

Absolute Valuation: Economic Profit/EVA

Objective: The objective of this assignment is to help reinforce the concept of Economic Profit otherwise known as Economic Value Added (EVA). More specifically, this exercise is designed to have you learn how to:

- Calculate NOPAT, Operating Capital, EVA, and MVA (Market Value Added)
- Partition the EVA and use this partition in analyzing the firm
- Perform discounted cash flow analysis using EVA
- Use EVA in conjunction with Tobin's Q to make investment decisions (buy/sell)

Prior to doing this assignment, please read Chapters 8 - 12 in Copeland, Kotler, and Murrin, *Valuation: Measuring and Managing The Value of Companies*.

Company: Investors might want to keep an eye on Bausch and Lomb (Ticker: BOL, <http://www.bausch.com/>). The company is a leading maker of contact lenses and lens care solutions (including the ReNu and Boston brands). The firm manages its commercial operations on a regional basis and the research and development and product supply functions are managed on a global basis.

The company markets five broad categories of products:

1) Contact Lenses: Sales of contact lenses represented 29% of consolidated 2003 revenues. The company's contact lens offerings span the entire spectrum of wearing modalities and include such well-known brand names as *PureVision*, *SofLens66 Toric*, *SofLens One Day*, *SofLens Comfort*, *SofLens Multi-Focal*, *Boston* and *Optima FW*, 2) Lens Care: The sale of contact lens care solutions represented 25% of consolidated 2003 revenues. The company's lens care products include the *ReNu* brand of chemical disinfectants as well as the *Sensitive Eyes* and the *Boston* lines of products for cleaning contact lenses.

3) Pharmaceuticals: Sales of pharmaceuticals products accounted for 23% of consolidated 2003 revenues. The company's offerings include generic and proprietary prescription pharmaceuticals, over-the-counter eye drops and other medications. Offerings in the prescription/proprietary category include *Lotemax* and *Alrex*, the company's lines of steroid eye drops; and outside the U.S., carteol, a non-selective beta blocker; *Minims* preservative-free, single-dose drops; and *Vidisic* for dry eye. In the over-the-counter segment the company's leading products include the *Ocuvite* and *PreserVision* lines of ocular vitamins, 4) Cataract and Vitreoretinal Surgery: Products used for cataract and vitreoretinal surgery procedures accounted for 16% of consolidated 2003 revenues. The company offers a full suite of products in this area, including intraocular lenses and delivery systems, the



Millennium line of phacoemulsification equipment, and other surgical devices and instruments, and 5) Refractive Surgery: Sales of products used in refractive surgery accounted for 7% of consolidated 2003 revenues. Offerings in this area include the *Zyoptix* system for personalized vision correction (customized LASIK) and the *Hansatome* microkeratome.

Management expects margin improvement as the revenue mix shifts to new products. Contact lenses, the company's mainstay product continue to bring in steady sales and still have room to grow globally especially in Asia where the firm sees more than 20% annual sales increases in China and double-digit increases in Japan. The firm's real growth driver, though, could be its refractive surgery business, where it competes with Alcon (ACL) and VISX (EYE). The Food and Drug Administration (FDA) approved Bausch & Lomb's *Zyoptix* refractory system in October. Since then, sales in this segment have taken off, with year-over-year sales growth of 22% and 19% in the last two quarters.



Zyoptix system

On April 21, 2004, Bausch & Lomb Chairman and Chief Executive Officer Ronald L. Zarrella said, "Our first-quarter results were solid, with constant-currency sales growth in line with, and operating margins somewhat above, our original projections. These operational factors generated about half the earnings per share upside as compared to our previous guidance, with the rest coming from lower-than-anticipated net financing expense. **We remain comfortable with our projections for full-year 2004 constant-currency revenue growth in the mid-single digits and expect full-year operating margins above 12 percent**, reflecting leverage from favorable mix shifts and continuing benefits from our profitability improvement programs.

In the latest MVA/EVA ranking reported on their website, [Stern Stewart](#) ranked Bausch and Lomb 1040 out of 2,717 companies in the Russell 3000 index in terms of their 2002 Market Value Added (MVA) down from a rank of 594 in 1999. In dollar terms, BOL's MVA declined by \$1,317 million over this 3-year period. This decline in MVA suggests that investors' expectations for BOL have diminished, either due worse-than expected performance or a revision in outlook for the company and/or its sector. The firm also had a negative \$47 million Economic Value Added (EVA) for the year 2002, another indication that management is destroying value; the firm is suffering an economic loss.

Competitors: Allergan (AGN) and Alcon (ACL). Other competitors include Akorn (AKRN), LaserSight (LASE), Novartis (NVS), Paradigm Medical Industries (PMED), and VISX (EYE).

Assignment: Download the Bausch & Lomb spreadsheet from my website and do all your work on this spreadsheet. This is an *individual* assignment. Although you can discuss this case with your classmates, you are responsible for doing the case yourself. Students caught cheating will be given an F on this assignment. In doing this assignment, please use the assumptions given on the next page. The assignment/questions can be found after the assumptions.

Assumptions to Use in Calculations:

Item	Assumption
NA	Assume that NA is equal to zero. See the preceding comment for the case of Depreciation and Amortization.
Growth rate in sales	<p>According to http://finance.yahoo.com/q/ae?s=BOL Analyst estimates for sales growth is 6.2% per year in the near future. This appears to be consistent with Bausch & Lomb's CEO Ronald L. Zarrella's statement on April 21, 2004, that "We remain comfortable with our projections for full-year 2004 constant-currency revenue growth in the mid-single digits...". Assume that sales growth remains constant for 5 years. In the stable growth period (year 11), sales are assumed to grow at a constant rate of 6.8% per year (this is the average sales growth for the medical equipment industry). Between year 6 through year 10, sales will increase in equal increments such that they equal 6.8% in year 11. For example, in year 6, sales growth will equal the following:</p> $g(\text{Sales})_{\text{Year}6} = .062 + (.068 - .062)/6$ <p>where 6 = number of periods remaining after year 5.</p>
Sales/Beginning Capital via Operating Approach	Based on historical performance, assume that BOL continues to have a sales-to-beginning capital ratio of 1.1
Cost of Goods Sold (COGS)	Cost of Goods Sold <i>includes</i> Depreciation and Amortization IF there is an "NA" for Depreciation and Amortization in the income statement. If this is the case, subtract out Depreciation and Amortization from COGS.
COGS (exclu. Depreciation & Amortization)/ Sales	Based on historical performance, assume that BOL continues to have a COGS/Sales ratio of .365 for the first 5 years and a COGS/Sales ratio of .355 in the stable growth period (year 11). Between year 6 through year 10, COGS/Sales will decrease in equal increments such that they equal .355 in year 11.
(SGA + R&D Expenses)/ Sales	Adjust SGA (including R&D)/Sales such that the near term operating margin conforms to BOL's Chairman and CEO Ronald L. Zarrella announcement on April 21, 2004 that "We expect full-year operating margins above 12 percent, reflecting leverage from favorable mix shifts and continuing benefits from our profitability improvement programs... assuming currency rates remain relatively consistent with current levels." Thus, assume that BOL's <i>operating margin</i> is 12.5% for the first 5 years. Assume that BOL's SGA (including R&D)/Sales in the stable growth period (year 11) is .36. Between year 6 through year 10, SGA (including R&D)/Sales is assumed to decrease in equal increments such that they equal .36 in year 11.

Item	Assumption
Depreciation & Amortization	Use the Depreciation & Amortization number given in the income statement. If there is a NA, use the Depreciation and Amortization number given in the Statement of Cash Flows.
Depreciation & Amortization /Sales	Assume that this ratio is .06 based on historical performance for the first 5 years of the forecast period ¹ and is .05 in the stable growth period (year 11). Between year 6 through year 10, this ratio is assumed to decrease in equal increments such that it is equal to .05 in year 11.
Accounting Adjustments/ Sales	Based on historical performance, assume that (Goodwill Amortization + Implied Interest on Operating Leases + Change in LIFO Reserves)/ Sales = .002 over the entire forecast period.
Cash Operating Taxes/ Adjusted Operating Profit	Since this adjusted tax rate varies so much for BOL, we will use as a proxy the tax rate ² for 2003 rounded to the nearest 2 decimal places (use ROUND function in Excel) for the first 5 years of the forecast period. The tax rate is assumed to equal the current tax rate of the medical equipment industry (.355) in year 11. Between year 6 through year 10, the tax rate is assumed to increase in equal increments such that it is equal to .355 in year 11.
Beta	Assume that the beta for the first 5 years of the forecast period is the imputed levered beta for BOL using our single comparable Allergan. The beta is assumed to mean revert (in a linear fashion) to the beta of the market ($\beta_{Market} = 1$) in the stable growth period. For example, $\beta_{Year\ 6} = \beta_{Year\ 5} + (1 - \beta_{Year\ 5})/6$
EVA multiple	The EVA multiple for Bausch and Lomb is assumed to equal the median of $1/(ROIC - WACC)$ for large cap firms ³ in the medical equipment industry of which BOL is a part of. In calculating the terminal value, be sure to apply the multiple to anticipated EVA (EVA_{T+1})
Risk free Rate	Assume that the rate on a 10-year Treasury bond remains constant at 4.01%
Risk Premium	Assume that it is .055. As an aside, Bennet Stewart in his book "Quest for Value" uses 6%.
After-tax Cost of Debt	For the valuation based on EVA, assume that the after-tax cost of debt remains constant based on the rate you calculated for 12/27/2003 in the worksheet labeled 3. EVA Calc (BOL) .

¹Technically speaking, we should use the ratio of depreciation to Capital Expenditures (CapEx) and the ratio of CapEx to Sales in calculating Depreciation.

²Tax Rate = Provision for Income Taxes/Income Before Tax

³We define large cap firms as all firms in the medical equipment industry having a market cap (price*shares outstanding) that is larger than that of Bausch and Lomb's market cap.

Item	Assumption
Weights for Debt and Equity	Assume that the market value weights for debt and equity that you calculated in the worksheet labeled 3. EVA Calc (BOL) remain constant for the first 5 years of the forecast period at their 12/27/2003 level. In the stable growth period (year 11), the market value weights for debt and equity are assumed to equal .15 and .85 respectively. Note: The weights in the stable growth period are based on the average of all firms in the medical equipment industry with market caps that were larger than BOL
Present Value of Operating Leases	Use the before-tax cost of debt associated with the firm's bond rating for a particular year as the discount rate. Several examples are given in the worksheet labeled Operating Leases.
Absolute Value	Use the =abs() function in Excel in calculating the absolute value
Intangibles	The line item labeled INTANGIBLES in the balance sheet includes Goodwill and is on a NET basis. To obtain the breakout, which I have provided to you (I had to painstakingly go through the various 10Ks for each company over several years to obtain these and other supplementary data numbers).
Goodwill	In July 2001, the FASB issued SFAS No. 142, Goodwill and Intangible Assets. SFAS No. 142 provides guidance on how to account for goodwill and intangible assets after the acquisition is complete. The most substantive change represented by this statement is that goodwill is no longer amortized; instead, it is tested for impairment at least annually or more frequently if events or changes in circumstances indicate that the asset might be impaired. The statement applies to existing goodwill and intangible assets, effective for fiscal years beginning after December 15, 2001.

Assignment:

1. Present Value and Imputed Interest of Operating Leases (10 points): Using the worksheet labeled “1. OpLeases”, calculate the present value and imputed interest for each year for Bausch and Lomb and also Allergan using the approximate pre-tax cost of debt for each company. The pre-tax cost of debt changes each year not only due to changes in the interest rate but also due to changes (if any) in the bond rating. Since bond yields in the “Bond Yields” worksheet are not stated in terms of + or - e.g. only AA exists, not AA+ or AA- we use the bond yield that is the closest to our firm’s bond rating. In calculating the number of years remaining on the operating lease, we will assume that this is equal to the Thereafter number divided by the dollar amount associated with the last operating lease. For example, suppose that you have the operating lease amount for years 2001 through 2005 (23500, 15700, 7000, 3600, and 2900) and then the Thereafter amount is \$5100. Then the number of years remaining on the operating lease after year 2005 is $\$5100/\$2900 = 2$ years. Thus, the leases go through year 2007.

2. Calculating EVA and MVA (15 points): Using the information on financial statements, operating leases, and risk factors as well as bond yields provided and your answer to question 1, calculate the

- a. Net Operating Profit (NOPAT)
- b. Cash Operating Taxes
- c. Capital via the Financing Approach
- d. Capital via the Operating Approach
- e. Market Value of Capital
- f. After-tax WACC based on market value weights
- g. Return on Capital
- h. Economic Profit (Economic Value Added (EVA))
- i. Market Value Added (MVA)

using the EVA Templates, **2. EVA Calc (AGN)** and **3. EVA Calc (BOL)**. The area to be completed is highlighted in **yellow**. Note: There is a line item in each firm’s income statement called Income Before Depreciation and Amortization (INC BEF DEP & AMORT). This may or may not be equivalent to EBITDA. The reason is that the Depreciation and Amortization is sometimes included in the Cost of Goods Sold. Please see the assumptions above.

3. Footnotes in the 10Ks (5 points): To make sure that you understand where the LIFO Reserves, Accumulated Goodwill Amortization, Deferred Income Taxes, and Implied Interest on Operating Leases are found in the 10K, print out the appropriate pages from Bausch and Lomb’s 10K and **highlight the relevant numbers in yellow**. One source of 10K reports is <http://edgarscan.pwcglobal.com/servlets/edgarscan>. Other sources of 10K reports are listed in http://www.nyu.edu/library/bobst/vbl/candf_info.html.

4. Margin Analysis and Partitioning the EVA (10 points): Complete the **highlighted** sections of the worksheet labeled “Pct of Sales Template”. Next, using your completed

percent of sales worksheet, complete the **highlighted** sections of the next worksheet labeled “Partitioning the EVA”. Discuss how effective Bausch and Lomb’s management is at controlling their operating expenses relative to one of their main competitors, Allergan (management of income statement). Is BOL’s management doing a better or worse job over time? Besides this, discuss how well BOL manages their assets (balance sheet) relative to Allergan e.g. \$1 of assets (various asset components) generates how many dollars in sales? To what extent do differences in accounting affect profit at the firm level (EBIT) for Bausch and Lomb relative to Allergan?

6. Calculating the Industry EVA Multiple to Calculate Terminal Firm Value (5 points): Using the worksheet labeled “EVA Multiple for Industry”, calculate the median EVA multiple for large cap stocks in the medical equipment industry of which Bausch and Lomb is a part of by filling in the **highlighted** sections. We define large cap firms as all firms in the medical equipment industry having a market cap (price*shares outstanding) that is larger than that of Bausch and Lomb’s market cap. The EVA multiple = $1/(ROIC - WACC)$. If a multiple for a given firm is negative, please enter NMF for No Meaningful Figure in the cell. Intuition: We assume that Bausch and Lomb’s EVA multiple will mean revert to the EVA multiple for the medical equipment industry in the long run.

7. Obtaining Justified Firm Value and Shareholder Value Using EVA (50 points): Calculate the justified value of the firm and the justified value of the equity for Bausch and Lomb by completing the **highlighted** sections of the worksheet labeled “6. BOL Valuation (%Sales)”. Your cash flows should be in **millions** of dollars (Note: the financial statements are in thousands of dollars). The necessary assumptions regarding growth, risk, etc., are given above.

a. Based on May 12, 2004 as your date of valuation and the price on that date, should you buy, sell, or hold Bausch and Lomb?

b. What proportion of the justified value of the firm is based on future growth potential (and understated book value)? What portion of Bausch and Lomb’s value is due to its existing asset base inclusive of excess cash and the value of non-operating assets? (Hint: the sum of the present value of the EVAs is equal to MVA. Think of how MVA is related to the value of the firm).

c. Using the Data Table command in Excel, complete the sensitivity table of prices at various levels of expected growth in sales and for various levels of beta in the year 2014.

8. Buying the Assumptions that Create the Price (5 points): Make a copy of your completed “BOL Valuation (%Sales)” worksheet by right-clicking on the worksheet and selecting the **Move or Copy ...** option. Next, scroll down and highlight the worksheet that you wish to copy and then click on the box located in the lower left hand corner entitled **Create a copy**. Using the Solver algorithm located in the **Tools** submenu, **Set Target cell**: \$B\$69 (this is the sales growth for the first 5 years of the forecast period)

Equal to the market price of 61.89 **By Changing Cells:** \$B\$2. What is the near term growth rate in sales that is embedded in Bausch and Lomb's existing market price?

Please turn in a hard copy of the spreadsheet together with your disk containing the spreadsheet with all the appropriate calculations. Once again, this is an **INDIVIDUAL** assignment.