

VALUING GROWTH COMPANIES PART I

James P. Catty

© 2001

Many commentators describe the Internet as the "Railroads of the Twenty-first Century". One hundred and fifty years ago, at the height of the railroad booms, investors did not understand railroad companies. In many cases, the shares fluctuated enormously and the industry caused numerous stock market "crashes". Most railroad companies were reorganized at least once; they gradually merged into the nine Class I systems that today dominate many aspects of North American transportation. Yet shrewd analysts, such as John Moody, the founder of the bond rating firm, were able to develop methods to value their securities.

Today, in a much more sophisticated and better regulated world, there are techniques that allow the valuation of virtually every type of business. The following table sets out the generally accepted valuation methods, indicating which are appropriate ("A") for each of the three Segments of corporate activity.

	Existing Operations	Emerging Activities	Future Opportunities
Traditional Approaches			
<i>Market</i>			
Transaction Based Value	A	A	
<i>Earnings</i>			
Capitalized Net Income	A		
Discounted Cash Flow	A		
First Chicago Method	A		
Capitalized Cash Flow	A		
<i>Asset</i>			
Tangible Equity + Intangibles	A		
Modified Approaches			
Other Multiples		A	
Adjusted Present Value		A	
Equity Cash Flow		A	
Additional Approaches			
Real Options			A
Economic Value Generated	A		
Non-Financial Data	A	A	

Valuing Growth Companies Part I

Existing Operations

The most common method of valuing Existing Operations is capitalized Net Income. In many cases, it is the practice to use reported or Proforma Earnings Per Share, rather than establishing the Sustainable Net Income, together with a Capitalization Rate obtained from traded securities. As a result, this Net Income Value is often a hybrid between the Earnings and Market approaches.

In our view this is not satisfactory, especially for a "growth company". It confuses the three Segments by combining the Existing Operations with the Emerging Activities and ignoring the Future Opportunities. To obtain realistic results it is absolutely essential to value each segment separately.

For Existing Operations, depending on the expected economic life, the choice is between capitalizing current earnings or cash flows and discounting future cash flows. In our view, because of its simplicity and the ability to include in the Capitalization Rate a factor that reflects growth in line with that projected for the economy, we prefer the Net Income Value. In either case, the Net Income must be adjusted to remove not only the usual extraordinary, non-recurring and non-operating items but also all costs and revenues pertaining to the Emerging Activities as well as the R&D and marketing expenses related to Future Opportunities.

In establishing the Capitalization Rate, valuers normally look to the "Equity Premium"; this is the excess of the rates of return on publicly traded shares over those on government bonds. Traditionally, the longest possible term has been used, since 1926 in the United States. However, as securities regulations and corporate governance have changed greatly over the, we recommend only using data after 1951, when wartime controls were eliminated.

Emerging Activities

In any business the Emerging Activities involve many more uncertainties than Existing Operations. No matter how hard management tries, it is not possible to produce budgets or financial projections that will accurately reflect the results of Emerging Activities in the current year, much less two or three years into the future.

Therefore, in valuing Emerging Activities, we consider it essential to apply the First Chicago Method, which involves a number of scenarios representing Alternative Futures. We have found a minimum of three and a maximum of five to be both practical and enlightening. These will not be the typical "most likely", "best case", "worst case" versions of the Income Statement commonly used in budgeting, but complete sets of Financial Projections, reflecting, in detail, the effects of various assumptions relating to every underlying business.

We normally establish the value of each scenario by the Adjusted Present Value ("APV") Method. This is an updated version of the traditional DCF which segregates the operational and financial

Valuing Growth Companies Part I

components of the value and discounts them separately. We consider this to be preferable to using a single discount rate, commonly the WACC (Weighted Average Cost of Capital) that bundles the financing and tax effects into a single number; thereby implicitly assuming a fixed, not necessarily optimal, capital structure.

The first step in valuing an Emerging Activity is to calculate the APV of the projected cash flows of each scenario as if it were completely financed with equity, using either the cost of capital to the company, or that of a comparable, unlevered enterprise, as the Discount Rate.

The second step is to look at the present value of the Tax Shield generated by any Tax Depreciation, together with the interest effect of the portion of the Working Capital or other assets, such as real estate, supplied by debt. This is likely to be low or zero in the early years, but may be significant in establishing the Terminal Value. Other factors to be considered in this step are any grants or subsidies, as well as investment or R&D tax credits. The APV of a scenario is the total of that of the Cash Flows plus that of the Tax Shield; depending on the corporate structure, the latter will likely use a lower Discount Rate due to the relative certainty of the Tax Shield being able to be applied to profits from Existing Operations.

When the APV method is used to value potential acquisitions, significant debt may be involved: in such circumstances the Tax Shield should also reflect the changing capital structure over time and reflect the costs of "potential financial distress", as well as the projected financing costs.

After establishing the APV of each Alternative Future scenario, the third step is for management to estimate their probabilities. With three scenarios, it is relatively easy to produce high and low ranges, but with five, it can become rather difficult. The final step is to multiply each APV by its high and low probabilities and add them together to give the high and low ends of a range of values.

Future Opportunities

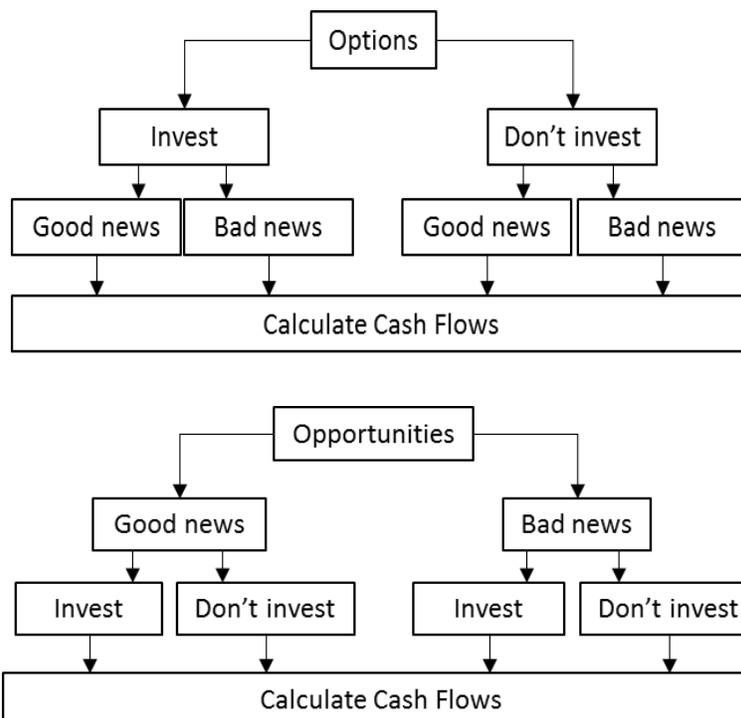
Future Opportunities are possible operations, but with a major difference. With Existing Operations, management makes decisions and then finds out what happens; traditional valuation methods are designed for this sort of problem. With Future Opportunities, management must endeavour to find out much of what is likely to happen before major decisions are made.

For example, establishing an R&D budget involves informally valuing Future Opportunities. Current spending on a particular project will not create any cash flow, but ensures the opportunity to make a further investment later, depending on how things look at that time. Traditionally, opportunities have been valued implicitly by being included in the growth rate of the Existing Operations. Only when they have matured to the point where the investment can no longer be deferred, do they join the queue of projects awaiting funding. Often champions arise to promote

Valuing Growth Companies Part I

and defend opportunities they regard as valuable, resulting in such "strategic projects" being assigned a lower "hurdle rate" than routine investments.

The following diagrams, based on an article by Timothy Luehrman in the Harvard Business Review, May 1997, demonstrate the difference.



The right to start, modify or stop a business activity at some time in the future is different from the obligation to operate it now. The crucial decision to invest or not will not be made until some uncertainties are resolved or time runs out. In financial terms, this is analogous to an option which gives the holder the right, but not the obligation, to buy (call) something at a specified price on or before a future date.

A call option on a share may grant the right to buy for, say, \$100 at any time within the next year. If the share trades at \$110, the option is worth more than the \$10 "in-the-money" amount, as it has substantial leverage participating dollar for dollar with the share if it rises. If the share trades at \$90, the option is still valuable, because it does not expire for twelve months and during that period the price may well exceed \$100.

The phrase used about Future Opportunities "if R&D proves that the concept is valid" is analogous to "if the share price rises in the next few months", while "we'll go ahead and invest" is similar to "we'll exercise the option".

Valuing Growth Companies Part I

Valuing options in the financial industry is a complex matter as traders want the "right answer" before making a transaction. In valuing Future Opportunities within a company as "real" options, the objective is to get as close to the truth as possible without becoming too fancy.

Example of Real Option Value

Expressing an Opportunity in the form of a Real Option can give a more realistic value for a high-tech start-up. Such firms have negative cash flows from R&D and marketing in the first few years, during which they will likely find staff, obtain customers, select programs and systems and build a plant. Thereafter, they obtain sales and, hopefully, profits.

Traditionally, the DCF Value is used with a lower discount rate for the negative cash flows in the early years. In practice, management has the option, not an obligation, for further spending. If at the end of the first year the technology proves unsatisfactory or the market weaker than expected, the next year's outlays can be deferred or abandoned.

For example, an entrepreneur wishes to establish a digital switch manufacturer. A traditional DCF analysis indicates a value of \$10 million. In the first two years, the company will: assess the market, design & test the equipment, hire key managers, sign up suppliers and establish distributors at a cost of \$1.2 million.

At the end of the period, a decision must be made whether to build a manufacturing plant at a cost of \$6 million or sub-contract production. The decision will depend on the situation at that time, which may result in a value different from the \$10 million of to-day. Assume guideline (comparable) companies have a 25% cost of equity and annual share price volatility of 45%, what is the value of this project today?

Conventional DCF techniques produce a negative value of \$420,000; this implies that the enterprise should be abandoned, saving start-up funds. However, the decision to build a plant at the end of year two is, in effect, a "call option", to be exercised only if its cost is less than the market value at that time.

In two years, the value of the Opportunity will be \$6,400,000 (\$10,000,000 discounted at 25% for two years) compared with the \$6,000,000 estimated cost of the plant. Therefore, at that time, it would be in-the-money by \$400,000. Using the most common Option Pricing Model (Black-Scholes), the ability to wait for two years before making the second investment decision has a value of \$2,000,000. To purchase this requires the commitment of \$1.2 million today, giving a Real Option Value of \$800,000 for the enterprise.