



Big Idea

 [A New Model for Capital Structure](#)

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NEW YORK (Dow Jones Banking Intelligence) -- The decision as to how much debt to use in a capital structure has largely been made by rule of thumb, with reference to peer groups and credit ratings. But a new model makes it possible to calculate the optimal capital structure for any company. This should be a useful tool for financial managers and bankers.

Developed by Professors Jules H. Binsbergen of Northwestern and Stanford Universities, John Graham of Duke University, and Jie Yang of Georgetown University, the model determines the benefit-of-debt and cost-of-debt curves and identifies the point of intersection, where an additional dollar of debt would cost more than the benefit it produces. The point where the curves intersect is the point of optimal leverage in the capital structure.

The attached Excel shows how it can work in practice to identify optimal leverage for a set of companies in the health care and energy industries.

[CLICK HERE For EXCEL ON Optimal Capital Structure Model](#)

The biggest benefit of debt - for most companies - is the tax benefit, and the benefit-of-debt curve is essentially the present value of those tax benefits, adjusted for the effect of tax loss carrybacks and carryforwards, investment tax credits, etc. weighted by the probability that the firm will be profitable in any given year.

Calculating the cost of debt is a bit more complex. It is a function of beta, debt intensity (calculated by dividing interest expense by book assets) and variables including collateral, asset composition, market equity, cash flows and others, adjusted for the size of the firm, and for whether or not it pays dividends. For a detailed explanation of the calculations, see the attached pdf of the article in the current issue of the Morgan Stanley Journal of Applied Corporate Finance, where the model's developers provide more exposition and examples.

PDF: [Optimal Capital Structure](#)

In the health care industry, for example, underleverage is costing Coventry Health Care Inc. about 3% of its asset value and overleverage is costing HealthSouth 7%, while Eli Lilly & Co. is close to its optimal leverage point and would have little to gain by leveraging and could only lose by de-levering. In the energy sector, Exxon Mobile Corporation is very slightly underleveraged, but sacrificing only about half a percentage point of value. By contrast, Whiting Petroleum Corp.'s excess leverage is costing it about 3% of its asset value. In order to convert the lost asset value to lost market value, any company can multiply by the book-to-market ratio.

It is of course a staple of private equity investing to buy underlevered companies and add debt. This model makes it possible to quantify the cost of underleverage, and could give public owners the evidence to make the case for more leverage before private equity moves on a target. It could also be useful in acquisition negotiations, because it provides some insight into how much value buyers could create simply by leveraging up.

Of course, companies may choose to use more or less than the optimal amount of leverage from time to time. For example, a company may be conserving its borrowing capacity for a major planned acquisition or other investment program, or may overlever to make an acquisition and then make debt retirement its priority. However, precisely because using more or less than the optimal amount of leverage means sacrificing value, executives should be aware of what they are doing and why they are doing it. So should shareholders.

IMAGE: Gregory J. Millman (90x90) (Gregory J. Millman is a senior columnist with Dow Jones Banking Intelligence. He holds an MBA and has worked in banking and as a business analyst in the U.S. and Asia and has more than 20 years of experience as a financial writer. He is the author of *The Vandals' Crown: How Rebel Currency Traders Overthrew the World's Central Banks*, and several other books. He can be reached at +1 (212) 416-2352 or by email at gregory.millman@dowjones.com.)

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