The Optimal Use Of Financial Leverage In A Corporate Capital Structure

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A company needs financial capital in order to operate its business. For most companies, financial capital is raised by issuing debt securities and/or by selling common stock. The amount of debt and equity that makes up a company's capital structure has many risk and return implications. Therefore, corporate management has an obligation to use a thorough and prudent process for establishing a company's target capital structure. The capital structure is how a firm finances its operations and growth by using different sources of funds.

Empirical Use of Financial Leverage

Financial leverage is defined as the extent to which fixed-income securities and preferred stock are used in a company's capital structure. Financial leverage has value due to the interest tax shield that is afforded by the U.S. corporate income tax law. The use of financial leverage also has value when the assets that are purchased with the debt capital earn more than the cost of the debt that was used to finance them. Under both of these circumstances, the use of financial leverage increases the company's profits. With that said, if the company does not have sufficient taxable income to shield, or if its operating profits are below a critical value, financial leverage will reduce equity value and thus reduce the value of the company.

Given the importance of a company's capital structure, the first step in the capital decision making process is for the management of a company to decide how much external capital it will need to raise to operate its business. Once this amount is determined, management needs to examine the financial markets to determine the terms in which the company can raise capital. This step is crucial to the process, because the market environment may curtail the ability of the company to issue debt securities or common stock at an attractive level or cost. With that said, once these questions have been answered, the management of a company can design the appropriate capital structure policy, and construct a package of

financial instruments that need to be sold to investors. By following this systematic process, management's financing decision should be implemented according to its long-run strategic plan, and the manner in which it wants to grow the company over time.
The use of financial leverage varies greatly by industry and by business sector. There are many industry sectors in which companies operate with a high degree of financial leverage. Retail stores, airlines, grocery stores, utility companies, and banking institutions are classic examples. Unfortunately, the excessive use of financial leverage by many companies in these sectors has played a paramount role in forcing a lot of them to file for Chapter 11 bankruptcy. Examples include R.H. Macy (1992), Trans World Airlines (2001), Great Atlantic & Pacific Tea Co (A&P) (2010), and Midwest Generation (2012). Moreover, excessive use of financial leverage was the primary culprit that led to the U.S. financial crisis between 2007 and 2009. The demise of Lehman Brothers (2008) and a host of other highly levered financial institutions are prime examples of the negative ramifications that are associated with the use of highly levered capital structures.

Overview of the Modigliani and Miller Theorem on Corporate Capital Structure

The study of a company's optimal capital structure dates back to 1958 when Franco Modigliani and Merton Miller published their Nobel Prize winning work "The Cost of Capital, Corporation Finance, and the Theory of Investment." As an important premise of their work, Modigliani and Miller illustrated that under conditions where corporate income taxes and distress costs are not present in the business environment, the use of financial leverage has no effect on the value of the company. This view, known as the Irrelevance Proposition theorem, is one of the most important pieces of academic theory that has ever been published.

Unfortunately, the Irrelevance Theorem, like most Nobel Prize winning works in economics, require a number of impractical assumptions that need to be accepted to apply the theory in a real world environment. In recognition of this problem, Modigliani and Miller expanded their Irrelevance Proposition theorem to include the impact of corporate income taxes, and the potential impact of distress cost, for purposes of determining the optimal capital structure for a company. Their revised work, universally known as the Trade-off Theory of capital structure, makes the case that a company's optimal capital structure should be the prudent balance between the tax benefits that are associated with the use of debt capital, and the costs associated with the potential for bankruptcy for the company. Today, the

premise of the Trade-off Theory is the foundation that corporate management should be using to determine the optimal capital structure for a company.

Impact of Financial Leverage on Performance

Perhaps the best way to illustrate the positive impact of financial leverage on a company's financial performance is by providing a simple example. The Return on Equity (ROE) is a popular fundamental used in measuring the profitability of a business as it compares the profit that a company generates in a fiscal year with the money shareholders have invested. After all, the goal of every business is to maximize shareholder wealth, and the ROE is the metric of return on shareholder's investment.

In the table below, an income statement for Company ABC has been generated assuming a capital structure that consists of 100% equity capital. Capital raised was $50 million dollars. Since only equity was issued to raise this amount, total value of equity is also $50 million. Under this type of structure, the company's ROE is projected to fall between the range of 15.6 and 23.4%, depending on the level of the company's pre-tax earnings.

TOTAL CAPITAL = $50 MILLION DOLLARS (100% EQUITY)	Expected Earnings Less 20%	Expected Earnings	Expected Earnings Plus 20%
Earnings Before Interest and Taxes	$ 12,000,000	$ 15,000,000	$ 18,000,000
Interest Expense	$ -	$ -	$ -
Pre-Tax Income	$ 12,000,000	$ 15,000,000	$ 18,000,000
Taxes @ 35%	$ 4,200,000	$ 5,250,000	$ 6,300,000
Net Income	$ 7,800,000	$ 9,750,000	$ 11,700,000
Return on Equity (ROE) (1)	**15.6%**	**19.5%**	**23.4%**

In comparison, when Company ABC's capital structure is re-engineered to consist of 50% debt capital and 50% equity capital, the company's ROE increases dramatically to a range that falls between 27.3 and 42.9%.

TOTAL CAPITAL = $50 MILLION DOLLARS (50% EQUITY & 50% DEBT)	Expected Earnings Less 20%	Expected Earnings	Expected Earnings Plus 20%
Earnings Before Interest and Taxes	$ 12,000,000	$ 15,000,000	$ 18,000,000
Interest Expense @ 6% Cost of Debt	$ 1,500,000	$ 1,500,000	$ 1,500,000
Pre-Tax Income	$ 10,500,000	$ 13,500,000	$ 16,500,000
Taxes @ 35%	$ 3,675,000	$ 4,725,000	$ 5,775,000
Net Income	$ 6,825,000	$ 8,775,000	$ 10,725,000
Return on Equity (ROE) (2)	**27.3%**	**35.1%**	**42.9%**

As you can see from the table below, financial leverage can be used to make the performance of a company look dramatically better than what can be achieved by solely relying on the use of equity capital financing.

Percentage Point Increase in ROE due to use of Debt Capital (2) - (1)	**11.7**	**15.6**	**19.5**
Percentage Increase in ROE due to use of Debt Capital (2) / (1) - 1	**75.0%**	**80.0%**	**83.3%**

Since the management of most companies relies heavily on ROE to measure performance, it is vital to understand the components of ROE to better understand what the metric conveys.

A popular methodology for calculating ROE is the utilization of the DuPont Model. In its most simplistic form, the DuPont Model establishes a quantitative relationship between net income and equity, where a higher multiple reflects stronger performance. However, the DuPont Model also expands upon the general ROE calculation to include three of its component parts. These parts include the company's profit margin, its asset turnover, and its equity multiplier. Accordingly, this expanded DuPont formula for ROE is as follows:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Equity}} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

Based on this equation, the DuPont Model illustrates that a company's ROE can only be improved by increasing the company's profitability, by increasing its operating efficiency, or by increasing its financial leverage.

Measurement of Financial Leverage Risk

Corporate management tends to measure financial leverage by using short-term solvency rations. Like the name implies, these ratios are used to measure the ability of the company to meet its short-term obligations. Two of the most utilized short-term solvency ratios are the current ratio and acid-test ratio. Both of these ratios compare the company's current assets to its current liabilities. However, while the current ratio provides an aggregated risk metric, the acid-test ratio provides a better assessment of the composition of the company's current assets for purposes of meeting its current liability obligations since it excludes inventory from current assets.

Capitalization ratios are also used to measure financial leverage. While there are many capitalization ratios that are used in the industry, two of the most popular metrics are the long-term-debt-to-equity ratio and the total-debt-to-capitalization ratio. The use of these ratios is also very important for measuring financial leverage. However, these ratios can be easily distorted if management leases the company's assets without capitalizing the assets' value on the company's balance sheet. Moreover, in a market environment where short-term lending rates are low, management may elect to use short-term debt to fund both its short- and long-term capital needs. Therefore, short-term capitalization metrics also need to be used to conduct a thorough risk analysis.

Coverage ratios are also used to measure financial leverage. The interest coverage ratio, also known as the times-interest-earned ratio, is perhaps the most well-known risk metric. The interest coverage ratio is very important because it provides an indication of a company's ability to have enough pre-tax operating income to cover the cost of its financial burden. The funds-from-operations-to-total-debt ratio, and the free-operating-cash-flow-to-total-debt ratio are also important risk metrics that are used by corporate management.

Factors Considered in the Capital Structure Decision-Making Process

There are many quantitative and qualitative factors that need to be taken into account when establishing the company's capital structure. First, from the standpoint of sales, a company that exhibits high and relatively stable sales activity is in a better position to utilize financial

leverage, as compared to a company that has lower and more volatile sales.
Second, in terms of business risk, a company with less operating leverage tends to be able to take on more financial leverage than a company with a high degree of operating leverage.

Third, in terms of growth, faster growing companies are likely to rely more heavily on the use of financial leverage, because these types of companies tend to need more capital at their disposal than their slow growth counterparts.

Fourth, from the standpoint of taxes, a company that is in a higher tax bracket tends to utilize more debt to take advantage of the interest tax shield benefits.

Fifth, a company that is less profitable tends to use more financial leverage, because a less profitable company is typically not in a strong enough position to finance its business operations from internally generated funds.

The capital structure decision can also be addressed by looking at a host of internal and external factors. First, from the standpoint of management, companies that are run by aggressive leaders tend to use more financial leverage. In this respect, their purpose for using financial leverage is not only to increase the performance of the company, but to also help ensure their control of the company.

Second, when times are good, capital can be raised by issuing either stocks or bonds. However, when times are bad, suppliers of capital typically prefer a secured position, which in turn puts more emphasis on the use of debt capital. With this in mind, management tends to structure the capital makeup of the company in a manner that will provide flexibility in raising future capital in an ever-changing market environment.

The Bottom Line

In essence, corporate management utilizes financial leverage primarily to increase the company's earnings per share and to increase its return-on-equity. However, with these advantages come increased earnings variability and the potential for an increase in the cost of financial distress, perhaps even bankruptcy. With this in mind, the management of a company should take into account the business risk of the company, the company's tax position, the financial flexibility of the company's capital structure, and the company's degree of managerial aggressiveness when determining the optimal capital structure.