WHAT IS AN INCREMENTAL DOLLAR WORTH?

Whether you are an employee, a business owner, or a shareholder, you may have wondered what an incremental dollar of investment is worth to your company.

First it depends upon the cost of funding (F%) for an incremental dollar of investment ($I), and second the return (R%) that you earn on that incremental dollar of investment. The dollar value ($V) created by the dollar of investment is simply $V = \$I*(R\% - F\%)$, and the return (RI%) on the dollar of investment is $RI\% = R\% - F\%$.

These concepts are easy to see and to understand, but it is more difficult to answer what the cost of funding (F%) and return (R%) really are when applied to a company's financials. Should the cost of funding (CoF) be your lowest or highest CoF, your shortest-term or longest-term source of funding, or your historical or next incremental source of funding? The answer is none of these, and is instead your average cost of targeted funding. Targeted funding is the mix of equity funding (stocks) and debt funding (bonds) that your company's treasury department desires to minimize the company's total cost of funding (note that the minimum CoF should produce the highest stock price), and is measured by the company's targeted weighted average cost of capital ($WACC_t$). Actual $WACC_a$ is this same measure, but uses marked-to-market values in the calculation instead of the targeted values, and should be used when measuring the performance of past investments. Note that if the company has no debt, the WACC simply collapses into the cost of equity.

Why should we use the company's average CoF instead of the actual CoF associated with each specific investment? It is because the funding question is separate from the investing decision, and we do not want to skew our company's overall goals by incremental decisions. For example, let's say that your company's $WACC_t$ is a 35:65 mix of debt and equity respectively. An investment opportunity comes along that requires $2M that you fund with debt at 6% (i.e., 3.6% after tax assuming a marginal tax rate of 40%), and later an investment opportunity comes along for $3.7M that you fund with equity at 10%. This meets your company's $WACC_t$ of 35:65 debt and equity, but should you use a 3.6% CoF for the first project and a 10% for the second, or the $WACC_t$ of 7.76% derived from these two sources of funding? Clearly the first investment will be benefited, and the second investment penalized if localized CoF is used. In summary, the next incremental dollar of investment should assume the $WACC_t$ as its CoF.

What about an internally generated incremental dollar from a decrease in working capital or the sale of an asset, what should the CoF be if these are invested back into the company? The alternative to reinvesting these funds is to return them to the company's shareholders through a stock dividend or repurchase, or to the company's bondholders through a call on the bonds; since these are treasury functions and part of treasury's $WACC_t$, the CoF should be the $WACC_t$. However, if net income is retained and reinvested back into the company as retained earnings, this has occurred after any stock dividends or stock buybacks, so retained earnings should have a CoF equal to the cost of equity.

The funds invested traditionally go towards property, plant & equipment (PP&E), also known as fixed assets, or increases in the current operating assets and current operating liabilities which are net against to form net operating working capital (NOWC), with NOWC increasing. However, for a company that relies on off balance sheet human assets and/or operating

leases, an investment may appear as excess non-operating cash and/or marketable securities, with these "self-restricted" reserves serving to fund an expansion of off-balance-sheet activities. Basically the investment (Invested Capital) can be measured by the amount of cash invested into the company which can be obtained from the cash flow statement, or the difference between the balance sheet before and after the investment, excluding the LT-debt and shareholder's equity (adjusted for any assets sales and with depreciation and amortization added back).

The only piece missing is the return received on the invested funds, and this is measured by the anticipated change in net operating profit after taxes (ΔNOPAT) that can be attributed to the investment, with NOPAT equaling the after-tax earnings before interest and taxes (i.e., EBIT (1-T)). NOPAT is used instead of net income (NI) because invested capital is usually used for expanding operating assets, and thus does not earn interest. The anticipated change in NOPAT results from more revenue being generated due to a price and/or volume increase, and/or potentially higher margins due to cost reductions. For example, new equipment can bring about higher throughput (i.e., increased volume and possibly economies-of-scale savings) and/or less waste/scrap (expense), or perhaps a higher quality product justifying an increased price. An investment may also be used for the expansion of an existing product line or launch of a new product line. Regardless of the investment, the incremental change seen in NOPAT should measure the return. The percent return for the next incremental dollar can then be expressed as (ΔNOPAT / Invested Capital), which is known as return on invested capital (ROIC), but is being measured on an incremental basis.

Pulling these concepts together into one formula, we then get:

$V = Capital Invested × (ROIC − WACC$_t$) ≡ ΔNOPAT − Capital Invested × WACC$_t$

 and

V% = ROIC − WACC$_t$

The $V derived above is known as economic value added (EVA®), which is a registered trademark of Stern Stewart & Co. Though they have called this formula EVA®, it is a fundamental finance formula. I have used an incremental approach to my analysis above, but EVA® is applied to the total firm, using total capital invested throughout the life of the firm, NOPAT for the firm, and WACC$_a$.