hurricane was Hugo in 1989. Hugo cost insurers \$6.8 billion, while Andrew cost them \$22 billion and left a dozen insurers insolvent.

New catastrophe models are far more complex, Fishman said, because they add data on likely storm paths predicted by scientists; the types of construction, ages and heights of buildings along those paths; the value of insurance issued; policy limits; deductibles, and other factors bearing on losses. In addition, insurers now consider changes in the frequency of big storms caused by factors like rising sea temperatures from global warming.

With guidance from these more sophisticated models, Travelers has raised deductibles for wind damage, tightened its coverage for business interruption and changed premiums to reflect a better understanding of risk, according to Fishman, who adds, however, that models have limits. They are not good, for example, at accounting for long cycles in weather patterns, nor can they forecast claims when events are bigger than expected. Hurricane Katrina, for example, caused more damage inland than the models had forecast, he said.

Softening the Jolts

Similar shortcomings are found in models used in other industries, causing debate about how models should be constructed. Financial institutions have trouble, for example, tracking daily changes in values of credit default swaps, collateralized mortgage obligations, over-the-counter options, thinly traded bonds and other securities for which there is no liquid, transparent market.

It's not uncommon, said Herring, for a large financial institution to have 2000 valuation models for different instruments. And the penalties for getting the results wrong can be severe, as investors learned in the Enron and Long-Term Capital Management debacles, or with the recent financial restatements by Fannie Mae.

The problem has recently been highlighted by the fallout from the subprime mortgage lending binge of the past few years. These loans typically were bundled together and sold to investors as a form of bond. Now, rising interest rates increase the likelihood that some homeowners will fall behind on their payments, undermining the bonds' values. But the models cannot account for these factors very well because subprime mortgages are so new that there is little historical data. Amidst this uncertainty, financial



institutions are hustling to protect themselves, and consumers may find it harder to get loans as a result. Better modeling could soften these jolts.

Though valuation models must be customized for every instrument, they should share some underlying principles, said Thomas J. Linsmeier, a FASB member, noting that the goal of Statement 157 is to arrive at a price that would be received if the asset were sold in an “orderly transaction” -- in other words, not in a crisis or “fire sale.”

Many financial assets are so highly customized that there are no comparable sales. Even when there are, many sales are private transactions that do not produce data for others to use as examples, he said. In these cases, the asset’s owner should try to determine what should be considered the “principal market” in which the asset would be bought and sold, so that data from smaller, less representative markets can be screened out to reduce confusion. “For many financial instruments there are many, many markets in which you might exchange those items...,” he noted. “If there is a principal market, let’s use that ... rather than using all possible markets.”

When there is no data on sales of comparable assets, firms should turn to market prices for similar assets, Linsmeier suggested. When that is not available either, firms must rely on their own internal estimates. But those should be based on the same assumptions an outside buyer would use, rather than on the firm’s own assumptions, which might be biased to make its accounts look better, he said, adding that, generally, any data obtained from the marketplace is preferred over internal company estimates.

Biases and Stock Options

The problem of internal firm biases influencing accounting is illustrated by the recent debate over whether companies should count stock options issued to executives and other employees as an expense.

While economists generally agreed that options are a cost of business that should be counted as an expense, many business groups opposed the move, noted Chester Spatt, chief economist at the Securities and Exchange Commission. Expensing opponents argued it was not possible to accurately value options years before they could be exercised, because their future value would depend on the company’s stock price at the time.

“It seems surprising that companies that apparently don’t understand the cost of a compensation tool would be inclined to use it to such an extent,” Spatt said, suggesting that companies do, in fact, know the value of their options grants but don’t want to reveal the cost to shareholders who might think executives are overpaid. Proper accounting would discourage companies from issuing too many options, he noted.

Markets have long used modeling to place present values on assets whose future values will fluctuate with market conditions, Spatt added. Traders, for example, use models to value collateralized mortgage obligations whose future value will depend on changing interest rates and homeowners’ default rates.

Though modeling has been around for many years and appears to be getting better, even those who design models concede they have flaws. “I think there is a lot more need for research and discussion of approaches for measuring model risk,” said panelist Darryll Hendricks, managing director and global head of quantitative risk control for UBS Investment Bank. Oftentimes, assumptions used in models turn out wrong, he pointed out. A common model input for valuing stock options, for example, is the expected price volatility of the stock. But future volatility may be very different from the past patterns used in the assumption.



Business Valuation Basics

To make its models as good as possible, a firm should have a controlled, disciplined way of field testing them before introduction, and it should continually evaluate a model during the period it is used, Hendricks said. UBS discusses its models' performance during monthly meetings among the traders who use them.

While modeling will continue to be controversial, Herring thinks it will keep getting better. He predicts firms will increasingly share data on their proprietary models, and he thinks model users will gradually adopt better standards for validating their models -- making sure, for example, that evaluations are done by disinterested outsiders rather than the model designers themselves.

Advances in computing power and financial analysis have led to a mushrooming of new financial products in recent years, and should also help to improve the modeling used to measure those products' values, Herring noted. "All of this has made it possible to produce these new products and models. But it also means a lot more is riding on getting the models right."

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Brand Valuation

A Chapter from Brands and Branding An Economist Book
Jan Lindemann, Managing Director Global Brand Valuation

The brand is a special intangible that in many businesses is the most important asset. This is because of the economic impact that brands have.

“If this business were split up, I would give you the land and bricks and mortar, and I would take the brands and trade marks, and I would fare better than you.”

— John Stuart, Chairman of Quaker (ca. 1900)

In the last quarter of the 20th century there was a dramatic shift in the understanding of the creation of shareholder value. For most of the century, tangible assets were regarded as the main source of business value. These included manufacturing assets, land and buildings or financial assets such as receivables and investments. They would be valued at cost or outstanding value as shown in the balance sheet. The market was aware of intangibles, but their specific value remained unclear and was not specifically quantified. Even today, the evaluation of profitability and performance of businesses focuses on indicators such as return on investment, assets or equity that exclude intangibles from the denominator. Measures of price relatives (for example, price-to-book ratio) also exclude the value of intangible assets as these are absent from accounting book values.

This does not mean that management failed to recognize the importance of intangibles. Brands, technology, patents and employees were always at the heart of corporate success, but rarely explicitly valued. Their value was subsumed in the overall asset value. Major brand owners like The Coca-Cola Company, Procter & Gamble, Unilever and Nestlé were aware of the importance of their brands, as indicated by their creation of brand managers, but on the stock market, investors focused their value assessment on the exploitation of tangible assets.

Evidence of brand value

The increasing recognition of the value of intangibles came with the continuous increase in the gap between companies' book values and their stock market valuations, as well as sharp increases in premiums above the stock market value that were paid in mergers and acquisitions in the late 1980s.

Today it is possible to argue that, in general, the majority of business value is derived from intangibles. Management attention to these assets has certainly increased substantially.

The brand is a special intangible that in many businesses is the most important asset. This is because of the economic impact that brands have. They influence the choices of customers, employees, investors and government authorities. In a world of abundant choices, such influence is crucial for commercial success and creation of shareholder value. Even non-profit organizations have started embracing the brand as a key asset for obtaining donations, sponsorships and volunteers.

Some brands have also demonstrated an astonishing durability. The world's most valuable brand,¹ Coca-Cola, is more than 118 years old; and the majority of the world's most valuable brands have been around for more than 60 years. This compares with an estimated average life span for a corporation of 25 years or so.² Many brands have survived a string of different corporate owners.



Several studies have tried to estimate the contribution that brands make to shareholder value. A study by Interbrand in association with JP Morgan (see Table 2.1) concluded that on average brands account for more than one-third of shareholder value. The study reveals that brands create significant value either as consumer or corporate brands or as a combination of both.

Table 2.1 The contribution of brands to shareholder value

Company	2002 brand value (\$bn)	Brand contribution to market capitalization of parent company (%)	2001 brand value (\$bn)
Coca-Cola	69.6	51	69.0
Microsoft	64.1	21	65.1
IBM	51.2	39	52.8
GE	41.3	14	42.4
Intel	30.9	22	34.7
Nokia	30.0	51	35.0
Disney	29.3	68	32.6
McDonald's	26.4	71	25.3
Marlboro	24.2	20	22.1
Mercedes-Benz	21.0	47	21.7

Source: *BusinessWeek*, Interbrand/JP Morgan league table, 2002

Table 2.1 shows how big the economic contribution made by brands to companies can be. The McDonald's brand accounts for more than 70 percent of shareholder value. The Coca-Cola brand alone accounts for 51 percent of the stock market value of the Coca-Cola Company. This is despite the fact that the company owns a large portfolio of other drinks brands such as Sprite and Fanta.

Studies by academics from Harvard and the University of South Carolina³ and by Interbrand⁴ of the companies featured in the "Best Global Brands" league table indicate that companies with strong brands outperform the market in respect of several indices. It has also been shown that a portfolio weighted by the brand values of the Best Global Brands performs significantly better than Morgan Stanley's global MSCI index and the American-focused S&P 500 index.

Today, leading companies focus their management efforts on intangible assets. For example, the Ford Motor Company has reduced its physical asset base in favor of investing in intangible assets. In the past few years, it has spent well over \$12 billion to acquire prestigious brand names such as Jaguar, Aston Martin, Volvo and Land Rover. Samsung, a leading electronics group, invests heavily in its intangibles, spending about 7.5 percent of annual revenues on R&D and another 5 percent on communications.⁵ In packaged consumer goods, companies spend up to 10 percent of annual revenues on marketing support. As John Akasie wrote in an article in *Forbes* magazine:⁶

"It's about brands and brand building and consumer relationships ... Decapitalized, brand owning companies can earn huge returns on their capital and grow faster, unencumbered by factories and masses of manual workers. Those are the things that the stock market rewards with high price/earnings ratios."



Brands on the balance sheet

The wave of brand acquisitions in the late 1980s resulted in large amounts of goodwill that most accounting standards could not deal with in an economically sensible way. Transactions that sparked the debate about accounting for goodwill on the balance sheet included Nestlé's purchase of Rowntree, United Biscuits' acquisition and later divestiture of Keebler, Grand Metropolitan acquiring Pillsbury and Danone buying Nabisco's European businesses.

Accounting practice for so-called goodwill did not deal with the increasing importance of intangible assets, with the result that companies were penalized for making what they believed to be value-enhancing acquisitions. They either had to suffer massive amortization charges on their profit and loss accounts (income statements), or they had to write off the amount to reserves and in many cases ended up with a lower asset base than before the acquisition.

In countries such as the UK, France, Australia and New Zealand it was, and still is, possible to recognize the value of acquired brands as identifiable intangible assets and to put these on the balance sheet of the acquiring company. This helped to resolve the problem of goodwill. Then the recognition of brands as intangible assets made use of a grey area of accounting, at least in the UK and France, whereby companies were not encouraged to include brands on the balance sheet but nor were they prevented from doing so. In the mid-1980s, Reckitt & Colman, a UK-based company, put a value on its balance sheet for the Airwick brand that it had recently bought; Grand Metropolitan did the same with the Smirnoff brand, which it had acquired as part of Heublein. At the same time, some newspaper groups put the value of their acquired mastheads on their balance sheets.

By the late 1980s, the recognition of the value of acquired brands on the balance sheet prompted a similar recognition of internally generated brands as valuable financial assets within a company. In 1988, Rank Hovis McDougall (RHM), a leading UK food conglomerate, played heavily on the power of its brands to successfully defend a hostile takeover bid by Goodman Fielder Wattie (GFW). RHM's defence strategy involved carrying out an exercise that demonstrated the value of RHM's brand portfolio. This was the first independent brand valuation establishing that it was possible to value brands not only when they had been acquired, but also when they had been created by the company itself. After successfully fending off the GFW bid, RHM included in its 1988 financial accounts the value of both the internally generated and acquired brands under intangible assets on the balance sheet.

In 1989, the London Stock Exchange endorsed the concept of brand valuation as used by RHM by allowing the inclusion of intangible assets in the class tests for shareholder approvals during takeovers. This proved to be the impetus for a wave of major branded-goods companies to recognize the value of brands as intangible assets on their balance sheets. In the UK, these included Cadbury Schweppes, Grand Metropolitan (when it acquired Pillsbury for \$5 billion), Guinness, Ladbroke's (when it acquired Hilton) and United Biscuits (including the Smith's brand).

Today, many companies including LVMH, L'Oréal, Gucci, Prada and PPR have recognized acquired brands on their balance sheet. Some companies have used the balance-sheet recognition of their brands as an investor-relations tool by providing historic brand values and using brand value as a financial performance indicator.

In terms of accounting standards, the UK, Australia and New Zealand have been leading the way by allowing acquired brands to appear on the balance sheet and providing detailed guidelines on how to deal with acquired goodwill. In 1999, the UK Accounting Standards Board introduced FRS 10 and 11 on



the treatment of acquired goodwill on the balance sheet. The International Accounting Standards Board followed suit with IAS 38. And in spring 2002, the US Accounting Standards Board introduced FASB 141 and 142, abandoning pooling accounting and laying out detailed rules about recognizing acquired goodwill on the balance sheet. There are indications that most accounting standards, including international and UK standards, will eventually convert to the US model. This is because most international companies that wish to raise funds in the US capital markets or have operations in the United States will be required to adhere to US Generally Accepted Accounting Principles (GAAP).

The principal stipulations of all these accounting standards are that acquired goodwill needs to be capitalized on the balance sheet and amortized according to its useful life. However, intangible assets such as brands that can claim infinite life do not have to be subjected to amortization. Instead, companies need to perform annual impairment tests. If the value is the same or higher than the initial valuation, the asset value on the balance sheet remains the same. If the impairment value is lower, the asset needs to be written down to the lower value. Recommended valuation methods are discounted cash flow (DCF) and market value approaches. The valuations need to be performed on the business unit (or subsidiary) that generates the revenues and profit.

The accounting treatment of goodwill upon acquisition is an important step in improving the financial reporting of intangibles such as brands. It is still insufficient, as only acquired goodwill is recognized and the detail of the reporting is reduced to a minor footnote in the accounts. This leads to the distortion that the McDonald's brand does not appear on the company's balance sheet, even though it is estimated to account for about 70 percent of the firm's stock market value (see Table 2.1), yet the Burger King brand is recognized on the balance sheet. There is also still a problem with the quality of brand valuations for balance-sheet recognition. Although some companies use a brand-specific valuation approach, others use less sophisticated valuation techniques that often produce questionable values. The debate about bringing financial reporting more in line with the reality of long-term corporate value is likely to continue, but if there is greater consistency in brand-valuation approaches and greater reporting of brand values, corporate asset values will become much more transparent.

The social value of brands

The economic value of brands to their owners is now widely accepted, but their social value is less clear. Do brands create value for anyone other than their owners, and is the value they create at the expense of society at large?⁷ The ubiquity of global mega-brands has made branding the focus of discontent for many people around the world. They see a direct link between brands and such issues as the exploitation of workers in developing countries and the homogenization of cultures. Furthermore, brands are accused of stifling competition and tarnishing the virtues of the capitalist system by encouraging monopoly and limiting consumer choice. The opposing argument is that brands create substantial social as well as economic value as a result of increased competition, improved product performance and the pressure on brand owners to behave in socially responsible ways.

Competition on the basis of performance as well as price, which is the nature of brand competition, fosters product development and improvement. And there is evidence that companies that promote their brands more heavily than others in their categories do also tend to be the more innovative in their categories. A study by PIMS Europe for the European Brands Association⁸ revealed that less-branded businesses launch fewer products, invest significantly less in development and have fewer product advantages than their branded counterparts. Almost half of the "non-branded" sample spent nothing on product R&D compared with less than a quarter of the "branded" sample. And while 26 percent of non-branded producers never introduced significant new products, this figure was far lower at 7 percent for the branded set.



The need to keep brands relevant promotes increased investments in R&D, which in turn leads to a continuous process of product improvement and development. Brand owners are accountable for both the quality and the performance of their branded products and services and for their ethical practices. Given the direct link between brand value and both sales and share price, the potential costs of behaving unethically far outweigh any benefits, and outweigh the monitoring costs associated with an ethical business. A number of high-profile brands have been accused of unethical practices. Interestingly, among these are some of the brands that have been pioneering the use of voluntary codes of conduct and internal monitoring systems. This is not to say that these brands have successfully eradicated unethical business practices, but at least they are demonstrating the will to deal with the problem.

The more honest companies are in admitting the gap they have to bridge in terms of ethical behavior, the more credible they will seem. Nike, a company once criticized for the employment practices of some of its suppliers in developing countries, now posts results of external audits and interviews with factory workers at www.nikebiz.com. The concern of multi-national companies is understandable, considering that a 5 percent drop in sales could result in a loss of brand value exceeding \$1 billion. It is clearly in their economic interests to behave ethically.

Approaches to brand valuation

Financial values have to some extent always been attached to brands and to other intangible assets, but it was only in the late 1980s that valuation approaches were established that could fairly claim to understand and assess the specific value of brands. The idea of putting a separate value on brands is now widely accepted. For those concerned with accounting, transfer pricing and licensing agreements, mergers and acquisitions and value-based management, brand valuation plays a key role in business today.

Unlike other assets such as stocks, bonds, commodities and real estate, there is no active market in brands that would provide comparable values.

So to arrive at an authoritative and valid approach, a number of brand evaluation models have been developed. Most have fallen into two categories:

- research-based brand equity evaluations, and
- purely financially driven approaches

Research-based approaches

There are numerous brand equity models that use consumer research to assess the relative performance of brands. These do not put a financial value on brands; instead, they measure consumer behavior and attitudes that have an impact on the economic performance of brands. Although the sophistication and complexity of such models vary, they all try to explain, interpret and measure consumers' perceptions that influence purchase behavior. They include a wide range of perceptive measures such as different levels of awareness (unaided, aided, top of mind), knowledge, familiarity, relevance, specific image attributes, purchase consideration, preference, satisfaction and recommendation. Some models add behavioral measures such as market share and relative price.

Through different stages and depths of statistical modeling, these measures are arranged either in hierarchical order, to provide hurdles that lead from awareness to preference and purchase, or relative to their impact on overall consumer perception, to provide an overall brand equity score or measure. A change in one or a combination of indicators is expected to influence consumers' purchasing behavior, which in turn will affect the financial value of the brand in question. However, these approaches do not differentiate



between the effects of other influential factors such as R&D and design and the brand. They therefore do not provide a clear link between the specific marketing indicators and the financial performance of the brand. A brand can perform strongly according to these indicators but still fail to create financial and shareholder value.

The understanding, interpretation and measurement of brand equity indicators are crucial for assessing the financial value of brands. After all, they are key measures of consumers' purchasing behavior upon which the success of the brand depends. However, unless they are integrated into an economic model, they are insufficient for assessing the economic value of brands.

Financially driven approaches

Cost-based approaches define the value of a brand as the aggregation of all historic costs incurred or replacement costs required in bringing the brand to its current state: that is, the sum of the development costs, marketing costs, advertising and other communication costs, and so on. These approaches fail because there is no direct correlation between the financial investment made and the value added by a brand. Financial investment is an important component in building brand value, provided it is effectively targeted. If it isn't, it may not make a bean of difference. The investment needs to go beyond the obvious advertising and promotion and include R&D, employee training, packaging and product design, retail design, and so on.

Comparables. Another approach is to arrive at a value for a brand on the basis of something comparable. But comparability is difficult in the case of brands as by definition they should be differentiated and thus not comparable. Furthermore, the value creation of brands in the same category can be very different, even if most other aspects of the underlying business such as target groups, advertising spend, price promotions and distribution channel are similar or identical. Comparables can provide an interesting cross-check, however, even though they should never be relied on solely for valuing brands.

Premium price. In the premium price method, the value is calculated as the net present value of future price premiums that a branded product would command over an unbranded or generic equivalent. However, the primary purpose of many brands is not necessarily to obtain a price premium but rather to secure the highest level of future demand. The value generation of these brands lies in securing future volumes rather than securing a premium price. This is true for many durable and non-durable consumer goods categories.

This method is flawed because there are rarely generic equivalents to which the premium price of a branded product can be compared. Today, almost everything is branded, and in some cases store brands can be as strong as producer brands charging the same or similar prices. The price difference between a brand and competing products can be an indicator of its strength, but it does not represent the only and most important value contribution a brand makes to the underlying business.

Economic use. Approaches that are driven exclusively by brand equity measures or financial measures lack either the financial or the marketing component to provide a complete and robust assessment of the economic value of brands. The economic use approach, which was developed in 1988, combines brand equity and financial measures, and has become the most widely recognized and accepted methodology for brand valuation. It has been used in more than 3,500 brand valuations worldwide. The economic use approach is based on fundamental marketing and financial principles:

- The marketing principle relates to the commercial function that brands perform within businesses. First, brands help to generate customer demand. Customers can be individual consumers as well



as corporate consumers depending on the nature of the business and the purchase situation. Customer demand translates into revenues through purchase volume, price and frequency. Second, brands secure customer demand for the long term through repurchase and loyalty.

- The financial principle relates to the net present value of future expected earnings, a concept widely used in business. The brand's future earnings are identified and then discounted to a net present value using a discount rate that reflects the risk of those earnings being realized.

To capture the complex value creation of a brand, take the following five steps:

1. **Market segmentation.** Brands influence customer choice, but the influence varies depending on the market in which the brand operates. Split the brand's markets into non-overlapping and homogeneous groups of consumers according to applicable criteria such as product or service, distribution channels, consumption patterns, purchase sophistication, geography, existing and new customers, and so on. The brand is valued in each segment and the sum of the segment valuations constitutes the total value of the brand.
2. **Financial analysis.** Identify and forecast revenues and earnings from intangibles generated by the brand for each of the distinct segments determined in Step 1. Intangible earnings are defined as brand revenue less operating costs, applicable taxes and a charge for the capital employed. The concept is similar to the notion of economic profit.
3. **Demand analysis.** Assess the role that the brand plays in driving demand for products and services in the markets in which it operates, and determine what proportion of intangible earnings is attributable to the brand measured by an indicator referred to as the "role of branding index." This is done by first identifying the various drivers of demand for the branded business, then determining the degree to which each driver is directly influenced by the brand. The role of branding index represents the percentage of intangible earnings that are generated by the brand. Brand earnings are calculated by multiplying the role of branding index by intangible earnings.
4. **Competitive benchmarking.** Determine the competitive strengths and weaknesses of the brand to derive the specific brand discount rate that reflects the risk profile of its expected future earnings (this is measured by an indicator referred to as the "brand strength score"). This comprises extensive competitive benchmarking and a structured evaluation of the brand's market, stability, leadership position, growth trend, support, geographic footprint and legal protectability.
5. **Brand value calculation.** Brand value is the net present value (NPV) of the forecast brand earnings, discounted by the brand discount rate. The NPV calculation comprises both the forecast period and the period beyond, reflecting the ability of brands to continue generating future earnings. An example of a hypothetical valuation of a brand in one market segment is shown in Table 2.2. This calculation is useful for brand value modeling in a wide range of situations, such as:
 - predicting the effect of marketing and investment strategies;
 - determining and assessing communication budgets;
 - calculating the return on brand investment;
 - assessing opportunities in new or underexploited markets; and
 - tracking brand value management.



Business Valuation Basics

Table 2.2 Sample brand value calculation

	Year 1	Year 2	Year 3	Year 4	Year 5
Market (Units)	250,000,000	258,750,000	267,806,250	277,179,469	286,880,750
Market growth rate		4%	4%	4%	4%
Market share (Volume)		17%	19%	21%	20%
Volume	15%	43,987,500	50,883,188	58,207,688	57,376,150
Price (\$)	37,500,000	10	10	11	11
Price change	10	3%	2%	2%	2%
Branded Revenues	375,000,000	450,871,875	531,983,725	621,341,172	625,326,631
Cost of sales	150,000,000	180,348,750	212,793,490	248,536,469	250,130,653
Gross margin	225,000,000	270,523,125	319,190,235	372,804,703	375,195,979
Marketing costs	67,500,000	81,156,938	95,757,071	111,841,411	112,558,794
Depreciation	2,812,500	3,381,539	3,989,878	4,660,059	4,689,950
Other overheads	18,750,000	22,543,594	26,599,186	31,067,059	31,266,332
Central cost allocation	3,750,000	4,508,719	5,319,837	6,213,412	6,253,266
EBITA (Earnings Before Interest, Tax and Amortization)	132,187,500	158,932,336	187,524,263	219,022,763	220,427,638
Applicable taxes	35%	46,265,625	55,626,318	65,633,492	77,149,673
NOPAT (Net Operating Profit After Tax)	85,921,875	103,306,018	121,890,771	142,364,796	143,277,964
Capital Employed	131,250,000	157,805,156	186,194,304	217,469,410	218,864,321
Working capital	112,500,000	135,261,563	159,595,118	186,402,351	187,597,989
Net PPE	18,750,000	22,543,594	26,599,186	31,067,059	31,266,332
Capital Charge	8%	10,500,000	12,624,413	14,895,544	17,397,553
Intangible Earnings	75,421,875	90,681,606	106,995,227	124,967,243	125,768,819
Role of Branding Index	79%				
Brand Earnings	59,583,281	71,638,469	84,526,229	98,724,122	99,357,367
Brand Strength Score	66				
Brand Discount Rate	7.4%				
Discounted Brand Earnings	55,477,916	62,106,597	68,230,515	74,200,384	69,531,031
NPV (Net Present Value) of Discounted Brand Earnings (Years 1–5)	329,546,442				
Long-term growth rate	2.5%				
NPV of Terminal Brand Value (beyond Year 5)	1,454,475,639				
BRAND VALUE	1,784,022,082				



Applications

The range of applications for brand valuation has widened considerably since its creation in 1988, and it is now used in most strategic marketing and financial decisions. There are two main categories of applications:

- Strategic brand management, where brand valuation focuses mainly on internal audiences by providing tools and processes to manage and increase the economic value of brands.
- Financial transactions, where brand valuation helps in a variety of brand-related transactions with external parties.

Strategic brand management

Recognition of the economic value of brands has increased the demand for effective management of the brand asset. In the pursuit of increasing share-holder value, companies are keen to establish procedures for the management of brands that are aligned with those for other business assets, as well as for the company as a whole. As traditional purely research-based measurements proved insufficient for understanding and managing the economic value of brands, companies have adopted brand valuation as a brand management tool. Brand valuation helps them establish value-based systems for brand management. Economic value creation becomes the focus of brand management and all brand-related investment decisions. Companies as diverse as American Express, IBM, Samsung Electronics, Accenture, United Way of America, BP, Fujitsu and Duke Energy have used brand valuation to help them refocus their businesses on their brands and to create an economic rationale for branding decisions and investments. Many companies have made brand value creation part of the remuneration criteria for senior marketing executives.

These companies find brand valuation helpful for the following:

- Making decisions on business investments. By making the brand asset comparable to other intangible and tangible company assets, resource allocation between the different asset types can follow the same economic criteria and rationale, for example, capital allocation and return requirements.
- Measuring the return on brand investments based on brand value to arrive at an ROI that can be directly compared with other investments. Brand management and marketing service providers can be measured against clearly identified performance targets related to the value of the brand asset.
- Making decisions on brand investments. By prioritizing them by brand, customer segment, geographic market, product or service, distribution channel, and so on, brand investments can be assessed for cost and impact and judged on which will produce the highest returns.
- Making decisions on licensing the brand to subsidiary companies. Under a license the subsidiaries will be accountable for the brand's management and use, and an asset that has to be paid for will be managed more rigorously than one that is free.
- Turning the marketing department from a cost center into a profit center by connecting brand investments and brand returns (royalties from the use of the brand by subsidiaries). The relationship between investments in and returns from the brand becomes transparent and manageable. Remuneration and career development of marketing staff can be linked to and measured by brand value development.



- Allocating marketing expenditures according to the benefit each business unit derives from the brand asset.
- Organizing and optimizing the use of different brands in the business (for example, corporate, product and subsidiary brands) according to their respective economic value contribution.
- Assessing co-branding initiatives according to their economic benefits and risks to the value of the company's brand.
- Deciding the appropriate branding after a merger according to a clear economic rationale.
- Managing brand migration more successfully as a result of a better understanding of the value of different brands, and therefore of what can be lost or gained if brand migration occurs.
- Establishing brand value scorecards based on the understanding of the drivers of brand value that provide focused and actionable measures for optimal brand performance.
- Managing a portfolio of brands across a variety of markets. Brand performance and brand investments can be assessed on an equally comparable basis to enhance the overall return from the brand portfolio.
- Communicating where appropriate the economic value creation of the brand to the capital markets in order to support share prices and obtain funding.

Financial transactions

The financial uses of brand valuation include the following:

- Assessing fair transfer prices for the use of brands in subsidiary companies. Brand royalties can be repatriated as income to corporate headquarters in a tax-effective way. Brands can be licensed to international subsidiaries and, in the United States, to subsidiaries in different states.
- Determining brand royalty rates for optimal exploitation of the brand asset through licensing the brand to third parties.
- Capitalizing brand assets on the balance sheet according to US GAAP, IAS and many country-specific accounting standards. Brand valuation is used for both the initial valuation and the periodical impairment tests for the derived values.
- Determining a price for brand assets in mergers and acquisitions as well as clearly identifying the value that brands add to a transaction.
- Determining the contribution of brands to joint ventures to establish profit sharing, investment requirements and shareholding in the venture.
- Using brands for securitization of debt facilities in which the rights for the economic exploitations of brands are used as collateral.

Conclusion

As global competition becomes tougher and many competitive advantages, such as technology, become more short-lived, the brand's contribution to shareholder value will increase. The brand is one of the few assets that can provide long-term competitive advantage.

Despite the commercial importance of brands, the management of them still lags behind that of their tangible counterparts. Even though measurement has become the mantra of modern management, it is



astonishing how few agreed systems and processes exist to manage the brand asset. When it comes to managing and measuring factory output the choice of measures is staggering, as are the investments in sophisticated computer systems that measure and analyze every detail of the manufacturing process. The same is true for financial controlling. But, strangely, this cannot be said for the management of the brand asset. Although many brand measures are available, few can link the brand to long-term financial value creation. Nor has investment in brand management reached a level or sophistication comparable with other controlling measures. As the importance of intangibles to companies increases, managers will want to install more value-based brand management systems that can align the management of the brand asset with that of other corporate assets.

There is a similar lack of detail about the contribution of brands in the financial reporting of company results. Investments in and returns from tangible assets are reported at sophisticated and detailed levels, but this is not true for intangible assets. For example, Coca-Cola's balance sheet, income statement and cash flow calculation tell us about working capital, net fixed assets and financial investments, but little about the performance of the most important company asset, the Coca-Cola brand. The same is true for most other brand-owning companies. Current accounting regulations are deficient in their treatment of intangible assets. The increasing value placed on intangibles through mergers and acquisitions over the past two decades has forced accounting standards to acknowledge and deal with intangible assets on the balance sheet. However, the standards deal only with the bare minimum accounting for acquired intangibles, formerly known as goodwill. As a bizarre consequence, the value of acquired brands is included in companies' balance sheets but the value of internally generated brands remains unaccounted for.

Overall, there is an increasing need for brand valuation from both a management and transactional point of view. With the development of the economic use approach, there is at last a standard that can be used for brand valuation. This may well become the most important brand management tool in the future.

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The Economist book Brands and Branding was launched in February 2004. It is widely available at book-sellers in-store and on-line. Contents of Brands and Branding:

Part 1: The Case for Brands

What is a Brand?

Tom Blackett, Interbrand

The Financial Value of Brands

Jan Lindemann, Interbrand

The Social Value of Brands

Steve Hilton, Good Business

What Makes Brands Great

Chuck Brymer, Interbrand

Part 2: Best Practice in Branding

Brand Positioning and Brand Creation

Anne Bahr Thompson, Interbrand

Brand Experience

Shaun Smith, consultant

Visual and Verbal Identity

Tony Allen and John Simmons, Interbrand

Brand Communications

Paul Feldwick, BMP

The Public Relations Perspective on Branding

Deborah Bowker, Burson-Marsteller

Brand Protection

Allan Poulter, Field Fisher Waterhouse

Part 3: The Future for Brands

Globalisation and Brands

Sameena Ahmad, *The Economist*

An Alternative Perspective on Brands

Deborah Doane, New Economics Foundation

Branding in South-East Asia

Kim Faulkner, Interbrand

Branding Places and Nations

Simon Anholt, Placebrands

The Future of Brands

Rita Clifton, Interbrand

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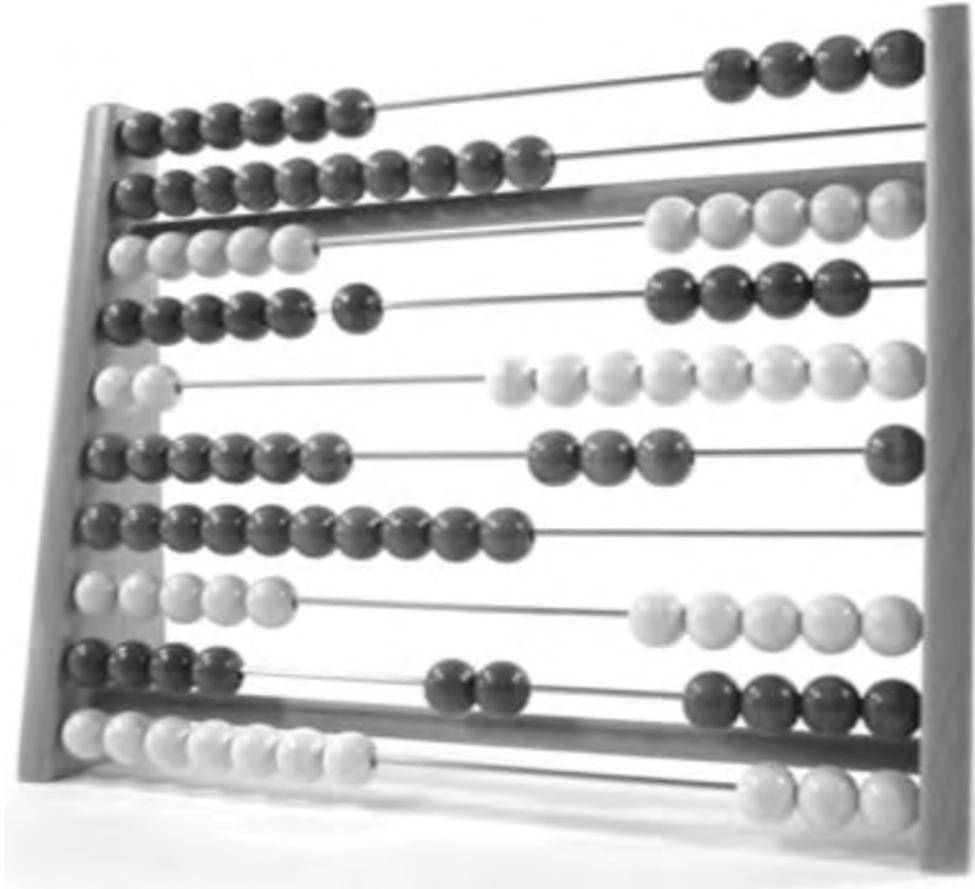
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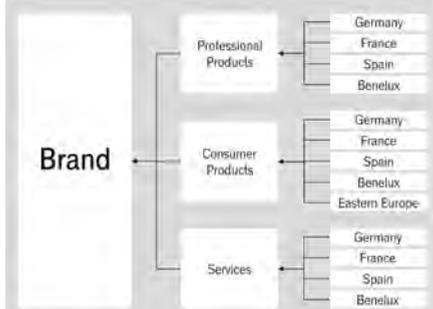
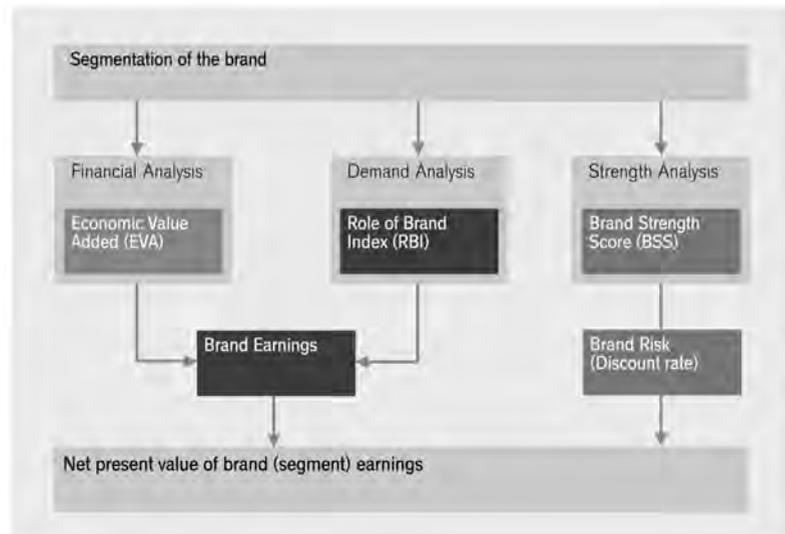
Creating and managing brand value

Interbrand Zintzmeyer & Lux



Interbrand's approach is based on the three economic functions of a brand: 1) to create cost synergies, 2) to generate demand for the products and services and 3) to secure future demand and thus reduce operative and financial risks. The three economic functions of a brand are assessed in the three analyses.

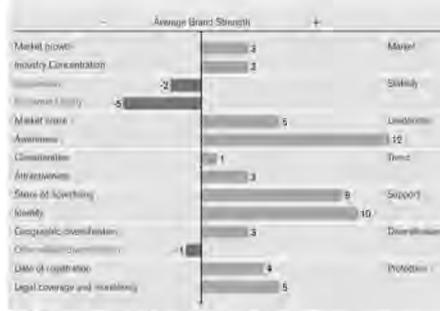
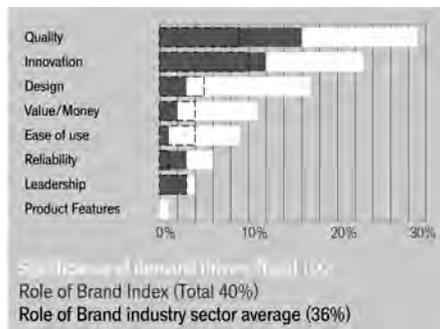
The value of a brand lies in its economic benefit – brand value is therefore defined as the net present value of future earnings generated by the brand alone. Interbrand's approach is based on the following three economic functions: 1) the brand's function to create cost synergies, 2) the brand's function to generate demand for the products and services, and 3) the brand's function to secure future demand and thus reduce operative and financial risks. The method employed to evaluate brands comprises five steps: segmentation, financial analysis, demand analysis, brand strength analysis, and, finally, the calculation of the net present value of brand earnings.



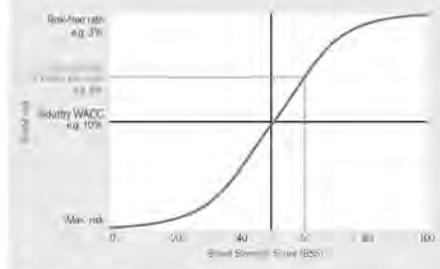
The example above shows a typical segmentation that differentiates the significance of the brand between relevant customer groups in different markets.

Segmentation: Consumers' purchasing behavior and attitudes towards brands differ from one market sector to another, depending largely on product-, market- and distribution-related factors. For this reason, the value of a brand can only be determined precisely through the separate assessment of individual segments that represent a homogenous customer group. Apart from this, brand management can only obtain the insights it needs to increase the brand's value systematically if the brand has been evaluated in all its segments.

Financial Analysis: Interbrand's brand valuation begins with an assessment of the company's value and then determines the value contributed by the brand. The first step towards isolating brand earnings from other forms of income is to determine the Economic Value Added (EVA) which tells whether a company is able to generate returns that exceed the costs of capital employed. As both value creation and its counterpart, risk, lie in the future, the analysis is based on a five-year forecast of future revenues generated in the brand segment being assessed.



Performance of the strength attributes in comparison with the industry average (Brand Strength Score 54%)



The Brand Strength Score, which measures the competitive strength of the brand, is transformed into a discount rate on the basis of the S-curve. The Industry WACC (cost of equity in the financial service industry), which ideally comprises the same competitors assessed in the Brand Strength Analysis, is used as the benchmark for the company's overall risk.

Demand Analysis: In this step, Interbrand analyzes the brand's value chain and identifies the position of the brand in the minds of customers. To determine the brand's share of EVA, Interbrand examines what factors influence demand and motivate customers to purchase. These factors are weighted in terms of their bearing on demand and for each, the contributions of the specific associations with the brand are statistically calculated. The sum of these brand contributions on the demand drivers is expressed as the Role of Brand Index (RBI) which, multiplied with the EVA, yields the brand earnings.

Brand Strength Analysis: The stronger a brand, the lower is its risk, and thus the more certain are future brand earnings. Interbrand assesses this risk by analyzing the strength of a brand compared with its competitors on the basis of seven factors (i.e. market, stability, brand leadership, trend, brand support, diversification, and protection). In fact, a broad range of measured attributes explains the seven factors and facilitates an all-round diagnosis of a brand's competitive position. This step results in the Brand Strength Score (BSS).

Net Present Value Calculation: The economic value of future brand earnings is inversely correlated with the brand's estimated risk and this risk is directly linked to brand strength. The transformation of brand strength into brand risk (or into discount rate,) is completed using an S-curve. The procedure reflects the dynamism of the market, where brands at the extreme ends of the scale react differently from brands in the middle range as regards changes in their strength. The strongest brands are discounted with the risk-free rate of the total market while average-strength brands are discounted with the industry WACC (cost of equity in the financial service industry). Discounting the forecast period (present value) and the calculation of an annuity (terminal value) results in the total value of the brand.

Since this procedure focuses on value creation, it is independent of potential and probable changes in organizational structure. The total value of the brand is calculated as the sum of its segment values (sum-of-the-parts).

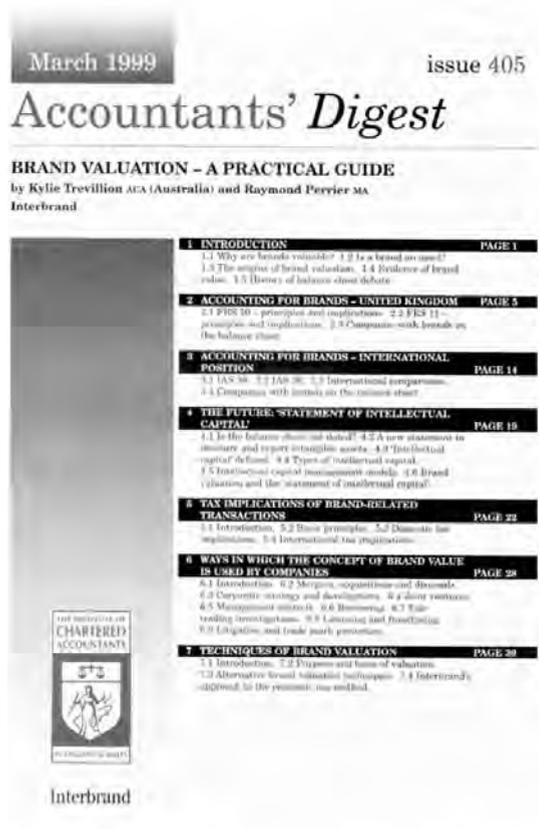
	Year 2007	2008	2009	2006	2007	2008	2009	2010
Branded revenue	400	480	500	520	550	580	620	650
Operating costs	(357)	(390)	(407)	(423)	(447)	(472)	(503)	(528)
EBIT	43	90	93	97	103	108	117	122
Tax 26%	(12)	(24)	(25)	(26)	(27)	(29)	(31)	(32)
NOPAT	31	66	68	71	76	79	86	90
Operating assets	110	120	130	130	140	150	160	160
WACC 10%	(11)	(12)	(13)	(13)	(14)	(15)	(16)	(16)
Economic Value Added (EVA)	50	54	56	58	62	64	70	74
RBI40% (Brandearnings)	23	25	26	28	29			
Discount rate 9%								
Discount factor				1.09	1.19	1.30	1.41	1.54
Discounted earnings				21	21	20	20	19
Value until the year 2010				101				
Terminal value (growth = 2%)				277				
Net present value of the brand segment				378				



Business Valuation Basics

A systematic approach to brand valuation was jointly developed by Interbrand and the London Business School in 1988. The method was partially revised in 1993. Since then, Interbrand has evaluated some 3500

brands for nearly 400 companies. These assessments comprise corporate and product brands, complex brand systems, and simple “homogeneous” brands. Depending on their purpose, evaluations can be broadly divided into two categories:



The Interbrand method has been used worldwide in numerous value-related purposes for brand management, balance sheet capitalizations, licensing, litigation, asset-backed securitization, business combinations, brand migrations, etc.

therefore absolutely transparent. Since input data are generally obtained through primary studies, the brand values derived from them are objective and highly reliable. Moreover, the economic functions of the brand are also included entirely and individually as part of the analyses described above and are thus expressed as part of the company’s value. Brand valuation thus blends in seamlessly with conventional corporate strategic thinking and procedures. As a result, the integration of value-oriented brand management into value-oriented corporate management is effortless.

Interbrand is a member of various national bodies whose central concerns include the regulative, normative and communicative promotion of brand value. In Germany, we play a significant role in the activities of the DIN (Deutsches Institut für Normung e. V.) and the Brand Valuation Forum (a work group set up by Germany’s GEM), which focuses specifically on communicative functions. Our involvement on these boards is coordinated within the Interbrand network and creates a foundation on which the standardization and reporting of companies with regard to brand value can be based.

1. Evaluations for financial transactions in connection with mergers & acquisitions, internal licensing and fiscal issues, as well as reporting or financing questions.

2. Evaluations for specific brand management purposes with a view to optimization of brand investments, long-term controlling, internal and external communication and sustainable increases in brand value.

The Interbrand model is one of the most frequently referenced methods in the international market. It is effectively the only method that has gained consistent global acceptance during the past ten years: valuations based on the Interbrand method have been used by, among others, the US Internal Revenue Service and the tax authorities of many other countries, by the Monopolies and Mergers Commission in Great Britain, by the European Antitrust Committee, and by judicial courts in the USA, Germany, Austria, Great Britain, Ireland, France, and Hong Kong. The Interbrand method of brand valuation has been assessed by all the world’s leading auditing firms in conjunction with numerous balance sheet projects. In countries such as Australia, France, Great Britain, and New Zealand, the capitalization of acquired brands has been permissible for years.

The Interbrand method is based on formulae and procedures considered standard in general business management as well as in financial and marketing theory. The method is



GROWTH IN FCFE VERSUS GROWTH IN FCFF

- Leverage generally increases the growth rate in the FCFE, relative to the growth rate in the FCFF.
- The growth rate in earnings per share is defined to be:

$$g_{EPS} = b (ROC + D/E (ROC - i (1-t)))$$

where,

g_{EPS} = Growth rate in Earnings per share

b = Retention ratio = 1 - Payout ratio

ROC = Return on Assets = (Net Income + Interest Expense (1-t))/(BV of Debt + BV of Equity)

D/E = Debt/ Equity

i = Interest Expense/ Book Value of Debt

- The growth rate in EBIT will be a function of only the retention ratio and the return on assets and will generally be lower: $g_{EBIT} = b (ROC)$

Illustration 12: Growth rate in FCFE and FCFF: Home Depot Inc.

Home Depot Inc. had earnings per share in 1992 of \$0.82, and had registered growth in earnings per share of 45% in the prior five years. The firm had return on assets of 12.82%, a pre-tax interest rate of 7.7%, a debt-equity ratio of 36.59% and a retention ratio of 91% in 1992 (The tax rate was 36%). Assuming that these levels will be sustained in the future, the growth rates in FCFE and FCFF will be as follows:

$$\begin{aligned} \text{Expected growth rate in FCFE} &= b (ROC + D/E (ROC - i (1-t))) \\ &= 0.91 (12.82\% + 0.3659 (12.82\% - 7.7\% (1-0.36))) \\ &= 14.29\% \end{aligned}$$

$$\begin{aligned} \text{Expected Growth rate in FCFF} &= b (ROC) \\ &= 0.91 * 12.82\% = 11.67\% \end{aligned}$$

The growth rate in free cashflows to equity is greater than the growth rate in the free cashflow to the firm because of the leverage effect.

VII. FCFF STABLE GROWTH FIRM

The Model

A firm with free cashflows to the firm growing at a stable growth rate can be valued using the following model:

$$\text{Value of firm} = \text{FCFF}_1 / (\text{WACC} - g_n)$$

where,

FCFF_1 = Expected FCFF next year

WACC = Weighted average cost of capital

g_n = Growth rate in the FCFF (forever)



The Caveats

- the growth rate used in the model has to be reasonable, relative to the nominal growth rate in the economy.
- the relationship between capital expenditures and depreciation has to be consistent with assumptions of stable growth.

Illustration 13: Valuing the Food Product Division at RJR Nabisco

A Rationale for using the Stable FCF Model

- The division is in steady state; It is a large player in a stable market with strong competition. It cannot be expected to sustain high growth for any length of time.
- The division does not carry its own debt (though its parent company, RJR Nabisco, carries plenty). Thus, only the FCF can be computed for the division.
- The entire division is up for sale, not just RJR's equity stake in the division.

Background Information

- In 1995, the food products division had revenues of \$ 7 billion on which it earned \$1.5 billion before interest and taxes.
- The division had capital expenditures of \$660 million and depreciation of \$550 million in 1994.
- The working capital as a percent of revenues has averaged 5% between 1993 and 1994. (Working capital increased \$350 million in 1994)
- The beta of comparable firms in the food products business is 1.05 and the average debt ratio at these firms is 23.67%. (The cost of debt at the largest of these firms is approximately 8.50%).
- The tax rate is assumed to be 36%.
- The cash flows to the firm are expected to grow 5% a year in the long term

Valuing the Division

- The estimated free cash flows to the firm (division) are as follows –

	Current	Next Year
EBIT (1-t)	\$ 960.00	\$ 1,008.00
- (Cap Ex - Depreciation)	\$ 110.00	\$ 115.50
- Change in Working Capital	\$ 150.00	\$ 17.50
= FCFF	\$ 700.00	\$ 875.00

- The cost of capital is computed, based upon comparable firms (in the food products business)
 - Beta (based upon comparable firms) = 1.05
 - Cost of Equity (based upon comparable firms) = 7.5% + 1.05 (5.50%) = 13.275%
 - Pre-tax Cost of Debt = 8.50%; After-tax cost of debt = 8.50% (1-.036) = 5.44%
 - Debt Ratio (based upon comparable firms) = 23.67%



- Cost of Capital (based upon comparable firms) = 13.275% (0.7633) + 5.44% (0.2367) = 11.42%
- The value of the division, using this cost of capital and an expected growth rate of 5%, were estimated as follows –

$$\text{Value of Food Products Division} = \$ 875 / (.1142 - .05) = \$13.629 \text{ billion}$$

VIII & IX. TWO AND THREE STAGE VERSIONS OF THE FCFF MODEL

The Model

The value of the firm, in the most general case, can be written as the present value of expected free cashflows to the firm:

$$\text{Value of Firm} = \sum_{t=1}^{\infty} \frac{\text{FCFF}_t}{(1+\text{WACC})^t}$$

where,

FCFF_t = Free Cashflow to firm in year t

WACC = Weighted average cost of capital

If the firm reaches steady state after n years, and starts growing at a stable growth rate g_n after that, the value of the firm can be written as:

$$\text{Value of Firm} = \sum_{t=1}^{n-1} \frac{\text{FCFF}_t}{(1+\text{WACC})^t} + \frac{[\text{FCFF}_{n+1} / (\text{WACC} - g_n)]}{(1+\text{WACC})^n}$$

Firm Valuation versus Equity Valuation

- The value of equity, however, can be extracted from the value of the firm by subtracting out the market value of outstanding debt.
- The advantage of using the firm valuation approach is that cashflows relating to debt do not have to be considered. In cases where the leverage is expected to change significantly over time, this is a significant saving. The firm valuation approach does, however, require information about debt ratios and interest rates to estimate the weighted average cost of capital.
- The value for equity obtained from the firm valuation and equity valuation approaches will be the same if:
 - (a) Consistent assumptions are made about growth in the two approaches
 - (b) Bonds are correctly priced

Best suited for:

- Firms which have very high leverage and are in the process of lowering their leverage or vice versa.
- Firms which have negative FCFE, but have positive FCFF.



Illustration 14: Federated Department Stores: Valuing an over-leveraged firm using the FCFF approach

A Rationale for using the Two-Stage FCFF Model

- The earnings before interest and taxes at Federated in 1994, which amounted to \$531 million, were still well below EBIT in 1988 of \$628 million. The earnings are expected to grow at rates slightly above-stable for the next five years as the firm recovers.
- The leverage in 1994 was still significantly above desirable levels, largely as a consequence of the leveraged buyout in the late eighties. It was anticipated that this debt ratio would be lowered gradually over the next five years to acceptable levels.

Background Information

- Base Year Information
 - Earnings before interest and taxes in 1994 = \$ 532 million
 - Capital Expenditures in 1994 = \$310 million
 - Depreciation in 1994 = \$207 million
 - Revenues in 1994 = \$ 7230 million
 - Working Capital as percent of revenues = 25.00%
 - Tax rate = 36%
- High Growth Phase
 - Length of High Growth Phase = 5 years
 - Expected Growth Rate in FCFF = 8%
 - Financing Details
 - Beta during high growth phase = 1.25
 - Cost of Debt during high growth phase = 9.50% (pre-tax)
 - Debt Ratio during high growth phase = 50%
- Stable Growth Phase
- Expected growth rate in FCFF = 5%
- Financing Details
 - Beta during stable growth phase = 1.00
 - Cost of Debt during stable growth phase = 8.50%
 - Debt Ratio during stable growth phase = 25%
- Capital expenditures are offset by depreciation.

Valuation

The forecasted free cashflows to the firm over the next five years are provided below:



	1	2	3	4	5	Terminal year
EBIT	\$574.45	\$620.41	\$670.04	\$723.64	\$781.54	\$820.61
- t (EBIT)	\$ 206.80	\$223.35	\$241.21	\$260.51	\$281.35	\$295.42
- (Cap Ex - Depreciation)	\$111.24	\$120.14	\$129.75	\$140.13	\$151.34	\$0.00
- Ch Working Capital	\$144.58	\$156.15	\$168.64	\$182.13	\$196.70	\$132.77
= FCFF	\$101.83	\$120.77	\$130.44	\$140.87	\$152.15	\$392.42

Cost of Equity during high growth phase = $7.5\% + 1.25(5.5\%) = 14.38\%$

Cost of Capital during high-growth phase = $14.38\% (0.5) + 9.50\% (1-0.36) (0.5) = 10.23\%$

The free cashflow to the firm in the terminal year is estimated to be \$392.42 million.

FCFF in terminal year = $EBIT_6 (1-t) - (Rev_6 - Rev_5) * Working\ Capital\ as\ \% \ of\ Revenue$

$$= \$ 820.61 (1-0.36) - \$ 132.77 = \$ 392.42 \text{ millions}$$

Cost of Equity during stable growth phase = $7.50\% + 1.00(5.50\%) = 13.00\%$

Cost of Capital in stable growth phase = $13.00\% (0.75) + 8.50\% (1-0.36) (0.25) = 11.11\%$

Terminal value of the firm = $\$ 392.42 / (.1111 - .05) = \$ 6,422 \text{ millions}$

The value of the firm is then the present value of the expected free cashflows to the firm and the present value of the terminal value:

PV of FCFF	\$487.17
PV of Terminal Value =	\$3,946.93
Value of Firm =	\$4,434.11
Value of Debt =	\$2,740.58
Value of Equity =	\$1,693.52
Value Per Share =	\$13.38

Federated Department Stores was trading at \$21 per share in March 1995.

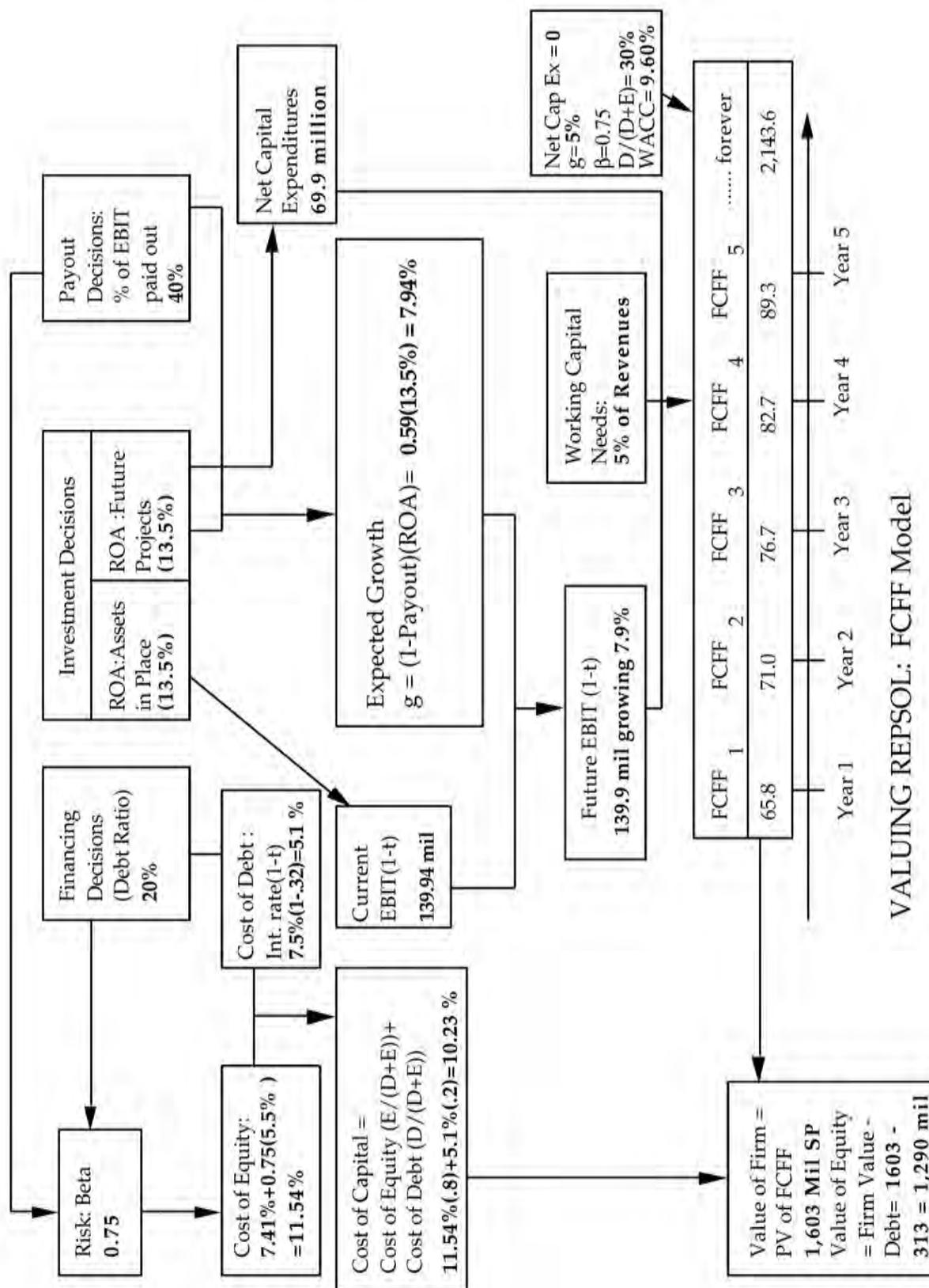




Illustration 15 : Valuing with the Three-stage FCFF model: LIN Broadcasting

- *A Rationale for using the Three-Stage FCFF Model*
- *Why three-stage?* LIN Broadcasting is a fast growing firm in a fast growing industry segment. Revenues are expected to grow 30% a year for the next few years.
- *Why FCFF?* LIN Broadcasting has never made a profit after taxes, even though it has posted high growth, because it has had high leverage and non-operating expenses. Prior to these charges, however, it earned a healthy operating income of \$128 million in 1994. Thus, though FCFE are negative, FCFF are positive.
- The financial leverage is high but can be expected to decline as the industry stabilizes.

Background Information

- Current Earnings
 - EBIT in 1994 = \$ 128.3 million
 - Capital Expenditures in 1994 = \$ 150.5 million
 - Depreciation & Amortization in 1994 = \$ 125.1 million
 - Working Capital was about 10% of revenues in 1994.
- Inputs for the High Growth Period
 - Length of the High Growth Period = 5 years
 - Expected growth rate in Revenues / EBIT = 30.00%
 - Financing Details
 - Beta during High Growth Period = 1.60
 - Cost of Equity during High Growth Period = 7.5% + 1.60 (5.5%) = 16.30%
 - The firm will continue to use debt heavily during this period (Debt Ratio = 60%), at a pre-tax cost of debt of 10%.
 - Capital Expenditures and Depreciation are expected to grow at the same rate as revenues and EBIT.
 - Working Capital will remain at 10% of revenues during this period.

$\text{Weighted Average Cost of Capital} = 16.30\% (0.40) + 10\% (0.64) (0.60) = 10.36\%$

- Inputs for the transition period
 - Length of the transition period = 5 years
 - Growth rate in EBIT will decline from 30% in year 5 to 5% in year 10 in linear increments.
 - Capital expenditures will grow 8% a year and depreciation will grow at 12% a year during the transition period.
 - Financing Details
 - Beta will drop to 1.25 for the entire transition period.
 - The debt ratio during this phase will drop to 50%, and the pre-tax cost of debt will be 9%.
 - Working Capital will remain at 10% of revenues during the period.

$\text{Weighted Average Cost of Capital} = 14.38\% (0.50) + 9\% (0.64) (0.50) = 10.07\%$
--

- Inputs for the Stable Growth
 - Expected Growth Rate in revenues and EBIT = 5%
 - Capital expenditures and depreciation will grow at the same rate as EBIT.
 - Beta during stable growth phase = 1.00 : Cost of Equity = 7.50% + 1.0 (5.5%) = 13%
 - Debt Ratio during stable phase = 40%; Pre-tax cost of debt will be 8.5%.



Estimating the Value

- These inputs are used to estimated free cash flows to the firm, the cost of capital and the present values during the high growth and transition period –

Period	EBIT(1-t)	Cap Exp	Depreciation	Chg. WC	FCFF	Debt Ratio	Beta	WACC	Present Value
1	\$106.75	\$195.65	\$162.63	\$20.66	\$53.07	60.00%	1.60	10.36%	\$48.09
2	\$138.77	\$254.35	\$211.42	\$26.86	\$68.99	60.00%	1.60	10.36%	\$56.64
3	\$180.40	\$330.65	\$274.84	\$34.91	\$89.68	60.00%	1.60	10.36%	\$66.72
4	\$234.52	\$429.84	\$357.30	\$45.39	\$116.59	60.00%	1.60	10.36%	\$78.60
5	\$304.88	\$558.80	\$464.49	\$59.00	\$151.57	60.00%	1.60	10.36%	\$92.59
6	\$381.10	\$603.50	\$520.23	\$63.92	\$233.90	50.00%	1.25	10.07%	\$129.81
7	\$457.31	\$651.78	\$582.65	\$63.92	\$324.27	50.00%	1.25	10.07%	\$163.50
8	\$525.91	\$703.92	\$652.57	\$57.53	\$417.03	50.00%	1.25	10.07%	\$191.05
9	\$578.50	\$760.24	\$730.88	\$44.10	\$505.04	50.00%	1.25	10.07%	\$210.20
10	\$607.43	\$821.05	\$818.59	\$24.26	\$580.70	50.00%	1.25	10.07%	\$219.58

The terminal value at the end of year 10 can be calculated based upon the FCFF in year 11, the stable growth rate of 5% and the cost of capital in the stable growth phase –

FCFF in year 11 = FCFF in year 10 * 1.05 = \$ 580.70 (1.05) = \$609.73

Cost of Capital in stable period = 13.00% (0.6) + 8.5% (1-.36) (0.4) = 9.98%

Terminal price = \$ 609.73 / (.0998 - .05) = \$ 12,253.55 millions

The components of value are as follows:

Present Value of FCFF in high growth phase:	\$342.64
Present Value of FCFF in transition phase:	\$914.15
Present Value of terminal firm value at end of transition:	\$4,633.49
Value of LIN Broadcasting :	\$5,890.27
Less: Value of Outstanding Debt :	\$1,806.60
Value of Equity in LIN Broadcasting:	\$4,083.67
Value per share:	\$79.29

What is wrong with this model? (All FCFF Models)

The issues are the same as in the FCFE Models. (See end of sections on two-stage and three-stage FCFE Models)

In addition,

- the value of the firm may be less than value of debt
 - In some cases, this is entirely feasible. The firm is bankrupt.
 - In other cases, this may be because the EBIT is depressed. If this is the case, normalize the EBIT.



Reporting on Environmental Liabilities

Should corporations start preparing for “the greening of GAAP”?

Marie Leone, CFO.com | US

September 9, 2004

Not all companies are disclosing their environmental liabilities as fully as they might. At least that’s the contention of many socially responsible investors (SRIs), the institutional investors and mutual fund groups that screen their portfolio companies for several social and environmental criteria. Some SRIs claim that while many companies comply with the letter of SEC and accounting rules, they fail to embrace the spirit of the law in not providing a full picture of their future liabilities.

Their attempt to focus more attention on such breaches of the legal spirit was bolstered in July, when the Government Accountability Office (formerly the Government Accounting Office) published a 75-page report on the state of corporate environmental disclosures. The study, which sparked partisan reactions from SRIs and corporate executives, didn’t take sides. Rather, the GAO study crystallized the underlying debate, underscoring SEC deficiencies in collecting and monitoring corporate environmental disclosure data.

As a result, SRIs and other like-minded stakeholders are renewing their two-year-old call for changes in generally accepted accounting principles (GAAP). The changes would require companies to disclose detailed estimates of their contingent environmental liabilities, among other things.

Indeed, the advocacy for that point of view has grown formidable. SRIs now represent \$2.2 trillion worth of assets and account for one in every nine dollars under professional management in the United States, according to the Social Investment Forum, a Washington, D.C.-based nonprofit group that promotes socially responsible investing.

The targets of this investor ire are two venerable rules of the Financial Accounting Standards Board, FAS 5 (Accounting for Contingencies) and FIN 14 (Reasonable Estimation of Loss). SRIs see loopholes in the FASB standards that “allow companies to hide the financial significance of environmental problems,” says Tim Little, executive director of the Rose Foundation for Communities and the Environment. (For more, see “[The Greening of GAAP](#).”)

The Greening of GAAP

Are corporations being forthright about their environmental liabilities?

Marie Leone, CFO.com | US

September 9, 2004

On July 21, when New York State Attorney General Eliot Spitzer announced that eight states were filing a law suit against five utilities, Joe Buonaiuto, the senior vice president and controller of American Electric Power Co., was working on his company’s 10-Q.

AEP was one of the five power companies named in the suit, which seeks to force the utilities to cut back on emissions of carbon dioxide, which many scientists believe contributes to global warming.

Two weeks later, when Buonaiuto and chief financial officer Susan Tomasky filed the company’s quarterly report with the Securities and Exchange Commission, the lawsuit was disclosed in the document’s



“significant factors” section, and it will probably be included in the “management’s discussion and analysis” section of the company’s 10-K.

In general, says Buonaiuto, environmental factors are a key reporting focus for AEP, and the company strives for full and fair disclosure in that area. Indeed, AEP’s 10-K lists pages of environmental regulations, policies, and other factors that could affect the utility’s financial performance. The document also details past and current pollution-abatement costs, and it estimates future environmental liabilities — such as \$1.2 billion in capital costs to comply with sulfur dioxide emissions regulations over the next two years, and \$500 million to reduce nitrogen oxide emissions.

But not all companies are interpreting disclosure rules so conservatively. At least that’s the contention of many socially responsible investors (SRIs), the institutional investors and mutual fund groups that screen their portfolio companies for several social and environmental criteria. Some SRIs claim that while many companies comply with the letter of SEC and accounting rules, they fail to embrace the spirit of the law in not providing a full picture of their future environmental liabilities.

The attempt by SRIs to focus more attention on such breaches of the legal spirit was bolstered in July, when the Government Accountability Office (formerly the Government Accounting Office) published a 75-page report on the state of corporate environmental disclosures. The study, which sparked partisan reactions from SRIs and corporate executives, didn’t take sides. Rather, the GAO study crystallized the underlying debate, underscoring SEC deficiencies in collecting and monitoring corporate environmental disclosure data.

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Overwhelmed with Details

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The disclosure issue is a “classic” rules-based versus principles-based accounting argument, according to Jay Hanson, national director of accounting for accountancy McGladrey & Pullen. Hanson posits that on one side, investors want more-precise guidelines to tighten the perceived loopholes in GAAP. On the other side, corporate finance managers seek flexibility in reporting material information, arguing that to provide much more would overwhelm shareholders with useless data.

To be sure, FAS 5 currently provides for a relatively flexible approach. The rule requires companies to disclose environmental contingencies if the liabilities are material to the financial condition of the company; companies must then accrue the estimated cost of the liabilities with a charge to income. But there are caveats. For instance, FASB requires corporations to accrue for the future liabilities only if the cost can be



reasonably estimated and the liability is probable. In cases in which the liability is probable but cannot be estimated, the company needs to disclose only the nature of the liability.

FIN 14, however, pushed for more disclosure. It states that even if a company has only enough information to work up a range of estimates, it's required to disclose that range. Under FIN 14, corporate accountants must accrue either the best estimate in the range, or if that can't be determined, the minimum amount.

With that much flexibility, say experts, some companies chose to accrue as little as possible on the grounds that the minimum amount under FIN 14 was zero. In 1992, 15 years after FAS 5 was released, the SEC decided more guidance was needed and issued Staff Accounting Bulletin 92. The rule warned companies that the cost of environmental remediation was "unlikely" to be zero and that a "known minimum" estimate was required, but SAB 92 didn't make it illegal to report zero or a relatively low estimate.

Accordingly, says Little, companies continued to report lowball estimates. Among other studies, he points to a warning that the SEC's Division of Corporate Finance aimed at Fortune 500 companies. In December 2001, in the wake of the Enron scandal, the commission cautioned a number of oil, gas, mining, and manufacturing companies to properly disclosing environmental and product liabilities. The SEC didn't name the companies or provide a count, only stating that "many companies did not provide adequate disclosure" and that "companies could improve their disclosures required by SAB 92."

Possible Patches

In August 2002, the Rose Foundation — backed by SRI funds representing more than \$1 trillion in assets — petitioned the SEC to adopt rules based on two voluntary best-practice standards proposed by the American Society of Testing and Materials (ASTM). The foundation hoped to tighten — if not altogether close — what it considered to be loopholes in FAS 5, FIN 14, and SAB 92 and to stop companies from wriggling out of detailed disclosure.

One of the two guidelines, ASTM standard E 2137-0 (Standard Guide for Estimating Monetary Costs and Liabilities for Environmental Matters) is a blueprint for using an expected-value methodology to calculate cost estimates of environmental liabilities. Essentially, it's a weighted-average calculation that takes into consideration both the likelihood of a remediation scenario and its cost.

The second, ASTM standard E 2173-0 (Standard Guide for Disclosure of Environmental Liabilities) assumes that users of financial statements would benefit if potential liabilities were expressed in the aggregate because the total would likely be considered material and therefore subject to disclosure rules. None of the GAAP or SEC regulations require that companies aggregate environmental liabilities. But under the ASTM standard, asserts Little, companies would no longer be able to segregate the cost of single-site cleanups into nonmaterial chunks that could be hidden from investors.

The idea that the SEC might adopt anything like these standards has been unpopular with corporate finance departments. A day before the GAO released its study, a 30-company coalition called the Corporate Environmental Enforcement Council issued a comment letter to the SEC outlining its opposition to the Rose Foundation's petition. The council contended, for example, that the petition's call for aggregate disclosures does not ensure that the information would adequately reflect the company's financial condition to investors.

Estimating the potential cleanup costs of 50 or 100 corporate sites (a typical number for a large company) would compound inaccurate guesses and render the information "useless to investors," asserts Ken Meade, an attorney who represents the CEEC.



CEEC companies — which include Alcoa Inc., Coors Brewing Co., General Electric Co., Halliburton Co., and Proctor & Gamble — promote the idea of full disclosure. Company executives, however, believe that the SEC already has adequate tools to enforce environmental liability disclosures. Meade says that the CEEC takes a “don’t fix what’s not broken” attitude, and he maintains that the petition’s rule changes would impose a one-size-fits-all prescriptive framework on SEC rules.

Other experts argue that aggregating individual-site estimates would inaccurately balloon potential liability costs. That’s particularly true in the case of estimating pending lawsuit damages, says senior bond analyst Phil Adams of Gimme Credit Research, since the legal outcomes of future damage claims can be highly uncertain. A company should mention the court case in filings but not gauge the cost of the settlement, he argues.

Further, it’s unreasonable to expect executives to act against their companies’ interests by disclosing a potential outcome of litigation, especially when the policy and politics affecting the outcome are moving targets, he adds. Adams reckons that there’s no way to assigning worth to lawsuit damages before a case is settled, and in the long run “it’s probably only worth a basis point or two on the spread, so there’s nothing actionable for investors to do.”

The CEEC comment letter also highlights a more fundamental argument. The group claims that the Rose Foundation petition “has more to do with driving environmental performance of public companies” than ensuring that investors have accurate and complete information.

Steve Lippman, a senior research analyst with Trillium Asset Management Corp. (whose Website describes the company as a “leader in socially responsible investing”), disputes the CEEC’s claim. Lippman says the idea that “investors who care about environmental issues can’t care about the investment is a specious argument,” particularly when it refers to a very small part of a broader push by investors to unearth more material information.

Lippman doesn’t see a difference between general liability disclosures that require a “fair representation” of a risk and environmental disclosures. “The fact that a risk affects the environment does not mean that the impact is less real,” he says.

The Rising

AEP’s Buonaiuto also favors a straightforward approach to disclosures. The finance executive says that claiming that information is too abundant or complicated to present to investors is no reason to omit information from filings. “It’s incumbent upon the corporation to find a way to disclose complex information in a meaningful way,” contends Buonaiuto.

At the same time, Buonaiuto doesn’t think the FASB or SEC rules need clarification. Rather, he thinks companies can bridge the disclosure gap by thoroughly grasping their own environmental liabilities, then judiciously applying the appropriate accounting rules.

McGladrey & Pullen’s Hanson says the challenge is to strike a balance in the 10-K between too much and too little information about a company’s pollution exposures. He explains that if financial statements are weighted down with frivolous information, the document becomes incomprehensible and irrelevant. Yet if you ask a user of financial statements what they would want to give up, “they invariably say, nothing.”



Hanson, however, shuns the notion of bright-line environmental accounting rules. He likes to cite advice given to him by SEC staffers: a two-page, forthright, numerically uncluttered explanation of a complex issue is worth more than 25 pages of meaningless facts and figures.

In light of the Sarbanes-Oxley Act's apparent mandates of transparency and fair representation in financial reporting, it would seem that the Rose Foundation petition might have garnered a mainstream following. That hasn't happened yet. The issue "has yet to generate a groundswell of support," notes Doug Cogan, deputy director of social issues at the Investor Responsibility Research Council, one of the 30 experts the GAO polled for its study.

However, Cogan sees some headway being made. For instance, sell-side analysts who traditionally have paid little attention to potential environmental liabilities — with the exception of the long-term effects of asbestos litigation — are putting pollution disclosures on their priority list. Recently, officials from 11 international brokerage houses, including Goldman Sachs, ABN AMRO Equities, Deutsche Bank, HSBC, Nikko-Citigroup Japan, and WestLB, noted that their sell-side analysts consider "social, environmental, and corporate governance issues ... relevant to long-term shareholder value."

What's more, on Capitol Hill, senators Jon Corzine (D-N.J.), John McCain (R-Ariz.) Joe Lieberman (D-Conn.), and other lawmakers held a reception for the GAO report at a symposium called "Coming Clean: Corporate Disclosure of Environmental Issues in Financial Statements," which gave a platform to the SEC, the Environmental Protection Agency, the Rose Foundation, and SRIs.

Gimme Credit's Adams says disclosures related to environmental liabilities have always been important to credit analysts, but he stresses that such information is meaningful to him only insofar as it records the liabilities' effects on future free cash flow. As a result, "speculative numbers [such as overblown aggregate estimates] do nothing but make 10-Ks weigh more." Adams, who covers the utility sector, also maintains that he's always found that 10-Ks provide enough information for his analysis.

No Way of Knowing

During their research for the GAO's July report on the state of corporate environmental disclosure, agency staffers examined 27 studies released since 1998 and seriously considered the findings of 15. Perhaps most startling was a 1998 EPA report, which revealed that 75 percent of publicly traded companies that had incurred environmental fines of \$100,000 or more failed to properly disclose them. Omitting such fines from SEC filings is a violation of one of the few bright-line materiality guidelines provided by the commission.

In this year's report, the GAO concluded that the low level of many corporate disclosures was inadequate to determine if the disclosures were, in fact, adequate. A low level of disclosure, noted the agency, could mean one of three things: that a company has no environmental liabilities, that the costs are immaterial, or that the company is hiding information from investors.

The GAO proposed that the SEC create a searchable database of comment letters and company responses (a Website was launched in August); that SEC and EPA staffers work more closely, for example, by matching up EPA data on site-specific violations with the SEC database of parent companies; and that the SEC replace its current paper-based system of company-review memos with an electronic system.

Not groundbreaking proposals — and moving no faster, it seems, than a glacial pace. Indeed, notes the Rose Foundation's Little, the SEC staff has its hands full with Sarbanes-Oxley enforcement, so the commission has yet to establish a timetable for assessing the foundation's own proposal that it adopt the



Business Valuation Basics

ASTM standards — although “they are receptive to hearing comments.” Another drag on the process, says McGladrey & Pullen’s Hanson, is that new Sarbanes burdens have sent corporations “hunting for experienced accounting talent,” so even though the SEC has the budget to hire more accountants, the market is dry.

Nonetheless, says Cogan at the Investor Responsibility Research Council, the stage seems set for SRIs and general investors to turn up the pressure on corporations to disclose their pollution liabilities in greater detail. For both types of investors, he asserts, a robust disclosure policy related to environmental liabilities “is a proxy for good management.”



Valuation of Intellectual Property

Caroline Woodward

PricewaterhouseCoopers, London

How much is the Coca-Cola brand or trademark worth? US\$50 billion? US\$100 billion? In August 2002, in an article in *BusinessWeek*, Interbrand included it in their table of 'The World's 10 Most Valuable Brands' at a value of US\$69.6 billion. How would you check whether you agreed with their assessment?

Despite the fact that intellectual property is frequently bought and sold, the valuation of intellectual property generally attracts a degree of scepticism. This arises principally because there is doubt as to whether the value can be measured reliably. This doubt has certainly held back the recognition of the value of acquired intellectual property in companies' financial statements, particularly when the property has been acquired along with the business that owns it. In such cases, purchasers are often reluctant to place a value in the balance sheet on the intangible assets acquired and prefer to describe the excess of the purchase price over the tangible assets' value as goodwill. Such a view is common in the United Kingdom where the Accounting Standards Board has formally expressed its doubt that intangible assets can be properly valued.

There are many, widely used methods of valuing intellectual property – some of which are more robust than others. Unfortunately, there is a lack of global consensus as to which methods are preferred and this in turn leads to a lack of confidence in the area. However, there are signs of an improvement in that the various accounting standard setters around the world are beginning to indicate what they believe to be acceptable methods of valuation for financial statement purposes. It is to be hoped that this will lead to wider acceptance of these methods as 'best practice' for all purposes.

Valuation methods

Most intangible assets generate premium returns for the business that owns them, either through an increase in revenues or through a reduction in costs. All valuation methods focus on capturing the value of these premium returns. The principal methods of valuation which are deemed to be acceptable to value intellectual property for financial statement purposes are as follows:

- Excess operating profits or premium profits method.
- Premium pricing method.
- Cost savings method.
- Royalty savings method.
- Market approach.
- Cost approach.

Each of these methods, together with their limitations, is discussed briefly below.

Excess operating profits method

The excess operating profits method determines the value of the intellectual property by capitalising the additional profits generated by the business owning the property over and above those generated by similar businesses, which do not have the benefit of the property. There are various ways in which the excess profits may be calculated, for example by reference to a margin differential or comparing the return on capital employed earned by the business owning the property with that earned by companies without



such benefit. The calculated excess operating profits expected to be earned over the life of the asset in question are then discounted to the present day to arrive at a value for the asset.

It is important, if using this method, to ensure that the excess profits identified are specifically attributable to the intangible asset in question and not to some other factor such as an efficient production facility or distribution network that relates to the business as a whole.

A further drawback of this method is that the business with which you seek to compare the subject's margins or return on assets is likely to have some intangible assets of its own which are increasing its own margins and return on assets. It may even have a more efficient production facility. These factors will mask to a certain extent, the apparent excess profits that the subject business is earning and should be taken into account in the valuation.

<i>Common methodologies for valuing frequently encountered intangible assets</i>					
Asset	Valuation method				
	<i>Excess operating profits</i>	<i>Cost savings</i>	<i>Royalty savings</i>	<i>Market approach</i>	<i>Cost approach</i>
Brands	X		X	X	
Customer lists				X	X
Patents	X	X	X		X
Know how	X	X	X	X	X
Franchises				X	X

Premium pricing method

The premium pricing method is a variation on the excess profits method and is often used to value brands in the consumer products sector where it is common for a branded product to be more expensive than an unbranded equivalent. The value of this additional revenue projected over the life of the brand, net of the marketing and other brand support costs incurred to achieve this revenue, and discounted to the present day provide a value for the brand.

A drawback of this method is that it is very difficult these days to find a truly unbranded product. In the food sector, where stores often sell both branded and their 'own label' products, the store's own brand itself has a certain value.

Cost savings method

The cost savings method is fairly self-explanatory and values the asset by calculating the present value of the cost savings that the business expects to make as a result of owning the asset. This is usually as a result of an efficient process or secret technology.

Whilst a business can usually calculate the costs it has saved since it introduced the new process, it can be more difficult to estimate whether a third party would save more or less costs if they introduced the same technology to their own business.

Royalty savings method

The royalty saving method is based on the principle that, if the business did not own the asset, it would have to in-license it in order to earn the returns that it is earning. Alternatively the business could out-license the asset if it did not wish to use it. The value of the asset is calculated based on the present value of the royalty stream that the business is saving by owning the asset.



Whilst this method is popular, its major drawback is that details of royalty rates are rarely made public. Determining an appropriate royalty rate is therefore a key part of a valuation using this approach. An appropriate rate can however be estimated by considering the effective premium profits that are earned by exploiting the asset in question and remembering that each party to a licensing agreement needs to earn a commercial return on their investment.

Market approach

The market approach values the asset based on comparison with sales of similar assets. This is by far the preferred approach of the accounting standard setters. The transaction price, as a ratio of an asset attribute such as sales, is used to derive a market multiple. This market multiple is then applied to the attribute of the asset being valued to indicate the value of the subject asset. As many multiples as possible should be derived eg sales, EBITDA, EBIT. In an ideal world this is the best method as a true 'market value' is available.

In practice, however, the world is not ideal and it can be difficult to find sufficiently detailed publicly available information on sales of similar assets. Nonetheless, this method can usually be applied as a cross check to other methods of valuation using industry rules of thumb and the like.

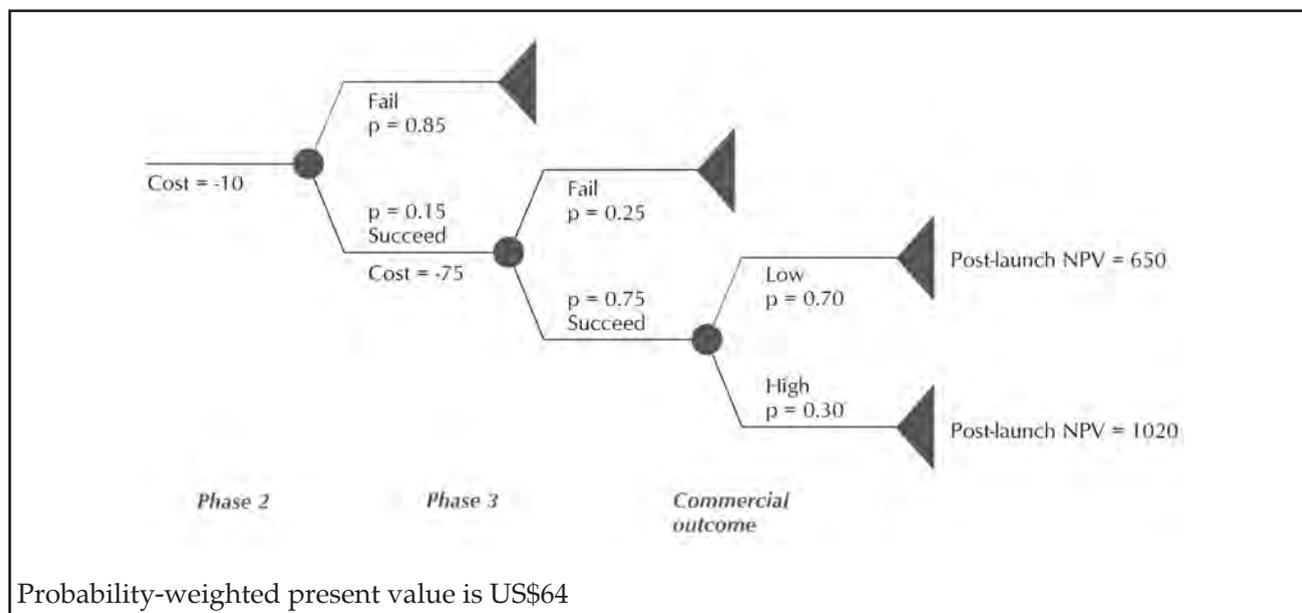
Cost approach

The cost approach values an intangible asset by accumulating the costs that would currently be required to replace the asset. The premise of the cost approach is that an investor would pay no more to purchase the asset than would be paid to reproduce the asset.

Whilst this approach is suitable for some assets, particularly those which are not directly generating income, care should be exercised in choosing this approach as cost is not always a reliable guide to value – think of the vast amounts of money spent on pharmaceutical research projects which come to nothing.

Choosing the appropriate valuation method

Best practice when valuing any asset is to use as many methods as possible to make the conclusion on value robust. However, some of the above methods are more suitable for certain assets than others and there is always the practical limitation of what information is available.





Perhaps the most important guide to your choice of valuation method is to consider how the asset creates value for its owner. Does it generate additional revenues? If so, then a method based on revenues is probably most appropriate. Does it save costs? If so, then a method based on costs saved is probably best. Does it give a competitive advantage without directly generating additional revenues or saving costs? In this case a method based on replacement costs is likely to be the answer.

Dealing with risk

One of the reasons that many people are sceptical about placing a value on intellectual property is that there is usually a greater risk associated with the potential revenues from the exploitation of an intangible asset than from a tangible asset. How can these risks be dealt with in the valuation so that it is reasonable, robust and reliable enough for financial statement purposes?

One way of recognising a normal level of risk that the projected future cash flows will not be achieved is through the discount rate applied to those projections. A typical company operates with a portfolio of assets which each carry different risks although the overall cost of these assets to the company should be no more than its weighted average cost of capital. At the low end are cash and bank balances which are low risk and therefore might be deemed to cost the company only the risk free rate, whilst at the high end is goodwill which is highly risky as it is difficult to explain what benefit this brings to the business and therefore probably 'costs' the company a premium over its cost of capital. The various intangible assets in between carry different levels of risk, for example a well-established brand in the food sector is probably fairly secure and therefore relatively low risk whilst customer relationships in the more volatile mobile telephone industry are less secure and therefore more risky.

Another way to deal with the uncertainty that the future cash flows will not materialise, particularly where there is a higher than usual level of risk, is to use expected cash flows rather than the simple discounted cash flow approach. In the expected cash flow approach, the principal risks associated with the future cash flows are identified and dealt with using a probability approach and option techniques. Thus, for example, estimating the probability of certain events occurring can factor in the impact of the total market being larger or smaller than expected or the impact of competition. This makes the valuation more robust. These techniques have particular relevance in evaluating portfolios of products or applications under development in the pharmaceutical industry. An example of this technique is shown above.

Indeed this latter approach is now considered best practice in the US, particularly in those industries where the risks are generally higher than average such as the pharmaceutical and technology sectors. Earlier this year the American Institute of Certified Public Accountants issued a Practice Aid, which stipulates the approach to be adopted when valuing in-process R&D in these sectors. This Practice Aid is now being treated as best practice for all intangible asset valuations in all sectors.

The Practice Aid states that, whilst valuations of in-process R&D may still be carried out using traditional discounted cash flow techniques; the preferred approach is to use expected cash flows arrived at using decision analysis techniques and probability analysis. The resulting cash flows may then be discounted at a rate close to the cost of capital as the risks are deemed to have been dealt with in the probability analysis. If however the valuer chooses to use traditional techniques, those cash flows are to be discounted at much higher rates, ranging from 30% to 70% to allow for the fact that the risks have not been appropriately considered. Clearly the use of such a high discount rate is only an approximation of the risks involved and should not be relied upon to provide a robust valuation conclusion.

So, can intellectual property be reliably measured?

The answer is yes, provided that the appropriate methodology is selected and properly applied. Oh, and the best way to value the Coca-Cola brand is to use the excess profits method and the royalty savings method and to crosscheck the results using the market approach.

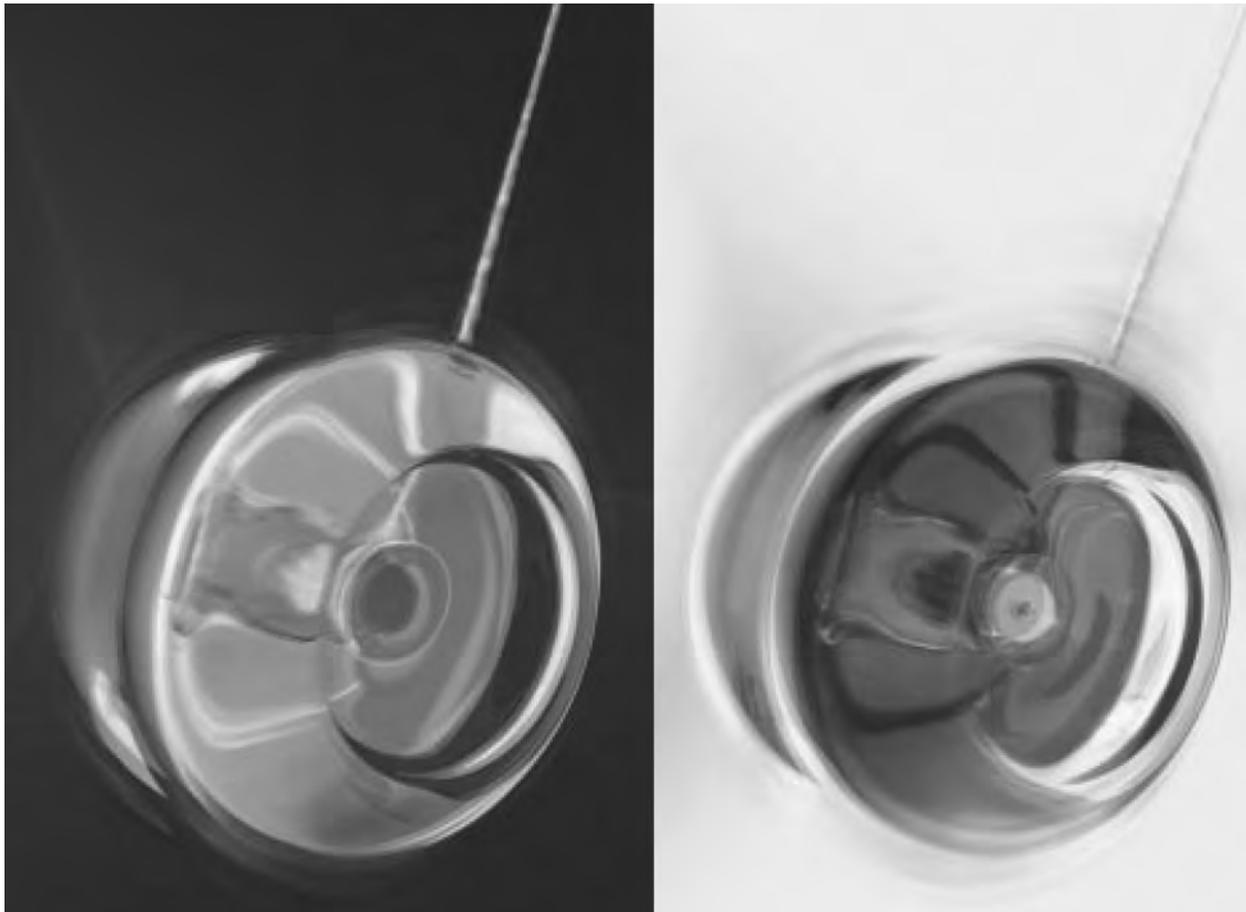


Valuing cyclical companies

Marco de Heer and Timothy M. Koller

Cyclical stocks such as airlines and steel can appear to defy valuation. But an approach based on probability will help managers and investors draw up a reasonable estimate.

Companies in industries prone to significant swings in profitability present special difficulties for managers and investors trying to understand how they should be valued. In extreme cases, companies in these so-called cyclical industries—airline travel, chemicals, paper, and steel, for example—challenge the fundamental principles of valuation, particularly when their shares behave in ways that appear unrelated to the discounted value of their underlying cash flows.



ANTHONY MARSLAND

Marco de Heer, a McKinsey alumnus, works at the Dutch investment bank Kempen & Company;

Tim Koller is a principal in McKinsey's Amsterdam office. This article is adapted from Tom Copeland, Timothy Koller, and Jack Murrin, *Valuation: Measuring and Managing the Value of Companies*, third edition, New York: John Wiley & Sons, to be published in the United States in summer 2000. Copyright © 2000 McKinsey & Company. All rights reserved.

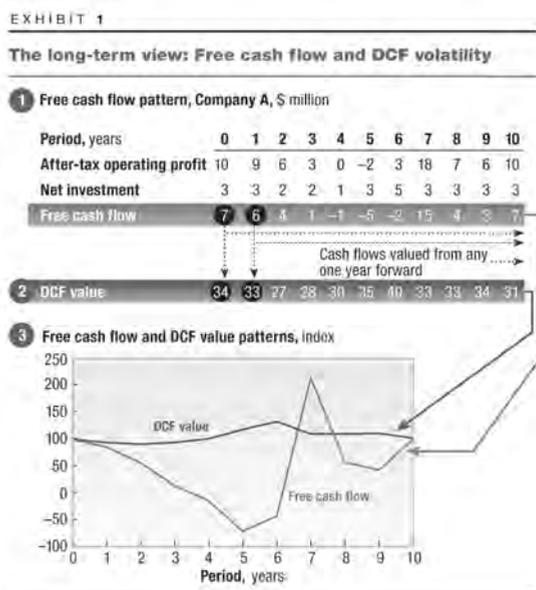
¹See Driek Desmet, Tracy Francis, Alice Hu, Timothy M. Koller, and George A. Riedel, "Valuing dot-coms," *The McKinsey Quarterly* 2000 Number 1, pp. 148–57.



We believe, however, that cyclical operations can be valued using a modified discounted-cash-flow (DCF) method similar to an approach used to value high-growth Internet start-ups¹ First, though, we will explore the under-lying relationships between the cash flows and share prices of cyclical companies, as well as the role securities analysts may well play in distorting market expectations of performance.

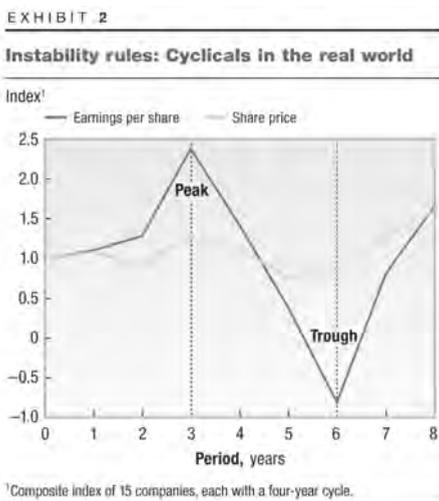
When theory and reality conflict

Suppose that you are using the DCF approach to value a cyclical company and have perfect foresight about its industry cycle. Would you expect the value of the company to fluctuate along with its earnings? The answer is no; the DCF value would exhibit much lower volatility than earnings or cash flow because DCF analysis reduces expected future cash flows to a single value. No individual year should have a major impact on the DCF value because high cash flows cancel out low ones. Only the long-term trend matters.



Company A, for example, has a business cycle of ten years and a highly volatile cash flow pattern that ranges from positive to negative (Exhibit 1, part 1). These cash flows can then be valued on the basis of the forecast from any one year forward. Discounting the free cash flows at 10 percent produces the DCF values in Exhibit 1, part 2. Exhibit 1, part 3, which brings together the cash flows and the DCF value (indexed for comparability), shows that the DCF value is far less volatile than the underlying cash flow. Indeed, there is almost no volatility in the DCF value, because no single year’s performance affects it significantly.

In the real world, of course, the share prices of cyclical companies are less stable. Exhibit 2 shows the earnings and share values (indexed) for 15 companies with four-year cycles. The share prices are more volatile than the DCF approach would predict—suggesting that theory and reality conflict.



Are earnings forecasts the culprit?

How can theory and reality be reconciled? On the assumption that the market values of companies are linked to consensus earnings forecasts, we examined these forecasts for clues.

What we found was surprising: consensus earnings forecasts appeared to ignore cyclicity entirely by almost always showing an upward trend, regardless of whether a company was at the peak or the trough of a cycle. Apparently, the DCF model is consistent with the facts, but the earnings and cash

flow projections of the market are not (assuming that the market followed the analysts’ consensus).

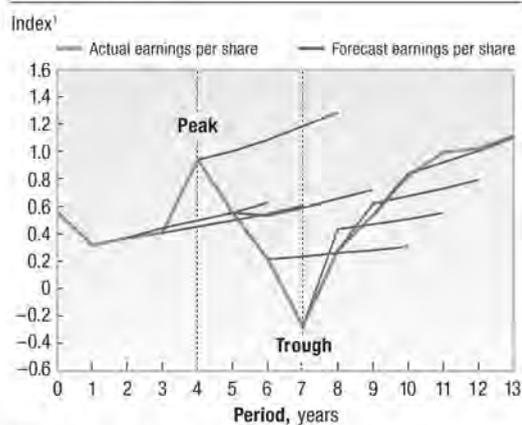


This conclusion was based on an analysis of 36 cyclical companies in the United States between 1985 and 1997. We divided these companies into groups with similar cycles (three, four, or five years from peak to trough, for example) and calculated indexed average earnings and consensus earnings forecasts for each. We then compared actual earnings with forecast earnings over the course of the cycle.²

Exhibit 3 plots the actual and forecast consensus earnings for 15 of the companies in the primary-metals or transportation equipment manufacturing industries. All have four-year cycles. As the exhibit shows, the consensus forecasts don't

EXHIBIT 3

Fact versus fiction



¹Composite index of 15 companies, each with a four-year cycle.

predict the earnings cycle at all. In fact, except for the next-year forecasts in the years at the bottom of the trough, earnings per share are forecast to follow an upward path, with no variation. The forecasts don't acknowledge even the existence of a cycle.³

Academic research has shown that earnings forecasts have a generally positive bias. Sometimes this is attributed to the pressures faced by equity analysts at investment banks.⁴ Analysts might fear that a company subjected to negative commentary would cut off their access, for example, or that a pessimistic forecast about a company that is a client of the bank they work for could damage relations between the two. In light of these worries, it is reasonable to conclude that analysts as a group are unable or unwilling to predict the business cycle for these companies.

The market is smarter

Business cycles, and particularly their inflection points, are hard for anyone to predict. It is not surprising, then, that the market fails to get its predictions exactly right. But we would be disappointed if it failed entirely at the task, as the consensus earnings forecasts do. This takes us back to the question of how the market ought to behave. Should it be able to predict the cycle and thus avoid fluctuations in share prices?

That might be asking too much; at any point, a company or industry could break out of its cycle and move to a new one that was higher or lower (Exhibit 4). Suppose, for example, that you are valuing a company that is apparently at a peak in its earnings cycle. On the basis of past cycles, you would expect the industry to turn down soon, but there might be signs that it was about to break out of the old cycle.

²Note that we had already adjusted downwardly the normal positive bias of analysts' forecasts to focus solely on the issue of cyclicity. See V. K. Chopra, "Why so much error in analysts' earnings forecasts?" *Financial Analysts' Journal*, November–December 1998, pp. 35–42.

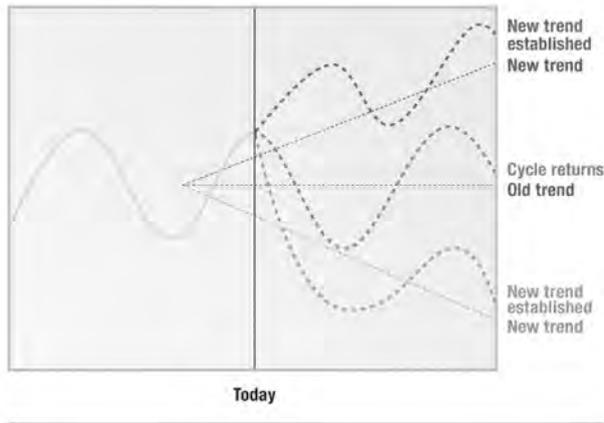
³Similar results were found for companies with three- and five-year cycles.

⁴See M. R. Clayman and R. A. Schwartz, "Falling in love again—analysts' estimates and reality," *Financial Analysts' Journal*, September–October 1994, pp. 66–8; J. Francis and D. Philbrick, "Analysts' decisions as products of a multi-task environment," *Journal of Accounting Research*, Autumn 1993, Volume 31, Number 2, pp. 216–30; K. Schipper, "Commentary on analysts' forecasts," *Accounting Horizons*, December 1991, pp. 105–21; and B. Trueman, "On the incentives for security analysts to revise their earnings forecasts," *Contemporary Accounting Research*, Volume 7, Number 1, pp. 203–22.



EXHIBIT 4

When the cycle changes



In this situation, a reasonable valuation procedure might be to build two scenarios and weight their values. Under the first scenario, you assume, with a 50 percent probability, that the cycle will repeat the past and that the industry will turn down in the next year or so. Under the second, you assume, also with a 50 percent probability, that the industry will break out of the cycle and follow a new long-term trend based on current improved performance. The weighted average of these two values is the company's value. We found evidence that this is in fact the way the market looks at problems of this sort.

We valued the four-year cyclical companies in three ways:

1. With perfect foresight about the upcoming cycle
2. With zero foresight, assuming that current performance represents a point on a new long-term trend (essentially the consensus earnings forecast)
3. With 50 percent perfect foresight and 50 percent zero foresight

Exhibit 5 summarizes the results. As they show, the market follows the path of neither perfect foresight nor zero foresight but, rather, a middle path, closer to 50-50. It could be argued that this is the right place for the market to be.

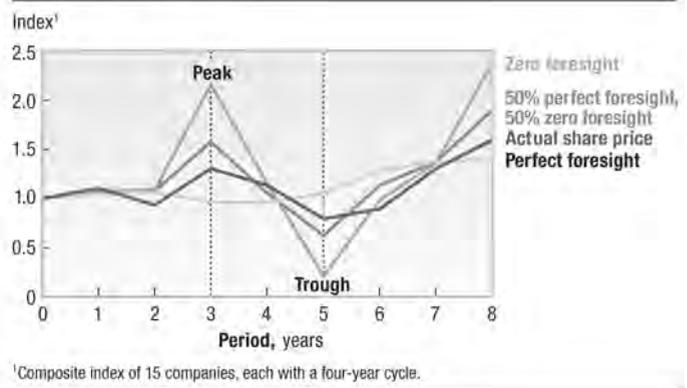
How to value cyclical companies: A cookbook

No one can predict an industry's cycle precisely, and any single forecast of performance has to be wrong. But managers and investors can benefit by explicitly following the probabilistic approach to valuing cyclical companies that is outlined above. This approach avoids the traps of a single forecast and makes it possible to explore a wider range of outcomes and their implications.

The following method of valuing cyclical companies involves creating two scenarios (though it is of course possible to create more than two). This approach provides an estimate of a company's value and scenarios—an estimate that puts boundaries on the valuation. Managers can use the boundaries to think about how they should modify their strategies and possible ways of responding to signals that one scenario was more likely to materialize than another.

EXHIBIT 5

The market is smarter



¹Composite index of 15 companies, each with a four-year cycle.



1. Construct and value the “normal-cycle” scenario using information about past cycles. Pay particular attention to the long-term trend line of operating profits, cash flow, and return on invested capital because this will affect the valuation. Make sure the continuing value is based on a “normalized” level of profits—that is, on the company’s long-term cash flow trend line.
2. Construct and value a “new trend-line scenario” based on recent performance. Again, focus most on the long-term trend line because it will have the greatest impact on value. Don’t worry too much about modeling future cyclicalities, although it will be important for financial solvency.
3. Develop an economic rationale for each scenario, considering factors such as growth in demand, technological changes that will affect the balance of supply and demand, and the entry or exit of companies into the industry.
4. Assign probabilities to the scenarios and calculate their weighted value, basing it on your analysis of the likelihood of the events leading to each of them.

Can managers do anything to reduce cyclicalities or to exploit it? They do, after all, have detailed information about their markets and might thus be expected to do a better job than the stock market at predicting the cycle and reacting appropriately. In our experience, however, managers do exactly the opposite and exacerbate the problem. Cyclical companies often commit themselves to big capital-spending projects just



when prices are high and the cycle is hitting its peak. They then proceed to retrench when prices are low. Some develop forecasts that are quite similar to those issuing from equity analysts: upward sloping, regardless of where in the cycle the company is. In so doing, these companies send the wrong signals to the stock market.

Rather than spreading confusion, managers should learn to exploit their superior knowledge. They could first improve the timing of capital expenditures and then follow up with a strategy of issuing shares at the peak of the cycle and repurchasing them at the trough. The most aggressive managers could take this one step further and adopt a trading approach, acquiring assets at the bottom of the cycle and selling them at the top. In this way, a typical company in a cyclical industry could more than double its returns.

Again, however, theory is at odds with reality. In the real world, companies are reluctant to take the contrarian view. It is hard for a CEO to persuade a company’s board and backers to expand when the outlook is gloomy and to retrench when the future looks good and competitors are building. Instead, companies are quite more likely to act in lockstep with others in their industries and to perpetuate cyclicalities. So while it might indeed be possible for a company to break out of the business cycle, it is a rare CEO who can make this happen. *M*

Q



What are your Employees worth?

June 03, 2005

The Lev & Schwartz (L&S) model for calculating the value of human resources has suddenly become the buzzword in HR circles, courtesy the Infosys annual report for 2004-05.

The software major has opted for the L&S model and valued its 36,570 employees at Rs 28,334 crore (Rs 283.34 billion) -- up from Rs 21,139 crore (Rs 211.39 billion) for 25,634 employees in the previous year.

While Infosys has been grabbing the headlines for this, valuation of human assets isn't unique for Indian companies. The process was started long ago by, believe it or not, public sector companies like Steel Authority of India and Bharat Heavy Electricals Ltd.

The trend caught on with the emergence of knowledge-based industries where human capital is widely considered to be the critical component that forms the basis for other forms of capital.

In an industry where attrition rates are still very high, HR valuation helps the companies know the value they would forego when they are about to lose a person.

Satyam's annual report, for instance, includes intangibles like brand and human resource valuation (based on the L&S model), which account for over 80 per cent of the company assets.

Broadly, there are two approaches to human capital valuation -- cost-based and economic approach. The cost-based approach is further classified into three -- historical cost, replacement cost and opportunity cost. The L&S model along with other methods like Likert, Flamboltz and Jaggi is part of the economic approach.

Though there is little clarity on which of the various human capital valuation models is effective, the L&S model seems to have an edge over others in India.

HR consultants say it gives an opportunity to benchmark the efficiency of their human resources as quite a few Indian companies have adopted this system. Second, the valuation is less subjective as it makes limited assumptions.

So what is the L&S model?

Developed in 1971, it is based on the likely future earnings of an employee till his retirement. L&S advocated the estimation of future earnings during the remaining life of the employee and then arriving at the present value by discounting the estimated earnings at the employee's cost of capital.

Software companies say HR valuation helps companies make investor-friendly disclosures to make them fully aware of the company's human assets. The investors can also assess the return on human capital, which is in essence the return they are getting from people who are managing their wealth/ investment.

There is also no doubt that the HR departments must develop metrics that assess how various programmes and initiatives influence the way individuals or groups operate -- for instance, how much better a particular task is performed, or how much more productive a given workforce is as a result of a specifically targeted programme.

Though there is a broad consensus that identifying and measuring the value of human capital can be a process worth investing in, its acceptance hasn't yet spread much beyond the software industry.



The reason is that most companies still find valuation of intangibles like human resources a cumbersome process. They have a point as HR valuations will be a fruitless exercise unless the performance metrics are carefully assessed by people who are trained to do the job. A half-baked HR valuation process can only be counter-productive.

Also, while most companies recognise that human resources is a key asset and the HR function a strategic partner in their growth, in practice, human resources has difficulty justifying value and continues to be viewed as a cost and the HR function a corporate expense.

What is more worrying is the feeling among a large section of Indian corporates that HR valuations are nothing but public relations gimmicks.

They would do well to answer this question posed by HR consultancy firm, Hewitt: "Your most valuable assets walk out of your office every evening. What would make them come back the next morning?"

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