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Financial Management

Revised: November 11, 2003

Free Cash Flow to the Firm Valuation

Objective: The purpose of this project is to reinforce the concepts that you have been exposed to through readings, lectures, and mini-cases. In essence, you will learn how the following concepts are used in the context of valuing the equity of an actual firm:

- cost of debt
- present value of operating leases and imputed interest on this "debt"
- built-up beta and cost of equity (discount rate for cash flows to stockholders)
- weighted average cost of capital (discount rate to firm's cash flows)
- margin analysis
- free cash flow to the firm (FCFF) and the terminal value of the firm
- economic profit (EVA)

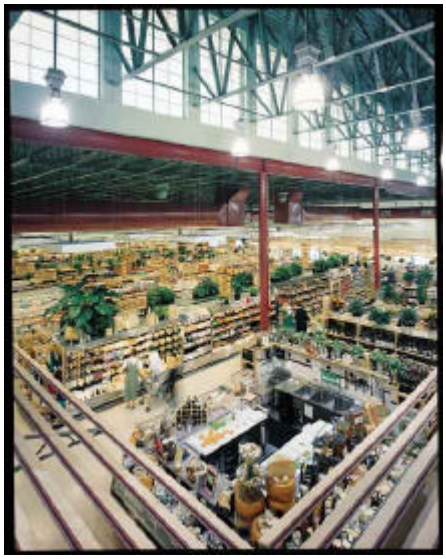
The data for this project can be downloaded from my website. The file is called fm_val_fall2003.xls. The data is current as of June 11, 2003.

The Company: Whole Foods (http://www.wholefoods.com/) is the world's largest retailer of natural and organic foods, with 143 stores in North America. In addition, the company has moved into related businesses (nutritional supplements). Whole Foods growth has arisen from increased health-consciousness, which has turned natural and organic foods retailing into the fastest-growing segment in the US grocery business. Whole Foods has taken advantage of this health awareness by rapidly building and acquiring new stores. New stores typically open approximately 12 to 24 months after a store lease is signed. Its primary competitor is Wild Oats Markets (OATS)[1]. Both are battling each other for customers city by city (including). Whole Foods plans to open another 70 stores by 2004, including a new 80,000-sq.-ft. store and company headquarters in its hometown. Although it offers a broad product selection, it places a heavy emphasis on perishable foods designed to appeal to both natural foods and gourmet shoppers. Perishable products accounted for approximately 65% of the Company's total retail sales during the fiscal year ended September 30, 2002 (fiscal 2002). To increase profit margins, Whole Foods is not only experimenting with a larger store size but is also expanding its range of private-label items, including the "365 Organic" value-priced line introduced in 2002. They have also managed to keep costs down through using employee stock options as a way to entice workers not to unionize. In addition to this, Whole Foods sponsors a partially self

[1]Wild Oats' hometown is Boulder, Colorado, where Whole Foods has a store

insured health care benefits plan and maintain a reserve for job related injury claims in lieu of subscribing to a workers' compensation insurance program. In January of 1999, Whole Foods adopted EVA®, an economic value added management and incentive system to evaluate their business decisions and as a basis for determining incentive compensation. In calculating EVA, Whole Foods uses a 10% weighted average cost of capital and a 40% tax rate. Whole Foods currently has a bond rating of Ba2 from Moody's.

Goals for fiscal year 2003[2]:



For fiscal year 2003, the Company expects sales growth to be at the low end of its previously stated 15% to 20% guidance range. Comparable store sales growth is also expected to be at the low end of the Company's 6.5% to 8.5% guidance range in the second half of the year. The Company is up against two years of over 10% comparable store sales increases in the second half of the year, and the three Harry's Farmers Market stores are expected to continue to negatively impact comparable store sales in the range of 40 to 50 basis points. In addition, the continued uncertainty in the economy and political environment makes it difficult to predict future sales trends. The Company expects weighted average square footage growth of 12% for the year, including expansions of existing stores. The Company expects to open two stores in the third quarter and two stores in the fourth quarter, one of which will be a relocation of an existing store.

The Company expects gross profit for the fiscal year to be lower as a percentage of sales, compared to the prior year. The Company wants to maintain pricing flexibility in the event of further or prolonged economic weakness. In addition, the Company had a $3.4 million LIFO credit in the fourth quarter of last year, which it does not expect to have this year. The Company expects operating margin improvement will be driven by lower pre-opening expenses and general and administrative expenses as a percentage of sales. Pre-opening and relocation expense is expected to be in the range of $8 million to $10 million.

The Company is maintaining its diluted earnings per share guidance range for the fiscal year of $1.62 to $1.69 but expects earnings per share to come in at the low end of the range. The Company expects third quarter diluted earnings per share to be in the range of $0.41 to $0.42 and fourth quarter diluted earnings per share to be in the range of $0.38

[2]Taken verbatim from http://www.wholefoodsmarket.com/investor/ Q203financial.html

to $0.39. The Company's guidance includes the pre-tax impairment charge of $1.4 million, or $0.01 in diluted earnings per share, taken in the first quarter relating to the Company's investment in Gaiam, Inc. The guidance does not include any potential further impairment charge relating to this investment or the gain relating to the sale of Blooming Prairie Cooperative, a cooperative natural foods distributor in which the Company was a member.

Publicly Traded Competitors: Albertsons (ABS), Arden Group (ARDNA), Kroger (KR), NBTY (NBTY), Wild Oats Market (OATS), Safeway (SWY), Supervalu (SVU), and Winn-Dixie (WIN). Private firm competitors include HEB and Trader Joes

Assignment/Tasks: Download the file fm_val_fall2003.xls and then given the assumptions on the last page of this mini-case, perform the following tasks using this spreadsheet

1. Cost of debt (10 points): Calculate the pre-tax cost of debt and the after-tax cost of debt using the Altman EM Z-Score model. In addition to this, calculate the pre-tax cost of debt and the after-tax cost of debt using Moody's bond rating for Whole Foods. Assume that WFMI's debt has a 10-year maturity. As such, you should use the 10-year Treasury bond for the risk free rate in your calculations. Is the cost of debt the same under both models? Please explain.

2. PV of Operating Leases and Imputed Interest (10 points): Calculate the present value of the operating leases using the pre-tax cost of debt that you calculated in question #1 above as the discount rate. Assume that the year 2003 is the current period (time 0). Calculate the PV of operating leases using pre-tax cost of debt from the Altman EM Z-Score model and also Moody's bond rating. You are using the ***pre-tax*** cost of debt since operating leases are a form of financing and as such represent ***before-tax*** cash flow to debtholders. In addition to this, calculate the imputed interest on these operating leases for Year 2003and onwards (years after 2003). Assume that all operating lease payments are due at the *end* of the year (you are doing the valuation as of June 2003).

3. Total value of debt and total value of equity (5 points): Calculate the total value of debt for the last twelve months (LTM) assuming that the book value of debt is equal to the market value of debt. Be sure to include the present value of operating leases (at the year 2003) as debt[3]. Next, calculate the total market value of equity. Finally, compute the market value of total capital as well as the weights for debt and equity. Perform the calculations using the rating based on the Altman EM Z-score and also the Moody's rating. Are the weights for debt and equity similar under both approaches?

4. Built-up Beta and Cost of Equity (10 points): Compute the built-up beta as well as the historical beta for Whole Foods. Use the book value of debt (only debt as it appears on the balance sheet) and the market value of equity in calculating the debt-to-equity ratio

[3]At the time that this case was prepared, 2 quarters remained in Year 2003. As such, we use the PV of Operating Leases associated with the Year 2003 as our PV of Operating Leases (LTM) since we assume in this case that operating lease payments are due at the *end* of each year.

for the comparable firms. For the comparable firms, we will not include the PV of Operating leases in the total value of their debt[4]. (However, we will include the PV of Operating leases with respect to Whole Foods). Round your answer to two decimal places. Next, calculate the cost of equity using the built-up beta for Whole Foods. Also calculate Whole Food's beta based on its historical returns in relation to the returns on the S&P500. Does using Whole Food's historical beta make sense? Why or why not?

5. Cost of equity and weighted average cost of capital (10 points): Calculate the three after-tax weighted average cost of capital using

- Altman EM Z-score model for Cost of Debt and Built-up Beta for Cost of Equity
- Moody's bond rating for Cost of Debt and Built-up Beta for Cost of Equity
- Moody's bond rating for Cost of Debt and WFMI's Historical Beta for Cost of Equity

6. Margin analysis (10 points): Do a margin analysis for Whole Foods using the Margin Analysis worksheet in your fm_val_fall2003.xls workbook. This analysis is a prelude to forecasting the cash flows.

7. Free cash flow to the firm, target stock price and sensitivity analysis (40 points):

a. Use the worksheet labeled "7. Justified Price & Sensitivity" to calculate the FCFF, the value of the firm, and the target stock price for Whole Foods. The worksheet assumes that stable/normal growth occurs in year 11. In calculating the terminal value (enterprise value) at the beginning of year 10, use the TEV/EBIT multiple applied to EBIT(The EBIT that you use is NOT adjusted for imputed interest from Operating Leases) in year 11. How does your target stock price compare to that of Morgan Stanley's target price (as of May 18, 2003) of $56 for WFMI? Next, do a sensitivity analysis using the data table command in Excel by completing the 2 two-way tables in the worksheet. These sensitivity tables show how the target (justified) price per share for WFMI changes with a change in the assumption regarding the growth rate for revenues, the WACC, and the COGS/Sales multiple. For valuation purposes, we will use the bond rating from Moody's.

b. Make a copy of your results by right-clicking the spreadsheet using your mouse, select **Move or Copy….** from the options given, scroll down the page and select the applicable worksheet, then click on the box at the bottom labeled **Create a Copy**. Change the After tax WACC to the WACC that you computed using the Historical Beta for WFMI and Moody's bond rating. Leave all of the other assumptions the same (constant). How does your target stock price compare to that of Morgan Stanley's target price (as of May 18, 2003) of $56 for WFMI? Next, do a sensitivity analysis using the data table command in Excel by completing the 2 two-way tables in the worksheet. Which WACC should you use for Whole Foods? Please justify your answer.

[4]Intuition: We are trying to find the unlevered beta. After the unlevered beta or beta with no debt is found, we will then include as debt the On Balance Sheet Debt as well as the PV of Operating Leases in calculating your debt to equity ratio for our subject firm, Whole Foods Market Inc.

c. Since Wild Oats Marketplace is the closest competitor to Whole Foods in terms of niche markets, calculate the built-up beta using Wild Oats (OATs) as the only comparable. Next, calculate the WACC (using Moody's bond rating), and then use this WACC to calculate a target stock price for Whole Foods. Leave all of the other assumptions the same. How does your target stock price compare to that of Morgan Stanley's target price (as of May 18, 2003) of $56 for WFMI? Next, do a sensitivity analysis using the data table command in Excel by completing the 2 two-way tables in the worksheet. How does your target stock price compare to the actual price of WFMI? Is WFMI overvalued, undervalued or correctly priced if OATS is used as the only comparable?

d. In reporting their EVA, Whole Foods assumes an after-tax WACC of 10%. If we use this WACC and do not change any of our other assumptions, what is the target stock price for Whole Foods? How does your target stock price compare to the actual price of WFMI? Is WFMI overvalued, undervalued or correctly priced?

8. Economic Value Added (EVA) (5 points): Calculate the economic profit using the book value of equity and the book value of debt assuming

a. After-tax WACC is computed using Moody's bond rating for cost of debt calculations and using built-up beta (all 8 firms) for cost of equity calculations.

b. After-tax WACC is computed using Moody's bond rating for cost of debt calculations and using built-up beta (only OATs) for cost of equity calculations.

c. Whole Foods hurdle rate (After-tax WACC) of 10% which they use in their EVA calculations.

Is Whole Food's management adding value to the firm?

Please turn in a hard copy of your solutions together with your disk showing all your spreadsheet calculations. This is an individual project. As such, anyone caught cheating will be given an F on this assignment.

Valuation Assumptions:

Item	Assumption
TTM or LTM (Trailing twelve months)	Use the last twelve months of data (LTM)/last 4 quarters of data in the 10Q. Remember that only "flow" items are added for the last 4 quarters while only the most current quarter is used for "stock" items.
Expected growth rate in sales per year[5]	Supernormal period: 16% Stable/normal growth period: 2.5%
Depreciation and amortization	Use LTM for Depreciation and amortization in year 0
Margin analysis a.k.a. Percentage of Sales	
Cost of goods sold (COGS)/Net sales	66% (per year); This ratio is based on COGs which *includes* depreciation and amortization.
Selling, gen. & admin. expense(SGA)/ Net sales	29% (per year)
EBIT/Sales	Stable/normal growth period: 5.5%
Marginal tax rate (τ)	40%
Capital Expenditures[6]	CapEx Lagged One Year/Revenues = $CapEx_{T-1}/Sales_T$ remains constant at 1.8% over the forecast period.
Depreciation and Amortization	Depreciation & Amortization/CapEx = 1.2 over the forecast period.
Non-cash Working capital (NWC)	NWC is defined as Accounts Receivables + Inventory – Accounts Payable. NWC/Net Sales remains constant at 3.2% over the forecast period.
Total Enterprise Value(TEV)/EBIT	8x (remains constant)[7]; EBIT is *not* adjusted for imputed interest from PV of Operating Leases. This multiple is applied to EBIT in year 11 to obtain the terminal value of the firm in year 10.

[5]According to Whole Foods latest announcement at the time this case was written, for fiscal year 2003, the Company expects sales growth to be at the low end of its previously stated 15% to 20% guidance range. Growth rate in the normal growth phase is based on the sales growth for the S&P Retail (Food Chains) sales data in the S&P Analysts Handbook.

[6]Capital Expenditures are increases (decreases) in property, plant, and equipment. It is found in the statement of cash flows under Cash Flow Provided by Investing Activity.

[7]This is based on a relative valuation analysis of comparable firms.

Valuation Assumptions: (continued)

Item	Assumption
Free Cash Flow to the Firm	FCFF = EBIT(1-τ) + Imputed Interest on Operating Leases + Depreciation – CapEx – Change in Non-cash Working Capital
PV of Operating Lease	In calculating the number of years in the annuity as part of your PV of Operating lease calculations, please round to the nearest whole number. For example, if the number of years is 5.7 then the number of years remaining on the operating lease is 6 years.
Market risk premium (R_M-r_F)	5.5%
Forecast period	10 years with supernormal growth. Year 2003 is time 0 (current period).
Firm's Bond Rating	Use Moody's bond rating for valuation which is Ba2 for Whole Foods.
Maturity of Long Term Debt	10 years
Market Value of Debt	Assume that the Market Value of Debt = Book Value of Debt[8]; Total debt includes the PV of Operating Leases.
Value of Equity Options (in 000s)	129,002. This is based on information contained in WFMI's 2003 Proxy Statement.

[8]This isn't the case from an theoretical perspective although many analysts make this assumption.