



# Steps In Security Analysis: Capital Structure

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**S**ecurity analysis of individual stocks is a tedious and time-consuming project. It's often frustrating as well! To the securities industry's discredit, financial statements, the basic source material for analysis, are only generally standardized in their format and content and almost always present figures in their raw form and not also in the more accessible "percentage of revenue" format. Ambiguities abound, making it a challenge to decide what to ignore and what to retain. Despite the frustration, however, security analysis can be fascinating and financially rewarding.

This article introduces a first step in security analysis: determining the capital structure of an enterprise. Capital structure chiefly refers to the ratio of the two main sources of long-term financing that companies seek from investors to fund their activities: debt (bonds and loans) and equity (common shares).

Take, for example, a company that is setting up to fabricate large aircraft tires. It needs to build or lease factory space, hire production workers, sales and executive staff and to set up marketing and finance departments. To obtain cash for these purposes it could issue bonds, upon which it is obliged to pay interest semi-annually and to redeem fully at maturity. It could also issue common shares, which (usually) entitle their holders to an ownership stake in the firm but doesn't require the company to make regular cash payments to the shareowners.

At first glance it looks like issuing shares alone would be the way to go. When times are hard there would be no risk of having to make cash payments that might force the company into bankruptcy. Also, there would be no interest charges to pay in good times and that would mean more profit for the owners. However, the tax system makes it attractive to issue debt, since the bond interest is deductible for tax purposes. For example, a 6% bond, if the company's tax rate were 25%, would effectively cost it only 4.5% after-tax. Once the owners had paid this

relatively low interest charge the remaining cash would be profit for them.

Indeed, a firm could magnify its return on investment by loading up on debt and employing it as "leverage." That is, the company would reap profits after bond interest is paid without ever having to risk very much of the personal capital of the owners of the enterprise. They would greatly increase their return on invested capital, or ROIC. (Some investors employ this kind of leveraging with their personal share purchases by running large margin accounts with their broker, hoping that the tax-deductible cost of their loan will be far exceeded by the gains they make from their share holdings.) Moreover, since the company's owners have issued only a small number of shares and most to themselves, they stand to make a pile of money in profitable years.

Of course, leveraging has its limits. The more debt a company carries the higher the interest rate its lenders will demand. This is because the risk of default and bankruptcy rises in keeping with the percentage of the firm's total capital represented by borrowed money (think Greece, or Ontario for that matter). Lenders also expect that the annual interest charges on the debt will be very well covered by the firm's annual earnings. That becomes more difficult the more interest charges there are. Creditors will demand a much higher interest rate to contribute to a debt carrying and repayment load that they judge to be risky, thereby rendering void the potential gain from leveraging.

Each company and industry seeks a capital structure target that suits its particular circumstance, combining debt and equity to optimize its long-term profit potential. An industry that is cyclical would not want to carry a lot of debt because when the economy was bad its earnings might not be sufficient to cover its interest charges. And too much debt on its balance sheet when the economy was good would mean that the rate it was charged would be so

high that interest charges would be a drag on profitability (although the lender might make a tidy profit!).

Lest I leave the wrong impression, equity capital in the form of common shares does have its own cost, although it is not as visible as that of debt. With bonds, the cost is known. It is the sum of the semi-annual interest payments, less the amount attributable to their tax deductibility, and the repayment of the bond's face value at maturity.

Common shares, on the other hand, don't require a company make payments to their holders in the form of dividends, although it may choose to do so. And it is not obliged to buy back the shares from investors. The financial cost to the company is effectively zero. Nevertheless, equity investors expect that over time they will make a return on the investment that they have made in the company. If they don't think that they will make a fair return (in dividend income and capital gain) by buying a particular company's shares, they will look elsewhere. This is the "opportunity cost" of the shares, which is an economic cost, but a real cost nonetheless. If investors can get a better deal with another investment opportunity, they will put their money there.

The rate of return that investors demand for their investment is the cost of the equity capital. A company must meet this cost or it will have difficult in issuing shares.

From a financial point of view, knowing how a firm's capital is deployed can help an investor to determine how risky it is. If a firm has a lot of debt relative to its total capital it could be forced into bankruptcy when its sales revenue falls and it can't pay the interest on its bonds. From an economic point of view, capital structure reveals what a company's capital costs. As Claude Morel's articles on *Economic Value Added (EVA)* in the September and October 2011 *Canadian MoneySaver* point out, if a company is paying more for its capital than it is generating in profit, it is slowly eating away at its value. Its share price will eventually fall to reflect that unhappy situation.

The sidebar that accompanies this article (compiled with help from Carol Upton, whose father, the late Frank Upton was a faithful *MoneySaver* subscriber) lists the steps to be followed in determining the capital structure of a given company. The analysis can be done with paper and a calculator or automated with a computer spreadsheet. The math is not difficult.

The method as outlined here is simplified, but the basic approach remains valid. If you would like to modify the steps, please feel free. You may want to employ the book

value of the firm's equity and not its market value. The goal of the exercise is to learn a method, not to strive for an exact result.

When you have finished, you will have downloaded and examined up to 10 years of past history for a company in its annual reports, traced its share price history, and determined how much it relies on debt and equity financing. A next step could be to compare its capital structure with that of other firms in its industry to see if it is in line with the industry average. You could also go on calculate the company's debt/equity ratio (based on market and not book values) and its interest coverage to see how they match up with those of its competitors. As you progress in security analysis, you will be able to work out a firm's cost of capital, which is used to estimate the "intrinsic" value per share of the company. It can be compared with the share's market price to see if it is under- or over-valued. Future articles may address this process. For now, it's important just to take that first step in "hands-on" analysis and get a taste for how it is done.

Should you want to prepare yourself to analyze stocks in more detail, solid preparation is vital. An introductory course in accounting will provide you with the terminology and concepts used in business, rendering financial statements more comprehensible. As for background reading, a basic investing book such as *Learn to Earn* by Peter Lynch makes a good start. There are also many other inexpensive introductory books on the fundamental aspects of investing that introduce the language and procedures of studying stocks. Reading such books can make investing terminology less of a barrier to understanding. I have written a three-part series of brief articles on annual reports to this end (*MoneySaver*, October to December 2000).

The approach to security analysis taken in this article can be termed "value investing." For we amateurs in analysis, the best book dealing specifically with the value investing approach is *Value Investing*, by Bruce Greenwald et al (Wiley, 2001; see the discussion of capital structure on pp. 97-99). Other books that are helpful include Benjamin Graham, *The Intelligent Investor* (Collins Business edition, 2006; capital structure pp. 293-294) and his classic work *Security Analysis* (6th ed., McGraw Hill, 2009; capitalization structure pp. 507-519), which I reviewed in the June 2011 *MoneySaver*. For a broad view of different methods employed by analysts, *Corporate Valuation* by David Frykman and Jakob Tolleryd is instructive, covering a lot of ground without undue jargon and complexity (2nd ed., FT Prentice Hall, 2010; capital structure discussion pp. 77-80).

Advanced students would benefit from the intensive course offered from time to time in Toronto by the Richard Ivey School of Business' Ben Graham Centre for Value Investing (see [www.bengrahaminvesting.ca](http://www.bengrahaminvesting.ca)). But be warned, it is expensive as well as intensive!

It's a hallmark of the *Canadian MoneySaver* that its readers are do-it-yourselfers. Security analysis is well within the capability of DIY investors who have the time and energy to devote to it. It may not make us millionaires, but even at its shallowest level, analysis will help us to avoid bad investments and to "save our money!"

## Steps In Determining Capital Structure

First, choose a company that interests you. I often look at a company that one of my favourite mutual fund managers is holding. At the beginner level it is best to choose a medium-size company that does not have a complex capital structure involving preferred shares and other less well-known sources of financing. Torstar (TS.B) or Glacier Media (GVC) might be a place to start.

Below are the steps to follow, with an estimated time for completion after each. The actual time it takes will depend on your skill and experience with spreadsheets and financial statements. Only a basic knowledge of both is required at this stage. The work can also be done with paper and a calculator -- the math is simple.

**1.** Download the annual reports from the company's website (or the securities' industry SEDAR site) for 10 years (enough years to include a business cycle) or fewer if there was a major change in the firm less than 10 years ago. Print off the 3 or 4 pages of the Financial Statements section (balance sheet, income or earnings, cash flow and shareholders equity statements) for each year for easy reference later. Much of this information is available in tabular form on various websites, but it may not correspond to the data in the annual report in the way that is needed for your analysis. As well, working with the financial statements will help you to gain in-depth knowledge of the company. (30 minutes)

**2.** Set up a spreadsheet workbook using a programme such as the free Open Office Calc spreadsheet or Microsoft's Excel. Name one page of the workbook "Capitalization" and another one "Rough calculations." More pages can be added later.

Calculate the average share price for every calendar year for the same time period covered in Step 1. To do this you will use as your data historical share prices, which can be found on several websites. Unfortunately, there is no uniformity in the way in which ticker symbols are entered on these websites. Stock splits may be handled in different ways and not all the websites will offer data for the desired company or time period. Use the Morningstar.ca site to start.

Go to Morningstar.ca, enter the ticker symbol of your company on the Home page, and then click on the com-

pany's "Performance" tab, followed by the "Price History" tab. You can specify quarterly prices for a 10-year range and then calculate the averages for each year by hand. Or you can employ the spreadsheet, cutting and pasting the quarterly dates and prices into the Rough Calculations page and making use of the programme's Average function (labeled AVERAGE or AVG) to calculate the annual averages.

For greater accuracy use monthly prices from a source such as the Yahoo Finance website ([finance.yahoo.com](http://finance.yahoo.com)). Enter the stock symbol on this site's "Get Quotes" box and then click on "Historical Prices" located on the left side of the company's page. Choose the date range you want and select "Monthly" prices. At the bottom of the page click on "Download to Spreadsheet" which will provide you with a "comma-separated values" (.CSV) format file that can be imported into your spreadsheet. If the CSV file only shows up in your browser and is not downloaded, select the text, cut and paste it into a text editor or word-processing programme, then save it as a CSV file that can be opened by or imported into a spreadsheet. Work with the Date and Closing Price columns of the CSV file, employing the Average function to calculate the average price for each year.

The CanadianBusiness.com website has downloadable daily historical prices in CSV format, but not more convenient monthly or quarterly options. Dailyfinance.com has daily prices but they are not downloadable. Should you be in a hurry, you could make a rough approximation of the annual average share prices by estimating them "by eye" from a 10-year price chart for the company. (30 minutes)

**3.** Set up the Capitalization page with the following eight column titles in columns A to G: Year, Shares o/s (shares outstanding), Share Price, Equity, Debt, Total Capital, Equity Ratio, and Debt Ratio. (See Figure 1 on the next page for an example)

**Year:** List the years under study in column A, starting at row 2.

**Shares o/s:** Enter the number of outstanding shares for each year in column B. You can find this information in the financial statements or the Notes section of the

Year	Shares o/s	Share Price	Equity	Debt	Total Capital	Equity Ratio	Debt ratio
2004	23.4	18.92	442.7	93.3	536.0	0.83	0.17
2005	27.3	14.87	406.0	192.1	598.1	0.68	0.32
2006	33.6	10.23	343.7	190.0	533.7	0.64	0.36
2007	33.6	8.83	296.7	155.2	451.9	0.66	0.34
2008	31.7	11.77	373.1	185.0	558.1	0.67	0.33
2009	30.7	7.84	240.7	160.1	400.8	0.60	0.40
2010	30.7	12.43	381.6	152.8	534.4	0.71	0.29
Average						0.68	0.32

Figure 1: Chemtrade Logistics CHE.UN

annual reports. Format the number in millions to one decimal place.

**Share Price:** Enter the respective average annual share prices calculated in Step 2 in column C, formatted to 2 decimal places.

**Equity:** Multiply the Shares o/s by the Share Price for each year in column D (formula: =b2\*c2, =b3\*c3...). The product is the equity portion of the company's total capital. Format the number in millions to one decimal place.

**Debt:** Using the balance sheets previously downloaded, calculate the sum of the long-term debt (LTD, in the Long-term Liabilities section) and the current or short-term portion of the LTD (look under Current Liabilities) for each year in millions and enter it in column E. Format it to one decimal place. The short-term portion of the LTD is usually rolled over each year and so can be considered LTD.

**Total Capital:** Add the Equity and the Debt columns for each year in column F (formula: =d2+e2...). This represents the total capital of the company (ignoring pre-

ferred shares and other sources of capital for simplicity). Format the number in millions to one decimal place.

**Equity Ratio:** Divide Equity by Total Capital for each year in column G (formula: =d2/f2...), which yields the equity portion of the company's capital structure (i.e., 0.83 = 83%). Format it to 2 decimal places.

**Debt Ratio:** Divide Debt by Total Capital for each year in column H (formula: =e2/f2...), which yields the debt portion of the company's capital structure. Format it to 2 decimal places. (90 minutes)

4. Calculate the average for all the years under study using the spreadsheet's Average function for both Equity Ratio and Debt Ratio in columns G and H, entering it at the bottom of each of these columns. These are the two components of the company's capital structure. (5 minutes)

When you are finished working with the spreadsheet, you can look at research reports from brokerage houses or the Internet for the company under analysis. What figures did they come up with for debt, equity and capital structure ratios? Are they different from yours? They may have worked with different assumptions (using book values and not market values, for example) and arrived at different results. Despite any differences, you can be pleased that now you have an idea of what security analysis is like. That knowledge will give you a better understanding of just what all that third-party research material means and how it is compiled.

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