

Teaching Note

VALUING WAL-MART – 2010

Professor Jim Hatch wrote this teaching note as an aid to instructors in the classroom use of the case Valuing Wal-Mart – 2010, No. 9B11N004. It is modeled on a teaching note written by Professor Steve Foerster for the Case, Valuing Wal Mart. This teaching note should not be used in any way that would prejudice the future use of the case.

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Version: 2012-09-05

SYNOPSIS

In early February 2010, Sabrina Gupta, an investment advisor with a major brokerage firm, was examining Wal-Mart Stores, Inc. (Wal-Mart) stock and its valuation. Gupta wondered whether to recommend the stock to any of her new clients or to existing clients who did not currently have Wal-Mart in their portfolios. Her key task was to use an intrinsic value approach to price the shares and to then compare the resulting price with the price at which the stock was traded in the market. This case illustrates basic valuation concepts, including the dividend discount model, the price-earnings model and applications of the capital asset pricing model.

PEDAGOGICAL OBJECTIVES

This case achieves the following objectives:

- Discusses the role of and techniques employed by equity analysts
- Introduces students to the valuation of a stock using variants of the dividend discount model (DDM)
- Introduces students to the price-earnings (P/E) multiple model
- Illustrates the application of the capital asset pricing model (CAPM)
- Introduces students to the use of a variety of data sources (such as analysts' forecasts, Bloomberg and Value Line)

OVERVIEW OF CLASS DISCUSSION

The instructor can begin the class by asking students what might be an appropriate price for Wal-Mart stock (or whether the stock should have a buy or sell recommendation). This question can stimulate a good discussion of whether the stock is overvalued or undervalued. The instructor can then move the discussion

to the role of equity analysts, their purpose, their need to specialize across industries and the qualities that characterize a good analyst. The discussion can then focus on the data provided in the case. After examining the data, the instructor can then introduce the DDM, the CAPM, P/E multiples and the key assumptions used in each. Students can then value the stock and make a buy or sell recommendation. In wrapping up the class, the instructor can review the key points regarding valuation, such as the importance of expectations on both growth and risk and the critical role that assumptions play in determining stock valuations.

SUGGESTED GUIDELINE QUESTIONS

1. As of February 2010, what is your assessment of the worth of Wal-Mart's stock? Utilize all of the methods discussed in the case to value the shares, including the following:
 - a. The perpetual growth in dividends
 - b. Forecasted dividends for the next several years plus sale of the stock in the future
 - c. The three-stage dividend model
 - d. The price/earnings approach
2. Clearly state any assumptions.
3. Based on your analysis, as Sabrina Gupta, what recommendation would you make?

ANALYSIS AND CASE DISCUSSION

What Is Wal-Mart Stock Worth?

The instructor can ask students whether they would recommend the purchase of Wal-Mart shares and the basis for their decision. Alternatively, the instructor can ask, by way of a show of hands, the worth of a share of Wal-Mart stock.

What Is The Role of an Equity Analyst?

The instructor can ask students a series of questions aimed at identifying the role of equity analysts, how they do their job and how one might identify a good equity analyst.

An analyst attempts to provide superior performance through active management recommendations. An analyst provides skills primarily in the areas of portfolio balancing (weights given to particular industries); the markets that are currently appropriate, such as cash, debt or equity (often called "market timing"); and the selection of particular securities in an industry. For security selection decisions, an analyst frequently undertakes what is called a "fundamental analysis," often based on a top-down approach, examining the economy, industry and the performance of the firm. An analyst's job is usually to follow one particular industry and forecast future relative performance of companies within that industry and those companies' target stock prices over the next 12 months. The analyst usually provides some ranking of the companies being followed (e.g., on a 1 to 5 scale) or specific recommendations (e.g., "strong buy," "hold," or "sell"). A "good" analyst is one whose rankings of firms from "best" to "worst" within a particular industry is consistent with rankings of future stock performance.

Growth Prospects for Industry

In anticipation of the later valuation discussion, students may be asked to characterize the industry as growing, mature or declining. Students are likely to conclude that the industry itself (retailing) is quite mature to the extent that we are selling consumer goods such as food, and other household items, which means that growth is likely to be at approximately the same rate as gross domestic product (GDP) growth or growth in disposable income. More insightful students will observe that some industries deviate from their long-term trends in response to such factors as the business cycle (construction is a good example). However, the sale of basic items tends to not be very cyclical as indicated by Wal-Mart's relatively low beta.

Growth Prospects for Wal-Mart

On the other hand Wal-Mart may have higher growth prospects as it increases its market share in its traditional product areas, increases its product offerings and moves into international markets.

Past Performance of Wal-Mart

The data provided in case Exhibits 2 and 3 provide an insight into Wal-Mart's past performance. Exhibit 3 shows that in the early years Wal-Mart's earnings grew very rapidly but in the most recent five years the growth rate has averaged about 9 per cent per year, which implies that Wal-Mart has been transforming itself from a very rapid growth company to a lower growth company.

Although earnings growth has tapered off, dividend growth in the last five years has averaged approximately 16 per cent. Case Exhibit 3 also shows that, in the early growth years, the dividend payout was relatively low but, in recent years, it has been increasing. The average over the past five years has been approximately 26 per cent. The increasing payout rate is consistent with a firm that is becoming more mature and suggests that the observed dividend growth rate is not sustainable unless the growth in earnings improves. These observations can lead to a class discussion of why companies choose a particular dividend policy and how the dividend policy relates to investment opportunities available to the firm.

As seen in case Exhibit 2, Wal-Mart's stock price has been relatively flat for much of the last decade and in the recent year has underperformed the S&P Index. Also interesting to note is that, when the market declined significantly beginning in 2007, Wal-Mart held its value very well.

Valuation Approaches – Dividend Discount Model

The case does a good job of explaining the variants in the model so the logic will not be repeated here. Instead, we will show how the value of Wal-Mart may be calculated using each of these approaches and the assumptions in the case.

The Discount Rate

Assumptions provided in the case:

Long-term government bonds: 3.68%

Beta from Bloomberg: 0.66

Market premium: 5.05

The appropriate discount rate can be based on the CAPM as follows:

$$K_e = R_f + \beta \times \text{Market Premium}$$

$$K_e = 3.68 + (0.66 \times 5.05)$$

$$K_e = 7.01 \text{ or } 7\%$$

As time permits and depending on the instructor's class objectives, each of these assumptions and their role in formulating the CAPM can be discussed. By convention, the 10-year government bond yield is used to represent long-term rates (note: some applications of CAPM use a short-term, risk-free rate and a market premium over the short-term government bond return). The adjusted beta is of a forward-looking nature as described in case footnote 3. The instructor can discuss some of the many variations for estimating betas and their challenges. For example, weekly or monthly data can be used and two- to five-year estimation periods can be employed. The discussion can be superficial or technical, including an examination or review of regression analysis. Students should come to the realization that beta estimation — and thus CAPM estimation — is as much art as it is science. The 5.05 per cent market risk premium suggested in the case is based on a history of long-term returns on equities versus government bonds as estimated by Bloomberg. Some studies suggest a larger risk premium of approximately six per cent, while others suggest a much lower forward-looking premium of less than four per cent. Clearly, determining the risk premium is a controversial yet very important assumption, and the instructor can share some of the current literature in this area.

Perpetual Dividends Approach

Assumptions provided in the case from a “respected analyst”

Anticipated fiscal 2011 dividend: \$1.21

Growth in perpetuity: 5.0%

The intrinsic value using the perpetual dividends approach is as follows:

$$P_0 = D_1 / (K_e - g)$$

$$P_0 = 1.21 / (0.07 - 0.05)$$

$$P_0 = \$60.50$$

The instructor can ask students to comment on the reasonableness of the 5 per cent growth rate assumed by the analyst, given that the company has had a growth rate of approximately 31 per cent over its long history. The answer lies in the notion that the growth rate is being estimated in perpetuity. A very large growth rate causes the numerator in the formula above to take on a negative value which is nonsensical. Intuitively such a large growth rate implies that Wal-Mart will ultimately be approximately as large as the entire economy.

The instructor can also ask students how sensitive the valuation is to the growth assumption. The instructor might want to highlight that if the growth rate is increased by a small amount (for example to 5.5 per cent), the share price rises to more than \$80 per share.

Dividends Plus Stock Sale Approach

Another stock valuation method is to estimate dividends for a few years into the future and then assume that the stock can be sold at the end of that time.

Assumptions provided in the case

Anticipated fiscal 2011 dividend: \$1.21

Consensus analyst stock price forecast one year hence: \$60.50

The intrinsic value using this approach is as follows:

$$P_0 = (D_1 + P_1) / (1 + K_e)$$

$$P_0 = (1.21 + 60.50) / (1 + 0.07)$$

$$P_0 = \$57.66$$

The instructor may note that the consensus forecast for the stock price may have been derived by multiplying the current price/earnings multiple (which is 14.7 in case Exhibit 7) by the estimated earnings for the coming year of \$4.11 (which is \$3.72 this year times the analysts estimated 10.4 per cent growth rate for the coming year. This gives an estimated price one year hence of \$60.42.

Three-Stage Approach

The three-stage approach attempts to capture the likely changes in growth of earnings over time along with reasonable changes in dividend payout rates. The instructor should encourage students to input the key variables into the model as supplied in the case.

Assumptions provided in the case, calculated earlier or assumed by author

Cost of equity	7%
Growth years	5
Transition years	12
Initial growth in EPS	10.4%
Pay out at maturity	45%
Current year dividend	1.09
Current year EPS	3.71

Inputting all of these assumptions into the model provides an intrinsic share price of \$95.67 per share as seen in Exhibit TN-1. This value is clearly much higher than the estimate determined through the other methods. Students will note that this model is most sensitive to the initial assumed growth rate in earnings. The table below shows the intrinsic value for various lower initial assumptions regarding earnings per share (EPS) growth.

Initial EPS Growth	Intrinsic Value of Shares
10.40	95.67
9.40	86.65
8.40	78.46
7.40	71.02
6.40	64.27
5.40	58.15

Valuation Approaches – Price/Earnings Multiple

According to Value Line (as seen in Exhibit 6 of the case), the projected price earnings multiple for Wal-Mart is 13.4 times. In the most recent year, the EPS is \$3.72 and the anticipated growth rate (as provided by analysts) is 10.4 per cent. This means that expected earnings per share for the next fiscal year is $3.72 \times 1.104 = \$4.11$. Employing the forward multiple of 13.4 times gives a current stock price of $13.4 \times 4.11 = \$55.07$. Price/earnings (P/E multiples) vary across time and across industries, depending on assessments of both growth prospects and risk. Companies and analysts that follow companies' performance forecast the EPS figures. Given the expected future P/E multiple for the company, a current stock price can be determined. Since multiples change throughout time, a forward-looking P/E multiple is needed; however, most reported P/E data are based on trailing earnings.

A related approach compares the P/E multiple of a firm with the P/E multiple of the industry, the market as a whole and competing firms. For example, the data in Exhibit 6 show that for the calendar year 2009 Wal-Mart had a trailing P/E ratio of 14.7, whereas Target, its closest competitor, had a P/E ratio of 15.6. One might argue that the lower P/E ratio for Wal-Mart is appropriate given that its earnings growth over the last five years (as seen in Exhibit 7) has been lower and its forecast earnings growth for the next five years is also lower.

RECOMMENDED STRATEGY

The instructor should now ask students to recommend a strategy. Should the stock be purchased at its current price of \$53.48 per share? As seen in the earlier discussion, we have obtained a range of values but all are higher than the current stock price. Based on this analysis, we might recommend purchase, which appears to be the consensus of analysts. The instructor can also follow the price of Wal-Mart from the time of the case to the current time, trying to explain changes in valuation. For example, did Wal-Mart meet analysts' expectations for dividends and earnings? How did the overall market perform?

SOME KEY LEARNING POINTS

- Valuation measurement is part art and part science. Valuation models are only as good as the inputs.
- Stocks can be classified broadly as either growth or value. Wal-Mart was a classic example of a “growth” stock (particularly to 2000), with a high price-to-earnings ratio; such growth stocks do not always perform as well in the future as “value” stocks.
- Values are driven by two main factors: expected risk and growth prospects.
- If intrinsic values different substantially from market values, the implication is that the markets are not efficient.
- Valuation is driven by expectations. Expectations can change quickly, on the basis of economic factors, market-wide considerations, industry factors and firm-specific situations.

Exhibit TN-1

DIVIDEND DISCOUNT MODEL: THREE-STAGE EXAMPLE

Discount rate (r): 7.00%

Growth period (g1):

Growth years

Initial growth rate of EPS

Maturity period (g2):

Payout at maturity

Retention rate at maturity (retent)

Growth rate at maturity: $r \times \text{retent}$

Transition period:

Transition years

Growth rate of EPS (incremental)

Other information:

Current fiscal year EPS

Current calendar year dividend

Current payout (p1)

Growth years payout = current

Maturity payout (p2)

Transition years payout (incremental)

Growth + Transition Years

Terminal value (TV) = $\text{div1}/(r-g)$

Calculate

Year Assumption	EPS	growth	Dividend	payout	TV	PV (div+TV)
1 Growth year EPS	4.10	10.40%	1	1.20	29.38%	1.12
2 Growth year EPS	4.52	10.40%	2	1.33	29.38%	1.16
3 Growth year EPS	4.99	10.40%	3	1.47	29.38%	1.20
4 Growth year EPS	5.51	10.40%	4	1.62	29.38%	1.24
5 Growth year EPS	6.08	10.40%	5	1.79	29.38%	1.27
6 Transition year EPS	6.72	9.90%	6	2.05	30.58%	1.37
7 Transition year EPS	7.42	9.39%	7	2.36	31.78%	1.47
8 Transition year EPS	8.19	8.89%	8	2.70	32.98%	1.57
9 Transition year EPS	9.04	8.38%	9	3.09	34.19%	1.68
10 Transition year EPS	9.75	7.88%	10	3.45	35.39%	1.75
11 Transition year EPS	10.47	7.38%	11	3.83	36.59%	1.82
12 Transition year EPS	11.19	6.87%	12	4.23	37.79%	1.88
13 Transition year EPS	11.90	6.37%	13	4.64	38.99%	1.93
14 Transition year EPS	12.60	5.87%	14	5.06	40.19%	1.96
15 Transition year EPS	13.28	5.36%	15	5.50	41.40%	1.99
16 Transition year EPS	13.92	4.86%	16	5.93	42.60%	2.01
17 Transition year EPS	14.53	4.35%	17	6.36	43.80%	215.5
18 Maturity	15.09	3.85%	18	6.79	45.00%	70.24

Theoretical price

95.67

Note: EPS = earnings per share