

Absolute Valuation: Cash Flow Return on Investment (CFROI)

Objective: The objective of this assignment is to help reinforce the concept of Cash Flow Return on Investment (CFROI), which is an alternative value added technique to Economic Value Added (EVA). Proponents of CFROI include Holt Value Associates (now a part of Credit Suisse First Boston (CSFB)) and the [Boston Consulting Group](#). Deutsche Bank also uses CFROI but calls it CROCI (Cash Return On Capital Invested). More specifically, this exercise is designed to have you learn how to:

- Chart the Relative Wealth of our Firm
- Estimate the typical life of a project (project life) for our firm
- Convert historical cost to current values by calculating an inflation adjustment factor
- Derive Gross Cash Investment (as if the firm invested in all existing assets last year)
- Calculate Gross Cash Flows and Terminal Value of the Firm
- Calculate the CFROI given preceding inputs
- Value the firm using assumptions about the life cycle of the firm and preceding inputs
- Partition the value of the firm into value from existing assets and future investments

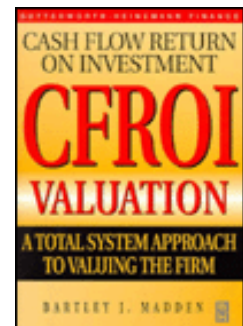
Prior to doing this assignment, please read Madden, *CFROI Valuation: A Total System Approach to Valuing the Firm*. Be sure that you understand Chapter 3 and Chapter 7 thoroughly prior to undertaking this project. Also read the following articles:

The CFROI valuation model; Bartley J Madden; Journal of Investing, NY; Spring 1998; Vol. 7(1); pg. 31, 14 pgs

Analytical Tools: CSFB HOLT ValueSearch, Credit Suisse First Boston, May 29, 2002

Value Creators Report 2002: Succeed in Uncertain Times, Boston Consulting Group, 2002

These articles are located in the readings portion of my IP (Investment Principles) website (this is a password protected site): <http://pages.stern.nyu.edu/~cliu/ip.html>.



Company: Reynolds American (Ticker: RAI, <http://www.reynoldsamerican.com>) Reynolds American Inc. (NYSE: RAI) is the parent company of R.J. Reynolds Tobacco Company (<http://www.rjrt.com/home.asp>), Santa Fe Natural Tobacco Company Inc. (<http://www.nascigs.com/>), and Lane Limited. Reynolds American became their parent company and began public trading¹ on July 30, 2004, following a business transaction that combined the nation's No. 2 and No. 3 tobacco companies, R.J. Reynolds Tobacco Company and the U.S. operations of Brown & Williamson Tobacco Corp., under the Reynolds Tobacco name. R.J. Reynolds Tobacco Company is the second-largest cigarette manufacturer in the United States, manufacturing about one of every three cigarettes sold in the United States. Reynolds Tobacco's product line includes five of the nation's 10 best-selling cigarette brands: Camel, Winston, KOOL, Salem and Doral. Santa Fe Natural Tobacco Company, Inc. manufactures Natural American Spirit additive-free-tobacco cigarettes and other tobacco products, and markets them both nationally and internationally. Lane Limited manufactures several roll-your-own, pipe tobacco and little cigar brands, and distributes Dunhill tobacco products in the United States.



Although Reynolds had been in the tobacco business for more than 120 years, increasing competition and the need to cut costs encouraged the #2 US tobacco company to merge with #3 Brown & Williamson. Reynolds American still trails the Altria Group (owner of Philip Morris), whose market share is nearly half of the US tobacco market. Brown & Williamson's former parent British American Tobacco owns 42% of Reynolds American. Since the company is relatively "new", analysts have not given any estimate of sales growth for 2005 while their consensus sales growth forecast for 2006 is -.7%. According to RAI's press release on Feb. 15, 2005, the merger resulted in "initial merger-related synergies of about \$75 million, which will build to annualized savings of approximately \$600 million by year-end 2006." During 2004, they also completed the restructuring announced in 2003, and ended the year ahead of schedule, reaching 95 percent of their \$1 billion goal in cost reductions. Dianne M. Neal, Reynolds American's chief financial officer, said that for full-year 2005, Reynolds American forecasts operating income (EBIT) of \$1.65 billion to \$1.75 billion and net income of \$970 million to \$1.030 billion. This amounts to an increase of 50% and 20% respectively over 2004 results on a post-merger basis.



Primary Competitors: Altria Group (MO), British American Tobacco (BTI), Gallaher Group (GLH), Imperial Tobacco (ITY), UST Inc. (UST), and Japan Tobacco (trades on the Tokyo stock exchange). The industry that Reynolds American (RAI) and its competitors are in is cigarettes and the sector is Consumer Goods.

¹Prior to that date, R.J. Reynolds Tobacco Holdings, Inc. (RJR), now a wholly owned subsidiary of Reynolds American, was a publicly traded company.

Assignment: Download the spreadsheet labeled ip_cfroi_spr2006.xls 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 at the back of this case. Please do NOT wait until the last minute to do this assignment. Start this assignment as soon as it is assigned. It should take you at least a couple of days. Good luck.

Please complete all **highlighted** sections of each worksheet.

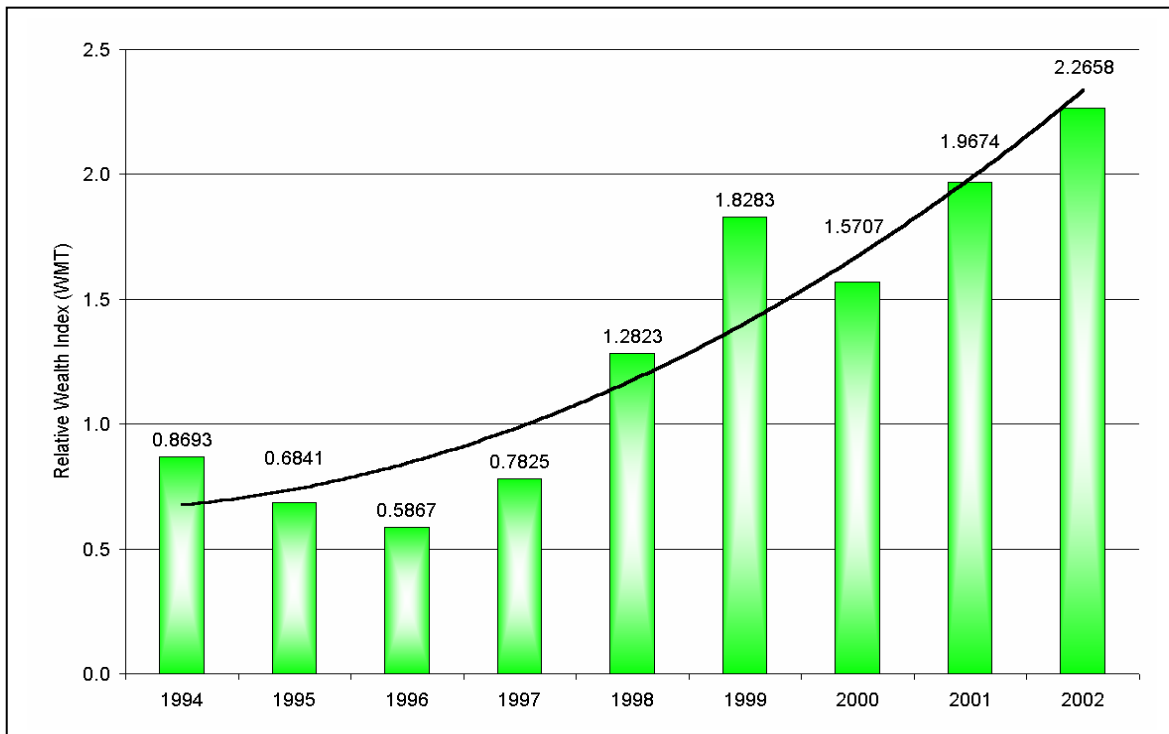
1. Using the "Returns (Tobacco)" worksheet,

- a. Using the "1a. RelWealth Calc (RAI)" worksheet template, calculate and graph the relative wealth index for Reynolds American. In constructing your Column graph, show the values of your Data Labels. Next, add a trendline to this Column graph. To add a trendline, right click on mouse after positioning the cursor over a bar in the bar chart and click on the Trend/ Regression Type. Here we will use a polynomial regression.
- b. Using the "1b. RelWealth Calc (MO)" worksheet template, calculate and graph the relative wealth index for Altria Group. In constructing your Column graph, show the values of your Data Labels and add a trendline to this Column graph.
- c. Using the "1c. RelWealth Calc (UST)" worksheet template, calculate and graph the relative wealth index for UST. In constructing your Column graph, show the values of your Data Labels and add a trendline to this Column graph.
- c. What does the relative wealth graph for RAI suggest with respect to the trend in Reynolds American's CFROI? Is Reynolds American's CFROI increasing or decreasing over time? Use Lexis-Nexis to help you explain this trend in relative wealth (CFROI). Also read RAI's 10Ks and Annual Reports for various years especially the "Letter to Shareholders" section. You can access Reynolds American's 10K report using the URL <http://www.nyu.edu/library/bobst/vbl> and click either on Thomson's Research or EdgarScan. How does the relative wealth graph for RAI compare to the relative wealth graphs of Altria Group and UST? Please discuss. In your discussion, please look at Altria Group and UST annual reports, especially the "Letter to Shareholders" section.

Example: Calculating the relative wealth index for Wal-Mart (WMT)

DATE	WalMart	SP500	DATE	1+ r(WMT)	1+ r(SP500)	Cum(1+r(WMT))	Cum(1+r(SP500))	Ratio Cum(1+r(WMT))/ Cum(1+r(SP500))
19940131	0.06	0.0325	19940131	1.06	1.0325	1	1	1.0000
19940228	0.07075	-0.03005	19940228	1.07075	0.96995	1.134995	1.001473375	1.1333
19940331	-0.08661	-0.04575	19940331	0.91339	0.95425	1.036693083	0.955655968	1.0848
19940429	-0.02415	0.01153	19940429	0.97585	1.01153	1.011656945	0.966674681	1.0465
19940531	-0.06931	0.01242	19940531	0.93069	1.01242	0.941539002	0.978680781	0.9620
19940630	0.03372	-0.02681	19940630	1.03372	0.97319	0.973287697	0.952442349	1.0219
19940729	0.03093	0.03147	19940729	1.03093	1.03147	1.003391486	0.98241571	1.0214
19940831	-0.0133	0.03764	19940831	0.9867	1.03764	0.990046379	1.019393837	0.9712
19940930	-0.05076	-0.0269	19940930	0.94924	0.9731	0.939791625	0.991972143	0.9474
19941031	0.00535	0.02083	19941031	1.00535	1.02083	0.94481951	1.012634923	0.9330
19941130	-0.00883	-0.0395	19941130	0.99117	0.9605	0.936476754	0.972635843	0.9628
19941230	-0.08602	0.0123	19941230	0.91398	1.0123	0.855921023	0.984599264	0.8693
19950131	0.07647	0.02428	19950131	1.07647	1.02428	0.921373304	1.008505334	0.9136
19950228	0.03825	0.03607	19950228	1.03825	1.03607	0.956615833	1.044882122	0.9155
19950331	0.08105	0.02733	19950331	1.08105	1.02733	1.034149546	1.07343875	0.9634
19950428	-0.07317	0.02796	19950428	0.92683	1.02796	0.958480824	1.103452098	0.8686
19950531	0.04737	0.03631	19950531	1.04737	1.03631	1.003884061	1.143518443	0.8779
19950630	0.07739	0.02128	19950630	1.07739	1.02128	1.081574648	1.167852516	0.9261
19950731	-0.00467	0.03178	19950731	0.99533	1.03178	1.076523694	1.204966869	0.8934
19950831	-0.07793	-0.00032	19950831	0.92207	0.99968	0.992630203	1.204581279	0.8240
19950929	0.0102	0.0401	19950929	1.0102	1.0401	1.002755031	1.252884989	0.8004
19951031	-0.12626	-0.00498	19951031	0.87374	0.99502	0.876147181	1.246645621	0.7028
19951130	0.11214	0.04105	19951130	1.11214	1.04105	0.974398326	1.297820424	0.7508
19951229	-0.07292	0.01744	19951229	0.92708	1.01744	0.9033452	1.320454412	0.6841

Illustration of Relative Wealth Graph for Wal-Mart:



2. Using the information on the operating lease for Reynolds American, calculate the present value of the Operating Lease for the fiscal year 2004. Round the number of years remaining on the operating Lease to the nearest number using the Excel function = Round (,0). Since RAI's 10K, footnote 20 says that the majority of operating leases expire within the next five years, we will assume that the thereafter amount is repaid in full in year 2010.

3. Using the information provided in various worksheets in your workbook, calculate the estimated life of the project using the template provided in the worksheet labeled "3. Asset Life (RAI)". The area to be completed is highlighted in yellow. To make sure that you understand where Land, Buildings, Machinery and Equipment, Leasehold Improvements, and Property, Plant, and Equipment (Gross) come from that I have provided in the " RAI 10K " worksheet at the bottom of the spreadsheet, print out the appropriate page from Rapid American's 10K for the year ended December 31, 2004 and highlight the relevant numbers in yellow. You can obtain their 10K from their website at <http://www.reynoldsamerican.com>.

4. Calculate the:

- a. Real historical growth rate in operating assets using the worksheet labeled " 4a. HistGrwth OpAsset (RAI)" by filling out all the highlighted sections.
- b. Inflation adjustment factor for RAI using the worksheet labeled " 4b. GrossPlant Inflation (RAI)" by filling out all the highlighted sections.

5. Using the Inflation Adjustment Factor that you calculated in question 4b in conjunction with the Present Value of Operating Leases that you computed in question 2, derive the

- Depreciable Assets (stated in 2004 dollars) in dollars and percentage terms
- Non-depreciable Assets (stated in 2004 dollars) in dollars and percentage terms
- Gross Cash Investment in Year 2004 dollars (current dollars)

using the worksheet labeled "5. Adj Gross Cash Invst (RAI)". The gross cash investment can be thought of as the amount that the firm, in this case RAI, has invested in assets "as if" it just started the business from scratch in the Year 2004.

6. Calculate the gross cash flow using the template provided in the worksheet labeled "6. Gross Cash Flow (RAI)". Note: The gross cash flow is NOT the same as the free cash flow to the firm (FCFF). However, the gross cash flow is one component of the adjusted FCFF, which Madden refers to as Net Cash Receipts (NCR).

7. Complete the highlighted sections of the worksheet labeled "7. CFROI (RAI)" using your answers to the preceding questions as the necessary inputs. To calculate the CFROI, use the IRR () function in Excel. Be sure to enter the Gross Cash Investment as a negative number. Do NOT fill in the area shaded in Gray. In addition to calculating the CFROI, calculate the Cash Value Added = CFROI * Gross Cash Investment.

8. Compute the before-tax weighted average cost of capital (WACC) using the worksheet labeled "8. WACC (RAI)". Please note that the procedure that we use to calculate beta is NOT used in the CFROI methodology. The argument that Madden makes for not employing the CAPM in calculating the cost of equity is that for firms in financial distress, the historical beta for the firm is lower than for a healthy firm (which is counter-intuitive). Recall that the higher the risk, the higher the required return should be. Consequently, Madden argues that the cost of equity should start with a market return + differential adjustment for a company based on size and leverage. To address his concern, we use a built-up beta approach using five comparables - Altria Group (MO), British American Tobacco (BTI), Gallaher Group (GLH), Imperial Tobacco (ITY), and UST Inc. (UST). Observe that the CFROI methodology treats "Pension Intangibles" and "Preferred Stock" as debt.

9. Calculate the simple plowback ratio for Reynolds American using the worksheet labeled "9. Forecast Life Cycle (RAI)". The simple plowback ratio is used to calculate the sustainable growth rate (see the Assumptions page in this handout).

10. Find the Expected CFROI on New Investments in 2008 (t+5) using the worksheet labeled "10. Value via CFROI (RAI)". Besides this, determine what percent of the total value of the firm (Reynolds American) is due to expected future investments. To obtain the future CFROI implied by the current price for a share of stock (the closing market price of RAI in December 2004 of \$78.60), put in an arbitrary value for Expected CFROI on New Investments in 2009 (t+5). Recall that the Approximate Sustainable Growth Rate in 2009 (t+5) = simple plowback ratio * Expected CFROI on New Investments in 2009. Calculate the total value of the firm, the value of the firm due to existing assets, and the value of the firm arising from expected future investments. Next, use the Solver command in Excel (**T**ools → **S**olver) to set your calculated price equal to the current market price (\$78.60) by changing the cell that your Expected CFROI on New Investments in 2009 is in.

Intuition for working backwards: Sometimes you want to test the assumptions that are imbedded in the stock price. For example, sometimes what management expects and the market expects (as implied by its stock price) differ.

Please turn in a **hard copy** of the spreadsheet with all the appropriate calculations.

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.
Forecasted CFROI	<p>Use the number that you calculated in question 7 for the year 2005 (t+1). Use 6.3% for the forecasted CFROI in year 2044. This figure is based on mean reversion e.g., reversion to the average for all firms (refer to the article and book by Madden).</p> <p>Assume that the CFROI will fade up or down for the period from year 2005 to year 2009. After this, the CFROI declines in a linear fashion to its long-term average.</p> <p>For the period from 2006 to 2009, let CFROI = R and</p> <p style="text-align: center;"> <u>if $R_{2005} > R_{2009}$ then</u> <u>if $R_{2005} < R_{2009}$ then</u> $R_{2006} = R_{2005} - (R_{2005} - R_{2009})/4$ $R_{2006} = R_{2005} + (R_{2009} - R_{2005})/4$ $R_{2009} = R_{2008} - (R_{2005} - R_{2009})/4$ $R_{2009} = R_{2008} + (R_{2009} - R_{2005})/4$ </p> <p>For the period from 2010 to 2044,</p> <p style="text-align: center;"> $CFROI_{2010} = CFROI_{2009} - (CFROI_{2009} - CFROI_{2044})/35$ $CFROI_{2011} = CFROI_{2010} - (CFROI_{2009} - CFROI_{2044})/35$ $CFROI_{2043} = CFROI_{2042} - (CFROI_{2009} - CFROI_{2044})/35$ </p> <p>After 2044, CFROI on new projects = WACC = 6.3%.</p>
(Simple) Plowback Ratio	Plowback = (Net Income + Depreciation + Minority Interest - Dividends)/(Net Income + Depreciation + Minority Interest + Interest Expense + Implied Interest on Op Leases + Implied Interest on Pension Intangibles). This ratio differs from the traditional plowback definition used in finance.
Tax Rate	Tax Rate = Provision for Income Taxes/Income Before Tax
Risk free Rate	Assume that the yield on a 10-year Treasury bond remains constant at its (year) 2004 level
Risk Premium	Assume that it is .05 or 5%
Beta	Use the most recent 60 months of returns to calculate beta using the = SLOPE() function in Excel e.g. from Jan 2000 - Dec 2004
Bond Rating	Assume that the bond rating for RAI is Ba2/BB. Note: This is really the bond rating for RJ Reynolds Tobacco holding.
Pre-tax Cost of Debt	Before-tax Cost of Debt = Default Spread for 10 Year + 10 Year Treasury Yield
Operating Lease	Since RAI's 10K, footnote 20 says that the majority of operating leases expire within the next five years, we will assume that the thereafter amount is repaid in full in year 2010.

Assumptions to Use in Calculations: (continued)

Item	Assumption
Sustainable Growth Rate	<p>Approximate Sustainable Growth Rate in 2005 (t+1)</p> <p>= Simple Plowback Ratio * Current Year CFROI (2004)</p> <p>Approximate Sustainable Growth Rate in 2009 (t+5)</p> <p>= Simple Plowback Ratio * Expected CFROI on New Investments in 2009 (t+5)</p> <p>For the period from 2006 to 2009,</p> <p style="text-align: center;"> $\begin{array}{ll} \text{if } G_{2005} > G_{2009} \text{ then} & \text{if } G_{2005} < G_{2009} \text{ then} \\ G_{2006} = G_{2005} - (G_{2005} - G_{2009})/4 & G_{2006} = G_{2005} + (G_{2009} - G_{2005})/4 \\ \dots\dots\dots & \dots\dots\dots \\ G_{2009} = G_{2008} - (G_{2005} - G_{2009})/4 & G_{2009} = G_{2008} + (G_{2009} - G_{2005})/4 \end{array}$ </p> <p>For the period from 2010 to 2044,</p> <p style="text-align: center;"> $\begin{array}{l} \text{Growth}_{2010} = \text{Growth}_{2009} - (\text{Growth}_{2009} - \text{Growth}_{2044})/35 \\ \text{Growth}_{2011} = \text{Growth}_{2010} - (\text{Growth}_{2009} - \text{Growth}_{2044})/35 \\ \dots\dots\dots \\ \text{Growth}_{2043} = \text{Growth}_{2042} - (\text{Growth}_{2009} - \text{Growth}_{2044})/35 \end{array}$ </p> <p>Sustainable Growth Rate in 2044 (t+40) = 2.5%</p> <p>No growth occurs after 2044 since CFROI on new projects = WACC so there are no new investments.</p>
Real Discount Rate (WACC)	<p>Assume that the WACC that you calculated in question 6 remains constant from year 2005 up to and including year 2009 (t+1 until t+5). After this period, it increases in a linear fashion to 6.3% (from article and book by Madden) in 2044 (t+40). It remains at 6.3% after year 2044.</p> <p>$\text{WACC}_{2010} = \text{WACC}_{2009} + (\text{WACC}_{2044} - \text{WACC}_{2009})/35$</p> <p>where $\text{WACC}_{2044} = 6.3\%$</p> <p>Note that the CFROI methodology assumes that the CFROI on New Projects = WACC in 40 years. Hence, no new investments are made after this period because no incremental relative wealth is created since the return on new projects is equal to its borrowing cost.</p>

Assumptions to Use in Calculations: (continued)

Item	Assumption
Amortization of Goodwill	Goodwill, if any, can no longer be amortized in accordance with SFAS 42. However, impairments to goodwill can be deducted.
Depreciation and Amortization	Use the Depreciation and Amortization from the Statement of Cash Flows for RAI (please refer to their 10K to verify this). Reason: According to the footnotes to RAI's 10K, the Depreciation and Amortization stated in the Statement of Cash Flows is the actual depreciation from consolidated operations (already excludes goodwill amortization) ² .
Monetary Holding Gain (Loss)	If Net Monetary Holdings are negative, inflation results in a real gain because the firm settles net obligations with dollars of reduced purchasing power. Such gains should be added to Net Income to derive Current Dollar Gross Cash Flow
Pension Intangibles ³	Pension intangibles are \$1,469,000 (in 000s). This is denoted as "Long-term retirement benefits" located in the balance sheet as reported in RAI's 10K. We assume that Pension Intangibles is analogous to Pension "Debt". According to Copeland, et al in the 3rd edition of their book entitled "Valuation: Measuring and Managing the Value of Companies" on page 178, " For unfunded or underfunded plans where the liability is recorded in the financial statements, treat the liability the same as interest-bearing debt in calculating invested capital and the cost of capital.
Implied Interest on Pension Intangibles	Implied Interest on Pension Intangibles = Pension Intangibles * Before-tax (pre tax) cost of debt
Other Long Term Assets	Other Long Term Assets = Other Non-Cur Assets + Deposits & Other Assets (see line items in balance sheet)

²In general, if depreciation and amortization is reported in the income statement then this figure otherwise use the depreciation and amortization that is reported in the Statement of Cash Flows. If the depreciation = "NA" in the income statement, then the cost of goods sold includes depreciation and amortization.

³Pension intangible is ONLY because we don't know what to debit on that additional minimum liability entry. Additional Minimum liability is always the difference between ABO (actual benefit obligations) and FMV (fair market value) of plan assets. The only reason we have pension intangible and additional min. liability is because we don't do pensions right. They are a last ditch effort to put more liability on the books (by the FASB) ... because the FASB succumbed to company pressure. Companies didn't want to put the PBO (pension benefit obligation) on the balance sheet (liability side). So we ended up with a compromise ... abo (actual benefit obligations) less plan assets on liability side (if there is a liability balance to this netting). (Source: <http://www.mcombs.utexas.edu/faculty/lisa.koonce/disc3/000001f7.htm>)

Assumptions to Use in Calculations: (continued)

Item	Assumption
Targeted Growth in Sales (Assets)	Assume sales growth = asset growth; Given the recent formation of the company as a combination of RJR Tobacco and Brown & Williams in 2004, we will use the average of the expected sales growth for Altria Group and UST Inc. given in the "Competitors" worksheet ⁴ . This assumes that mean reversion exists.
Cash Flows on New Projects	<p>This is calculated using the payment function in Excel e.g.,</p> $\text{Cash Flow} = \text{PMT}(\text{rate}, \text{nper}, \text{pv}, \text{fv}, \text{type})$ <p>For our firm, this translates into</p> <p>Cash Flows for Project_T = $\text{PMT}(\text{Project ROI}_{T+1}, \text{Project Life}, \text{Expenditures for New Property and Plant}_{T+1}, \text{Investment Net Working Capital}_{T+1})$</p> <p>Where</p> <ul style="list-style-type: none"> Cash Flows for a Project are constant over its life Project ROI_{T+1} = CFROI on new investments in period T+1 Project Life = answer you got from question 1 Expenditures for PP&E_{T+1} = see below Investment Net Working Capital_{T+1} = see below <p>Note: Use your answer in worksheet "6. Gross Cash Flows" for Project₂₀₀₄ cash flows.</p>
Project Life	<p>Project life is derived using the worksheet labeled "3. Asset Life (CVH)". The life of each project is identical. For example, if the first project has a life of 5 years, then the second project also has a life of 5 years.</p> $\text{Life of Project}_{2004} = \text{Life of Project}_{2005} = \dots = \text{Life of Project}_{2044}$ <p>To simplify our calculations, assume that capital spending each year is invested in only one "big" project even though it might be spent on several projects. In other words, all projects for a given year are assumed to have the same IRR and are added up to equal one big project.</p>

⁴Note: In general, we can use analysts' estimate of sales growth in future (next year). Since analysts estimates are based on management expectations with some slight modifications, we will assume that management expectations are similar to those of analysts.

Assumptions to Use in Calculations: (continued)

Item	Assumption
Expenditures for New Property and Plant	<p>Expenditures for new PP&E (known also as capital spending or capital expenditures) grow at the sustainable growth rate.</p> $\text{New PP\&E}_{T+1} = \text{PP\&E}_T * (1 + \text{Sustainable Growth Rate}_{T+1})$ <p>So</p> $\text{New PP\&E}_{2005} = \text{PP\&E}_{2004} * (1 + \text{Sustainable Growth Rate}_{2005})$ <p>Capital spending occurs each year until the year 2044. After 2044, there are no capital expenditures since the firm is assumed to wind-down (ROIC=WACC).</p>
Depreciable Assets	<p>In template "10. Valuation & Partition (RAI)",</p> $\text{Depreciable Assets}_T = \text{Expenditures for New Property and Plant}_T * (\text{Ratio of Depreciable Assets/Gross Cash Investment}).$ <p>This ratio is the result/answer from question 5.</p>
Investment Net Working Capital (Non-depreciable Assets)	<p>In template "10. Valuation & Partition (RAI)",</p> $\text{Non-Depreciable Assets}_T = \text{Expenditures for New Property and Plant}_T * (\text{Ratio of Non-Depreciable Assets/Gross Cash Investment}).$ <p>This ratio is the result/answer from question 5. Thus,</p> $\text{New PP\&E}_T = \text{Depreciable Assets}_T + \text{Non-Depreciable Assets}_T$
Recaptured Net Working Capital	<p>Net Working Capital (aka Non-depreciable assets) is recaptured at the end of the useful project life. For example, suppose that each project has a life of 10 years. Then if the first project began in 2004, the non-depreciable assets associated with the first project, Project_{2004}, would be recaptured in 2014. The second project, Project_{2005}, started a year later in 2005, would have its non-depreciable assets recaptured e.g. sold in 2015. The useful life is your answer to question 3.</p>

Assumptions to Use in Calculations: (continued)

Item	Assumption
Minority Interest	Please be careful. There is a minority interest in the income statement (a flow variable) and a minority interest in the balance sheet (a stock variable). The minority interest in the balance sheet is stated in terms of book value. To derive the minority interest in market value terms (balance sheet item), we use the price to book ratio (see the worksheet labeled "8. WACC"). Alternatively, we could have used the price to earnings ratio * minority interest income (in the income statement) to arrive at the market value for minority interest in the balance sheet.
Non-operating assets	Non-operating assets are assets not necessary to ongoing operations of the business enterprise. Non-operating assets include cash, cash equivalents (marketable securities), excess real estate, and overfunded pension plans

Hint: In setting up your spreadsheet(s), some cells require that you use IF statements such as =IF(\$B\$6>\$B\$7,C20-(\$B\$6-\$B\$7)/4,C20+(\$B\$7-\$B\$6)/4) or nested IF statements such as in calculating the Recaptured Net Working Capital in the valuation worksheet

(IF(AverageScore>89,"A",IF(AverageScore>79,"B",IF(AverageScore>69,"C",IF(Average Score>59,"D","F"))))).

If you are not familiar with the IF command, click on Help in Excel and then select Contents and Index.