

Bond Ratings and the Cost of Debt

Objective: The purpose of this assignment is to introduce you to how to calculate a synthetic bond rating and also the cost of debt. We will look at two companies in helping you to understand the interrelationship between the financial statements, financial ratios, bond ratings, the term structure of interest rates, and the cost of debt.

Companies:

Comcast (CMCSA): The first company we will look at is Comcast. Comcast Corporation is involved in three principal lines of business: cable, commerce and content. Although Comcast historically conducted its commerce business through QVC, its electronic retailing subsidiary, in September 2003, the Company sold its interest in QVC to Liberty Media Corporation. On February 11, 2004 Comcast Corp. announced that it has made a proposal to The Walt Disney Company to merge the two companies in a tax-free transaction. Terms of the proposed transaction are as follows: Comcast would issue 0.78 of a share of Comcast Class A voting common stock for each Disney share.



Disney shareholders would receive a premium of over \$5 billion, based on the February 11 closing prices, plus full participation in the combination benefits. Comcast's proposal values Disney at \$66 billion (which includes assumption of \$11.9 billion of Disney's net debt). Disney shareholders would own 42% of the combined company. Subsequent to this, on February 16, 2004 Comcast Corp. announced that The Walt Disney Company Board of Directors has unanimously rejected the proposal by Comcast Corporation to acquire Disney by trading .78 of a share of Comcast for each share of Disney. The Board noted that .78 of a share of Comcast is selling in the market for \$3.60 less than the market price of a share of Disney. This deficit of value in the Comcast proposal has existed from the very first day after Comcast announced it, when the deficit was \$3.24 per Disney share or a total of \$6.6 billion.

Disney (DIS): The second firm that we will focus on is Walt Disney Corporation. The Walt Disney Company is a diversified worldwide entertainment company with operations in four business segments: Media Networks, Parks and Resorts, Studio Entertainment and Consumer Products. On March 4, 2004 the Walt Disney Company announced that Chief Executive Michael Eisner was stripped of his role as chairman, but kept his position as chief executive even after 43% of shareholders voted against him in an unprecedented protest. The board has elected former U.S. Senator George Mitchell as the Company's chairman.



Debt Ratings of Comcast and Disney:

On February 11, Moody's placed Comcast Corporation's debt ratings (senior unsecured Baa3) on review for possible upgrade and the Walt Disney Company's debt ratings (senior unsecured Baa1) on review for possible downgrade following Comcast's announced merger offer to Disney shareholders. Standard & Poor's Ratings Services, in a similar move on March 18, said that its ratings on The Walt Disney Co. including its 'BBB+' corporate credit and 'A-2' commercial paper ratings, remain on CreditWatch with negative implications. Although Disney's board rejected Comcast Corp.'s merger offer, Comcast has not withdrawn the proposal and is considering its options. Disney's senior management remains under shareholder pressure from institutional investors and key former directors. This was reflected in the withholding by 43% of all voting shareholders of support to re-elect CEO Michael Eisner. Furthermore, 24% of voting shareholders withheld support to re-elect Presiding Director George Mitchell, who was named Chairman of the company in a move to separate the CEO and Chairman functions.

Assignment: Download the fm_debt_fall2004.xls data file from my website and use it to answer the following questions. Please do all calculations on the downloaded spreadsheet in the templates provided (fill in the **yellow** boxes).

1. Impact of the news of a downgrade of debt on a firm's stock price.
 - a. Graph the stock price of Comcast starting several days prior to and continuing a few days after Moody's announcement of their review for a possible upgrade of Comcast's debt rating. Highlight the impact of the news announcement of a possible debt upgrade on the price. Did the news of the Moody's possible upgrade have the expected impact on the stock? Did the market anticipate the news of a potential upgrade on the stock i.e., did the stock price react more than one day before the news of an upgrade? Please explain if the answer is yes to the previous question.
 - b. Provide a graph of the stock price for the Walt Disney Company. Highlight the impact of the news announcement of a possible debt downgrade on the price of the stock. Did the news have any impact on the stock price? Did the market anticipate the news of a downgrade on the stock i.e., did the stock price react more than one day before the news of a downgrade? Was there any other news announcement around the time of the news concerning the possible downgrade? If so, what was the other news announcement and what impact would this news announcement have on the stock price.
 - c. Why would news about debt have an impact on equity? Please explain.

2. Imputed bond ratings using z-scores.

- a. Calculate the z-scores for Comcast for the trailing twelve months using the two versions of the Altman z-score model located in the Appendix to this handout (use the CMCSA_10Q worksheet). Next, do the same calculations for each of the years in the 10K (use the CMCSA_10K worksheet). Graph your results. What is the bond rating for the most recent (9/30/2003) quarter using the first model (EM model)? If it is between two bond ratings, please give the range that it is between. What is the condition of Comcast's financial health according to the Altman's original model (model 2)?
- b. Calculate the z-scores for the Walt Disney Company for the trailing twelve months using the two versions of the Altman z-score model located in the Appendix to this handout (use the DIS_10Q worksheet). Next, do the same calculations for each of the years in the 10K (use the DIS_10K worksheet). Graph your results. What is the bond rating for the most recent (12/31/2003) quarter using the first model (EM model)? If it is between two bond ratings, please give the range that it is between. What is the condition of Disney's financial health according to the Altman's original model (model 2)?
- c. Discuss which firm (Comcast or Disney) is in worst financial condition based on the Altman EM score. Based on the results of the Altman EM score model, were the rating agencies slow to "pull the trigger" in put both companies on credit watch for possible revision to their respective bond ratings? If so, why? Please explain.

3. Imputed bond ratings using the interest coverage ratio.

- a. Calculate the interest coverage ratio (EBIT/Interest Expense) for Comcast for the trailing twelve months and also for each of the years in the 10K. Graph your results. What is the bond rating for the trailing twelve months using the information on your data worksheet?
- b. Calculate the interest coverage ratio (EBIT/Interest Expense) for Disney for the trailing twelve months and also for each of the years in the 10K. Graph your results. What is the bond rating for the trailing twelve months using the information on your data worksheet?
- c. Discuss to what extent the imputed bond ratings using the interest coverage ratio are similar or different from those using the Altman EM-score method. Which one would you use if there were differences in the results? Why?

4. Calculating the Cost of Debt.

- a. Calculate the before tax and after tax cost of debt of Comcast for the trailing twelve months (TTM) using the implied bond rating from the EM model, the interest coverage approach, and the actual bond rating. Assume that Comcast's marginal tax rate is 38%. Use the 5-year and also the 10-year Treasury bonds as the benchmarks in calculating the cost of debt. Please discuss how the actual bond rating compares to the imputed bond rating from using the Altman model and also the interest coverage approximation. Your discussion should include how the cost of debt varies with the bond rating and also the maturity. Be specific.
- b. Calculate the before tax and after tax cost of debt of Disney for the trailing twelve months (TTM) using the implied bond rating from the EM model, the interest coverage approach, and the actual bond rating. Assume that Disney's marginal tax rate is 35%. Use the 5-year and also the 10-year Treasury bonds as the benchmarks in calculating the cost of debt. Please discuss how the actual bond rating compares to the imputed bond rating from using the Altman model and also the interest coverage approximation. Your discussion should include how the cost of debt varies with the bond rating and also the maturity. Be specific.

Please turn in a hard copy of your work together with your disk. This is an individual project. Anyone caught cheating will be given an F on this project.

Appendix A: Altman Z-Score Model

There are several versions of the Altman z-score model. We will use two versions of his model. Professor Edward Altman of NYU developed these models using multiple discriminant analysis in conjunction with financial ratios to predict the probability of business failure leading to bankruptcy.

Model 1: The EM-score (emerging markets) model is defined as

$$\text{EM Score} = 3.25 + 6.56(X_1) + 3.26(X_2) + 6.72(X_3) + 1.05(X_4)$$

where X_1 = Working Capital/Total Assets = (Current Assets - Current Liabilities)/TA
 X_2 = Retained Earnings/Total Assets
 X_3 = EBIT/Total Assets
 X_4 = Book Value of Equity/Total Liabilities

Bond Rating	Altman Z-Score	Bond Rating	Altman Z-Score
AAA	8.15	BB+	5.25
AA+	7.60	BB	4.95
AA	7.30	BB-	4.75
AA-	7.00	B+	4.50
A+	6.85	B	4.15
A	6.65	B-	3.75
A-	6.40	CCC+	3.20
BBB+	6.25	CCC	2.50
BBB	5.85	CCC-	1.75
BBB-	5.65	D	0.00



Ed Altman, NYU

Model 2: This is the original version of Altman's model that is on the Bloomberg machine and websites such as <http://www.jaxworks.com/calc2.htm> as a worksheet.

$$Z = 1.21(Y_1) + 1.4(Y_2) + 3.3(Y_3) + .6(Y_4) + 1.0(Y_5)$$

where Y_1 = Working Capital/Total Assets
 Y_2 = Retained Earnings/Total Assets
 Y_3 = EBIT/Total Assets
 Y_4 = Book Value of Equity/Total Liabilities
 Y_5 = Sales/Total Assets

A Z-Score ≥ 2.99 indicates that the firm is solvent (e.g., is in good shape)

$1.81 \leq \text{Z-Score} \leq 2.99$ indicates a warning

Z-Score < 1.81 indicates that the firm could be heading towards bankruptcy

Note: The z-score represents a point in time. As such, the z-scores should be examined over time. Consistently low scores each year are more of a concern than a one time low score. The model is applicable to *manufacturing* firms.