12

*dr. Andrej Bertoncel*
*Carynthia Group Ltd., Trzin*
*Institute for Business Growth and Creativity, Ljubljana*

# ACQUISITION VALUATION: HOW TO VALUE A GOING CONCERN?

## Vrednotenje prevzema: kako vrednotiti delujoče podjetje?

*Abstract*

UDC: 334.758.2(035)

Acquisitions too often do not create value for acquirers. One of the reasons is that acquiring companies often pay too much for targets. It is important not to pay more than the real worth that targets bring to acquiring companies. It is referred to as worth rather than acquisition price in absolute term, meaning that the difference between intrinsic value and acquisition price should be justified with realistic estimation of synergy and control. Combination of two valuation approaches, discounted cash flow method using perpetual growth and EBITDA exit multiple principles, and comparables method applying EBITDA multiple, is explored for valuing going concerns. When numbers do not add up, acquirers should pass up contemplated acquisitions.

*Key words:* acquisition valuation, going concern, discounted cash flow valuation, relative valuation, acquisition value

*Izvleček*

UDK: 334.758.2(035)

Prevzemi pogosto ne ustvarijo vrednosti za prevzemne družbe. Eden izmed razlogov je, da prevzemne družbe preplačajo ciljne družbe – tarče. Pomembno je, da prevzemne družbe ne plačajo več od vrednosti tarč z vidika dejanske vrednosti in tudi ne prevzemne cene v absolutnem znesku. Razlika med notranjo vrednostjo in prevzemno ceno mora biti upravičena z realno oceno kontrolne vrednosti in sinergije. Kombinacija dveh načinov vrednotenja – metode diskontiranja prihodnjih denarnih donosov z uporabo pristopov stalne rasti in izhodnega multiplikatorja EBITDA ter metode na podlagi kazalcev z uporabo multiplikatorja EBITDA – je obravnavana z vidika delujočih podjetij. Kadar je prevzemna cena previsoka, naj prevzemne družbe raje opustijo prevzemne priložnosti.

*Ključne besede:* vrednotenje prevzema, delujoče podjetje, vrednotenje na podlagi diskontiranega denarnega toka, vrednotenje na podlagi kazalcev, prevzemna vrednost

JEL: G 34

### 1 Introduction

The process of valuation is crucial and central to acquisitions. It is a common understanding that every asset, financial as well as real, has a value. In principle, any asset can be valued, but some assets are more difficult to value than others. For successful investing, the value and also sources of the value are important and need to be considered.

Acquisition valuation as a formal process is still relatively young and new methods are constantly being developed in the world of business valuations. Professional valuation practitioners, who provide acquisition valuation services, use a wide array of valuation models. They range from simple to very sophisticated.

Regardless of the valuation methods used, valuation practitioners all face uncertainty associated either with assets being valued or with valuation models themselves. To some people, like the famous Oscar Wilde, who described a cynic as a person that »knows the price of everything, but the value of nothing,« the value of an asset is not important as long as one can find a bigger »fool« to whom to sell that asset. In today's world this may prove to be a big hazard and we would rather stay with a firmer foundation of rational investing. It teaches us not to pay more for an asset than it is worth, although a discussion on valuation can be made philosophical in nature by arguing the assumptions (Vaid, 2002).

Objectives of valuation can be very different, but the primary objective of a monetary appraisal is determination of a numerical result either as a range or most probable point magnitude – i.e. the euro amount of a value (Fishman et al., 2004). The numerical result has to be independent and unrelated to the desires of a company which calls upon the professional valuation practitioner to perform the valuation work (Fishman et al., 2004). Therefore, objectivity in valuation is strictly required from the appraisers.

Acquisition valuations are complex, as they include a valuation of synergy and control. They go beyond just valuing an asset – i.e. a target company. The value of a target company at a given point in time can be defined as the expected payout value (Vaid, 2002).

### 2 Acquisition Valuation Sequence

Like any other analysis, acquisition analysis should follow a sequence of steps. A valuation should play a central role in the acquisition analysis. Bidding companies have to determine the fair market value for targets before making their bids, and the same has to be done by targets themselves before accepting or rejecting offers. Thus, valuation helps determine the exit value.

Several steps are involved in an acquisition valuation:

- Define acquisition rationale,
- Select a target company,
- Perform a comprehensive due diligence,
- Define synergies and restructuring costs,

- Define control premium,
- Value a target,
- Define a mode of payment – cash or stock.

There are two main motives for takeovers:

- Strategic motives,
- Financial motives.

In the literature, different theories for defining takeover motives are encountered. We refer to the following three theories:

- Efficiency theory,
- Incapable management theory,
- Undervalued target theory.

A common reason for acquisitions are undervalued targets, obviously by those who recognize that in time and often due to asymmetric information. Another rationale for acquisitions is incapable management of badly run target companies or self-interest and ego. Managers and their characteristics, in our view, represent the key success factor for companies, for good and for bad. On the other hand, getting a successful management team (»winners«) can be a good enough reason for buying a target company.

The odds of achieving organizational success after takeovers are not good. That alone makes a strong case for comprehensive due diligence of targets as a very important component in the acquisition process. Professionally conducted due diligence is a source of information that will enable the valuation practitioner to make informed decisions about acquisition valuation throughout the process.

The primary reasons for many takeovers are synergies, either financial or operating, which provide additional value from a combined company. According to the theory, a combined business should provide higher revenues and/or lower operational costs (»one plus one is more than two«). The value of a combined company should be greater than the value of previously independently operated companies. Thus, synergy has to be considered in quantitative terms and not in qualitative terms such as »strategic reasons.« The improvement increments, such as cost savings, higher growth, and debt capacity, should be determined in measurable units. Companies have to make changes that produce gains against other firms. The overstated synergies create over-optimistic expectations and over-estimation of the target value, which is called the »synergy trap« (Sirower, 1997). This is even more so in hostile takeovers.

## 3 Acquisition Valuation Premises and Concepts

Acquisition valuation is the process of determining the value of a business enterprise or ownership interest therein.

The methodology of acquisition valuation is based on three fundamental premises (Fishman et al., 2004):

- Acquisition value is equal to the present worth of the future benefits of ownership,
- Value is not always a single number,
- Value is based on a specific point in time.

A rational buyer will purchase an asset only if the actual value of future incomes expected from that asset, discounted to present value, is equal or higher than the purchase price. On the opposite side, a rational seller will not sell an asset if future incomes expected from that asset discounted to present value are greater than the offered price.

There is no single, correct value. Forecasting future events is subjective in nature because of an embedded uncertainty and cannot be measured with safety. That is the reason why estimated values are expressed as either a single monetary amount (e.g. in euros) or a range (from – to). Estimations of value are based upon the information at hand on a certain day – the effective date of the appraisal.

In takeover process, acquirers have to decide upon the following key questions:

- What is the fair market value of a target?
- What price to offer?
- When to place the offer?

Obviously, the offered price is a very important decision factor but not necessarily the only one for deal making or deal breaking. In any case, buyers should know what maximum price they are willing to pay for target companies.

Value is an imprecise term because it varies with the situation (Fishman et al., 2004). Hereafter, we provide some basic definitions of value that are stated in acquisition valuations (Eccles et al., 1999):

- Intrinsic value,
- Market value,
- Synergy value.

Intrinsic value is the value based on comprehensive analysis and judgment of a target »as is,« independent of any control change, and is most often expressed as the present value of all expected future cash flows to be derived from the business, discounted to the present at an appropriate discount rate. The term refers to the »true« or »real« value of a target company.[1]

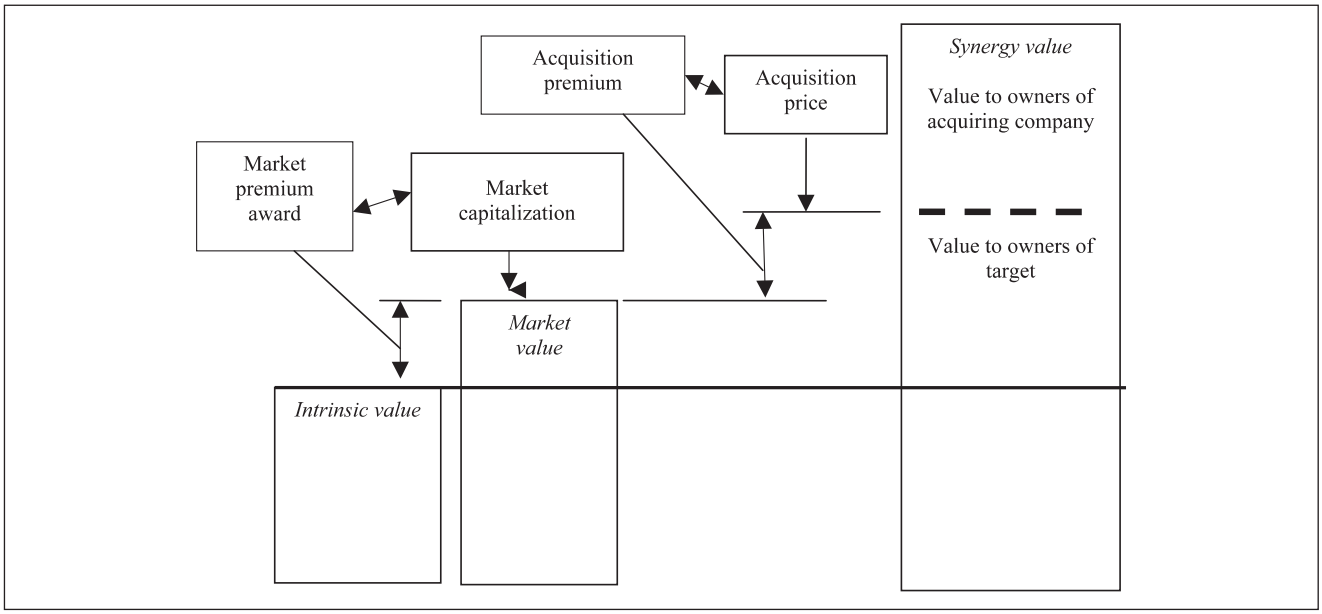
Market value is the amount at which a target is valued by the market when not under pressure for change of control and there is reasonable knowledge of relevant facts about a target company. It is higher than the intrinsic value of a company because it includes »market premium« – anticipation of a possible takeover in the future. In case of a joint stock company, the market value of such a company is the current share price multiplied by outstanding shares. The term commonly used is market capitalization.

Synergy value is a notion of investment value. It refers to the target's value as a going concern and it takes into consideration all positive synergistic effects arising from a combined company.

Acquisition price is the result of negotiations between a buyer and a seller and it is the price where the expectations

[1] For more, see ASA Business Valuation Standards, 2002, p. 25.

Figure 1: *Value sharing among shareholders of acquiring company and target*




*Source:* Adapted after Eccles et al., 1999, p.52.

of both parties meet. The acquisition price refers to a negotiated final price, which is rarely equal to either intrinsic value or market value, as it includes the so-called acquisition premium.

For this reason, acquirers have to define how big a »reward«, i.e. acquisition premium, they are willing to pay to the owners of target companies, meaning they have to know the exact synergy value as well as what portion of the synergy value they are willing to share with shareholders of target companies. Hence, the acquisition price can be seen as an allocation of certain future benefits to owners of the target company. Obviously, the acquirers' desire is to retain as much synergy value (future benefits) as possible for their shareholders.

In practice, different valuation methods have evolved for estimating the targets' value. They are based on three approaches to valuation.

The three valuation concepts[2] are (Fishman et al., 2004):

- Income concept,
- Market concept,
- Cost concept.

Figure 2: *Valuation concepts, approaches and methods*

| *Concept* | *Approach* | *Method* |
|---|---|---|
| Income | Discounting | Discounted cash flow valuation |
| Market | Comparables | Relative valuation |
| Cost | Underlying assets | Asset valuation |

*Source:* Adapted from Fishman et al., 2004 and Damodaran, 2002.

## 4 Discounted Cash Flow Valuation

The income concept is a general way of determining a value indication of a going concern[3] through which appraisers discount future cash flows (earnings) from forecasted operations to their present value, including a residual value of the target at the end of an explicit period (the last year of the forecasted period).

We argue that the asset-based approach should not be considered in a going concern valuation and therefore no further reference to the cost concept is made. We argue further that the market approach can be a general way of determining a value indication of a going concern in acquisition valuation by comparing such a target to comparable companies. Multiples, such as the EBITDA multiple, can be usefully applied for gauging residual value in discounted cash flow valuation.

While discounting is one of the three approaches to valuation, we argue that it is most frequently used in practice and is the foundation on which we build our acquisition valuation model.

From the time perspective, discounted cash flow (DCF) valuation of going concerns separates free cash flow forecasting into two categories: initial period of explicit forecast, and residual value of a going concern at the end of that period. Going concerns would normally operate beyond the explicit period for which it is possible to make a discrete (reasonably accurate) cash flow forecast. The residual value of a business as of the end of a discrete projection period is critical to value and is established on the basis of perpetual growth assumptions of future cash flows.

[2] The three approaches to value refer to early valuation theory based on asset valuation methodology. In business valuation theory, they are referred to as three concepts.

[3] Going concern is an ongoing operating business enterprise (ASA Business Valuation Standards, 2002, p.25).

Table 1: *Pro-forma financials of a hypothetical »TARGET« in a stand alone case*

| in € | *Actual* | *Projections* | | | | |
|---|---|---|---|---|---|---|
| | *2004* | *2005* | *2006* | *2007* | *2008* | *2009* |
| Net sales | 40,281,495 | 47,532,164 | 52,285,380 | 56,468,210 | 59,856,303 | 63,447,681 |
| Total cost of sales | 36,292,719 | 42,921,544 | 47,213,698 | 50,990,794 | 54,050,242 | 57,293,256 |
| Gross profit | 3,988,776 | 4,610,619 | 5,071,681 | 5,477,416 | 5,806,061 | 6,154,425 |
| Cost of material & services | 783,267 | 808,046 | 836,566 | 903,491 | 957,701 | 1,015,162 |
| Labor costs | 1,413,639 | 1,498,457 | 1,588,364 | 1,683,666 | 1,784,686 | 1,891,767 |
| Total Selling expenses | 2,196,906 | 2,306,504 | 2,424,930 | 2,587,158 | 2,742,387 | 2,906,930 |
| Other expenses - Depreciation | 341,925 | 436,989 | 541,561 | 654,496 | 774,209 | 901,104 |
| Operating income | 1,449,945 | 1,867,126 | 2,105,190 | 2,235,761 | 2,289,464 | 2,346,389 |
| Normalized Oper. income | 1,449,945 | 1,867,126 | 2,105,190 | 2,235,761 | 2,289,464 | 2,346,389 |
| Interest&other fin. expense | 484,391 | 475,321 | 522,853 | 564,682 | 598,563 | 634,476 |
| Interest&other fin. income | 390,183 | 350,549 | 385,604 | 416,453 | 441,441 | 467,926 |
| Earnings bef. taxes | 1,375,573 | 1,742,354 | 1,967,941 | 2,087,532 | 2,132,341 | 2,179,839 |
| Income taxes | 316,001 | 435,588 | 491,985 | 521,883 | 533,085 | 544,959 |
| Net income | 1,059,573 | 1,306,765 | 1,475,956 | 1,565,649 | 1,599,256 | 1,634,879 |
| Cash | 40,591 | -23,154 | 473,773 | 1,328,732 | 2,413,577 | 3,795,613 |
| Receivables | 3,490,678 | 4,133,231 | 4,546,554 | 4,910,279 | 5,204,895 | 5,517,189 |
| Inventory | 2,570,572 | 2,861,436 | 3,147,579 | 3,399,386 | 3,603,349 | 3,819,550 |
| Other current assets | 667,331 | 2,065 | 2,271 | 2,498 | 2,748 | 3,023 |
| Payables | 4,981,785 | 5,150,585 | 5,665,643 | 6,118,895 | 6,486,029 | 6,875,190 |
| Accrued expenses | 42,364 | 11,532 | 12,124 | 12,935 | 13,711 | 14,534 |
| Non-cash working capital | 1,704,432 | 1,834,615 | 2,018,637 | 2,180,333 | 2,311,252 | 2,450,038 |
| PP&E - gross | 2,994,097 | 3,754,611 | 4,591,177 | 5,494,669 | 6,452,369 | 7,467,532 |
| less: acc. deprec. | 0 | 436,989 | 978,549 | 1,633,046 | 2,407,255 | 3,308,359 |
| PP&E - net | 2,994,097 | 3,317,622 | 3,612,628 | 3,861,623 | 4,045,114 | 4,159,173 |
| Other assets | 1,466,425 | 2,000,000 | 2,500,000 | 2,800,000 | 3,000,000 | 3,000,000 |
| Notes and LT Debt | 136,525 | 250,001 | 250,001 | 250,001 | 250,001 | 250,001 |
| Net worth | 5,572,317 | 6,879,082 | 8,355,039 | 9,920,688 | 11,519,945 | 13,154,825 |
| Total assets | 11,229,334 | 12,291,200 | 14,282,807 | 16,302,519 | 18,269,686 | 20,294,550 |
| Depreciation | 341,925 | 436,989 | 541,561 | 654,496 | 774,209 | 901,104 |
| Capex | 740,252 | 760,514 | 836,566 | 903,491 | 957,701 | 1,015,162 |

In acquisition valuation, a complete set of pro-forma financial statements (income statements, balance sheets, and cash-flow statements) needs to be developed. Together, they form a financial model for a company.

Forecasting assumptions, usually for the time period of at least five years, are expressed as increases or decreases in the form of percentage points and are then translated by valuation (computer) models into absolute figures.

The business plan of a target company, based on forecasting assumptions for the next five or more years, is translated into pro-forma statements. Pro-forma (forecast) financial statements provide the platform needed for free cash flow computation. An example how to create a financial model, although a simplified one, is shown as Table 1.

Free cash flow can be defined as cash available for distribution to investors after all planned investments and taxes. Free cash flow is true operating cash flow of any company. The rationale of applying free cash flow goes like this: operating income (EBIT – earnings before interest and taxes) is the income earned by a company regardless of how it is financed. Operating income after taxes excludes any effect of debt financing. By adding depreciation, total after-tax cash flow from operations is obtained. After-tax cash flow could be distributed entirely in the form of dividends and interest payments, if so desired. In a conventional environment, however, investments in business are done.Investments, in their broad interpretation, are capital expenditures (capex) and working capital increases.

In general, free cash flow is not affected by financial structure, although a company's financial structure has an affect on the weighted average cost of capital and consequently the value of the company.

The principle of the time value of money is applied, meaning that a euro today is worth more than a euro expected in the distant future. Finding present values of future amounts is called discounting. Discounting is the process of finding the present value of a future sum.[4] In valuation theory, a discount rate refers to the expected rate of return that acquiring companies would demand on the value of ownership interest in target companies at a given risk. Usually, acquisition valuation methods use discount rates rather than capitalization rates,[5] as it is expected that

[4] The relation between present value (PV) and future value (FV) can be written as:

$$PV = \frac{FV_n}{(1+k)^n}$$

where, $(1+k)^n$ = Present value interest factor (PVIF).

[5] Discount rate and capitalization rate are not identical and interchangeable. They are related, but are not the same.

**Figure 3:** *Free cash flow chart*

| *1. Explicit forecast* year 1 → year 5 (10) | *2. Residual value* year 6 (11) → ∞ |
|---|---|
| *Operating income*<br>minus taxes<br>*Operating income after taxes*<br>plus depreciation<br>*Cash flow from operations*<br>minus increase in current assets<br>plus increase in current liabilities<br>minus capital expenditures<br>*Free cash flow (FCF)* | $RV = \frac{FCF_{n+1}}{WACC - g}$<br>*Residual value* |

*Free cash flow = Free cash flow from the explicit period + Residual value*

combined future operations (of an acquiring company and a target) will be different from their current or past operations.

The value of ownership interest in a company is equal to the present worth of future benefits of ownership (Fishman et al., 2004). While this is a generally accepted premise, it can be a very challenging approach to apply in practice because of high uncertainties in the estimation of future benefits.

The standard valuation model used to calculate free cash flows is a quantitative DCF model, but the inputs are based on an appraiser's subjective judgment and forecasts. Thus, calculated value is influenced by an appraiser's biases.

An example of how to calculate free cash flows based on pro-forma financials (see Table 1) is shown as Table 2.

The discounted cash flow method evaluates a company on the basis of free future throw-offs expected to be generated by operations, thus taxes are computed on operating income. With the discounted cash flow method, we estimate the intrinsic value of a target company.

The required rate of return on capital budgeting decisions, including acquisitions, is the weighted average of both cost components, capital and debt. It is called weighted average cost of capital (WACC).[6]

The value of a target is calculated by discounting forecasted cash throw-offs at the weighted average cost of capital, i.e. cash flows after all operating expenses, capital expenditures and taxes, but before any pay-outs to debt or equity holders of a company.

The value of a target company can be defined by applying the discounted cash flow (DCF) model of valuation.

Formula 1: DCF model

$$V_T = \sum_{t=1}^{t=n} \frac{CF_t}{(1 + WACC)^t}$$

where,

$V_T$ = Value of target company,
$CF_t$ = Expected cash flow in period t,
WACC = Weighted average cost of capital.

An example of how to calculate the value of a target company in a stand alone (status quo) case based on free cash flows (see Table 2) is shown as Table 3.

Enterprise value can be obtained by using either the perpetual growth principle or the earnings before interest, taxes, depreciation, and amortization (EBITDA) exit multiple. As there is no single correct value, the obtained company value should be presented in a range (from - to) by using both principles.

As previously stated, valuations can be biased by subjective research and forecasts. Quantitative valuation models themselves do not solve the issue, as the inputs are subjective judgments. Hence, valuations age quickly. Constant flow of new relevant information about targets has to be taken into consideration and valuations need to be updated to address new situations.

There is an uncertainty about the calculated final number and we have to give ourselves a reasonable margin for error

**Table 2:** *Computation of free cash flows (FCF) of a hypothetical »TARGET«*

| in € | 2005 | 2006 | 2007 | 2008 | 2009 | Adjusted Exit Base |
|---|---|---|---|---|---|---|
| Operating income | 1,867,126 | 2,105,190 | 2,235,761 | 2,289,464 | 2,346,389 | 2,346,389 |
| -less taxes | 494,788 | 557,875 | 592,476 | 606,708 | 621,793 | 621,793 |
| -change in working capital | 130,183 | 184,022 | 161,695 | 130,919 | 138,785 | 138,785 |
| -capital expenditures | 760,514 | 836,566 | 903,491 | 957,701 | 1,015,162 | 901,104 |
| +depreciation | 436,989 | 541,560 | 654,496 | 774,209 | 901,104 | 901,104 |
| *FREE CASH FLOWS* | *918,629* | *1,068,286* | *1,232,594* | *1,368,344* | *1,471,753* | *1,585,811* |
| Discount factor | 0.85 | 0.72 | 0.61 | 0.52 | 0.44 | 0.44 |
| Present value | 778,499 | 767,226 | 750,195 | 705,777 | 643,316 | 693,172 |
| Cumulative Present Value | 778,499 | 1,545,726 | 2,295,291 | 3,001,698 | 3,645,015 | 3,694,871 |

[6] $WACC = (C_{AT} \times w_d) + (C_{ps} \times w_{ps}) + (C_s \times w_s)$
where,
WACC = Weighted average cost of capital,
$C_{AT}$ = After-tax cost of debt,
$w_d$ = Weight for debt,
$C_{ps}$ = Cost of preferred stock,
$w_{ps}$ = Weight for preferred stock,
$C_s$ = Cost of common stock,
$w_s$ = Weight for common stock.

Table 3: *DCF valuation of a hypothetical »TARGET«*

| Value based on perpetual growth | | Value based on EBITDA exit multiple | |
|---|---|---|---|
| PV Period Inflows | 3,694,871 | PV Period Inflows | 3,694,871 |
| Ending Free Cash Flow | 1,585,811 | Ending EBITDA | 3,247,494 |
| Residual Growth (g) | 6% | Multiple applied: | 5.5 |
| Future Value = CF/(wacc-g) | 13,215,095 | Future Value | 17,861,218 |
| Discounted to PV | 5,776,439 | Discounted to PV | 7,807,303 |
| Enterprise Value | € 9,471,312 | Enterprise Value | € 11,502,175 |
| wacc = 18% | | | |

in making recommendations on the basis of valuation (Damodaran, 2002).

## 5 Control Valuation

Acquiring companies normally pay acquisition premiums. In part, they reflect the »value of control« (Damodaran, 2005). The value of control is proportional to the value maximization capacity of the target. The rationale behind a value of control lies in expectations of an acquirer to be able to run a company more efficiently. Well-managed companies would get little or no control premium, as there is hardly any room for operational improvements. On the other hand, poorly managed companies would get a bigger premium, as there is much room for improvements.

The value of controlling a company normally applies to publicly traded companies as a premium that acquirers would pay for voting shares (Damodaran, 2005). After takeover, existing practices would be changed and better management policies applied.

The value of control is comprised of two components: change in value by implementing new management policies, and the probability that such change can actually occur in real life (Damodaran, 2005).

Figure 4: *Components and value drivers of free cash flow*

| *Free Cash Flow* | | *Value Driver* |
|---|---|---|
| | Revenues | Sales growth rate |
| minus | Expenses | |
| equal | Operational profit | Operating profit margin |
| minus | Tax on operating profit | Cash tax rate |
| equal | Net operating profit | |
| minus | Investment in net fixed assets | Additional fixed assets requirements |
| Minus | Investment in working capital | Additional working capital requirements |
| equal | Free cash flow | |

The value of control can be defined as the value of a company after restructuring (»optimal« value) minus the value without restructuring (the »as is« value). The »as is« value is also called the stand alone or status quo value of a company managed by incumbent executives. »Optimal« value refers to new management and expected improvements.

In a hypothetical acquisition of a »*Target«* and consequent change of control, certain improvements are envisioned. New management policy takes place immediately after takeover. The investment rate remains unchanged (entire plow back). The increase in return on capital increases growth rate in the next five years. The operating margin goes up. The cost of capital decreases due to optimal capital structure. In other words, the target is better (optimally) managed after takeover and change of control. It is important to define all key value drivers, before and after acquisition, in control valuation.

Based on the assumptions (value drivers), a financial model with three basic financial statements (income statement, balance sheet, and cash flow statement) is prepared, followed by free cash flow estimation and control valuation. Same valuation steps are performed as in stand-alone valuation (see Tables 1 to 3). After obtaining a value of a target after change of control, the value of control can be calculated as shown in Table 4.

Table 4: *Valuation of control for a hypothetical »TARGET«*

| *VALUE OF CONTROL* | | |
|---|---|---|
| 1. Value of Target with Control change | 11,410,443 | 13,694,876 |
| 2. Value of Target - Stand alone | 9,471,312 | 11,502,175 |
| *VALUE OF CONTROL (1-2)* | *€ 1,939,131* | *€ 2,192,701* |

## 6 Synergy Valuation

In acquisition valuation, positive effects on combined value have to be defined in addition to stand-alone valuations of both companies, an acquiring company and a target. The positive effects are called synergy. Synergy can be defined as increases in competitiveness and resulting cash flows beyond what the two companies are expected to accomplish independently.

In other words, a target company owns certain assets that become even more valuable in combined operations. In general terms, we distinguish between two different forms of synergy: operating and financial synergies. Synergy as a valuation input can take different forms, such as increased future growth or reduced costs.

Operating synergies have an impact on growth and margins, and ultimately returns. Financial synergies have

an impact on higher cash flows and lower discount rates. It is important to estimate the value of different types of synergies by defining how much additional value is created in acquisition.

However, only reasonable economic expectations should be built into future forecasts. Eventually, forecasted synergies have to materialize in performance gains by competing better in today's very competitive environment. Therefore, a realistic (and not optimistic) approach is recommended as the synergies have to be clearly quantified in the valuation process.

Acquiring companies usually pay hefty acquisition premiums. Acquisition premiums are publicly known and paid up front, contrary to later pay-offs from combined operations, which are not known and are uncertain. Normally, the bigger the projected synergy from combined operations, the higher the premium to owners of the target company.

Paying unjustified premiums is one of the main reasons for the high failure rate of acquisitions. In any case, a paid premium should not exceed the projected synergy, as it would result in lost value for an acquirer.

Acquiring companies should clearly distinguish between projected synergy and realized synergy. In acquisition valuation, business forecasts sometimes lose track of reality and are overly optimistic. Acquisition premium means nothing else but additionally spent money and can be justified only with realized added (i.e. additional) value from combined operations.

The value of synergy is estimated by Damodaran (2005) as:

- First, valuing both companies, the acquiring company and the target, independently;
- Second, valuing the combined company with no synergy;
- Third, valuing the combined company with synergy.

Figure 5: *Valuing an acquisition*

| *Component* | *Valuation Guidelines* |
|---|---|
| *SYNERGY* | *Value the combined firm with synergy built in.*<br>This may include:<br>a. a higher growth rate in revenues: *growth synergy*<br>b. higher margins, because of *economies of scale*<br>c. lower taxes, because of tax benefits: *tax synergy*<br>d. lower cost of debt: *financing synergy*<br>e. higher debt ratio because of lower risk: *debt capacity*<br>*Subtract the value of the target firm (with control premium)*<br>*plus the value of the bidding firm (pre-acquisition). This is the value of the synergy.* |
| *CONTROL PREMIUM* | *Value the company as if optimally managed. This will usually mean that investment, financing, and dividend policy will be altered:*<br>a. investment policy: higher returns on projects and divesting unproductive projects<br>b. financing policy: move to a better financing structure, e.g. optimal capital structure<br>c. dividend policy: return unused cash |
| *STATUS QUO VALUATION* | *Value the company "as is," e.g. with existing inputs for investment, financing and dividend policy.* |

*Source:* Damodaran, 2005, p.8.

Table 5: *Valuation of synergy for a hypothetical »TARGET«*

| *VALUE OF SYNERGY* | | |
|---|---|---|
| 1. Value of Combined company with Synergy | 48,032,968 | 51,827,055 |
| 2. Value of Target - Change of Control | 11,410,443 | 13,694,876 |
| 3.. Value of Acquiring company - Stand alone | 35,003,658 | 36,485,839 |
| *VALUE OF SYNERGY ((1 - (2+3))* | *€ 1,618,867* | *€ 1,646,340* |

In valuing an acquiring company, the same valuation steps as in the previously shown case of valuation of a hypothetical *»TARGET«* (see Tables 1 to 3) are used, based on historical data and forecasting assumptions for an acquiring company in stand alone status. A financial model with three basic financial statements (income statement, balance sheet, and cash flow statement) is prepared, followed by free cash flow estimation and stand-alone valuation of the acquiring company.

The next step in the process of valuing synergy is valuation of a combined company, with no synergy built in. The value of a combined company is obtained by adding the values, obtained previously in the valuation process, for acquiring company and target.

The combined company is thereafter re-valued for synergy. Value drivers, i.e. among others but not limited to growth rate, operating margin, cash tax rate, fixed assets and working capital requirements, are estimated according to performed due diligence and internal analysis. It is considered that all relevant information is available at the time of valuation (informed judgment). Forecasted synergistic effects are built into the financial model. Free cash flow estimation and valuation is performed.

After obtaining the value of an acquiring company as a stand alone, the value of a target with change of control, and the value of a combined company with synergy, the value of synergy can be calculated as shown in Table 5. The value of synergy can be defined as the value of the combined company with synergy, less the sum of the value of the acquiring company and the value of the target company with change of control effects.

The following figure summarizes acquisition valuation guidelines by their components for valuing going concerns based on the discounted cash flow approach:

## 7 Relative Valuation

The market approach is a general way of determining a value indication of a target company in acquisition valuation by comparing the target to »similar companies« that have been previously sold. Similar companies have to be reasonable comparisons and have comparable quantitative and qualitative parameters.

The traditional definition defines a similar company as one in the same industry segment. Although it is impossible to find an identical company, basic characteristics have to match, especially expected growth and risk environment. Only arm's-length transactions can be taken into consideration. Therefore, a careful selection of underlying data has to be made. Relative valuations should not be mixed up with the »rule of thumb« approach and should not serve as the only basis for final valuation judgments. A combination of both methods, relative valuation and discounted cash flow valuation, is the recommended approach.

Multiples can also be applied for gauging residual value in discounted cash flow valuation. As shown in the valuation of a *»Target«* (see Table 3), the EBITDA exit multiple was applied to estimate its enterprise value.

Valuations based upon multiples are only indicative and should only have a role of complementing the discounted cash flow valuation. The popularity of relative valuation comes from its simplicity and broad availability of data, at least for publicly traded companies.

After finding comparable companies, their market values are obtained and translated into standardized values. Absolute figures cannot be compared; therefore, normalization of absolute figures (prices) into multiples is performed. The multiples are calculated as the ratio of value to some normalized metric such as net income, EBITDA or revenue.

Multiples based on the last twelve months (LTM) earnings are called trailing multiples. Forward (or prospective) multiples use an estimate of earnings for the next twelve months and give better estimates of value because the expectations about the near future are already incorporated.

In practice, valuation practitioners rely frequently on EDITDA (earnings before interest, taxes, depreciation, and amortization) or EBIT (earnings before interest and taxes) metrics. EBITDA multiples are often called »cash flow multiples.«

The EBITDA multiple is calculated by dividing an enterprise value, which is the value of equity and net debt[7] of a comparable company, by its EBITDA. When a multiple

Table 6: *Relative valuation of a hypothetical »TARGET«*

| *RELATIVE VALUATION* | |
|---|---|
| 1. Forward EBITDA multiple | 5.5 |
| 2. EBITDA of Target | 2,304,116 |
| *Value of target - ENTERPRISE VALUE (1 x2 )* | *€ 12,672,638* |

is multiplied by a target's EBITDA, the yield is an estimation of an enterprise value of a target. The evolution phase of the sector (comparable companies) at the end of the explicit period should be carefully considered. Only if growth is expected to continue, current multiples can be extrapolated into the future.

## 8 Acquisition Value

The objective of an acquisition valuation is to provide an indication of value. A professional valuation should establish the fair market value for a willing and informed buyer who would purchase a company in normal open market conditions.

Valuation models are quantitative (mathematical) models, but future forecasts are subjective. More complexity does not bring more reliability. Valuation is not objective but is a subjective judgment of true value. Even in professional valuation there is always uncertainty about the final numbers. Hence, the estimated values should be presented by appraisers as a range.

Table 7: *Acquisition value of a hypothetical »TARGET«*

| *ACQUISITION VALUE* | | |
|---|---|---|
| *Discounted cash flow valuation* | *Perpetual growth* | *EBITDA exit multiple* |
| Value of Stand alone | 9,471,312 | 11,502,175 |
| Value of Control | 1,939,131 | 2,192,701 |
| Value of Synergy | 1,618,867 | 1,646,340 |
| Value of Target | *€ 13,029,310* | *€ 15,341,216* |
| *Relative valuation* Value of Target | *EBITDA multiple € 12,672,638* | |
| *ACQUISITION VALUE* | *€ 12,672,638 - € 15,341,216* | |

## 9 Conclusion

Despite decades of empirical evidence proving that too many acquisitions go wrong, managers continue to consummate takeover transactions. During the past few years, the number of acquisitions has significantly increased in total number and in value. Any acquisition is a very complex process, from pre-acquisition market research and potential targets' screening, due diligence, negotiation, and closing, through to post-acquisition integration and value creation.

The price of making a mistake can be greater than the price of missing an opportunity. One of the reasons why acquisitions fail to create value is high acquisition price. Herewith high acquisition price it is not referred to in absolute terms, i.e. in euros, but rather to what acquisitions are really worth to acquiring companies.

So what is the right acquisition price? Valuing acquisitions correctly is very important knowing the fact that too many deals fail in the real world. Three concepts of value are presented in this paper: intrinsic, market, and synergy value. The intrinsic value is defined as the »true«

[7] Net debt = Total debt – Cash & Equivalents. Negative debt indicates excess cash.

value of a company, which is based on the net present value of forecasted cash flows independent of any acquisition. In today's world, acquisitions are consummated on most occasions at prices higher than their intrinsic value.

Acquisition valuations are complex and go beyond just defining the value of target companies. The acquisition valuation concept includes valuation of synergy and control. It is important to perform first the valuation of synergy and control, and second to decide how much of that value we are willing to share with shareholders of the target company. In other words, the value gap has to be defined.

Discounted cash flow and relative valuations are presented as ways to define the acquisition value of a going concern. When applying the discounted cash flow valuation, it is recommended to use both principles for establishing a residual value- the perpetual growth principle and the exit multiple principle. A common approach used in practice to gauge residual value is to link discounted cash flow with certain valuation multiples. We argue that the forward EBITDA multiple is the right choice for estimating residual value in the valuation of a going concern.

EBITDA multiples are referred to as »cash flow multiples« and, when applied to a targets' EBITDA, they yield estimates of enterprise value. In relative valuation, we argue that the EBITDA multiple, as the one closest to »cash flow,« should be a preferred choice for establishing the enterprise value of going concerns. We argue that perception of value has to be supported by a sound investing principle, which implies that a purchase price (the price actually paid) should relate to the worth of a target, i.e. cash flows expected to be generated by the business. As logical as that seems to be, it is often forgotten in the world of acquisitions.

In the real world, valuation is done in too many instances with an already set price in mind. The decision to acquire a target precedes acquisition valuation of that target. We argue that without precise quantification of control and synergy, we cannot determine the worth of a target and therefore tend to over-pay.

Hence, a systematic approach to acquisition valuation by using all three described methods is highly recommended. The acquisition value of a target should be presented as a range. Strict appraisal guidelines in place at acquiring companies should help in consummating deals at the right price. Professional acquisition valuations can help acquiring companies to get the right value for their money.

## References


1. Amihud,Y., Mendelson H.(1986). Asset Prices and the Bid-Ask Spread. *Journal of Financial Economics* 17: 223-249.
2. American Society of Appraisers (2002). *ASA Business Valuation Standards*. 1–39.
3. Anslinger, P. L., Copeland T. E. (1996). Growth Through Acquisitions: A Fresh Look. *Harvard Business Review* (74).
4. Arzac, E. R. (2005). *Valuation: Mergers, Buyouts and Restructuring*. Hoboken: John Wiley & Sons.
5. Arzac, E R. (1986). Do Your Business Units Create Shareholder Value? *Harvard Business Review*. January-February: 121-126.
6. Arzac, E R. (1996). Valuation of Highly-Leveraged Firms. *Financial Analysts Journal*, July/August:42-50.
7. Bell, R. (1982). *Surviving the 10 Ordeals of the Takeover*. New York: AMACOM.
8. Berman, P. (1984). When Someone Says Synergy , Feel for your Wallet. *Forbes*, December 3: 38-39.
9. Bertoncel, A. (2005). *Čas prevzemov*. Ljubljana: GV Založba.
10. Brown, R. M (1999). *International Mergers and Acquisitions*. Kluwer Law International.
11. Damodaran, A. (2001). *The dark side of valuation: valuing old tech, new tech, and new economy companies*. Englewood Cliffs: Prentice Hall.
12. Damodaran, A. (2002). *Investment valuation*. Hoboken: John Wiley & Sons.
13. Damodaran, A. (2005). *The value of control: implications for control premia, minority discounts and voting share differentials*. New York: Stern School of Business.
14. Damodaran, A. (2005). *The value of synergy*. New York: Stern School of Business.
15. Damodaran, A. (2005). *The value of control*. New York: Stern School of Business.
16. Dixit, A.K., Pindyck, R.A. (1994). *Investment under Uncertainty*. Princeton, NJ: Princeton University Press.
17. Eccles, R. G., Lanes K. L., Wilson T. C. (1999). *Are you paying too much for that acquisition?* Boston: Harvard Business Press.
18. Fishman, J. E., Pratt S. P., Griffith C. J., Wilson K. D. (2004). *Guide to business valuation*. Vol.1, 2 and 3, Fort Worth: Practitioners Publishing Company.
19. Franks, J.R., Harris, R.S. (1989). Shareholder Wealth Effects of Corporate Takeovers. *Journal of Financial Economics* 23: 225-249.
20. Gregorič, A., Vespro C. (2003). *Block Trades and the Benefits of Control in Slovenia*. Ljubljana: Ekonomska fakulteta.
21. Grubor, M. (1994). *Metodološki problemi in rešitve ocene vrednosti lastniškega kapitala podjetij v Slovenij*. Magistrsko delo. Ljubljana: Ekonomska fakulteta.
22. Habech, M. M., Kroeger F., Traem M. R. (2000). *Čas združitev*. Ljubljana: DZS.
23. Jansen, S. A. (2001). *Mergers & Acquisitions: Unternehmensakquisitionen und – kooperationen*. Wiesbaden : Gabler Verlag.
24. Jarrel, G. A., Brickley J. A., Netter J. M.(1988). The Market for Corporate Control: The Empirical Evidence Since 1980. *Journal of Economic Perspectives* 2 (1): 49-68.
25. Jarrel, G. A., Poulsen A. B.(1989). The Returns to Acquiring Firms in Tender Offers: Evidence from Three Decades. *Financial Management* 18(1):12-19.
26. Jemison, D.B., Sitkin S.B. (1986). Acquisitions: The Process Can Be a Problem. *Harvard Business Review* 64 (March-April): 107-116.
27. Jensen, M., Ruback R. S. (1983). The Market for Corporate Control: The Scientific Evidence. *Journal of Financial Economics* 11 (1):5-50.

28. Jones ,G., Hill C. (1988). Transaction Cost Analysis of Strategy-Structure Choice. *Strategic Management Journal* 9: 159-172.
29. Kothari, S.P., Shaken J. (1998). Beta and Book-to-Market: Is the Glass Half Full or Half Empty? *Working paper,* University of Rochester.
30. KPMG (1999). *Unlocking Shareholder Value: The Key to Success*. Mergers & Acquisitions: A Global Research Report.
31. Kraševec, T. (2001). Zakaj ni več odkupov podjetij? *Manager* (3).
32. Malkiel, B. C. (1996). *A Random Walk Down Wall Street*. New York:W.W.Norton&Company.
33. Matschke, M. J., Broesel G. (2005). *Unternehmensbewertung: Funktionen, Methoden, Grundsaetze.* Wiesbaden: Gabler Verlag.
34. Mehra, R., Prescott, E. (1985). The Equity Premium: A Puzzle. *Journal of Monetary Economics* 15:145-161.
35. Miles, J.A., Ezzell, J.R. (1980). The Weighted Average Cost of Capital, Perfect Capital Markets, and Projected Life: A Clarification. *Journal of Financial and Quantitative Analysis* 15:719-730.
36. Odar, M. (2000). Problematika prevzemov gospodarskih družb ter računovodski problemi in rešitve pri združitvah in prevzemeih. *Revizor*, 1.
37. Roll, R., Yan S. (2000). An Explanation of the Forward Premium »Puzzle«. *European Financial Management*, 6, 2:121-148.
38. Ruback, R. S. (1986). Calculating the Market value of Risk-free Cash Flows. *Journal of Financial Economies* 15:33-39.
39. Ruback, R. S. (2002. Capital Cash Flows: A Simple Approach to Valuing Risky Cash Flows. *Financial Management* 31:85-103.
40. Seth, A. (1990). Sources of Value Creation in Acquisitions: An Empirical Investigation. *Strategic Management Journal* (11).
41. Smith, D.J. (1989). The Arithmetic of Financial Engineering. *Journal of Applied Corporate Finance*, 1: 49-58.
42. Sirower, M. T. (1997). *The synergy trap: how companies lose the acquisition game*. New York: The Free Press.
43. Stewart, G.B.III. (1991). *The Quest for Value*. New York: Harper-Collins.
44. Taggart, Jr.,R.A.(1991). Consistent Valuation and the Cost of Capital Expressions with Corporate and Personal Taxes. *Financial Management* 20:8-20.
45. Vaid, R. (2002). *Valuation*. New York: Equity Capital Training Book.
46. Walsh, J.P., Ellwood J.W. (1991). Mergers, Acquisitions and the Pruning of Managerial Deadwood. *Strategic Management Journal* 12(3).
47. Wernerfelt, B. (1984). A Resource-based View of the Firm. *Strategic Management Journal* 5:171-181.
48. Wruck, K.H. (1993). What Really Went Wrong at Revco. *Journal of Applied Corporate Finance*. Reprinted in Chew, 654-667.
49. Wruck, K.H. (1989). Equity Ownership Concentration and frim Value: Evidence from Private Equity Financing. *Journal of Financial Economics* 23:3-28.