Material III

Valuation of Stock of Walgreens Company

Relative Valuation Techniques

Now we estimate the share price for Walgreens for the year 2008 using relative valuation techniques.

We focus on the P/E ratio approach where we derive an intrinsic value for the stock based upon an estimate of future EPS and an earnings multiple (P/E) for the stock that reflects future expectations for WAG compared to its industry and the market.

1 Estimating Company Earnings per Share

The sales forecast includes an analysis of the relationship of company sales to various relevant economic series and to the retail stores(RS) industry series. These comparisons indicate how the company is performing relative to the economy and its competition.

Forecasting Company Sales

To examine the relationship of Walgreen Co.'s sales to the economy, we considered several alternative series. The series that had the strongest relationship was personal consumption expenditure for medicine (PCE medical care).

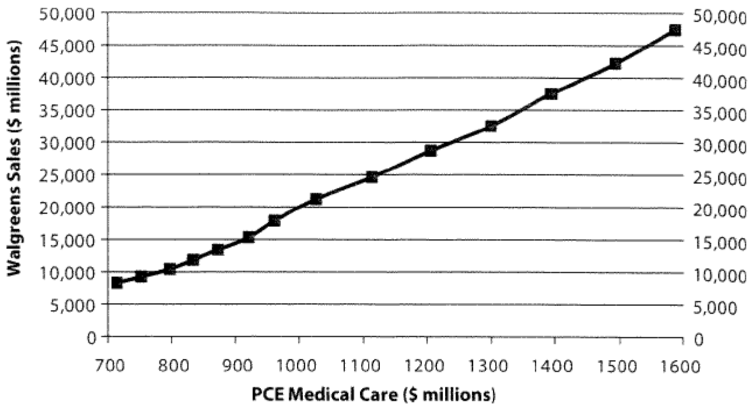
The scatterplot of Walgreen Co.'s sales and the PCE medical care expenditures contained in Table 1 and Figure 1 indicates a strong linear relationship, including the fact that Walgreen Co.'s sales grew faster than PCE medical care (i.e., 14.94% versus 6.66%). As a result, Walgreen Co.'s sales have gone from about 1.2% of PCE medical care to 3.0%.

Table 1 Walgreen Co.'s Sales and PCE Medical Care: 1993-2006

Year	PCE Medical Care ($ Billions)	Sales Walgreens ($ millions)
1993	715.1	8,295
1994	752.9	9,235
1995	797.9	10,395
1996	833.5	11,778
1997	873.0	13,363
1998	921.4	15,307
1999	961.1	17,839
2000	1,026.8	21,207
2001	1,113.8	24,623
2002	1,206.2	28,681
2003	1,300.5	32,505
2004	1,395.5	37,508

2005	1,492.6	42,202
2006	1,587.7	47,409
2007	1,683.8	53,762
10 yr Growth Rate	6.66%	14.94%

Figure 1 Scatter Plot of Walgreen Co.'s Sales and PCE Medical Care: 1993-2006



To estimate PCE medical care, we need to initially project total PCE and then estimate how much would be included in the medical care component. For 2008 economists were forecasting an increase in PCE of only 4.5 percent to $10,163 billion due to the recession. In addition we estimated that the percentage of PCE spent on medical care at about 17.4 percent. This implies an estimate for PCE medical care of $1,768 billion, a 5.0 percent increase from 2007. In turn, Table 1, which shows the historical relationship between PCE medical care and Walgreen Co.'s sales, implies an 11 percent increase in Walgreens sales to about $59.68 billion (53.76 × 1.11).

Now we compute alternative sales estimates to support the prior estimate. If we assume an increase in store area during 2008 of about 5 million square feet (which is less than in recent years), the firm's total sales area would be about 71.4 million square feet. As noted, sales per square foot have increased. Assuming a conservative increase to $830 of sales per thousand square feet implies a sales forecast of $59.26 billion for 2008, an 11 percent increase over 2007 sales of $53.76 billion.

Another internal estimate employs the number of stores and sales per store. Walgreens is expected to open 560 stores during 2008 and close 75 stores, which implies a net addition of 485 stores, resulting in 6,482 stores at the end of 2008. Assuming sales per store continue to increase from $8.96 million to $9.10 million indicates an estimate of $59.0 billion (6,482 × $9.10), an increase of 11 percent over 2007.

The preference is for the low estimate of $59 billion. We use the conservative estimate because of the growing consensus that the U.S. economy will experience a recession in 2008.

Estimating the Company Profit Margin

The next step in projecting earnings per share is to estimate the firm's net profit margin, which should include three considerations: (1) identification and evaluation of the firm's specific competitive strategy—that is, either low-cost or differentiation; (2) the firm's internal performance, including general company trends and consideration of any problems that might affect its future performance; and (3) the firm's relationship with its industry, which should indicate whether the company's past performance is attributable to its industry or if it is unique to the firm.

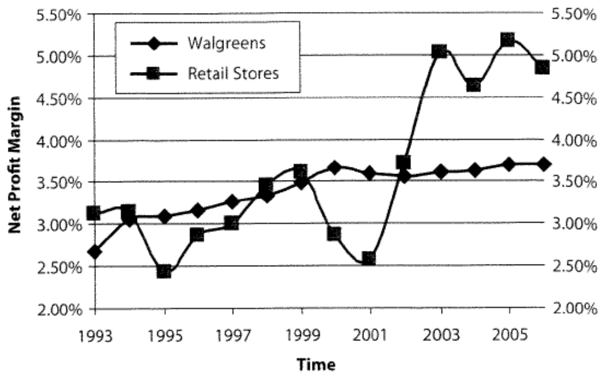
The Walgreen Co.'s profit margin has shown consistent improvement because of a change in corporate structure and sales mix. The outlook for profit margins is good because the firm has developed a strong position in the pharmacy business and has invested in service and inventory-control technology that will help the firm experience strong margins on this business. The firm also has emphasized high-profit-margin items, such as greeting cards, photofinishing, and cosmetics.

Profit margin figures for Walgreens and the RS industry are in Table 2 and figure 2, which show inconsistent results for Walgreens versus its industry. The net profit margins for Walgreens increased from 2.67 percent to 3.69 percent. The margins for the RS industry experienced an overall increase. While Walgreens showed a slow but steady increase in its margin, the retail stores margin was very volatile with a sharp decline in 2000-2001 followed by spectacular increase in 2002-2003. It is unclear if this was due to a change in the index sample. In any case, it is clear that one cannot depend on this relationship.

Table 2 Net Profit Margin for Walgreens and the Retail Store Industry: 1993-2006

Year	Walgreens (%)	Retail Stores (%)
1993	2,67	3.13
1994	3.05	3.14
1995	3.09	2.43
1996	3.16	2.86
1997	3.26	3.01
1998	3.34	3.45
1999	3.50	3.61
2000	3.66	2.86
2001	3.60	2.57
2002	3.55	3.71
2003	3.62	5.02
2004	3.63	4.63
2005	3.70	5.18
2006	3.69	4.85

Figure 2 Time-Series Plot of Net Profit Margin for Walgreens and the Retail Store Industry: 1993-2006



The overall industry outlook is encouraging because of stable prices, an increase in mechanization within the industry, and the inclusion of more high-profit-margin items. Although Walgreen has experienced small increases in its margin, it is estimated that the firm will experience a slight decline in 2008 to 3.75 percent from 3.80 percent in 2007 due to the economic recession.

This margin estimate, combined with the prior sales estimate of $59 billion, indicates net income of $2,213 million. Assuming about 1,006 million common shares outstanding, earning should be about $2.20 per share for 2008, which is an increase of almost 8 percent over the earnings of $2.04 per share in 2007. This is considered a fairly conservative estimate because we used our low estimates of sales, assumed a decline in the profit margin.

2 Estimating Company Earnings Multipliers

We use two approaches to estimate a company multiplier. First, we estimate the P/E ratio from the relationships between Walgreens, its industry, and the market. This is the macroanalysis. Second, we estimate a multiplier based on its three components: the dividend-payout ratio, the required rate of return, and the rate of growth. We then resolve the estimates derived from each approach and settle on a set of estimates.

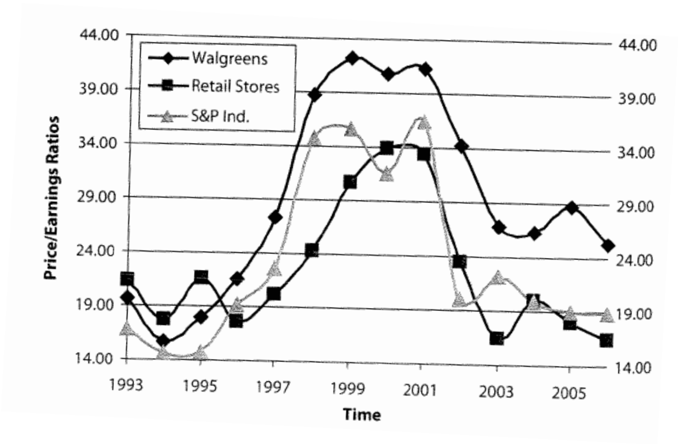
2.1 Macroanalysis of the Earnings Multiple

Table 3 shows the mean future earnings multiple for the company, the RS industry, and the aggregate market for the period 1993-2006. The Walgreen Co.'s earnings multiplier has always been higher than the market multiplier by an average of 26 percent. This pattern raises the questions: Are the higher P/E ratios for Walgreens relative to both its industry and the market justified? The microanalyses should provide some insights regarding this question.

Table 3 Mean Price/Earning Ratios for Walgreens, the Retail Store Industry and S&P Industrials Index: 1993-2006

Year	Walgreens	Retail Stores	S&P Ind.
1993	19.70	21.27	16.77
1994	15.71	17.69	14.64
1995	18.00	21.51	14.74
1996	21.59	17.61	19.07
1997	27.32	20.17	22.65
1998	38.71	24.24	34.78
1999	42.15	30.70	35.69
2000	40.74	33.91	31.61
2001	41.31	33.35	36.44
2002	34.25	23.46	20.05
2003	26.85	16.47	22.16
2004	26.25	20.09	19.85
2005	28.79	17.97	19.00
2006	25.34	16.49	18.86

Figure 3 Time-Series Plot of Mean Price/Earning Ratios for Walgreens, the Retail Store Industry and S&P Industrials Index: 1993-2006



2.2 Microanalysis of the Earnings Multiple

Comparing Dividend-Payout Ratios

The dividend-payout ratio for Walgreens typically has been lower than its industry and the aggregate market in recent years. This consistent lower payout by itself would imply a lower P/E ratio for Walgreens than for its industry and the market.

Determining k

To find Walgreen Co.'s required rate of return, we analyze the firm's fundamental risk characteristics, including business risk (BR), financial risk (FR), liquidity risk (LR), exchange rate risk (ERR), and country (political) risk (CR). We also analyze our estimate based on Walgreen Co.'s systematic risk (i.e., its beta).

Walgreens should have relatively low business risk due to its stable sales growth compared to its industry and the economy. After adjusting for size and trend, the results indicated that Walgreen Co.'s sales and EBIT experienced very stable growth, which indicated low business risk. When the leases are considered, the firm's financial risk is probably comparable to its industry where most firms lease their stores, but it is somewhat higher than the market. Walgreens Co.'s larger number of stockholders, very large market capitalization, fairly active trading of its stock, and strong institutional interest indicate that Walgreens has very little liquidity risk. Walgreens has very little exchange rate risk or country risk because the firm has virtually no non-U.S. sales.

Some Reference Formula for your convenience

$$net\ profit\ margin = \frac{net\ income}{sales} \qquad (1)$$

$$operating\ profit\ margin = \frac{operating\ profit\ (EBITDA)}{sales} \qquad (2)$$

Notice that if you are using the equation (2), then you have to derive EPS from EBITDA, that is,

$$EBITDA - Depreciation - Interest = EBT$$

$$EPS = EBT \times (1 - T_C)$$

Where

$$sales = PPE \times PPE\ turnover$$

$Depreciation\ of\ PPE = \frac{depreciation}{PPE}$, where PPE means Property, Plant and Equipment

$$Total\ Asset\ Turnover = \frac{Sales}{Total\ Asset}$$

$$Total\ Asset \times \frac{Debt}{Total\ Asset} = Debt$$

$$Debt \times Interest\ Rate = Interest\ Expense$$

In summary, Walgreens has below-average business risk, above average financial risk, low market liquidity risk, and virtually no exchange rate and country risk. This implies that the overall fundamental risk for Walgreens should be lower than the market.

Analysts should also consider market-determined risk (beta) based on the CAPM, the stock's beta derived from five years of monthly data relative to the S&P Industrials for the period 2003-2007 was 0.90.

These results are consistent with those derived from an analysis of the fundamental factors—both indicate that Walgreen Co.'s risk is below the aggregate market. This means that the required rate of return k of 8 percent for Walgreen Co.'s stock estimated earlier using the CAPM is reasonable.

Determining g

The expected growth rate g is determined by the firm's retention rate and its expected return on equity ROE. Moreover, we have

$$ROE = \frac{Net\ Income}{Equity} = \frac{Net\ Income}{Sales} \times \frac{Sales}{Total\ Assets} \times \frac{Total\ Asset}{Equity}$$
$$= net\ profit\ margin \times Total\ Asset\ Turnover \times Financial\ Leverage$$

Or

$$ROE = \frac{Net\ Income}{Total\ Assets} \times \frac{Total\ Asset}{Equity}$$
$$= Return\ on\ Asset \times Financial\ Leverage$$

We have already noted Walgreen Co.'s dividend payout is similar to its industry and clearly lower than the aggregate market, which implies a higher retention rate than the market.

We can also compare the ROA of alternative firms as a measure of operating performance—that is, profitability and asset efficiency. Walgreens has experienced a small decline in TAT (total asset turnover), but this has been offset by an increase in NPM (net profit margin), causing the firm's ROA to be relatively stable and substantially above its industry and the market. Notably, since 1993, Walgreens has reduced its leverage multiplier from 1.84 to 1.69 while the industry and the market have experienced similar declines.

As a result, Walgreens has a higher ROE but equal financial risk relative to the industry and lower risk compared to the market using the ratios in Table 4.

Table 4 Expected Growth Rate Components for Walgreens, the Retail Store Industry, and the S&P Industrials: 1993-2006

	Walgreens			Retail Stores			S&P Industrials		
Year	Retention Rate	ROE	Expected Growth Rate	Retention Rate	ROE	Expected Growth Rate	Retention Rate	ROE	Expected Growth Rate
1993	0.66	16.08	10.61	0.72	13.86	9.94	0.48	15.65	7.51
1994	0.69	17.92	12.83	0.71	14.70	10.45	0.58	16.88	9.50
1995	0.68	17.90	12.21	0.68	11.43	7.76	0.62	18.68	11.57
1996	0.67	18.20	12.26	0.77	14.04	10.88	0.59	17.17	10.18
1997	0.69	18.37	12.63	0.78	14.60	11.42	0.61	17.55	10.68

1998	0.76	17.94	13.58	0.83	17.86	14.86	0.51	13.61	6.89
1999	0.79	17.91	14.18	0.84	18.07	15.13	0.61	14.96	9.12
2000	0.82	18.35	15.13	0.82	14.46	11.92	0.69	15.57	10.67
2001	0.84	17.01	14.27	0.83	12.86	10.64	0.56	10.90	6.06
2002	0.85	16.36	13.98	0.86	16.83	14.50	0.72	17.98	12.87
2003	0.86	16.34	14.12	0.85	16.22	13.81	0.65	13.46	8.68
2004	0.86	16.53	14.27	0.86	15.17	12.99	0.63	15.64	9.85
2005	0.80	17.54	14.00	0.84	18.34	15.34	0.70	16.12	11.27
2006	0.84	17.31	14.59	0.83	17.06	14.23	0.69	15.84	10.85

Using the results for the last three years (2004-2007), the ROEs would be approximately as follows:

	NPM	TAT	ROA	Total Assets/Equity	ROE
Walgreens	3.67	2.82	10.36	1.65	17.13
Retail drugstores	4.89	1.73	8.10	2.08	16.86
S&P Industrials	6.96	0.83	5.87	2.75	15.87

The demonstration can be extended by combing the average annual ROEs derived in the table above and the average of recent retention rates to derive potential growth rates assuming you felt these recent results would continue in the future.

	Retention Rate	ROE	Potential Growth Rate
Walgreens	0.83	17.13	0.142
Retail drugstores	0.84	16.86	0.142
S&P Industrials	0.67	15.87	0.106

Taken alone, these potential growth rates for Walgreens would indicate that it should have a multiple about equal to its industry and clearly above the market.

Computing the Earnings Multiplier

The macroanalysis indicated that the Walgreen Co.'s multiplier typically has been above its industry and the market, and the microanalysis supported this relationship. Assuming a market multiple of about 16 and a retail drugstore multiplier of about 18 times, the multiplier of Walgreens should be between 18 and 22 with a tendency toward the upper end of the range and beyond (18-20-22 times).

As noted earlier, because Walgreens is a true growth company, and g is greater than k, we cannot use the standard DDM formula to estimate a specific multiple. We would need to estimate an intrinsic value based on the direction of change and the macroanalysis estimates of 18-20-22 times.

3 Estimating Share Price

Earlier, we estimated 2008 earnings per share for Walgreens of about $2.20 per share. Assuming multiplier of 18-20-22 implies the following estimated intrinsic values:

$$18 \times \$2.20 = \$39.60$$
$$20 \times \$2.20 = \$44.00$$
$$22 \times \$2.20 = \$48.40$$

Therefore, the required comparisons are the estimated values derived using the present value of cash flow models and the values estimated using the earnings multiple model to the current market price of Walgreens of about $37.00 a share. The following is a summary of these estimated values.

Present Value of Cash Flow Models	
Three-stage DDM	$58.74
Three-stage FCFE	$66.64
Earnings Multiple Models	
18 times estimated earnings	$39.60
20 times estimated earnings	$44.00
22 times estimated earnings	$48.40

Because all of the computed values are equal to or larger than the current market price of $37.00, we would recommend a purchase of the stock.

Beyond the well-known price/earnings ratio, analysts also calculate three additional measures of relative value—the price/book ratio, the price/cash flow ratio, and the price/sales ratio in the real world.