COMPANY VALUATION USING THE DCF METHOD AND CAPM: YOU SHOULDN'T TRUST THE RESULT

Prof. Dr. Werner Gleißner

Member of the Board of FutureValue Group AG, Leinfelden-Echterdingen
and Professor for Business Administration, esp. Risk Management,
at Technical University Dresden,
kontakt@FutureValue.de, www.FutureValue.de,
www.werner-gleissner.de

Endre Kamarás

FutureValue Group AG (Partner),
Head of Software Development,
e.kamaras@FutureValue.de

FutureValue Group AG
Obere Gärten 18
70771 Leinfelden-Echterdingen, Germany

Tel: +49 (0)711 / 79 73 58-36
Fax: +49 (0)711 / 79 73 58-58

Kontakt@FutureValue.de
www.FutureValue.de

SOURCES OF ERROR WHEN USING DCF VALUATION AND CAPM

Today, the determination of a company's value is mostly based on the discounted cash flow method (DCF method). In doing so, planned values of the cash flows (or income/flow-to-equity) provided by the company are usually discounted to the present with a calculated a discount rate based on the capital asset pricing model (CAPM). The CAPM cost of capital[1] is based on the so-called beta factor, which in turn is derived from historical fluctuations in stock returns (of the company itself or companies in a peer group). The CAPM-world assumes perfect capital market thus refrains from rating and financing restrictions and the resulting insolvency risks.

In fact, the methods used by many valuation analysts should be viewed with extreme scepticism. A large number of evaluation errors can be identified.[2]

Some fundamental problems are almost always to be found in the valuation practice, even with company valuations following the guidelines of German IDW valuation standard S1.[3] The followings points out the most common problems in the valuation practice and show why you should not trust the "simple" valuations.[4]

1. The application of the discounted cash flow method requires forecast values for earnings and cash flows that are unbiased in a statistical sense (mean values). These must be calculated taking into account both existing opportunities and dangers (risks).[5] In practice, due to a lack of risk analysis and risk aggregation[6], unbiased plan values are usually not used but values that have been created with other target in mind than company valuation. These are often ambitious plan values, which leads to the company value being reported too high. But other variants, such as conservative values (results in a company value that is too low) or most probable values (results in a value that cannot be classified right away) are wrong. And even if the creation of an unbiased planning was the goal, the method to achieve the planned values must be critically examined. Possible combination of asymmetric risks (especially those with a low probability of occurrence), which can significantly influence the expected value, are mostly not considered at all or not considered appropriatly.[7]
2. Due to the known to be unrealistic assumptions (e.g., perfect capital market, perfect diversified investor[8], no insolvency costs) and the lack of suitability of the CAPM to explain stock returns, as shown by many studies, CAPM cost of capital rates are problematic.[9] They look at the historical fluctuations in share returns that are not at all relevant for a long-term investor[10] and ignore the risks of future cash flows that are actually relevant to the valuation.[11] Since the assumptions indicate a perfectly diversified investor who only bears cross-company, systematic risks, the company-specific risks are ignored in the valuation calculation. However, it is precisely these risks, that are of particular importance for a medium-sized entrepreneur who is not well diversified.[12] This,

1 *Ballwieser/Hachmeister*, 2021.

2 For methodical classification see *Gleißner/Follert*, 2022.

3 See *Baecker/Gleißner/Hommel*, 2007 and *Ernst/Häcker/Gleißner*, 2023 as well as *Ballwieser/Hachmeister*, 2021, pp. 315 et sqq. as well as *Bertram/Castedello/Tschöpel*, 2015.

4 For a classification of this method and for alternatives, see *Gleißner/Meckl*, 2023.

5 See *Behringer/Gleißner*, 2021 and *Rieg/Gleißner*, 2022.

6 *Gleißner*, 2022.

7 The development of a planning that is true to expectations is—under realistic assumptions—only possible with the help of a planning-related risk aggregation with simulation processes.

8 Following basic assumptions.

9 *Hering*, 2021; *Köstlmeier/Röder*, 2023.

10 On an imperfect capital market.

11 See for criticism *Gleißner*, 2014; *Schildbach*, 2022; *Dempsey*, 2013a and 2013b; *Fernández*, 2019; *Hering*, 2021.

12 See *Gleißner/Knoll*, 2011 and *Kerins/Smith/Smith*, 2004.

too, generally leads to a considerable overestimation of company values.

3. Insolvency risks are also mostly ignored, although these largely determine the expected amount and the timing of the cash flows.[13] In the long term, in the continuation phase, they have the effect of a negative growth rate. However, neglecting the risk of insolvency is synonymous with a valuation in which the probability of insolvency was set to zero, which leads to a significant overestimation of the company value, especially for companies with a medium or low rating.

Conclusion

Simple DCF analysis based on the CAPM lead to strongly distorted, often significantly inflated, company values. A proper valuation requires more than the application of the usual simple "recipes". For example, a systematic identification, quantification and aggregation of risks is necessary in order to be able to map the effects of existing opportunities and threats on the expected value of cash flows and earnings. The discount rates should reflect the riskiness of the cash flows relevant to the valuation.[14] And the insolvency risks, which leads to a finite life expectancy of a company, must be considered in the valuation. All these aspects are considered in a **simulation-based valuation.**[15]

This company valuation is also based on the DCF calculation. However, the above mistakes are avoided by explicitly considering the risks of a company in the valuation and a perfect capital market or even the availability of capital market data from companies are not assumed or needed.[16]

[13] See *Gleißner*, 2010 and 2015; *Saha/Malkiel*, 2012 as well as *Franken/Gleißner/Schulte*, 2020.

[14] See for the derivation from the risk aggregation *Gleißner*, 2019.

[15] See alternatives to a simulation-based assessment *Gleißner/Ernst*, 2019; *Ernst* 2022 and *Gleißner*, 2017.

[16] See *Gleißner/Follert*, 2022 and *Dorfleitner/Gleißner*, 2018 to the theoretical basis of the valuation.

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