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## Financial Websites as Financial Advisors

### *Comparing Returns on Equity Found on the Internet*

*By Jack Hammen, Nancy Beneda, and Harold Wilde*

**R**eturn on equity (ROE) provides a useful indication of how well managers are employing the funds invested by the firm's shareholders to generate returns. Recent research suggests that in the long run the value of a company's equity is determined by its ROE and its cost of equity capital. That is, companies that are expected over the long run to generate ROE in excess of the cost of equity capital should have market values in excess of book value and vice versa.

The entrance of many unsophisticated investors into the marketplace has made the assessment of a com-

pany's ROE more important. Investors from many diverse backgrounds are increasingly responsible for making investment decisions. While advocates cite the long bull market of 1982–2000 as evidence for the benefits of this shift, the three-year-old bear market has raised obvious concerns about investment decisions made by holders of contributory retirement accounts.

Financial advice has become a critical factor in the construction of a successful retirement investment portfolio by the average worker-investor. Many investment advisors have constructed financial websites that purport

to offer analytical and objective advice. The Internet also offers an array of information on fundamentals, historic market trends, and financial planning. Certainly, there is no dearth of information available to the investor; information overload is more like it. The bigger concern is just how accurate and consistent this data and information actually is.

By focusing on a single measure of financial importance, such as ROE, it is possible to assess whether the Internet provides information helpful to the average investor. ROE was selected for the following reasons: It is a key managerial assessment tool often used as a basis for evaluating and rewarding management; as a primary accounting ratio, it should be reported by most financial websites; and it is relatively easy to calculate and understand, and should be of use to even novice investors.

There are two concerns that investors should be aware of when using Internet ROEs. First, the many differences in variable assumptions and variations in techniques can affect the ROE calculation. If each financial website reports an ROE calculated by different analysts, it is entirely possible that there would be as many different computations of ROE as there are websites. Such a lack of consensus would undermine the validity of financial websites in supporting the unsophisticated investor.

Second, when measuring ROE, a distinction should be made between current ROE and forecasted ROE. Financial websites typically report current ROE; thus, investors will often use this to make judgments about valuation. While it is convenient to focus on current returns, market value is determined by expectations of future returns on equity. To the extent that there is a strong correlation between current and future ROE, using current ROE to identify under- or over-valued companies is appropriate. Focusing on the current ROE when the competitive environment is in flux, however, can be misleading.

#### Calculating ROE

The authors examined the ROE as reported on four popular financial websites—Yahoo, Morningstar, Bloomberg, and SmartMoney—for the 30 companies

in the Dow Jones Industrial Average (DJIA). The reported ROE on these websites was examined in early May 2003. No two websites reported the same ROE for the same company.

To determine the source of the differences in computed ROE, the authors obtained the three most recent annual and four most recent quarterly financial statements for several of the companies.

**EXHIBIT 1**  
**ROE FOR DJIA COMPANIES**

Company	Yahoo†	Smart-Money†	Morningstar‡	Bloomberg‡
Alcoa*	4.89	3.90	4.36	4.09
Altria	53.91	56.10	57.00	56.79
American Express	20.48	19.80	19.30	20.63
AT&T Corp.*	3.78	N/A	-45.60	-40.89
Boeing Co.*	13.04	17.30	6.40	5.31
Caterpillar, Inc.	14.85	15.50	14.60	14.40
Citigroup, Inc.	14.78	17.00	17.90	18.41
Coca-Cola Co.*	35.52	33.00	25.80	26.33
E.I. Dupont deNemour*	15.37	21.80	-12.50	-9.97
Eastman Kodak Co.*	24.86	25.90	27.70	27.16
Exxon Mobil Corp.*	14.88	21.30	15.40	15.51
General Electric Co.*	24.73	23.30	22.20	23.82
General Motors Corp.*	20.38	31.90	24.80	12.74
Hewlett-Packard Co.*	-2.46	N/A	-1.80	-3.59
Home Depot, Inc.	18.82	18.50	18.30	19.34
Honeywell International*	-3.25	N/A	N/A	-2.43
Intel Corporation	8.72	8.70	8.80	8.74
IBM*	23.87	16.60	15.70	15.43
Int'l Paper Co.*	2.96	3.90	-11.90	-9.96
J.P. Morgan Chase	4.94	5.00	3.90	3.96
Johnson & Johnson	30.24	30.10	29.10	28.11
McDonalds*	9.72	9.80	8.70	9.04
Merck & Co.	41.97	39.80	39.30	41.75
Microsoft Corporation	17.51	17.20	17.10	15.74
Procter & Gamble	39.44	36.90	36.10	37.78
SBC Communications*	25.02	24.80	17.00	17.10
United Technologies	26.03	26.20	26.80	26.64
Wal-Mart Stores	21.69	20.40	20.30	21.60
Walt Disney Co.	4.40	4.40	4.50	5.36
3M Co.	32.30	33.80	32.90	32.69

\* Company had a nonrecurring item (e.g., extraordinary items, changes in accounting principles, impact of discontinued operations) in the determination of net income during the reporting period.

† Excludes nonrecurring items

‡ Includes nonrecurring items

Although the statements were obtained from three different sources (Compustat, Yahoo, and SmartMoney), no significant differences were noted.

The variation in ROE thus must have resulted from the use of different computation techniques by each website (see the *Sidebar* on page 70). To confirm this assessment, the authors computed ROE in several ways, starting with the basic formula for ROE:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Stockholders' Equity}}$$

Some of the variations we used in computing ROE are as follows:

- The treatment (inclusion or exclusion) of nonrecurring items (e.g., extraordinary items, changes in accounting principles, and the impact of discontinued operations) in the determination of net income
- The stockholders' equity value used in the denominator of the formula (the beginning, the ending, or the average of the beginning and ending stockholders' equity)
- The time period used (most recent fiscal year or most recently reported four quarters)
- The use of a trailing average or straight computation.

All four of the websites have different variable assumptions or use different techniques in their computation of ROE. *Exhibit 1* presents the reported ROE of the thirty companies comprising the DJIA from the four websites.

#### Treatment of Nonrecurring Items

*Exhibit 2* indicates that the variation in the treatment of nonrecurring items has the largest impact on the computation of ROE. The differences among the four websites were most notable for AT&T, Boeing, Dupont, General Motors, and International Paper, all of which had a nonrecurring item reported in one of the five most recent quarterly income statements.

Yahoo and SmartMoney exclude nonrecurring items from the computation of net income, whereas Morningstar and Bloomberg include them. Including nonrecurring items in the computation of ROE is a more conservative treatment and typically results in a lower ROE. Excluding the nonrecurring items in the computation of net income, however, may

be more forward-looking, because the item is not expected to occur in the future.

#### Equity Valuation Selected

The stockholders' equity valuation selected by the website for computing ROE had a smaller but noticeable impact. Analysts may use, as the denominator, equity on the final day of the year in which

the company earned the income shown in the numerator (the equity valuation method used by Morningstar and SmartMoney). This method is considered more conservative if stockholders' equity is increasing.

Using ending equity, however, could result in distortions if a company raises a substantial amount of new equity near the end of the year or reduces equity with a new

### EXHIBIT 2 FORECASTED ROE FOR BOEING

Historical ROEs and Debt Ratios			
Year	ROE (includes nonrecurring items)	ROE (excludes nonrecurring items)	Debt Ratio
1998	6.4%	30.1%	48.2%
1999	26.1	26.1	36.8
2000	19.3	19.3	19.3
2001	20.1	20.1	23.7
2002	9.1	9.1	28.0
Average	16.2%	20.9%	31.2%
Forecasted ROE			
Industry ROE (Aerospace)		10.8%	
Industry debt ratio (Aerospace)		33.0	
Industry cost of equity		9.0	
Boeing historical five-year average indicators			
ROE (excluding nonrecurring items)		16.2%	
ROE (including nonrecurring items)		20.9	
Debt ratio		31.2	
Forecasted ROE		14.0	

*Note: Industry indicators obtained from Investment Valuation, by Aswath Damodaran.*

### EXHIBIT 3 BOOK VALUE VERSUS MARKET VALUE OF EQUITY FOR BOEING

Year (December Year-end)	Book Value Equity	Market Value Equity	Excess of Market Value over Book Value
1998	\$12,316	\$28,689	\$16,373
1999	11,462	34,153	22,691
2000	11,020	52,881	41,861
2001	10,825	30,056	19,231
2002	7,696	26,085	18,389
Average	\$10,664	\$34,373	\$23,709

debt issue. In the case of new equity, the denominator in the ROE calculation would consequently be increased, but the numerator would not reflect the benefit of a full year's earnings on the increased equity. Under these circumstances, return on equity will compare unfavorably (and unfairly) with that of a company that did not recently expand its equity base. Conversely, if equity is reduced at the end of the year, return on equity will be overstated. These distortions in computing a current ROE can be reduced somewhat by substituting the end-of-year equity with an average of the beginning and ending equity (as used by Bloomberg) or using a trailing 12-month-average technique (as used by Yahoo).

#### Forecasted ROE

Computing a forecasted ROE is an alternative method that yields a more theoretically correct ROE. This technique involves first computing a five-year historical average ROE. Then a weighted average of the five-year historical ROE with an industry ROE is computed. Using a historical average helps to smooth out ROE volatility due to variation in accounting methods, such as the categorization of nonrecurring items. Using a historical average also mitigates the equity valuation problem.

In forecasting the future ROE, adjusting the company's ROE toward an industry average reflects the mean-reverting nature of ROE. According to *Business Analysis and Valuation*, by Krishna Palepu, Paul Healy, and Victor Bernard, ROEs revert to the mean for two reasons. First, the generation of consistent supernormal profitability will, absent significant barriers to entry, attract competition. Over time, ROEs tend to be driven by competitive forces toward the cost of equity capital. Thus one can think of the cost of equity capital as a benchmark that would be observed in a long-run competitive equilibrium.

Second, companies with a higher ROE tend to expand their investment bases more quickly than others, causing the denominator to increase. If companies could earn returns on the new investments that match the returns on the old ones, then ROE would be maintained; however, it is difficult to accomplish this. Firms with a higher ROE tend to find that their earnings growth does not keep pace with their growing investment base, and ROE falls.

ROEs are historically in the range of 10% to 15% for U.S. companies over the period from 1979 through 1998. According to *Investment Valuation*, by Aswath Damodaran, large publicly traded U.S. companies generate average ROEs in the range of 11% to 13%.

#### Example: Boeing's ROE

*Exhibit 2* illustrates the computation of ROE historical averages for the Boeing Company. The conservative choice of ending stockholders' equity to compute ROE was used, although an average of the beginning and the ending equity was not significantly different.

Boeing had one nonrecurring item in the first quarter of its December 2002 fiscal year. Including the nonrecurring item in the computation of ROE results in a five-year average of 16.2%. Excluding the nonrecurring item results in 20.9%.

The historical ROE for the aerospace industry, as reported by Damodaran, is 10.8%. The industry cost of equity is 9.0%.

A distinction should be made between current ROE and forecasted ROE. While it is convenient to focus on current returns, market value is determined by expectations of future returns on equity.

The forecasted ROE for the firm should be a weighted average of the firm's five-year historical ROE and the industry ROE. The weight assigned to the industry ROE should reflect the speed with which the company's ROE is expected to converge on industry norms.

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A large weight of 0.5 was applied to the company's five-year average ROE, computed including nonrecurring items, because it represents five years of relatively consistent high returns. To assess a forward-looking ROE, a weight of 0.1 was applied to the firm's five-year average ROE, computed excluding nonrecurring items. A weight of 0.4 was applied to the industry ROE. These weights yield a forecasted ROE of 14.5% for Boeing.

### Financial Leverage

Another issue of importance when examining a company's ROE is its financial leverage (its debt level in relation to its equity). Financial leverage exposes shareholders to financial risk as well as operating risk. The level of a company's financial risk should be reflected in its cost of equity.

In practice, it is useful to examine a firm's debt level over time as compared to the industry's debt level. The annual and five-year average debt ratios for Boeing are reported in Exhibit 3. The debt ratio for the aerospace industry, as reported by Damodaran, is 33.0%, versus a five-year historical average for Boeing Company of 31.2%. Because Boeing's debt ratio is lower than the industry's, there is no need to adjust Boeing's cost of equity for financial risk. The debt ratio for Boeing was conservatively calculated from the company's book

value of debt divided by the market value of equity, using the year-end stock price. The book value of debt is a conservative proxy for the market value of debt.

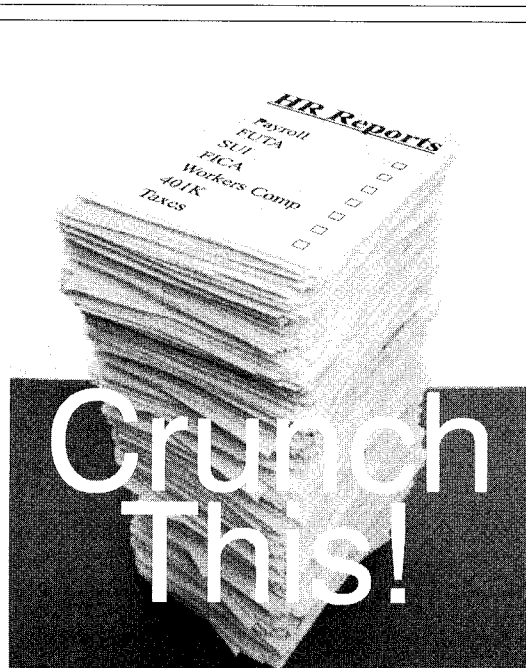
Exhibit 3 presents the excess of Boeing's market value over the book value of its equity for 1998 through 2002. In the long run, companies that are expected to generate ROE in excess of the cost of equity capital should have market values in excess of book value and vice versa. This is supported by Boeing's consistently high excess ROE over cost of equity and consistent excess market value over book value, as reported in Exhibit 4. This analysis provides investors with the proper context within which to evaluate the company's ROE and determine whether it is a good investment.

The simple data found on financial websites is only the starting point for a more detailed investment analysis that factors in proper methodology, historical performance, and relative industry performance. □

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## TECHNIQUES USED IN THE COMPUTATION OF ROE

Websites	Numerator	Denominator	Time period
Yahoo finance.yahoo.com	Earnings after tax (exclusive of nonrecurring items)	N/A	Trailing 12 months
SmartMoney www.smartmoney.com	Sum of the most recently reported four quarters of income (exclusive of nonrecurring items)	Ending stockholders' equity of most recently reported quarter	Most recently reported four quarters
Morningstar.com www.morningstar.com	Net income of nonrecurring (inclusive items) for most recent fiscal year	Ending stockholders' equity of most recent fiscal year	Most recent fiscal year
Bloomberg www.bloomberg.com	Net income (inclusive of nonrecurring items) for most recent fiscal year	Average of beginning and ending stockholders' equity of most recent fiscal year	Most recent fiscal year



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