Professor Crocker H. Liu
Financial Management

Revised: January 2, 2005

Optimal Capital Structure
(Is There Still Dough in Doughnuts??)

Objective: The objective of this assignment is to further apply the concepts learned regarding the cost of equity, cost of debt, and weighted average cost of capital in deriving the optimal capital structure for a firm.

Company: Krispy Kreme (Ticker: KKD, http://www.krispykreme.com/). Krispy Kreme Doughnuts, Inc., founded in 1937, is a leading specialty retailer of doughnuts producing more than 3 million doughnuts a day and over 1.3 billion a year. It owns and franchises Krispy Kreme doughnut stores. Each of its traditional stores is a doughnut factory capable of producing 4,000 dozen to over 10,000 dozen doughnuts daily. Its sales channels consist of on-premises sales and off-premises sales to supermarkets and other retail outlets throughout the country. The Company has two complementary business units: its company (Store Operations) and franchised stores (Manufacturing and Distribution (KKM&D)). As of February 1, 2004, there were 357 Krispy Kreme factory stores in operation, 338 of which are located in the United States.

Krispy Kreme has been slow to react to changing market conditions. Much of the trouble the company faces right now has to do with its dealings with franchisees. They have had to increase doubtful accounts on the balance sheet to account for the fact that some of their franchisees are unable to give the company their portion of the dough. The company blames the decrease on higher distribution costs and lower equipment sales. However, some analysts point to their significant declines in the sales of its doughnut mixes and not distribution costs or equipment sales. Currently, the firm is the subject of an accounting investigation by the Securities and Exchange Commission, as well as shareholder lawsuits, regarding its accounting for repurchased franchises.

To help reverse the decline, the company has just begun a qualitative research program to help it better understand its customers and potential customers. In a move away from the current business model which is based on building "factory" stores that can supply off-site sales for up to a 50-mile radius, Krispy Kreme is also in the process of building five stores to test its smaller stores concept. The idea is to get the "hot doughnut experience" to more customers.

Publicly Traded Competitors: Dunkin Donuts (Business Segment of Allied Domecq), Tim Horton's (division of Wendy's (WEN)), and Winchell's Donut Houses Operating Company, L.P. (private). Other competitors include The Cheesecake Factory (CAKE), Panera Bread (PNRA), Sonic Corp (SONC), Starbucks (SBUX), Triarc (TRY), and Yum Brands (YUM)

Assumptions:

Item	Assumption
Shares outstanding	See spreadsheet; use ***latest*** number given in the 10Q or 10K.
Beta	Use 5 years of monthly data (some firms such as Krispy Kreme may have less than 5 years so use what data exists for these companies). Regress the return on the appropriate stock against the return on the S&P500. All returns are provided in the worksheet labeled "Returns". In re-leveraging KKD's beta, be sure to include the PV of Operating Leases as part of total debt.
Risk premium ($R_M - r_F$)	5.5%
Current r_F	Use the current yield on a 20-year Treasury bond in "Treasury Rates" worksheet. Since no 20 year bond exists, take the average of the 10 year and 30 year rate.
Bond Spread	See the "Bond Spreads" worksheet for a given rating and maturity. Assume that the ***bond spread*** on a CC rated bond is 100 bps (basis points) more than on a CCC rated bond. Assume that the spread on a C rated bond is 250 bps (basis points) more than on a CCC rated bond.
Imputed Bond rating using Altman model	Take the average between 2 Z-scores as the cut-off point. For example since the Z-Score for an AAA = 8.15 and the Z-Score for an AA+ = 7.6, the average is (8.15+7.6)/2 = 7.875. If the calculated Z-score is equal to or above 8.875, then set the imputed rating = AAA. If it is below 7.875 but above 7.6 then set the rating = AA+. Note: Currently, neither S&P nor Moody's has any debt ratings available for Krispy Kreme.
Debt	Assume that the book value of debt represents a good proxy for the market value of debt. For all bond-rating calculations, assume a 20-year maturity. Also assume that existing debt is refinanced at the "new rate" associated with the applicable bond rating. As with the risk free rate, since no 20 year maturity exists, take the average of the 10 year and 30 year spread.

Assumptions: (continued)

PV of Operating Leases	Since the initial term of KKD's operating leases is 20 years and it reports operating leases for 5 years (2005 – 2009), assume that there are 15 years remaining on the operating lease. Thus, divide the "Thereafter" number by 15 to obtain the operating lease per year from 2010 onwards. Assume that your analysis is of December 30, 2004 and that all lease rents are paid at the end of the fiscal year (February 1st of each year). Do NOT prorate the lease for February 2005.
Marginal tax rate	Use the calculated marginal tax rate for the trailing twelve months.
NA	Set NA = 0 in the Financial Statements (Disclosure spreadsheet)

Assignment: Download the Krispy Kreme data from my website and use the downloaded spreadsheet to answer the following questions based on the preceding assumptions. All work should be done on this spreadsheet. Assume that your analysis is of December 30, 2004.

1. Cost of Debt (10 points): Using Krispy Kreme's 10Q, 10K, and information contained in the "Treasury Rates" and "Bond Spreads" worksheets, please answer the following questions.

   a. What is Krispy Kreme's historical implied bond rating using the Altman EM score model? What is Krispy Kreme's current cost of debt based on the last twelve months (LTM) of available data from the 10Q based on the Altman EM score model? Please use the worksheet template labeled "1a. Altman Cost of Debt (KKD)" in answering this question and fill in the portion that is highlighted in yellow.

   b. What is Krispy Kreme's historical implied bond rating using the Damodaran's EBIT/Interest Expense model? What is Krispy Kreme's current cost of debt based on the last twelve months (LTM) of available data from the 10Q based on the this model? Please use the worksheet template labeled "1b. Damodara Cost of Debt (KKD)" in answering this question and fill in the portion that is highlighted in yellow.

2. Value of Operating Leases (15 points): Using the cost of debt based on the Altman model and alternately based on EBIT/Interest expense bond rating, calculate the present value of the operating leases. In doing the calculations, assume that the cost of debt for the period remains constant over time. Given that your analysis is of December 30, 2004 and that all lease rents are paid at the end of the fiscal year (February 1st of each year), you will need to discount the lease payments associated with 2005. Do not pro-rate 2005 e.g., do NOT make any adjustments for the 3 months (treat 2005 as a

whole year; we will assume that lease payments are paid at the end of each fiscal year. Please use the worksheet template labeled "2. PV OpLease (KKD)" in answering this question and fill in the portion that is highlighted in yellow.

3. Capital Structure (10 points): Using the "3. LTM CapStruc (KKD)" template in your workbook, calculate the current last twelve months (LTM) capital structure of Krispy Kreme from a book value and alternatively a market value perspective by filling in the appropriate cells that are highlighted in yellow. Does it make a difference whether the Krispy Kreme's capital structure is based on the Altman model and alternately based on EBIT/Interest expense bond rating (do you obtain the same results using either method)? In doing your calculations, be sure to examine the role that off-balance sheet financing can have by first excluding it and then including it as part of debt. Does it make a difference whether the present value of operating leases is included in the capital structure? In other words, is off-balance sheet financing an important part of Krispy Kreme's capital structure? Please explain.

4. Imputed Beta and Cost of Equity (20 points): Using the "4. Cost of Equity (KKD)" template, together with the information contained in the worksheets labeled "Prices 20041231", "Returns", and the corresponding 10Qs on Krispy Kreme's competitors, calculate the built-up beta for Krispy Kreme. Also calculate Krispy Kreme's historical beta using its returns for the last 56 months (roughly 5 years). Note: In calculating the debt to equity ratio for competitors, you do NOT include and are also not provided with information on operating leases for competitors. Point: We exclude the PV of Operating leases in your debt to equity ratios for the competitors since our goal is to obtain an unlevered beta (a beta that has No debt). However, Krispy Kreme's debt to equity ratio *should* include the PV of Operating Leases and is in terms of *market value*. After calculating Krispy Kreme's built-up beta, calculate its LTM cost of equity using the "Treasury Rates" worksheet.

5. Weighted Average Cost of Capital (10 points): Using the "5. WACC (KKD)" template in addition to your answers to the preceding questions calculate Krispy Kreme's weighted average cost of capital for the last twelve months (LTM) using the imputed bond rating from the Altman model and alternately the EBIT/Interest expense bond rating. What impact does recognizing the present value of operating leases (rental payments) as debt have on the book value and market value WACC? Does it matter whether one uses a built-up beta or the historical beta in calculating the various WACCs?

6. Optimal Capital Structure (35 points): Using the "6. Optimal CapStruc (KKD)" template, derive what the optimal capital structure (capital structure that results in the lowest WACC) should be for Krispy Kreme. To determine this, please proceed as follows:

a. Step 1: Using the built-up levered beta for Krispy Kreme that you obtained earlier, calculate the levered beta (β_L) and the corresponding cost of equity for Krispy Kreme at the various debt to total capital ratios (debt/(debt + equity)): 0%, 10%, 20%, …., 70%, and 80%. (*Hint: you first need to unlever the beta and then relever it given the various debt to equity ratios*)

b. Step 2: Calculate the corresponding after-tax cost of debt for Krispy Kreme at the various debt to total capital ratios. Total capital is assumed to remain constant at the LTM level and includes the present value of operating leases. Only the composition of the total capital varies e.g. the portion that is equity and the portion that is debt changes for various D/(D+E) levels. I have provided the pre-tax interest coverage at the various Debt/(Debt+Equity) levels. Use the "Ratings (Int Coverage)" worksheet to obtain the implied bond rating corresponding to a particular interest coverage ratio.[1] Notice that the effective tax rate changes as more debt is used because interest is tax deductible.

c. Step 3: Calculate the after-tax weighted average cost of capital at the various debt to total capital ratios. Is Krispy Kreme currently at or near its optimal capital structure? If it isn't at it optimum capital structure, does Krispy Kreme need to increase or decrease its level of debt? What is the likely debt rating of Krispy Kreme's debt (based on the interest coverage ratio imputed bond rating method) at its optimal capital structure?

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

[1] I have provided the interest coverage ratio since a circular reference exists. Essentially, the interest rate depends on the rating and the rating depends on the interest coverage ratio, which in turn depends on the interest rate. If time permits, I will show you how to model this using Excel if time permits.