

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:

ToysRUs (Ticker: TOY): The first company we will look at is ToysRUS, the Wayne, N.J.-based retailer which traces its roots back to 1948 and was among the first so-called big-box specialty retailers. Although ToysRUs is still one of the world's largest toy retailers, their toy division is in a time-out. Ironically, Toys "R" Us has fallen victim to a strategy it first employed -- slashing prices to squeeze out competitors. Now Wal-Mart (NYSE: WMT) is functioning as the so-called "category killer," having overtaken ToysRUs in 1998 as the world's biggest toy seller¹. Wal-Mart's discounting also contributed to the bankruptcies of FAO Inc., owner of the FAO Schwarz² and Zany Brainy chains, and KB Toys Inc., the largest U.S. mall-based toy chain. The discounter and its largest rival Target Corp. have cut toy prices, sometimes selling below cost, to lure shoppers during the holiday season, which can generate more than two-fifths of toy retailers' sales.



On August 11, 2004 ToysRUs announced that it is separating its crown jewel, Babies R Us from its global toy operations with complete separation of these enterprises done by the first half of 2005. The reason for this separation is that Toys "R" Us expects to sell the Toys "R" Us division to focus on the more profitable and faster-growing segment of baby stores³. In the past year, Toys "R" Us has also closed its money-losing Kids "R" Us and Imaginarium chains. A key difference between the two businesses - and a reason why the baby business is less vulnerable to competition from discounters than the toy industry - is that Babies R Us is not dependent on having a "hot

¹ToysRUs is currently the 3rd largest toy seller behind Wal-Mart and Target.

²Although a far cry from the many retail stores it once operated, FAO Schwarz will reopen its flagship Manhattan store on Thanksgiving 2004, and it plans to reopen its store in Las Vegas.

³Of the several groups making a play for troubled retailer Toys "R" Us³, one group is led by New York City's biggest office landlord, Vornado Realty Trust (Ticker: VNO). Steven Roth's Vornado Realty Trust is partnering with buyout firm Bain Capital. Roth has made a career of redeveloping the real estate of failing retailers such as Alexander's, whose department store on Lexington Ave. and 59th St. became the site of an office tower he just built for media company Bloomberg. Another group is Cerberus Capital Management, a private equity firm, which is also bidding for Toys "R" Us with partner Kimco Realty. Cerberus Capital Management bought the troubled retailer Mervyn's. A third group is led by Toys "R" Us chairman Michael Goldstein, who is reportedly bidding with Apollo Management and other investors. About six suitors are in a second round of bidding, with offers due after the holiday season. Credit Suisse First Boston is the retailer's investment bank.

toy" during any given season. The baby-supplies business is a niche that has so far been relatively shielded from significant competition from discounters such as Wal-Mart and Target. That is changing, however, as discounters start carrying a wide range of baby merchandise and displaying it in special sections.

PetSmart (Ticker: PETM): The second firm that we will focus on is PetSmart which is the largest specialty retailer of services and solutions for the lifetime needs of pets. The company operates more than 675 pet stores in the United States and Canada, as well as a large pet supply catalog business and the Internet's leading online provider of pet products and information (www.petsmart.com). PETSMART provides a broad range of competitively priced pet food and supplies, and offers complete pet training, grooming and adoption services. PetSmart, and its rival Petco, stand to benefit from growing demand for more expensive - and higher-margin -- animal accoutrements including apparel, spa-formulated shampoos and even jewelry. According to Pet Age, Americans will spend about \$34 billion on their furry, finny and feathered friends this year; that translates to a 3.9 percent per year with dog supplies and accessories the highest growth category. Interestingly, nearly one in five consumers surveyed by the Macerich Co. plans to purchase a costume for their pet -- good news for pet stores like PETSMART (Nasdaq: PETM).



PETSMART's pet-related services such as grooming, which accounted for only about 7% of 2003 revenues, premium services -- such as in-store grooming, training, and boarding -- are the fastest-growing and most profitable component of PETSMART's business. PETSMART's pet services, are three times more profitable than the products sold in its core store. These services have consistently grown above the company's 20% target and should do so for at least the next few years. Expect this growth to be further augmented by full-service "pet hotels" in the near future. The company has only a few currently but is anticipating that 12 more will be rolled out next year, and ultimately as many as 270 will be in operation nationwide. Maintaining an edge in premium pet services will be a key challenge for PETSMART. Not only is this high-margin, fast-growing segment likely to be an earnings driver going forward, but it will also help increase store traffic by attracting customers that might not shop there otherwise.

Debt Ratings of ToysRUs and PetSmart:

- **ToysRUs:** On Jan. 8, 2004, Standard & Poor's Ratings Services lowered its ratings on Toys "R" Us (TOY). The long-term corporate credit rating was lowered to 'BB+' from 'BBB-' and the short-term corporate credit rating was lowered to 'B' from 'A-3'. In addition, the long-term ratings on the company were placed on CreditWatch with negative implications. The downgrade reflects the continued deterioration in Toys' U.S. toy business and Standard & Poor's expectation that the company will not show the recovery in performance and credit ratios that was incorporated into the previous ratings. Toys' operations are being affected by intense competition from Wal-Mart

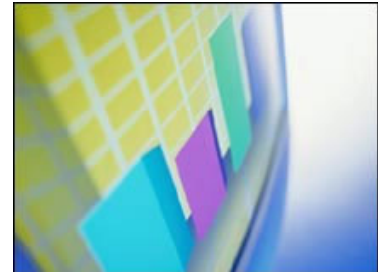
(WMT) and Target (TGT). On March 10th, Standard & Poor's further lowered Toys "R" Us (TOY) long-term corporate credit rating to 'BB' from 'BB+'; On October 15, 2004 S&P placed Toys R Us on credit watch on Oct. 15 with negative outlook.

- **PetSmart:** On January 5, 2004 MOODY'S upgraded PETSMART's Senior Implied Rating to Ba2 from Ba3 with a Stable Outlook. Two months later on March 4th, Standard and Poor raised its corporate credit rating on PetsMart Inc. to 'BB-' from 'B+' with a Positive Outlook.

Assignment: Download the fm_debt_fall2005.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 change in debt rating on a firm's stock price.

- a. Graph the stock price of ToysRUs starting from October 1, 2004 through December 27, 2004 using daily stock price data found in the **Prices (TOY)** worksheet. Using the Marker⁴ graphing option in Excel, highlight the impact of the S&P news announcement on October 15th that it put TOY on credit watch with a negative outlook on the price of ToysRUs stock. Did this news have the expected



impact on the stock? Did the market anticipate the news of a potential downgrade on the stock i.e., did the stock price react more than one day before the news of the downgrade? Please explain if the answer is yes to the previous question. On the same graph, put another marker for the price on October 22nd when the NY Post reported that "A handful of potential suitors are said to be taking a close look at Toys 'R' Us' 1,262 stores. The embattled retailer has just begun to circulate financial documents, and initial bids are expected sometime before year-end. Please discuss whether this would be positive or negative news on ToysRUs's stock price and why?

- b. Provide a graph of the stock price for Petsmart starting from February 17th through March 17, 2004 using daily stock price data found in the **Prices (PETM)** worksheet. Highlight (using the Marker option in Excel) the impact of the news announcement on October 4th that Standard & Poor's Rating Services raised its corporate credit rating on PetsMart Inc. to 'BB-' from 'B+' with a positive outlook. Did the news have any impact on the stock price? Did the market anticipate the news of an upgrade on the stock?

c. Why would news about debt have an impact on equity? Please explain.

⁴After generating a Line graph in Excel, move your cursor over the line until the date that you want appears. Double click on that particular point, choose the Marker that you wish to use and then exit.

2. Imputed bond ratings using z-scores.

- a. Calculate the z-scores for ToysRUs for the trailing twelve months using the two versions of the Altman z-score model located in the Appendix to this handout (use TOY 10Q worksheet). Next, do the same calculations for each of the years in the 10K (use the TOY 10K worksheet). Graph your results. What is the bond rating for the most recent (7/31/2004) quarter using the first model (EM model)? If it is between two bond ratings, use the average of the two Z-scores as the point of demarcation. What is the condition of ToysRUs's financial health according to the Altman's original model (model 2)?
- b. Calculate the z-scores for the PetSmart for the trailing twelve months using the two versions of the Altman z-score model located in the Appendix to this handout (use the PETM 10Q worksheet). Next, do the same calculations for each of the years in the 10K (use the PETM 10K worksheet). Graph your results. What is the bond rating for the most recent (8/1/2004) quarter using the first model (EM model)? What is the condition of PetSmart's financial health according to the Altman's original model (model 2)?
- c. Discuss which firm (ToysRUs or PetSmart) is in worst financial condition based on the Altman EM score. Are the imputed bond ratings associated with the Altman EM score model similar to the ratings of Moody's and S&P? Please explain why differences in the bond ratings based on the Altman EM score might differ from those of the rating agencies.

3. Imputed bond ratings using the interest coverage ratio.

- a. Calculate the interest coverage ratio (EBIT/Interest Expense) for ToysRUs 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 PetSmart 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 ToysRUs 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 ToysRUs's marginal tax rate is 36%. Use the 10-year Treasury bond as the benchmark 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 PetSmart 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 PetSmart's marginal tax rate is 36%. Use the 10-year Treasury bond as the benchmark 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.

5. Split Bond Rating: What is a split bond rating and which company (if any) has a split bond rating? What is the incremental impact in terms of basis points?

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.