

Calculating Free Cash Flow to the Firm (FCFF)

Objective: The objective of this assignment is to apply the concept of Total Cash Flow that you learned in Chapter 10: Making Capital Investment Decisions (RWJ) to a real world company. This assignment should be done after you have finished the assigned homework problems for Chapter 10.

Company: P.F. Chang Bistro's (Ticker: PFCB) is a fusion of traditional Chinese cuisine inspired by the five culinary regions of China¹ served up with upscale American hospitality in a bistro setting. This fusion is not surprising since the "P.F." in P.F. Chang's stands for Paul Fleming, a former oilman who currently owns 6% of the company he founded in 1992. PFCB owns and operates about 80 full-service restaurants in some 30 states. The company also owns and operates 20 limited service Pei Wei Asian Diners in Arizona, California, and Texas. Pei Wei Asian Diners offer a quicker, more casual dining experience as compared to P.F. Chang's China Bistro. The menu for the Company's Pei-Wei limited-service concept is more concise and includes not only Chinese cuisine, but other Asian dishes as well. PFCB is opening 20-25 restaurants a year, mostly in new markets.



Competitors: Benihana (BNHN), Brinker (EAT), Carlson Restaurants (Private).

Assignment: Download the PFCB data from my website and use the downloaded spreadsheet (PFCB2004) to answer the following questions (all work should be done on this spreadsheet). Assume that your analysis is of February 11, 2004:

1. Imputed Interest on Operating Leases (30 points): Calculate the imputed interest on operating leases for PFCB's for the trailing twelve months (TTM) ending December 21, 2002. In addition to this, go to the yahoo website (<http://finance.yahoo.com>), type in the ticker for PF Chang Bistro (Ticker: PFCB) and then once the page loads, click on **SEC Filings** which is located in the left hand column. Next access the **Full Filing at EDGAR Online** for PFCB's 10K dated February 12, 2003 and **print out** the page in the 10K that has the information on operating leases.. the actual per year amount. Assume for purposes of this assignment that February 11, 2004 is the date of our analysis and that lease rent is paid at the **end** of the year (in December). Do NOT prorate the lease for December 2004. Also assume that PF Chang Bistro (PFCB) has an imputed bond rating of AAA and that the maturity of their debt is 10 years. To calculate the pre-tax cost of debt = discount rate for discounting cash flows



¹Canton, Hunan, Mongolia, Shanghai and Szechwan

to holders of debt such as leases, you will add the default spread (located in the worksheet labeled **Spreads 02112004**) which is stated in basis points (100 basis points = 1%) to the 10 year Treasury bond. To calculate the imputed interest, first discount the operating lease expense (also known as rental expense) by using the pre-tax cost of debt as the discount rate. Since the rental payments after 2007 (the line item labeled “Thereafter”) is the sum of all future lease commitments e.g. $\text{Rent Thereafter} = \text{Rent}_{2008} + \text{Rent}_{2009} + \dots + \text{Rent}_{20xx}$, we will use the fact that operating leases expire in 2023² in converting the final cumulated amount into annual amounts.

Example: Suppose that a firm has lease commitments of \$294 in Year 1, \$291 in Year 2, \$263 in Year 3, \$245 in Year 4, \$236 in Year 5 and a total of \$2,701 Thereafter. If operating leases go through year 15, then the Rent Thereafter = \$2,701 represents the sum of cumulative rents over the remaining ten years from year 6 through year 15. Consequently, the annual lease payments for each of the remaining ten years is $\$2,701/10 \text{ years} = \270.10 per year. Thus,

	Year 6	Year 7	Year 8	Year 15
Operating Lease	\$270.10	\$270.10	\$270.10		\$270.10

Once you have calculated the present value of operating leases i.e., long-term debt due to operating leases, multiply this amount by the pre-tax cost of debt³ (the discount rate) to obtain the imputed interest on operating leases.

$$\text{PV of Debt} * \text{Pre-tax Interest Rate} = \text{Imputed Interest on Operating Leases}$$

Rationale for why we are doing this: Operating lease expenses are really financial expenses, although accounting standards allow these rental expenses to be treated as operating expenses. The debt arising from operating leases is treated as an “off-balance sheet” item. Thus, we will convert operating leases into debt and adjust the operating income accordingly, by adding back the imputed interest expense on this debt.

2. Operating Cash Flow (35 points): Calculate the operating cash flow for the last twelve months (LTM) or trailing twelve months (TTM) using PFCB’s 10Q. *Intuition:* In the real world, analysts use the most current financial information on a firm. As such, they frequently add together information on the last twelve months (e.g. quarterly sales, expenses, and other “flow” information) if several quarters have past since a firm issued their annual report/10K.

3. Non-cash Working Capital and Change in non-cash Working Capital (15 points): Calculate the non-cash working capital for the current period (9/28/2003) using PFCB’s 10Q. Also calculate the NWC for the prior period (9/29/2002). Calculate the change in non-cash working capital by subtracting $\text{NWC}_{9/28/03} - \text{NWC}_{9/29/02}$. If a line item has an

²In PFCB’s 10K, it states that “The Company leases restaurant and office facilities and equipment and certain real property under operating leases having terms expiring between 2003 and 2023”

³Please refer to the assumptions page which is the last page of this handout.

“NA”, set the “NA” equal to zero for purposes of our calculations. Note: In contrast to the income statement, items in the balance sheet are “stock” variables.

4. Free Cash Flow to the Firm (15 points): Calculate the TTM free cash flow to the firm (FCFF) using the results in questions 3 and 4 above and your calculations for capital expenditures for the trailing twelve months.

5. The Nature of Income (5 points): Please discuss whether interest income should be included in free cash flow to the firm. What about any cash proceeds from security offerings? Please provide economic intuition as to why these items should or should not be included in FCFF.

Please turn in a hard-copy of your work together with a disk containing your spreadsheets. No late work will be accepted. Please put your name on your disk. This is an individual effort. Any student caught cheating will be given an F on this project.

Assumptions: Use in calculating the Free Cash Flow to the Firm

Line Item	Calculation/Assumption
Pre-tax Cost of Debt	Assume that PF Chang Bistro (PFCB) has an imputed bond rating of AAA and that the maturity of their debt is 10 years. I obtained this bond rating using Professor Altman's EMS model. To calculate the pre-tax cost of debt = discount rate for discounting cash flows to holders of debt such as leases, you will add the default spread (located in the worksheet labeled Spreads 02112004) which is stated in basis points (100 basis points = 1%) to the 10 year Treasury bond.
Imputed Interest on Operating Lease	Imputed Interest = PV of Operating Lease * Pre-tax Cost of Debt
Operating Cash Flow	$\begin{aligned} & \text{EBITDA} \\ & + \text{Imputed Interest on Operating leases} \\ & \hline & \text{Adjusted EBITDA} \\ & - \text{Taxes} \\ & \hline & \text{Operating Cash Flow (OCF)} \end{aligned}$
Non-cash Working Capital (NWC)	Non-cash Current Assets - Non-debt Current Liabilities ⁴ . Cash includes cash equivalents e.g., cash + marketable securities.
Change in Non-cash Working Capital (ΔNWC)	NWC in period T – NWC in period T-1. $\Delta\text{NWC} = \text{NWC}_T - \text{NWC}_{T-1}$. Here T = 9/28/2003 and T-1 = 9/29/2002.
Capital Expenditures (CapEx)	CapEx in each period is the amount spent per quarter. This is a "flow" item just like items in the income statement.
Free Cash Flow to the Firm (basic definition)	Operating Cash Flow - ΔNWC – Capital Expenditures (please refer to pages 296-297 of your text.)

*If a cell in the spreadsheet that you downloaded contains an NA (Not Applicable), assume that NA = zero (0) for purposes of this case study.

⁴This definition of working capital differs from that in your textbook. RWJ define net working capital total current assets – total current liabilities. The current portion of LT debt is excluded in our definition since we will consider it as part of the overall financing and thus we exclude it in NWC to avoid double counting. We also eliminate cash from our definition since we are estimating the effect of changes on cash flows. See Damodaran's Corporate Finance text for a fuller elaboration on this subject.