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DCF With Future Capital Requirements

June 2, 2007



Building your future



Background

- When valuing an equity interest, sometimes we run into a situation where the survival of the subject company is dependent on future equity contributions from new investors.
- Several experienced appraisers were asked, “how should future required equity contributions be reflected into a DCF model?”
- The responses from the individuals polled were different. Some said to ignore the equity contributions, others said they had to be considered in the analysis.
- Today I will present a recommendation on how to handle this issue supported by some examples. This presentation ignores control and marketability issues for simplification of the examples.



What are the options?

- Our objective is to value the equity interest of existing shareholders as of the valuation date:
 - Option 1. Ignore contributions of new investors in the projection period.
 - Option 2. Include contributions of new investors in the projected cash flows and partition those cash flows between the portion claimed by existing shareholders versus new investors.
 - Option 3. Include contributions of new investors in projected cash flows and deduct this new capital from the value conclusion.



Some Preliminary Observations

- Option 3 only works if the new investors contribute equity on the *valuation date*.
 - Example: \$150,000 is contributed by new investors in year 2 of the projections. \$150,000 is then deducted from the NPV of projected cash flows (as of the valuation date).
 - Mismatched timing, new investors do not have a \$150,000 claim as of the valuation date.
- That leaves us with Options 1 and 2
 - The easiest course of action depends on whether new equity investors buy in at a *fair price*



Example – Scenario 1

- Assume the below free cash flows to equity, and cost of equity is 20%.
- Existing shareholders at valuation date fund and collect all future required cash inflows and outflows.

Scenario 1 - All future cash inflows and outflows are captured by existing equity holders at valuation date

Cost of Equity: 20%									
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Terminal</u>	<u>Year</u>
Free Cash Flow to Equity	(\$200,000)	(\$150,000)	\$300,000	\$360,000	\$414,000	\$455,400	\$478,170	\$502,079	
Growth Rate				20%	15%	10%	5%	5%	
Terminal Value								\$2,510,392	
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	6.5	
Present Value Factor	0.9129	0.7607	0.6339	0.5283	0.4402	0.3669	0.3057	0.3057	
Present Value	(\$182,574)	(\$114,109)	\$190,181	\$190,181	\$182,257	\$167,069	\$146,185	\$767,474	
Net Present Value	\$1,346,665								

Example – Scenario 2

- Same free cash flows to equity as Scenario 1.
- New investors contribute \$150,000 of equity six months into first year of projections. Their cost of equity is 20%, same as existing investors.

Scenario 2 - All future cash inflows and outflows are shared with new equity investors

	Cost of Equity: 20%							
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Terminal Year</u>
Free Cash Flow to Equity of Company	(\$200,000)	(\$150,000)	\$300,000	\$360,000	\$414,000	\$455,400	\$478,170	\$502,079
Terminal Value of Company								\$2,510,392
Equity Contribution of New Investors	\$150,000							
Required Return to New Investors		(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$30,000)	(\$150,000)
Net Cash Flows to Existing Investors	(\$50,000)	(\$180,000)	\$270,000	\$330,000	\$384,000	\$425,400	\$448,170	\$2,360,392
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	6.5
Present Value Factor	0.9129	0.7607	0.6339	0.5283	0.4402	0.3669	0.3057	0.3057
Present Value to Existing Investors	(\$45,644)	(\$136,931)	\$171,163	\$174,333	\$169,050	\$156,063	\$137,014	\$721,616
Net Present Value to Existing Investors	\$1,346,666							

Example – Scenario 2 (continued)

- Here are the cash flows to new investors, reflecting a 20% expected return.
- The cash flows to new investors have a zero NPV impact on existing investors as long as their expected rate of return is the same as that of existing investors.

Scenario 2 - All future cash inflows and outflows are shared with new equity investors

	Cost of Equity: 20%							Terminal
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year</u>
Equity Contribution of New Investors	(\$150,000)							
Required Return to New Investors		\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Net Cash Flows to New Investors	(\$150,000)	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	6.5
Present Value Factor	0.9129	0.7607	0.6339	0.5283	0.4402	0.3669	0.3057	0.3057
Present Value to New Investors	(\$136,931)	\$22,822	\$19,018	\$15,848	\$13,207	\$11,006	\$9,172	\$45,858
Net Present Value to New Investors	\$0							



Implications

- The examples in Scenarios 1 and 2 show us that as long as new investors contribute equity with an expected rate of return that matches that of existing shareholders, their impact on existing shareholders at the valuation date is net present value neutral.
- Therefore as long as the above holds true, ignoring future equity contributions in a DCF valuation model is fine (and less work!)
- If existing shareholders cost of equity = new investors cost of equity, this implies new investors must buy in at a fair price, or the market value of the same shares held by existing shareholders.
 - Let's look at an example.....



Example – Scenario 1, Revisited

- Scenario 1 again, same free cash flows to equity.
- Assume existing shareholders have 250,000 shares of common at valuation date. Implied market value per share is \$5.39

Scenario 1 - All future cash inflows and outflows are captured by existing equity holders at valuation date

	Cost of Equity: 20%							
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Terminal Year</u>
Free Cash Flow to Equity	(\$200,000)	(\$150,000)	\$300,000	\$360,000	\$414,000	\$455,400	\$478,170	\$502,079
Growth Rate				20%	15%	10%	5%	5%
Terminal Value								\$2,510,392
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	6.5
Present Value Factor	0.9129	0.7607	0.6339	0.5283	0.4402	0.3669	0.3057	0.3057
Present Value	(\$182,574)	(\$114,109)	\$190,181	\$190,181	\$182,257	\$167,069	\$146,185	\$767,474
Net Present Value	\$1,346,665							
Assume Existing Investors Have	250,000		Shares of Common Stock					
Value Per Share is	\$5.39							

Example – Scenario 2, Revisited

- Scenario 2 again, but new investors contribute \$150,000 of equity on the valuation date, and purchase common stock.
- We know that the market value of common is \$5.39 per share (rounded), so new investors get 27,847 shares (rounded).

Scenario 2 - All future cash inflows and outflows are shared with new equity investors

	<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Terminal Year</u>
Cost of Equity:	20%								
Equity Contribution of New Investors	\$150,000								
Total shares of Common Stock Purchased @ \$5.39	27,847								
Free Cash Flow to Equity of Company		(\$200,000)	(\$150,000)	\$300,000	\$360,000	\$414,000	\$455,400	\$478,170	\$502,079
Terminal Value of Company									\$2,510,392
Cash inflow of New Investors Contribution	\$150,000								
Net Cash Flows to All Investors	\$150,000	(\$200,000)	(\$150,000)	\$300,000	\$360,000	\$414,000	\$455,400	\$478,170	\$2,510,392
Proportion of Cash Flows Due to New Investors = (27,847 shares) / (27,847+ 250,000 shares) = 10.02%	(\$15,033)	\$20,045	\$15,033	(\$30,067)	(\$36,080)	(\$41,492)	(\$45,641)	(\$47,924)	(\$251,599)
Cash Flows to Existing Investors	\$134,967	(\$179,955)	(\$134,967)	\$269,933	\$323,920	\$372,508	\$409,759	\$430,247	\$2,258,794
Period	0	0.5	1.5	2.5	3.5	4.5	5.5	6.5	6.5
Present Value Factor	1.0000	0.9129	0.7607	0.6339	0.5283	0.4402	0.3669	0.3057	0.3057
Present Value to Existing Investors	\$134,967	(\$164,276)	(\$102,673)	\$171,121	\$171,121	\$163,991	\$150,325	\$131,534	\$690,555
Net Present Value to Existing Investors	\$1,346,666								

Implications

- Therefore as long as new equity investors buy in at a fair price, defined as:
 - New investors expect the same return as existing shareholders (on the same class of stock) or,
 - New investors purchase a class of stock at the market value of that class of stock on the purchase date.
- I would then recommend ignoring any future equity contributions in a DCF model.



Implications (continued)

- What if we know future equity contributions are not going to be at a fair price?
 - Agreement in place at valuation date for future equity contributions at pre-determined price
 - Prior rounds of equity financing have clearly had a dilutive impact on existing shareholders
- Then we cannot ignore future equity contributions, as they disrupt the NPV of cash flows to existing shareholders.
- If there is a pre-determined agreement, consider adding future anticipated contributions as a receivable on the balance sheet, and the associated shares in the current capital structure.
- Otherwise it seems more reasonable to assume future equity contributions will be at a fair price than not.

