A Study on the Limitations of the DCF Approach

2 Flaws existing in the DCF approach

The DCF approach for valuation of an enterprise is built on the present value of its cash flow, and its implicit hypotheses include: firstly, the capital market is efficient, and the asset price can fully represent the asset value; the enterprise can borrow an adequate amount of fund at the capital market interest rate; the capital market provides a compensation according to the systematic market risks assumed by the shareholders, while the non-systematic operating risks are not compensable. Next, the operating environments faced by the enterprise are certain, no matter the capital market or the product market is perfect and “stable”; so before and after valuation of the enterprise, the environments of the enterprise will develop along the lines of the predetermined model, but have no great changes as long as expectations of people are rational. Thirdly, the enterprise is also “stable”; and the investments of the enterprise are irreversible, and an investment, once made, will be unchangeable; and the enterprise follows the assumption of going-concern. Fourthly, the regime faced by the enterprise is also stable. The corporate income tax for the enterprise is predicable, the judicial regulation is also traceable, and the social or legal system will not have sudden transition. Fifthly, people are fully rational, and will apply any usable information in making unbiased estimates, and different people have much the same estimate on the same object.

However, indeed, even if people are fully rational, the DCF approach still has many serious flaws:

① This approach is not applicable for valuation of an enterprise in the investment period. An enterprise in the investment period may have an uncertain profit prospect and dividend payment ratio, and it is difficult to determine the long-term dividend growth rate of the enterprise.

② This approach is not applicable for valuation of an enterprise that is quite changeable with the economic cycle. If the operating period of the enterprise has a high correlation with the economic cycle, or a high uncertainty, the sales, profit, and dividend payment ratio of the enterprise will be hardly predictable, which goes against the assumption that the state of the applicable enterprise for this formula is stable.

③ This approach is not applicable for valuation of an enterprise that has idle assets and employees. These idle assets and employees do not have any output, so it is hard to reasonably define the value of these assets.

④ This approach is not applicable for valuation of an enterprise in the restructuring period. The asset structure, product structure, organizational structure, personnel structure and dividend policy of the enterprise in the restructuring period may have great changes, so it is not very possible to make credible prediction for the enterprise’s future by use of historical data; moreover, any reform of the enterprise in the restructuring period may change its risk profile, the discount factor of the original formula may also be adjusted along with the restructuring, and all of these will increase the uncertainty of the enterprise’s value.

⑤ This approach is not applicable for an enterprise in the merger and restructuring period. Some reasons are stated in the above ④, the occurrence of merger and acquisition is equivalent to a restructuring on the enterprise, the enterprise may be engaged in merger and restructuring for many reasons, such as gaining a “1＋1＞2” synergy effect, or winning a competitive edge, so it is hard to assess the effect of these changes on the profitability of the enterprise, and the effect of these factors on the enterprise’s cash flow and then on its dividend policy.

⑥ Another limitation of this approach is its inapplicability for an unlisted enterprise. Here the difficulty does not lie in the unpredictability of the unlisted enterprise’s dividend and its growth rate, but in the unpredictability of its dividend discount rate. It is hard to calculate the dividend discount rate of an unlisted enterprise by CAPM or APM.

⑦ In terms of discount rate, the DCF approach cannot represent the operating income brought by the flexibility of an enterprise, that is, the original formula assumes that the opportunity cost for capital of an enterprise is the return for the systematic risks assumed by the enterprise, but does not regard the flexible operating decisions made by the enterprise

for adapting to the operating environments (because these risks are not systematic risks.) This flaw of the DCF approach decides that this approach is not applicable to the field of business strategy, because the business strategy is a response to uncertain environments faced by the enterprise, but such a response is always nonsystematic, and nonsystematic risk means that the expected income of strategic investment is 0, (calculated by CAPM or APM, the return rate of such investment is 0, and the value added brought by the enterprise's investment to the enterprise is 0), which cannot explain the reason why the enterprise makes such strategic investment.

⑧ The implicit hypothesis for the DCF approach is that the value of an enterprise is independent from the time for valuation of the enterprise, and it has no regard to the time selection of the enterprise's investment and valuation. Indeed, the value of the enterprise is a function of time, and may change with the lapse of time. For the same investment project, if the investment time is different, the completion date and the product price will also be different, and the project income calculated by the DCF approach will also be very different.

⑨ The DCF approach has no regard to the role of an enterprise's strategy in the value of the enterprise. The DCF approach assumes that a business strategy, once determined, will not be changed; as a matter of fact, an enterprise is not only an enterprise in the market, but also an enterprise in the real social and legal system; therefore, in order to survive and gain more profit, the enterprise has to continuously adapt to external environments. The business strategy is a response of the enterprise to environmental changes, and will change expectations of people for the profitability of the enterprise; as a result, it may affect the value of the enterprise. However, the DCF approach has no regard to the role of strategy in the value of the enterprise.

⑩ The DCF approach has no regard to the interdependency between an enterprise's projects. Among all the enterprise's projects, there are different relations between different projects, and there mostly exist some interdependence and public resource-sharing between the enterprise's projects. With the implicit assumption of inter-project value additivity, the DCF approach, in the static state, not only has no regard to the economy of scale between projects, but also has no regard to the correlation and sharing between the enterprise's projects; and in the dynamic state, has no regard to the correlation between the enterprise's projects.

Finally, the DCF approach has no regard to the dependency relationship of time arrangement between an enterprise's investment projects. The sequential scheduling of the enterprise's project investment is of great significance, because the development of a previous project is helpful for the implementation of a subsequent project. But in most cases, the net present value of the project developed first is always negative; therefore, the DCF approach cannot represent the strategic significance of investment projects in terms of time arrangements.