

Valuation Multiples: A Tool for Fundamental & Firm Analysis

Bridget Lyons
Sacred Heart University

Valuation multiples include such metrics as price to earnings (P/E), enterprise value to earnings before interest and taxes (EV/EBIT) and enterprise value to sales (EV/sales). While multiples are typically used to determine the value of a share or an entire firm, in this exercise we demonstrate that analysis of valuation multiples in conjunction with other firm information, can enhance financial analysis and facilitate understanding of firm and sector dynamics. The fast food sector was selected as a case study for an exercise which could be used in undergraduate and graduate level finance courses on financial analysis, investments, valuation or strategy.

INTRODUCTION

Financial analysis of a firm and competitive analysis of a sector are fundamental tools in business decision making and investing. While business programs emphasize the creation and analysis of financial ratios in accounting, finance and strategy courses, analysis of valuation multiples tends to be restricted to investing and valuation courses. Yet, the calculation and analysis of valuation multiples can be extremely useful in developing an understanding of firm and sector dynamics and is integral to bench marking, cross firm comparisons and forecasting. Careful examination of why a firm trades at a higher or lower multiple than the sector median or average or compared to peers facilitates sector and firm analysis. The role of profit margins, capital structure, growth rate and economic conditions becomes more readily apparent.

Most prior literature on valuation multiples focuses on the relative effectiveness of various multiples – forward versus trailing, or equity versus enterprise (Liu, Nissim, & Thomas 2002). Other research examines the impact of the number of firms included (Cooper and Cordeiro 2008), and the use of mean versus median multiples. Lie and Lie (2002) compare sales, asset and earnings multiples and determined that the asset multiple generates less biased estimates than sales or earnings multiples.

ASSIGNMENT OVERVIEW

This exercise demonstrates that analysis of valuation multiples in conjunction with other firm information can be used to enhance financial analysis and facilitate understanding of firm and sector dynamics. The assignment can be used in undergraduate and graduate level finance courses on financial analysis, investments, valuation or strategy. Two approaches can be used: The first and longer assignment includes the calculation and/or identification of online data related to valuation multiples followed by a set of directed questions to examine the differences between the multiples and analysis of key factors leading to valuation multiple ranges. In the second approach, the valuation output is provided and the exercise is limited to the guided questions examining the multiples. The food sector is used as the case study since the sector is well known and is comprised of firms at various stages of growth, with different

profit margins and varying business models. Data on various equity and enterprise value multiples, profit margins, and growth rates was downloaded from publicly available information and is provided below in Table 1.

ASSIGNMENT PART A: INTRODUCTION TO VALUATION MULTIPLES

Begin the exercise by asking questions to initiate a discussion on the purpose and use of multiples. This can be done through a quick quiz, live multiple-choice voting with devices to see where class knowledge stands or through a class discussion. It may also be assigned in advance as homework in a “flipped” classroom setting.

Questions might include:

- Name and explain some valuation multiples. Which multiple is most commonly used? Why?
- Describe the pros and cons of using multiples to value a firm versus other approaches (such as discounted cash flow)
- What factors might cause a firm to trade at a high multiple versus peers? A low multiple?
- Do multiples vary across sectors? Why or why not?
- Think about the fast food sector. Which firms do you think trade at the highest multiples? Why?

Key Points in Debrief

During the debrief, cover these points:

- ✓ Valuing an asset relative to other comparable assets is a technique based on the premise that similar assets should trade at similar prices. The results yield valuable information since the numerator measures the value investors place on some measure of earnings.
- ✓ Compared to financial ratios, valuation multiples have the advantage of incorporating **current** investor perspectives on a firm’s future earnings and risk and as well incorporate all available information at a point in time.
- ✓ Price/Earnings multiples are the most widely used and commonly provided multiple, possibly because of the availability of information required to calculate the multiple and its ease of use.
- ✓ Multiples need to be created so that the numerator and denominator are consistent. Enterprise multiples look at the value of the entire firm compared to a metric of sales or earnings available to all providers of capital. Enterprise multiples include EV/Sales; EV/EBIT and EV/EBITDA since sales and EBIT are available to all types of capital. Equity multiples include a measure of equity in the numerator (Price per share or market capitalization) and earnings to equity holders ONLY in the denominator (EPS or net income). Equity multiples include P/E and PEG.
- ✓ Comparables is another term for multiples analysis. Trading comparables (multiples based off current market valuations) are benchmarks for minority stakes and transactions comparables (based off valuations where the price reflects a controlling stake, for example an acquisition offer) usually include control premia relevant when examining an acquisition.

Next facilitate understanding of the significance of a multiple with the following question.

Discussion Point: What does a multiple really tell you?

Taking a step back, what does a 10x P/E or 15x EV/EBITDA multiple really mean? What does the multiple tell you?

A valuation multiple tells you how much each dollar of some type of earnings (operating or net income) is worth by investors today. Differences in multiples are driven by the differences in their fundamental value, so, for example, a dollar of net income is generally valued more highly by an equity investor than a dollar of EBITDA. Similarly a dollar of technology firm income might be valued more highly than a dollar in the commodity food sector, due to different growth, margin and risk factors.

ASSIGNMENT PART B: SEARCHING FOR & CALCULATING VALUATION MULTIPLES (OPTIONAL SECTION)

First we identify public sources of information and then provide an example of how to calculate multiples. Valuation Multiples are widely available. Below we show how to access publicly available information from Yahoo, CNBC and Google.

Obtaining Information from Online Sources

Go to *Yahoo Finance* and enter the ticker of a firm, here PNRA for Panera Bread Company. As of April 9, 2014 the P/E and EV/EBITDA multiples are provided in information on the Company under Key Statistics. Note the P/E is provided on both a trailing twelve months (ttm) and forward basis.

The screenshot shows the Yahoo Finance page for Panera Bread Company (PNRA). On the left is a navigation menu with categories like 'More On PNRA', 'QUOTES', 'CHARTS', 'NEWS & INFO', 'COMPANY', and 'ANALYST COVERAGE'. The main content area displays the stock price as 170.59, up 1.19 (0.70%) on April 9, 2014, at 4:00 PM EDT. Below this is a 'Key Statistics' section with a table of valuation measures.

Valuation Measures	
Market Cap (intraday) ⁵ :	4.66B
Enterprise Value (Apr 10, 2014) ³ :	4.50B
Trailing P/E (ttm, intraday):	25.05
Forward P/E (fye Dec 31, 2015) ¹ :	21.38
PEG Ratio (5 yr expected) ¹ :	1.40
Price/Sales (ttm):	1.94
Price/Book (mrq):	6.61
Enterprise Value/Revenue (ttm) ³ :	1.89
Enterprise Value/EBITDA (ttm) ⁶ :	10.78

On *Google Finance*, enter the ticker, again PNRA and the following summary information is provided. Note that the results will vary across sources in terms of the information provided and the results. So, for example, the P/E multiples differ somewhat here. Since multiples change over time you will notice that the values in this section reflect data from April 9, 2014 and differ somewhat from the table below where information was accessed March 31, 2014.

- Company
- Summary
- News
- Option chain
- Related companies
- Historical prices
- Financials

170.59 0.00 (0.00%) Range 52 week 150.33 - 194.77 Dividend yield 8.82
 Apr 9 - Close Open - Shares 27.87M
 NASDAQ real-time data - Disclaimer Vol / Avg 0.00/553,478.00 Beta 0.66
 Currency in USD Mkt cap 4.72B Inst. own 89%
P/E 25.00



- Markets
- News
- Portfolios
- Stock screener
- Google Domestic Trends
- Recent Quotes (180 days)

Create portfolio from quotes

Related companies

Company name	Valuation	Dividend	Financial ratios	Operating metrics	Stock metrics	Margins			
	P/E ratio	Dividend yield	Total debt to equity	Return on avg assets	Beta	Net profit margin	Gross margin	EBITD margin	Operating margin
PNRA Panera Bread Co	25.00		0.00	16.02	0.73	9.23	61.57	17.45	12.99
BAGL Einstein Noah Res...	21.93	3.25	496.96	6.09	0.51	2.98	21.16	10.40	5.67
SBUX Starbucks Corpora...	560.86	1.43	29.00	0.09	1.04	0.06	28.36	19.22	-2.19
KKD Krispy Kreme Doug...	36.97		0.76	10.07	1.22	7.44	17.97	12.51	10.02
PBFB Potbelly Corp			0.71	0.82		0.43	70.85	6.83	0.49
NATH Nathan's Famous, ...	28.72		0.00	15.86	0.35	10.44	33.50	18.91	17.60
COSI Cesi Inc			0.00	-15.89	1.47	-4.53	77.37	-0.37	-4.60
SWRL U-SWIRL Inc			53.55		1.23				
RKLC Rockelle Corp.			89.91	-121.17		-932.53	57.23	-918.07	-938.55
CBDU Caribou Coffee Co.	0.00		0.00	29.05	1.51	10.90	50.18	8.76	4.65
KAHL Kahala Corp.			44.37	-9.64		-19.96	28.49	8.82	0.82

CNBC provides information as well. Enter PNRA for the ticker and select "profile". You will be provided with a firm overview, investment information and performance data for the firm, industry, sector and S&P 500.

← → C data.cnb.com/quotes/PNRA/tab/4

QUOTE CHART NEWS PROFILE EARNINGS PEERS FINANCIALS OWNERSHIP

PANERA BREAD CO PNRA.O : NASDAQ
 Industry: Restaurants & Bars

COMPANY PROFILE

Company Details

Panera Bread Company (Panera) s a national bakery-cafe concept with 1,541 Company-owned and franchise-operated bakery-cafe locations in 42 states, the District of Columbia, and Ontario, Canada. Panera operates under the Panera Bread, Saint Louis Bread Co. and Paradise Bakery & Cafe trademark names. Its bakery-cafes are located in urban, suburban, strip ... [More](#)

Shares Outstanding	27.7M
Institutional Ownership	93.15%
Market Cap	4.7B
Last Stock Split	None

Address: Suite 100 3630 SOUTH GEYER ROAD, ST LOUIS, MISSOURI 63127

Ronald M. Shaich Chairman & Chief Executive www.panerabread.com

Investment Ratings

Analyst Consensus & Trends

STRONG BUY	B	HOLD	S	U	Rating
6	1	11	0	2	20 Analysts Reporting

PNRA.O Highlights

First Call expects **1.52 EPS** for next quarter.
 The current **Price Target for PNRA.O is \$181.06.**

COMPANY PERFORMANCE



In addition to these public sources, you may have access to subscription or proprietary information, for example through Bloomberg and other sources. We later include some information obtained from Bank of America/Merrill for discussion purposes to highlight nonpublic sources.

Calculating Multiples

If you want the class to calculate multiples, continue with this section, otherwise skip to Part 5 of the exercise. This section provides a brief overview on the basics of how to calculate P/E, EV/EBIT and EV/EBITDA multiples.

Steps in calculating a multiple:

- 1) Select desired multiple
- 2) Determine the value metric (numerator) generally share price, equity or enterprise value and the value driver (denominator), often EPS, net income, EBIT, EBITDA or revenues
- 3) Divide to get the multiple

The multiple is a ratio of economic value. The numerator is the value measure; the denominator is the value driver.

Value measures include share price, market capitalization and/or enterprise value. The value measure for equity multiples is current share price or market capitalization. Take care to use the diluted shares outstanding if calculating market capitalization. Enterprise value is the firm value and includes all capital sources: common equity, preferred equity and debt. Debt is typically calculated net of cash (debt minus cash and equivalents).

Value drivers common in multiples include revenues, EBIT, earnings. It is important to be consistent in using either trailing or forward measures for the drivers. While forward measures are typically preferable since valuations reflect expectations about the future, the wider availability of trailing measures makes these more common. Be careful to match the numerator and denominator. Equity multiples should use EPS, net income or free cash flow to equity. Enterprise multiples should use EBIT, EBITDA, revenues or free cash flow.

Example: It is March 31, 2014

- Panera (PNRA) stock is trading at \$176.47
- Last year's revenues totaled \$2.39 billion
- Trailing EPS is \$6.81
- EBIT (trailing) is \$310 million
- EBITDA (trailing) is \$417.08 million.
- Market capitalization is \$4.86 billion
- Enterprise value is \$4.63 billion

Find the P/E, EV/Sales, EV/EBIT and EV/EBITDA multiples.

$$P/E = \text{price per share} / \text{earnings per share} = \$176.47 / \$6.81 = 25.9$$

$$EV/Sales = \$4.63b / \$2.39b = 1.9$$

$$EV/EBIT = \$4.63b / \$0.31b = 14.9$$

$$EV/EBITDA = \$4.63b / \$0.417b = 11.1$$

Enterprise value = market capitalization plus net debt. Net debt equals debt minus cash. Since the enterprise value is less than the market capitalization, Panera must have more cash than debt.

ASSIGNMENT PART C – INTERPRETING MULTIPLES

The first part of this exercise began with questions to initiate a discussion on the purpose and use of multiples and discussed the calculation and basic interpretation of the results. Here we apply these concepts to the food sector and demonstrate how comparing different multiples across a sector can enhance fundamental analysis.

Begin by asking the group to identify the firms they think will trade at the highest and lowest multiples from the following list: Buffalo Wild Wings, Cheesecake Factory, Chipotle, Darden, McDonald's, Panera, Starbucks, Wendy's and Yum Brands. The list was created to include different types of firms operating in the restaurant industry and as well different stages of maturity.

Following this, show the results in Table 1 and ask the group to answer the following questions. This works well as an "in-class" exercise done in groups but can also be assigned as homework or as a case.

Questions:

- 1) Analyze the P/E multiples provided.
 - a. What factors might best explain the ordering of firms based on the trailing and forward P/E multiples.
 - b. Must the forward P/E be lower than the trailing P/E?
 - c. What are some possible explanations of Starbucks trailing P/E?
- 2) Analyze the EV multiples provided.
 - a. Why does McDonald's have one of the highest EV / Sales multiples but the lowest P/E multiple?
 - b. How should we interpret the EV/EBIT versus EV/EBITDA multiples?

Debrief:

These questions allow for a discussion of sector and firm dynamics.

Question 1 allows for a discussion of what drives relative equity valuations – this can enhance discussions of financial analysis and benchmarking.

- Firms with relatively high growth rates will generally trade at higher multiples.
- Differences in mature firms in a sector can be analyzed by thinking about the steady state drivers of value: growth, margins, capital requirements and costs and tax rates.
- In this example, the highest forward P/E multiples are for Chipotle and Buffalo Wild Wings. Both firms are expanding rapidly so investors appear to be willing to pay relatively more for a dollar of EPS at these firms than in the rest of the sector.
- McDonald's has the lowest P/E multiple perhaps due to expectations about future growth.
- Time permitting, ask students to consider why one sector might trade at a higher or lower P/E multiple than the S&P 500 overall (approximately 19.5 in spring 2014).

Key issues from Question 1:

- a. Key factors: future growth rates, margins, capital costs, taxes, required capital.
- b. The numerator price per share is fixed at a point in time. For a trailing P/E multiple divide by historic earnings; for a forward multiple divide by forecasted earnings. Since the numerator is fixed the forward P/E multiple must be higher if earnings are forecasted to grow.
- c. Yahoo, CNBC and Google Finance report a trailing P/E multiple at Starbucks well above 400 while the forward P/E multiple by Yahoo is 23. This suggests that historic earnings were very low but expected to improve. Thus investors were willing to pay a lot for a dollar of 2013 EPS since it was expected to increase. Some research into the firm's financials reveals that Starbucks reported a \$2.7 billion nonrecurring charge related to litigation with Kraft over distribution agreements. This "one time" charge impacted profits significantly and therefore the trailing multiple. Note that the trailing multiple published by Bank of America/Merrill Lynch was 30.6. This is because financial analysts at investment banks are typically trained to "clean earnings" to remove non-recurring items before calculating and publishing multiples. This provides a clearer picture of what multiple investors are "really" assigning to earnings.

Question 2 facilitates analysis of the sector and highlights the role of the business model and the capital structure on multiples.

- a. Consider McDonalds. The firm has a high EV/Sales multiple but the lowest P/E multiple and relatively low EV/EBIT and EV/EBITDA. To understand this consider the margins and return on assets and consider the different business model adopted by these firms. EV/Sales measures what investors are willing to pay for a dollar of sales. Why are MCD sales so valuable? The firm has an operating margin of 30%, more than triple some and more than double most of the competitors. Thus each dollar of sales at MCD translates to more income than at the other firms, thus the sales are more valuable. However, at the net margin level while MCD still has the highest return the other firms are closer. The firm also has a fairly high ROA. Here note that MCD uses the franchise model thus invests far less in assets than some firms, including Starbucks, that do not employ the franchise model. Despite these advantages, the expected growth rate at MCD is low and competition in the sector is fierce so the P/E multiple is low compared to the peers.

Chipotle trades at high equity and enterprise multiples. This can be explained by a number of factors including its high expected growth rate, high operating and net margins and high return on assets.

- b. Darden trades at a higher EV/EBIT but lower EV/EBITDA multiple than McDonalds. Darden has relatively weak margins and return on assets so why would it trade at a higher EV/EBITDA multiple? In capital intensive sectors, since capital investment is higher, depreciation is higher. Consider the spread between EV/EBIT and EV/EBITDA for the various firms. For Wendy's EV/EBIT is more than double EV/EBITDA while for McDonalds there is a relatively small

difference. The difference is explained by the magnitude of depreciation and amortization (D&A). Both McDonalds and Yum Brands use a franchise model so the firms have low levels of assets and correspondingly lower depreciation and amortization. Darden, Starbucks and Cheesecake have relatively more fixed assets so higher levels of D&A. If firms use different depreciation methods EV/EBITDA multiples may facilitate comparison. Similarly in a sector where some firms have made acquisitions EV/EBITDA may be preferable since in the acquisition if assets are re-valued, depreciation rises relative to firms without acquisitions.

So how can we explain the large difference at Wendy's? Review the financial statements for 2013, and find the following comment on page 40 of the 2013 10K.

“The Depreciation and amortization during 2013 includes accelerated depreciation of \$17.5 million and \$20.7 million on existing assets that were replaced in 2013 and will be replaced in 2014, respectively, as part of our Image Activation program. The increase in restaurant depreciation and amortization during 2013 also includes a \$6.4 million increase on new and reimaged Image Activation restaurants.”

The unusually high level of depreciation in 2013 explains the EV/EBIT versus EV/EBITDA multiples.

CONCLUSIONS

Analysis of valuation multiples in conjunction with other firm information can enhance financial analysis and facilitate understanding of firm and sector dynamics. Since valuation multiples capture current market sentiment about the relationship between value and the value driver, we can analyze multiples across a sector to improve understanding of *why* companies in a sector are valued differently. The exercise of explaining why common multiples are similar or different across a set of peer firms can lead to insights not obvious when conducting traditional financial analysis.

REFERENCES

- Alford, A.W. (1992). The effect of the set of comparable firms on the accuracy of the price earnings valuation method. *Journal of Accounting Research*, vol. 30, no. 1, pp. 94-108.
- Cheng, C.S.A. McNamara, R. (2000). The valuation accuracy of the price-earnings and price-book benchmark valuation methods. *Review of Quantitative Finance and Accounting*, vol.15, pp. 349-370.
- Liu, Jing, Doron Nissim & Jacob Thomas. (2002). Equity Valuation Using Multiples. *Journal of Accounting Research*, Volume 40, Issue 1, pp. 135-172, March 2002.
- Cooper, Ian and Leonardo Cordeiro. (2008). Optimal Equity Valuation Using Multiples: The Number of Comparable Firms. Accessed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1272349
- Lie, Erik and Heidi Lie. (2002). Multiples Used to Estimate Corporate Value. *Financial Analysts Journal*, March/April 2002, pp 1-11. Accessed at <http://www.biz.uiowa.edu/faculty/elie/ValByMult.pdf>.
- Fernandez, Pablo. (2002). *Valuation Methods and Shareholder Value Creation*. Elsevier Science.

**TABLE 1
DATA FOR CASE STUDY**

Data as of 3/31/2014	Firm	Ticker	EV/Sales	EV/ESBITDA	EV/EBIT	P/E		5 Yr EPS Growth		Dividend	ESBITD		Operating		Net		EV		
			Yahoo	Yahoo	Calculated	Yahoo	CNBC	Google	Yahoo	CNBC	BAML	Yahoo	Google	Google	CNBC	CNBC		CNBC	USD billions
			na	na	na	forward	forward	forecast	Yield	ROA	Margin	Margin	Margin	Margin	Margin	Mkt Cap			
Buffalo Wild Wings	BWLD		2.1	14.3	26.1	39.3	39.2	39.2	na	26.2	20.1%	1.5	0.0%	11.0%	14.9%	8.2%	5.6%	2.9	2.7
Cheesecake	CAKE		1.3	9.8	14.6	22.7	22.6	22.6	22.6	17.4	22.3%	1.4	1.2%	10.3%	12.7%	8.5%	6.1%	2.4	2.3
Chipotle	CMG		5.3	26.7	31.5	54.3	54.3	54.3	54.3	35.4	30.2%	2.0	0.0%	17.8%	19.8%	16.8%	10.2%	17.9	17.0
Darden	DRI		1.1	9.9	17.4	20.3	20.2	20.2	20.2	18.0	-4.8%	(23.0)	4.3%	6.4%	12.2%	7.5%	4.8%	6.7	9.3
McDonalds	MCD		3.9	10.7	12.7	17.7	17.6	17.7	17.6	15.5	9.8%	2.2	3.3%	15.5%	35.9%	30.2%	19.9%	97.3	108.4
Panera	PNRA		2.1	11.1	14.9	25.9	25.9	25.9	25.9	22.1	23.7%	1.4	0.0%	16.0%	17.5%	13.0%	8.2%	4.9	4.6
Starbucks	SBUX		3.7	18.4	23.4	476.5	567.8	567.8	30.6	23.2	27.5%	1.4	1.4%	0.9%	19.2%	14.8%	0.1%	56.5	56.1
Wendy's	WEN		1.7	12.2	31.4	83.4	79.7	79.7	76.0	22.8	19.1%	1.5	2.2%	1.0%	16.5%	6.9%	1.8%	3.4	4.2
Yum Brands	Yum!		2.7	12.8	16.6	31.9	32.1	32.1	31.9	18.1	10.5%	1.7	2.0%	12.0%	24.1%	17.7%	8.3%	35.3	33.7
Mean			2.7	14.0	21.0	85.8	95.5	95.5	94.9	22.1	17.6%	(1.1)	1.6%	10.1%	19.2%	13.7%	7.2%	25.2	26.5
Median			2.1	12.2	17.4	31.9	32.1	32.1	28.3	22.1	20.1%	1.5	1.4%	11.0%	17.5%	13.0%	6.1%	6.7	9.3