“Business Valuation in Mergers and Acquisitions”

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Table of Contents

1. Introduction ................................................................. 3
2. Business valuation......................................................... 3

   2.1. Elements of business valuation .................................... 4
       2.1.1. Economic conditions ........................................... 4
       2.1.2. Financial Analysis ........................................... 4
       2.1.3. Normalization of financial statements .................... 4

3. Mergers and acquisitions .............................................. 5

   3.1. Reasons for M&A .................................................... 5
   3.2. Types of mergers and acquisitions ............................... 6
   3.3. Aim of mergers and acquisitions ................................ 7

4. Business valuation in mergers and acquisitions ...... 7

   4.1. Steps in valuation ................................................... 9
       4.1.1. Analyzing Historical Performance ......................... 9
       4.1.2. Estimating The Cost Of Equity Financing ................ 9
       4.1.3. Calculating and Interpreting Results ..................... 9

   4.2. Valuation methodologies, issues and problems ................ 10
       4.2.1. Fair Value ................................................... 12
       4.2.2. Replacement Cost ........................................... 13
       4.2.3. Accounting/Financial Ratios ................................ 15
       4.2.4. Discounted Cash Flow (DCF) ................................ 15
       4.2.5. Discount rate ................................................. 19

   4.3. The M&A Setting ..................................................... 20
       4.3.1. Potential sources of value, skills, capabilities, critical technology ...... 20
       4.3.2. Choosing the proper discount rate in case when one performs a stand-alone analysis on target. ................................................................. 21
       4.3.3. Incorporation the value of synergies in a DCF analysis ..................... 21
       4.3.4. Selecting the appropriate discount rate to value the merger cash flows .... 22
       4.3.5. Computing the value of the equity after determination the enterprise value .......................... 22
       4.3.6. Market Multiples as Alternative Estimators of Terminal Value ........... 23

   4.4. Other Valuation Methods .......................................... 23
       4.4.1. Book value .................................................... 23
       4.4.2. Liquidation value - the sale of assets at a point in time .................. 23
       4.4.3. Replacement-cost value ...................................... 24
       4.4.4. Market value of traded securities ............................ 24
       4.4.5. Goodwill .................................................... 25
       4.4.6. Marriage Value ............................................... 26

5 Conclusions ................................................................. 26

6 References ................................................................. 27
1. Introduction

Mergers and Acquisitions have become a big part of the corporate world, and are among the most strategic and tactical decisions made by companies. Wall Street investment bankers arrange many M&A transactions everyday, which bring separate companies together to form larger ones.

Throughout the last decade, M&A deals have been increasing significantly, while making some scenic news. M&A deals can be worth hundreds of millions, or even billions, of dollars, and may dictate the fortunes of the companies involved for years to come. The future of a company, the career of a CEO, or the value of shareholders shares might be drastically changed. Therefore, any M&A would significantly affect the daily running of the involved companies.

With the current trends of globalization, more and more M&A happened also internationally. Compared to national M&A, international transactions are dealing with more complicated situations, such as culture differences, trading barriers, different national policies, etc.

The main idea of M&A is 1+1=3. To achieve this particular goal, both companies have to be valuated in details before merging. This brings the knowledge if the whole process of M&A is able to be successfully finished, and how high can be expected profit after connection.

This paper defines on the beginning what M&A and business valuation really are. Than it shows the steps for valuation of business before and while M&A. It provides also wide review of methods for business valuation.

2. Business valuation

This is a process and a set of procedures used to estimate the economic value of an owner’s interest in a business. Valuation is used by financial market participants to determine the price they are willing to pay or receive to consummate a sale of a business. In addition to estimating the selling price of a business, the same valuation tools are often used by business appraisers to resolve disputes related to estate and gift taxation, divorce litigation, allocate business purchase price among business assets, establish a formula for estimating the value of partners' ownership interest for buy-sell agreements, and many other business and legal purposes.
2.1. Elements of business valuation

2.1.1. Economic conditions
A business valuation report begins with a description of national, regional and local economic conditions existing as of the valuation date, as well as the conditions of the industry in which the subject business operates. A common source of economic information for the first section of the business valuation report is the Federal Reserve Board’s Beige Book, published eight times a year by the Federal Reserve Bank. State governments and industry associations often publish useful statistics describing regional and industry conditions.

2.1.2. Financial Analysis
The financial statement analysis generally involves:
- common size analysis,
- ratio analysis (liquidity, turnover, profitability, etc.),
- trend analysis
- industry comparative analysis.
This permits the valuation analyst to compare the subject company to other businesses in the same or similar industry, and to discover trends affecting the company and/or the industry over time. By comparing a company’s financial statements in different time periods, the valuation expert can view growth or decline in revenues or expenses, changes in capital structure, or other financial trends. How the subject company compares to the industry will help with the risk assessment and ultimately help determine the discount rate and the selection of market multiples.

2.1.3. Normalization of financial statements
The most common normalization adjustments fall into the following four categories:
- Comparability adjustments.
The valuator may adjust the subject company’s financial statements to facilitate a comparison between the subject company and other businesses in the same industry or geographic location. These adjustments are intended to eliminate differences between the way that published industry data is presented and the way that the subject company’s data is presented in its financial statements.
- Non-operating adjustments.
It is reasonable to assume that if a business were sold in a hypothetical sales transaction (which is the underlying premise of the fair market value standard), the seller would retain any assets which were not related to the production of earnings or price those non-operating assets separately. For this reason, non-operating assets are usually eliminated from the balance sheet.

- Non-recurring adjustments.

The subject company’s financial statements may be affected by events that are not expected to recur, such as the purchase or sale of assets, a lawsuit, or an unusually large revenue or expense. These non-recurring items are adjusted so that the financial statements will better reflect the management’s expectations of future performance.

- Discretionary adjustments.

The owners of private companies may be paid at variance from the market level of compensation that similar executives in the industry might command. In order to determine fair market value, the owner’s compensation, benefits, perquisites and distributions must be adjusted to industry standards. Similarly, the rent paid by the subject business for the use of property owned by the company’s owners individually may be scrutinized.

3. Mergers and acquisitions

3.1. Reasons for M&A

- Size is a great advantage in relation to costs. It assists, therefore, in enhancing profitability, through cost reduction resulting from economies of scale, operating efficiency and synergy. These savings could be in various areas e.g. finance, administration, capital expenditure, production and warehousing.

- A company with good profit record and strong position in its existing line of business, may wish to reduce risks. Through business combination the risks is diversified, particularly when it acquires businesses whose income streams are not correlated.

- It helps to limit the severity of competition by increasing the company's market power where a company takes over the business of its competitor. Thus, the company, conscious of its monopolistic position, may, for instance, raise prices to earn more profit.

- In a number of countries, a company is allowed to carry forward its accumulated loss to set-off against its future earnings for calculating its tax liability. A loss-
making or sick company may not be in a position to earn sufficient profits in future to take advantage of the carry forward provision. If it combines with a profitable company, the combined company can utilize the carry forward loss and saves taxes

- There are many ways in which business combination can result into financial synergy and benefits. This helps in eliminating the financial constraint, deploying surplus cash, enhancing debt capacity and lowering the financial costs.
- Growth is essential for sustaining the viability, dynamism and value-enhancing capability of a company. A company can achieve its growth objectives by expanding its existing markets or by entering in new markets. For instance, if the company cannot grow internally due to lack of physical and managerial resources, it can grow externally by combining its operations with other companies through mergers and acquisitions.
- A business with good potential may be poorly managed and the assets underutilized, thus resulting in a low return being achieved. Such a business is likely to attract a takeover bid from a more successful company, which hopes to earn higher returns.

3.2. Types of mergers and acquisitions

From the perspective of business structures, there is a whole host of different mergers. Types of mergers distinguished by the relationship between the two companies that are merging:

- Horizontal merger - two companies that are in direct competition and share the same product lines and markets.
- Vertical merger - a customer and company or a supplier and company.
- Market-extension merger - two companies that sell the same products in different markets.
- Product-extension merger - two companies selling different but related products in the same market.
- Conglomeration - two companies that have no common business areas.

An acquisition is only slightly different from a merger. In an acquisition, a company can buy another company with cash, stock or a combination of the two. Another type of acquisition is a reverse merger. A reverse merger occurs when a private company that has
strong prospects and is eager to raise financing buys a publicly-listed shell company, usually one with no business and limited assets. The private company reverse merges into the public company, and together they become an entirely new public corporation with tradable shares.

Regardless of their category or structure, all mergers and acquisitions have one common goal: they are all meant to create synergy that makes the value of the combined companies greater than the sum of the two parts. The success of a merger or acquisition depends on whether this synergy is achieved.

3.3. Aim of mergers and acquisitions

One plus one makes three: this equation is the special alchemy of a merger or an acquisition. The key principle behind buying a company is to create shareholder value over and above that of the sum of the two companies. Two companies together are more valuable than two separate companies - at least, that’s the reasoning behind M&A.

Strong companies will act to buy other companies to create a more competitive, cost-efficient company. The companies will come together hoping to gain a greater market share or to achieve greater efficiency. Because of these potential benefits, target companies will often agree to be purchased when they know they cannot survive alone. Except the obvious synergy effect, the other important motives for M&A are:

- operating synergy
- financial synergy
- diversification
- economic motives
- horizontal integration
- vertical integration
- tax motives

4. Business valuation in mergers and acquisitions

The increasing wave in business amalgamations started in the year 2000. Most of the recent mergers and acquisitions are in such areas like:

- the oil and gas,
- textile,
- insurance,
- banking
- conglomerates sectors of the economy.

It is trite knowledge today that the world economy continues to be shaped by the forces of globalization, deregulation, and advancement in technology. All these forces combined tend to break barriers of trade and control and thus, expose the economy to change and competition. Mergers and acquisitions may help to reduce this completion. Then the property must be valued so the conditions of the transfer of the property can be determined.

An example here is an Nigerian case where, The Insurance Act, 2003 increased the minimum paid-up share capital of insurance companies to carry life, general and composite insurance businesses as well as reinsurance business for about 0.4%. Out of the 117 insurance companies 103 were able to meet the minimum capital requirements. All of the 4 reinsurance companies were about to recapitalize. But about 14 insurance companies were unable to meet the capital requirements and they opted for mergers to prevent their operating licenses from being cancelled.

With the present economic situation, some companies are now experiencing serious cash flow problems, and these have made it difficult for them to meet debt obligations to their bankers. Consequently, an increasing number of companies are now faced with receivership and foreclosure threats from their bankers.

Another influence potentially affecting valuations in business combination is the changing structure of corporate land holdings. The increasing realization that property is an asset to be pro-actively managed has implications for both tenure and valuation. This action requires the periodic revaluations to be carried out on the basis of investment holding.

The interest in privatization of publicly held businesses raised issues of pricing of real estate assets that were sold or leased out or acquired or combined with other business entities as part of the privatization.

Business combination is said to add value to the new company more than the physical and financial asset previously owned by the separate entities. To evaluate the benefits, it is important to examine the rationale for the deal, the possible sources of added value and the way that value is assessed and apportioned amongst parties to the deal.

All these factors lead to a strategic importance of valuations in business investment decisions, especially, in merger, acquisition and takeover of companies. A successful merger and acquisition will require the input from various professionals, such as
accountants, stockbrokers, estate surveyors and valuers, lawyers and bankers, etc. These professionals, may be required to advice on issues such as:

- business valuations,
- valuation of assets,
- acquisitions strategies,
- statutory regulations,
- business investigations,
- taxation
- post-acquisition advice

Some of these professionals could also assist in the negotiation process.

4.1. Steps in valuation

4.1.1. Analyzing Historical Performance

- Forecast Performance
  - Evaluate the company’s strategic position, company’s competitive advantages and disadvantages in the industry. This will help to understand the growth potential and ability to earn returns over WACC.
  - Develop performance scenarios for the company and the industry and critical events that are likely to impact the performance.
  - Forecast income statement and balance sheet line items based on the scenarios.
  - Check the forecast for reasonableness.
  - Estimating The Cost Of Capital

4.1.2. Estimating The Cost Of Equity Financing

- CAPM
- The Arbitrage Pricing Model (APM)
- Estimating The Continuing Value

4.1.3. Calculating and Interpreting Results

- Calculating And Testing The Results
- Interpreting The Results Within The Decision Context
4.2. Valuation methodologies, issues and problems

Property (including land and real estate assets) is an essential element of many businesses. It is often used as collateral for borrowing by the owners and is one of the key „factors of production” in most businesses. The value of holding property to the business needs to be measured against the return that the equity could achieve both within the business and elsewhere. Usually, in business decisions including mergers and acquisitions, investors will usually want to review financial statements:

- balance sheet,
- profit and loss account,
- auditors’ and directors’ reports - for the current status and a report on recent history
- business plan

The balance sheet, which in most countries, reflect assets on historical cost concept, is a yearly snapshot of the assets and liabilities of the firm. People turn to the balance sheet for an impression of the firm's general nature, size, and ownership structure: they look to it also for help with more detailed problems of asset strength, liquidity, etc.

**Balance Sheet Model**

<table>
<thead>
<tr>
<th>Current Assets</th>
<th>Current Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Assets</td>
<td>Long-term Debt</td>
</tr>
<tr>
<td></td>
<td>Shareholders’ Equity</td>
</tr>
</tbody>
</table>

Some Key Issues in Corporate Finance:

1. Capital budgeting
2. Capital structure
3. Payout policy
4. Short term finance

The assets of the firm as shown on the left side of the balance sheet include both current and fixed. Fixed assets are those, which last a long time and are durable, such as buildings and plant. Some fixed assets are tangible such as machinery and equipment, others are intangible such as patents, goodwill and trademarks. The other category of assets are
current assets, which have short lives and are intended to be turned into cash. For a property company, the distinction may be between properties held for investment and those which it intends to trade in short term. On the other hand, a company must raise the cash to pay for the assets, and this is shown on the right side of the balance sheet. Claims are sold by firm to its assets in the form of debt (loan agreements) or equity shares liabilities, like assets, are also classified as long or short-term. Short-term debt is a current liability and consists of loans and other obligations, which must be repaid in one year. Long-term debt is that one whose repayment date is more than one year from issue. Shareholder's equity, which represents the net worth of firm, is the difference in value between the assets and debt of the firm and is thus a residual claim. The net worth of a company, as shown below, consists of the capital invested and the retained profit: Total Assets - Total Liabilities - Net Assets (Net Worth).

A balance sheet is simply the tabular representation of these assets and liabilities at a particular point in time. In a nutshell, balance sheet model must provides adequate response to the following questions: In what long-term assets should company invest? How can a firm raise cash for the required capital expenditures? How should the short-term operating cash flow be managed? What is the financial position of a company at a particular point in time? What prospects lie in business combinations from the financial reporting point of view? The information should be comprehensible to those who have a reasonable understanding of business and economic activities in mergers and acquisitions and are willing to study the information with reasonable diligence.

The valuation of the assets and liabilities is difficult for many reasons.

Three accounting models and their sub-models

The net asset position shown on the balance sheet is often based on historical costs and, therefore, does not take into account
subsequent changes in the value and condition of the assets. Resources which once had value, particularly productive assets, might now be valueless because they embody automated technologies.

There is also the problem that some items may be missing from the balance sheet, such as land, certain intangibles, and various liabilities such as pension benefits, post-retirement health-care costs, and contingencies for environmental damage because they were not required to be recorded according to the accounting principles used in the country.

Proponents of value-based accounting models challenge the informational value of the historical cost model and suggest that after acquisition, accounting measurement should continue to express market values. Market value can be expressed either as „replacement cost” or „fair value”, that is, what the sales price for the asset would be.

4.2.1. Fair Value

Fair value of land and real estate assets is the amount for which they could be exchanged between knowledgeable, willing parties in arm's length transaction (International Accounting Standards Board (IASB)). Investment property in companies involved in merger and acquisition is measured at fair value. Gains or losses arising from changes in the fair value of such property are included in net profit or loss for the period in which they arises. In relation to owner-occupied property, it can encompass market value or its surrogate (in the absence of an identified market), depreciated replacement cost (DRC). Fair value is synonymous with the definition of market value given by the International Valuation Standards Committee (FVSC).

According to IASB the market value is “the estimated amount for which an asset should exchange on the date of valuation between a willing buyer and a willing seller in arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion”.

It is stated that the best evidence of fair value is normally given by current prices on an active market for similar property in the same location and condition and subject to similar lease and other contracts. The acquiring and consolidating companies have to take fair value into consideration in their respective negotiation or bargaining positions. Nonetheless, the unique and localized nature of property market including absence of reliable and centralized data bank resulting in wide variation or accuracy in value estimates may mar the adoption of this concept of business value. The inclusion of capital gains or losses (which is inherent in valuations undertaken by valuers)
arising from changes in the fair values in the net profit or loss of the period will have wide ranging effects on the net income or loss of the companies in business combinations. For example, solidity, which is the equity/assets ratio, will increase as the fair value of the investment properties increases, if the fair value model is applied. Again, total equity, (shareholder's equity) which is the sum of restricted equity and the retained earnings will increase tremendously as value changes will be included in the profit. And, volatility in the net income will increase if the fair value model is applied. Fair value is an imprecise term designed to give flexibility to accountants and their corporate clients. This may conflict with the needs of valuers who require specificity in order to give consistent advice.

4.2.2. Replacement Cost
The depreciated replacement cost (DRC) of the buildings and plant including other assets in business combinations would take into account the cost of modern substitutes using modern materials and technology and having the same service capacity - that is, the same output. As earlier reiterated, it is the surrogate figure, not a market - based valuation, used in the absence of a provable value. The advocate of this approach observe that given the continuity of the entity, even in consolidation, absorption or acquisition, the selection of appropriate measure of value for non-monetary assets would have to be based on the distinction between what is essential to the continuance and non-continuance of operations. If any asset or component of an asset is essential to the continuance of operations, it is worth to the entity no more than it would cost to replace the operating capability, which it provides. If it is not essential to operations, it is worth no more than its net realizable value (NRV), equivalent of market value. This method is based on land value plus modern equivalent replacement cost of the building or plant asset, suitably discounted for age and obsolescence. More often than not the value arrived at here may be either of „value to the business” or „value in use”. The International Accounting Standards Board (IASB) definitions for this terms are:
- value to the business – is the recoverable amount is the higher of value in use and net realizable value. Value in use is essentially the „worth” of the property to the business. Net realizable value is, in effect, the same as market value, which would be the equivalent of the contract price in the sale document, but less costs of disposal.
“value-in-use” is entity-specific and, a non-market assessment; it is the present value of estimated cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life.

The IVSC, however, defines the term as “an apportionment of business value of an overall enterprise as allocated between individual assets contributing to that enterprise”.

It is important here to distinguish Existing Use Value (EUV) from the above definitions. EUV is a market-based assessment and assumes a hypothetical occupier, not the actual occupier. Therefore, any special reason for occupation, over and above that which would be recognized in the marketplace, must be disregarded.

The replacement cost method to arrive at EUV of assets of an enterprise is highly favored by valuers in the country. It also meets with the requirement of inflation accounting rather than the use of historical cost concept. Usually, in practice, DRC is a ceiling amount and subject to a test of adequate profitability, both potential and current, as compared with the total capital employed. Unfortunately for those businesses involved mergers and acquisitions in the public sector there is no test of adequate profitability against which to benchmark the DRC. The assets in these businesses are used for non-profit making social benefit objective.

In most cases, it is up to the directors, who may “write down” the valuer's figure, to make this judgment. At this point, the DRC valuation moves away from being a surrogate for a market-based assessment and toward a value in use concept, which may be problematic. Besides, the determination of allowance for depreciation and obsolescence is often based on fairly subjective criteria. It is often difficult to separate how the owner uses and occupies the property from how a hypothetical owner might use it. Also, the argument against the adoption of DRC in the valuation of assets of an on-going entity is that given the assumption of enterprise continuity it does not follow that particular operations of the enterprise are also viable. The continuity of a specific operation is a function of economic factors and is a decision choice in a decision context, which subsumes the present value consideration. And, in respect of a specific operation, the relevant factors to be considered in assessing the viability of that operation, are the services generated by assets, not the assets themselves. This may be true of, especially, assets surplus to company requirement, redundant or investment properties, and, are usually valued on alternative use basis adopting fair value concept.
Either of the fair value or the replacement cost may not work out well for the valuation of goodwill, patents and trademarks.

4.2.3. Accounting/Financial Ratios

The key ratios in financial accounting may be helpful in analyzing the value of business entity in merger and acquisition. This will assist to condense huge amount of data in financial statements into a manageable form in order to measure the company’s performance.

- Profitability Ratios used in analyzing the profitability or return that an enterprise earns on its investments. For example, trading profit as a percentage of turnover, dividend per share, payout ratio which is dividends/earnings, profit before interest and tax as a percentage of average capital employed and, assets per share to assess the asset backing of shares based on the value of the net assets divided by the number of shares,

- Market Value Ratios, which indicate how highly the firm is valued by investors. This consists of the following:
  - Price-earnings ratio (P/E) equal Stock Price over Earnings Per Share.
  - Dividend yield is given by Dividend Per Share divided by Stock Price.
  - Market to book ratio is expressed as Stock Price over Book Value Per Share.

- Leverage ratio is also used to determine how heavily a company is in debt. And, it is done through debt ratios and times interest earned,

- Efficiency ratio measures how productively a company is using its assets by comparing sales (revenue) to assets value.

- Liquidity ratio assesses how easily a company can lay its hand on cash by examining the current ratio (assets).

4.2.4. Discounted Cash Flow (DCF)

In a merger or acquisition, the acquiring firm is buying the business of the target firm, rather than a specific asset. Thus, merger is a special type of capital budgeting technique. What is the value of the target firm to the acquiring firm after merger? This value should include the effect of operating efficiencies and synergy. The acquiring firm should appraise merger as a capital budgeting decision, following the DCF approach. The acquiring firm incurs a cost (in buying the business of the target firm)
in the expectation of a stream of benefits (in the form of cash flows) in future. The cash flows can be determined through profit stream of the affected concern. Thus, merger will be advantageous to the acquiring company if the present value, that is, the fair value, is greater than the cost of acquisition.

The adoption of profit method in determining the cash inflows is regarded as being specialist, with most valuers receiving only nominal training in the method during their formal training.

In other words, the discounted-cash-flow approach in an M&A setting attempts to determine the value of the company (or “enterprise value”) by computing the present value of cash flows over the life of the company. Since a corporation is assumed to have infinite life, the analysis is broken into two parts:

A) a forecast period  
B) a terminal value

A) In the forecast period, explicit forecasts of free cash flow must be developed that incorporate the economic costs and benefits of the transaction. Ideally, the forecast period should equate with the interval over which the firm enjoys a competitive advantage (i.e., the circumstances where expected returns exceed required returns). In most circumstances, a forecast period of five or ten years is used.

The value of the company derived from free cash flows occurring after the forecast period is captured by a terminal value. Terminal value is estimated in the last year of the forecast period and capitalizes the present value of all future cash flows beyond the forecast period. To estimate the terminal value, cash flows are projected under a steady state assumption that the firm enjoys no opportunities for abnormal growth or that expected returns equal required returns following the forecast period. Once a schedule of free cash flows is developed for the enterprise, the Weighted Average Cost of Capital (WACC) is used to discount them to determine the present value. The sum of the present values of the forecast period and the terminal value cash flows provides an estimate of company or enterprise value.

It is important to realize that these fundamental concepts work equally well when valuing an investment project as they do in an M&A setting.
The free cash flows in an M&A analysis should be the expected incremental operating cash flows attributable to the acquisition, before consideration of financing charges (i.e., prefinancing cash flows). Free cash flow equals the sum of NOPAT (net operating profits after taxes), plus depreciation and noncash charges, less capital investment and less investment in working capital. NOPAT is used to capture the earnings after taxes that are available to all providers of capital: i.e., NOPAT has no deductions for financing costs. Moreover, since the tax deductibility of interest payments is accounted for in the WACC, such financing tax effects are also excluded from the free cash flow, which can be expressed as:

$$\text{FCF} = \text{NOPAT} + \text{Depreciation} - \text{CAPEX} - \Delta\text{NWC}$$

Where:
- NOPAT is equal to EBIT \((1-t)\) where \(t\) is the appropriate marginal (not average) cash tax rate, which should be inclusive of federal, state and local, and foreign jurisdictional taxes. Depreciation is non-cash operating charges including depreciation, depletion, and amortization recognized for tax purposes.
- CAPEX is capital expenditures for fixed assets.
- \(\Delta\text{NWC}\) is the increase in net working capital defined as current assets less the non-interest bearing current liabilities.

The cash-flow forecast should be grounded in a thorough industry and company forecast. Care should be taken to ensure that the forecast reflects consistency with firm strategy as well as with macroeconomic and industry trends and competitive pressure. The forecast period is normally the years during which the analyst estimates free cash flows that are consistent with creating value.

The net working capital should include the expected cash, receivables, inventory, and payables levels required for the operation of the business. If the firm currently has excess cash (more than is needed to sustain operations), for example, the cash forecast should be reduced to the level of cash required for operations. Excess cash should be valued separately by adding it to the enterprise value.
In this context, value is created whenever earnings power increases (NOPAT/Sales) or when asset efficiency is improved (Sales/Net Assets). Or, stated differently, analysts are assuming value creation whenever they allow the profit margin to improve on the income statement and whenever they allow sales to improve relative to the level of assets on the balance sheet.

B) Terminal value

A terminal value in the final year of the forecast period is added to reflect the present value of all cash flows occurring thereafter. Since it capitalizes all future cash flows beyond the final year, the terminal value can be a large component of the value of a company, and therefore deserves careful attention. This can be of particular importance when cash flows over the forecast period are close to zero (or even negative) as the result of aggressive investment for growth.

A standard estimator of the terminal value (TV) in the final year of the cash flow forecast is the constant growth valuation formula.

\[
\text{Terminal Value} = \frac{\text{FCF}_{\text{Steady State}}}{(\text{WACC} - g)}
\]

Where:

- \(\text{FCF}_{\text{Steady State}}\) is the steady state expected free cash flow for the year after the final year of the cash flow forecast
- \(\text{WACC}\) is the weighted average cost of capital
- \(g\) is the expected constant annual growth rate of \(\text{FCF}_{\text{Steady State}}\) in perpetuity

One challenging part of the analysis is to generate a free cash flow for the year after the forecast period that reflects a sustainable or “steady state” cash flow. In this context, we define net assets as total assets less non-interest bearing current liabilities or equivalently as net working capital plus net fixed assets. A similar relationship can be expressed using return on capital (ROC).

Since the uses of capital (working capital and fixed assets) equals sources of capital (debt and equity), it follows that RONA (return on net assets) equals ROC (return on capital) and therefore, \(\text{ROC} = \frac{\text{NOPAT}}{(\text{Debt} + \text{Equity})}\).
4.2.5. Discount rate

The discount rate should reflect the weighed average of investors’ opportunity cost (WACC) on comparable investments. The WACC matches the business risk, expected inflation, and currency of the cash flows to be discounted. In order to avoid penalizing the investment opportunity, the WACC also must incorporate the appropriate target weights of financing going forward. Recall that the appropriate rate is a blend of the required rates of return on debt and equity, weighted by the proportion these capital sources make up of the firm’s market value.

\[
\text{WACC} = W_d k_d (1-t) + W_e k_e
\]

where:
- \(k_d\) is the required yield on new debt: it’s yield to maturity
- \(k_e\) is the cost of equity capital.
- \(W_d, W_e\) are target percentages of debt and equity (using market values of debt and equity)
- \(t\) is the marginal tax rate.

The costs of debt and equity should be going-forward market rates of return. For debt securities, this is often the yield to maturity that would be demanded on new instruments of the same credit rating and maturity. The cost of equity can be obtained from the Capital Asset Pricing Model (CAPM):

\[
k_e = R_f + \beta (R_m - R_f)
\]

where:
- \(R_f\) is the expected return on risk-free securities over a time horizon consistent with the investment horizon. Most firm valuations are best served by using a long maturity government bond yield.
- \(R_m - R_f\) is the expected market risk premium. This value is commonly estimated as the average historical difference between the returns on common stocks and long-term government bonds.
- \(\beta\) is beta, a measure of the systematic risk of a firm’s common stock. The beta of common stock includes compensation for business and financial risk.
Debt for purposes of the WACC should include all permanent, interest-bearing debt. If the market value of debt is not available, the book value of debt is often assumed as a reasonable proxy. This approximation is more accurate the shorter the maturity of the debt and the closer the correspondence between the coupon rate and required return on the debt.

4.3. The M&A Setting
On the very beginning of setting of M&A it should be recognized that there are two parties (sometimes more) in the transaction: an acquirer (buyer or bidder) and a target firm (seller or acquired). Suppose a bidder is considering the potential purchase of a target firm and we are asked to assess whether the target would be a good investment.

4.3.1. Potential sources of value, skills, capabilities, critical technology
Potential sources of gain or cost savings achieved through the combination are called synergies. Baseline cash-flow projections for the target firm may or may not include synergies or cost savings gained from merging the operations of the target into those of the acquirer. If the base-case cash flows do not include any of the economic benefits an acquirer might bring to a target, they are referred to as stand-alone cash flows. Examining the value of a target on a stand-alone basis can be valuable for several reasons.

First, it can provide a view of what the target firm is capable of achieving on its own. This may help establish a floor with respect to value for negotiating purposes. Second, construction of a stand-alone DCF valuation can be compared to the target’s current market value. This can be useful in assessing whether the target is under or over valued in the market place. However, given the general efficiency of markets, it is unlikely that a target will be significantly over or undervalued relative to the market. Hence, a stand-alone DCF valuation allows analysts to calibrate model assumptions to those of investors. By testing key assumptions relative to this important benchmark, analysts can gain confidence that the model provides a reasonable guide to investors’ perception of the situation.
4.3.2. Choosing the proper discount rate in case when one performs a stand-alone analysis on target.

If the target is going to be run autonomously on a stand-alone basis, the most appropriate cost of capital is the WACC of the target firm. In this instance, the business risk investors bear as a result of this transaction is the risk of the target’s cash flows. The use of the target’s WACC also assumes that the target firm is financed with the optimal proportions of debt and equity and that these proportions will continue postmerger. One way to estimate the target’s WACC is to compute the WACCs of firms in the target’s industry and average them (or rely on the median WACC). By using the betas and financial structures of firms engaged in this line of business, a reliable estimate of the business risk and optimal financing can be established going forward.

Less frequently, an acquirer may intend to increase or decrease the debt level of the target significantly after the merger - perhaps because it believes the target’s current financing mix is not optimal. The WACC still must reflect the business risk of the target.

4.3.3. Incorporation the value of synergies in a DCF analysis

Operating synergies are reflected in enterprise value by altering the stand-alone cash flows to incorporate the benefits and costs of the combination. Free cash flows that include the value an acquirer and target can achieve through combination and are referred to as combined or merger cash flows. If the acquirer plans to run the acquired company as a stand-alone entity, there may be little difference between the stand-alone and merger cash flows. However, in many strategic acquisitions, there can be sizeable differences. Moreover, how the value of these synergies is split between the parties through the determination of the final bid price or premium paid is a major issue for negotiation. If the bidder pays a premium equal to the value of the synergies, all of the benefits will accrue to target shareholders, and the merger will be a zero net-present value investment for the shareholders of the acquirer. The premium paid is usually measured as the (bid price for each share-market price for target shares before the merger) market price for target shares before the merger.
4.3.4. Selecting the appropriate discount rate to value the merger cash flows
While going through this point it is useful to consider two scenarios: one where the target and acquirer are in the same industry and one where they are in different industries.

If the target and acquirer are in the same industry, then it is likely that they have similar business risk. Since in principle the business risk is similar between the target and the acquirer, either’s WACC may be justifiably used.

If the target and acquirer are in different industries, their business risks are not likely to be the same (e.g., suppose a pharmaceutical company buys an airline). Because business risk is different, their assets, collateral, and debt-paying abilities are also likely to differ. This suggests that an acquirer, in order to realize the maximum value from the transaction, will be motivated to finance the target in a manner that is optimal for the target. In these cases, the WACC should reflect the business risk and financing of the target going forward.

4.3.5. Computing the value of the equity after determination the enterprise value
This is straightforward calculation that relies upon the definition of enterprise value as the value of cash flows available to all providers of capital. Since debt and equity are the sources of capital, it follows that enterprise value (V) equals the sum of debt (D) and equity (E) values:

\[ V = D + E \]

Therefore, the value of equity is simply enterprise value less the value of existing debt:

\[ E = V - D \]

where debt is the market value of all interest-bearing debt outstanding at the time of the acquisition.

The circumstances of each transaction will dictate which of these approaches is most reasonable.

Of course, if the target’s business risk somehow changes because of the merger, some adjustments must be made to all of these approaches on a judgment basis. The key concept is to find the WACC that best reflects the business and financial risks of the target’s cash flows.
4.3.6 Market Multiples as Alternative Estimators of Terminal Value

Given the importance attached to terminal value, analysts are wise to use several approaches in estimating terminal value. A common approach is to estimate terminal value using market multiples derived from information based on publicly traded companies. The logic behind a market multiple is to see how the market is currently valuing an entity based on certain benchmarks related to value rather than attempting to determine an entity’s inherent value. The benchmark used as the basis of valuation should be something that is commonly valued by the market and highly correlated with market value. For example, in the real estate market, dwellings are frequently priced based on the prevailing price per square foot of comparable properties. The assumption made is that the size of the house is correlated with its market value.

4.4 Other Valuation Methods

In literature the DCF method is quite detailed described, but it should be also known, that there are other methods that provide useful complementary information in assessing the value of a target.

4.4.1 Book value

May be appropriate for firms with no intangible assets, commodity-type assets valued at market, and stable operations.

Limits to this method:

- This method depends on accounting practices that vary across firms.
- Ignores intangible assets like brand names, patents, technical know-how, and managerial competence.
- Ignores price appreciation due, for instance, to inflation.
- Invites disputes about types of liabilities.
- Book value method is backward looking. It ignores the positive or negative operating prospects of the firm and is often a poor proxy for market value.

4.4.2 Liquidation value - the sale of assets at a point in time.

May be appropriate for firms in financial distress, or more generally, for firms whose operating prospects are very cloudy. Requires the skills of a business mortician rather than an operating manager.
Limits to this method:
- Difficult to get a consensus valuation. Liquidation values tend to be highly appraiser specific.
- Physical condition, not age, will affect values. There can be no substitute for an on-site assessment of a company’s real assets.
- May ignore valuable intangible assets.

4.4.3 Replacement-cost value
In the 1970s and early 1980s, during the era of high inflation in the United States, the Securities and Exchange Commission required public corporations to estimate replacement values in their 10-K reports. This is no longer the case making this method less useful for U.S. firms but still is useful for international firms where the requirement continues.

Often cited to explain the merger wave of 1970s and early 1980s. Since stock market values tended to be less than replacement cost, buyers seemed to be realizing “bargain prices”, “It’s cheaper to buy than build.” This seems unlikely to be an explanation for the merger boom of the 1990s.

But comparisons of replacement costs and stock market values ignore the possible reasons for the disparity: overcapacity, high interest rates, oil shocks, inflation, etc. Replacement cost estimates are not highly reliable, often drawn by simplistic rules of thumb. Estimators themselves (operating managers) frequently dismiss the estimates.

4.4.4 Market value of traded securities
- Most often, this method is used to value the equity of the firm (E) as stock price × outstanding shares. It can also be used to value the enterprise (V) by adding the market value of debt (D) as the price per bond × number of bonds outstanding.
- Helpful if the stock is actively traded, followed by professional securities analysts, and if the market efficiently impounds all public information about the company and its industry. Rarely do merger negotiations settle at a price below the market price of the target. On average, mergers and tender offers command a 30% to 50% premium over the price one day before the merger
announcement. Premiums have been observed to be as high as 100% in some instances. Often the price increase is attributed to a “control premium.” The premium will depend on the rarity of the assets sought after and to what extent there are close substitutes for the technology, expertise, or capability in question, the distribution of financial resources between the bidder and target, the egos of the CEOs involved (the hubris hypothesis), or the possibility that the ex ante target price was unduly inflated by market rumors.

- Less helpful for less well-known companies with thinly or intermittently traded stock.
- Not available for privately held companies.
- Ignores private information known only to insiders or acquirers who may see a special economic opportunity in the target company. Remember, the market can efficiently impound only public information.

Since the market price of a bond is frequently close to its book value, the book value of debt is often used as a reasonable proxy for its market value. Conversely, it is rare that book value per share of equity is close enough to its market price to serve as a good estimate.

4.4.5 Goodwill

The assets of a going concern usually include goodwill, that is, the reputation a business enjoys with its customers, which gives the business value over and above the value of its physical assets. In acquisition and merger by absorption, where an existing company completely takes over another one, the inherent goodwill which is attached to the name and reputation of the business is usually valued by accountants using either super-profit method or total capitalization method.

While the super-profit method depends on the ability of the business to earn a rate of profit in excess of the 'normal' rate based on the balance sheet value of the net tangible assets, in total capitalization method, the total net profit is capitalized and the value of the tangible assets is deducted there from leaving the balance sheet value of the goodwill.

On the other hand, in a merger by consolidation where a new company emerges, the discounted momentum value is recommended since the benefits to be gained from purchasing goodwill fail as that goodwill gradually ceases to exist, while other benefits are gained from new goodwill created by the new company.
4.4.6 Marriage Value

A merger will make economic sense to the acquiring firm if its shareholders benefit. Thus, considerable entrepreneurial effort is devoted to creating and adding value; one firm may take over another believing that the combined firm will be more valuable than the two separate entities. Similarly a real estate developer may assemble, through a series of discrete purchases, a site that can yield additional value when developed as an entity. Within the area of valuation, this is referred to as „marriage value” or „abutter/enhancement value”. This situation reflects the recognition that by combining or recombining two assets - legally or physically - it may be possible to create a third asset that is more valuable than the sum of parts. Perhaps, the economic advantage represents the benefits resulting from operating efficiencies and synergy when two firms merge.

Valuation of marriage or enhancement value, though difficult in practice, may involve several steps: identification of the value created or abutters, before - and - after analysis of the potential for marriage value or enhancement value in merger and acquisition, and reporting of the conclusion to the acquiring and acquired firm respectively. Enhancement or marriage value is the amount by which the value of a property is increased through assemblage of another property into the same ownership. This is distinct from market value in that it is an additional amount that may be fully achieved in the event that the advantage in negotiation goes entirely to the owner of the subject.

For example, if the acquiring firm pays the value of the acquired firm, then the entire advantage of marriage value in merger will accrue to the shareholders of the acquiring firm. In practice, the acquiring and the acquired firm may share the economic advantage between themselves. Nonetheless, it depends on each party's negotiation and bargaining position or strength. And, property valuers must, on continual basis, sharpen their skills to meet the needs of corporate clients in this regard.

5 Conclusions

Worlds market changes very fast. Each day a lot of companies are launched and closed at the same time. They supply thousands of different types of product and services. During the lifecycle of each company they have to improve their quality, fight with their
competitors and, of course, get high profit. Nowadays companies are connecting with each other, to be bigger, to be able to achieve new goals. There is description of mergers and acquisitions as possibilities of connection between two or more companies or organizations in article above. These can be done on national or international area. It is easier to survive on the market when the company has more resources and capital than other company. To make an M&A successfully it should be fulfilled long list of different criteria.

This paper summarizes information on how corporate business entity can be valued for mergers and acquisitions. It shows what business valuations really is, and how it is used while mergers and acquisitions. There are shown steps for M&A and for valuating businesses before doing M&A. After analyze of several method of valuation it is now more explicit that knowledge of valuer is important and has to be wide and up to date, to achieve the concrete goal.

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