Appendix A
Educational Background, Research, and Related Business Experience
J. Randall Woolridge

J. Randall Woolridge is a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed Faculty Fellow in Business Administration in the College of Business Administration of the Pennsylvania State University in University Park, PA. In addition, Professor Woolridge is Director of the Smeal College Trading Room and President and CEO of the Nittany Lion Fund, LLC.

Professor Woolridge received a Bachelor of Arts degree in Economics from the University of North Carolina, a Master of Business Administration degree from the Pennsylvania State University, and a Doctor of Philosophy degree in Business Administration (major area-finance, minor area-statistics) from the University of Iowa. He has taught Finance courses including corporation finance, commercial and investment banking, and investments at the undergraduate, graduate, and executive MBA levels.

Professor Woolridge's research has centered on empirical issues in corporation finance and financial markets. He has published over 35 articles in the best academic and professional journals in the field, including the *Journal of Finance,* the *Journal of Financial Economics,* and the *Harvard Business Review.* His research has been cited extensively in the business press. His work has been featured in the *New York Times*, *Forbes, Fortune, The Economist*, *Barron's*, *Wall Street Journal*, *Business Week*, *Investors' Business Daily*, *USA Today*, and other publications. In addition, Dr. Woolridge has appeared as a guest to discuss the implications of his research on CNN's *Money Line*, CNBC's *Morning Call* and *Business Today*, and Bloomberg's *Morning Call*.

Professor Woolridge's stock valuation book, *The StreetSmart Guide to Valuing a Stock* (McGraw-Hill, 2003), was released in its second edition. He has also co-authored *Spinoffs and Equity Carve-Outs: Achieving Faster Growth and Better Performance* (Financial Executives Research Foundation, 1999) as well as a textbook entitled *Basic Principles of Finance* (Kendall Hunt, 2011).

Professor Woolridge has also consulted with corporations, financial institutions, and government agencies. In addition, he has directed and participated in university- and company-sponsored professional development programs for executives in 25 countries in North and South America, Europe, Asia, and Africa.

Over the past twenty-five years Dr. Woolridge has prepared testimony and/or provided consultation services in regulatory rate cases in the rate of return area in following states: Alaska, Arizona, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Indiana, Kansas, Kentucky, Massachusetts, Missouri, Nebraska, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Vermont, Washington, and Washington, D.C. He has also prepared testimony which was submitted to the Federal Energy Regulatory Commission.

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Academic Experience

Professor of Finance, the Smeal College of Business Administration, the Pennsylvania State University (July 1, 1990 to the present).

 President, Nittany Lion Fund LLC, (January 1, 2005 to the present)
 Director, the Smeal College Trading Room (January 1, 2001 to the present)
 Goldman, Sachs & Co. and Frank P. Smeal Endowed University Fellow in Business Administration (July 1, 1987 to the present).

Associate Professor of Finance, College of Business Administration, the Pennsylvania State University (July 1, 1984 to June 30, 1990).

Assistant Professor of Finance, College of Business Administration, the Pennsylvania State University (September, 1979 to June 30, 1984).

Education

Doctor of Philosophy in Business Administration, the University of Iowa (December, 1979). Major field: Finance.

Master of Business Administration, the Pennsylvania State University (December, 1975).

Bachelor of Arts, the University of North Carolina (May, 1973) Major field: Economics.

Books

James A. Miles and J. Randall Woolridge*, Spinoffs and Equity Carve-Outs: Achieving Faster Growth and Better Performance* (Financial Executives Research Foundation), 1999

Patrick Cusatis, Gary Gray, and J. Randall Woolridge, *The StreetSmart Guide to Valuing a Stock* (2nd Edition, McGraw-Hill), 2003.

J. Randall Woolridge and Gary Gray, *The New Corporate Finance, Capital Markets, and Valuation: An Introductory Text* (Kendall Hunt, 2003).

Research

Dr. Woolridge has published over 35 articles in the best academic and professional journals in the field, including the *Journal of Finance,* the *Journal of Financial Economics,* and the *Harvard Business Review*.

Appendix B
The Research on Analysts' Long-Term EPS Growth Rate Forecasts
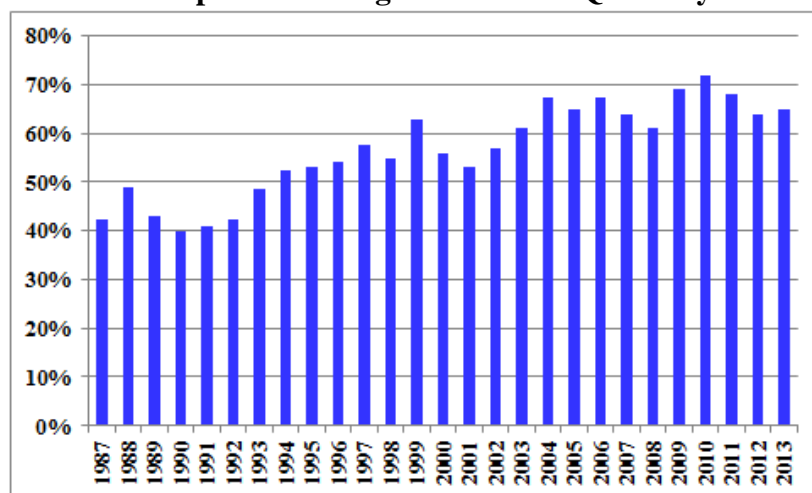
Most of the attention given to the accuracy of analysts' EPS forecasts comes from media coverage of companies' quarterly earnings announcements. When companies' announced earnings beat Wall Street's EPS estimates ("a positive surprise"), their stock prices usually go up. When a company's EPS figure misses or is below Wall Street's forecasted EPS ("a negative surprise"), their stock price usually declines, sometimes precipitously so. Wall Street's estimate is the consensus forecast for quarterly EPS made by analysts who follow the stock as of the announcement date. And so Wall Street's so-called "estimate" is analysts' consensus quarterly EPS forecast made in the days leading up to the EPS announcement.

In recent years, it has become more common for companies to beat Wall Street's quarterly EPS estimate. A *Wall Street Journal* article summarized the results for the first quarter of 2012: "While this "positive surprise ratio" of 70% is above the 20 year average of 58% and also higher than last quarter's tally, it is just middling since the current bull market began in 2009. In the past decade, the ratio only dipped below 60% during the financial crisis. Look before 2002, though, and 70% would have been literally off the chart. From 1993 through 2001, about half of companies had positive surprises."[1] Figure 1 below provides the record for companies beating Wall Street's EPS estimate on an annual basis over the past twenty-five years.

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[1] Spencer Jakab, "Earnings Surprises Lose Punch," *Wall Street Journal* (May 7, 2012), p. C1.

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2
3
Figure 1
4
Percent of Companies Beating Wall Street's Quarterly Estimates

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6

7 **A.   RESEARCH ON THE ACCURACY OF ANALYSTS'**
8 **NEAR-TERM EPS ESTIMATES**
9

10   There is a long history of studies that evaluate how well analysts forecast

11   near-term EPS estimates and long-term EPS growth rates. Most of these studies

12   have evaluated the accuracy of earnings forecasts for the current quarter or year.

13   Many of the early studies indicated that analysts make overly optimistic EPS

14   earnings forecasts for quarter-to-quarter EPS (Stickel (1990); Brown (1997);

15   Chopra (1998)).[2]   More recent studies have shown that the optimistic bias tends

16   to be larger for longer-term forecasts and smaller for forecasts made nearer to the

17   EPS announcement date. Richardson, Teoh, and Wysocki (2004) report that the

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[2] S. Stickel, "Predicting Individual Analyst Earnings Forecasts," *Journal of Accounting Research*, Vol. 28, 409-417, 1990. Brown, L.D., "Analyst Forecasting Errors: Additional Evidence," *Financial Analysts Journal*, Vol. 53, 81-88, 1997, and Chopra, V.K., "Why So Much Error in Analysts' Earnings Forecasts?" *Financial Analysts Journal*, Vol. 54, 30-37 (1998).

upward bias in earnings growth rates declines in the quarters leading up to the earnings announcement date.[3] They call this result the "walk-down to beatable analyst forecasts." They hypothesize that the walk-down might be driven by the "earning-guidance game," in which analysts give optimistic forecasts at the start of a fiscal year, then revise their estimates downwards until the firm can beat the forecasts at the earnings announcement date.

However, two regulatory developments over the past decade have potentially impacted analysts' EPS growth rate estimates. First, Regulation Fair Disclosure ("Reg FD") was introduced by the Securities and Exchange Commission ("SEC") in October of 2000. Reg FD prohibits private communication between analysts and management so as to level the information playing field in the markets. With Reg FD, analysts are less dependent on gaining access to management to obtain information and, therefore, are not as likely to make optimistic forecasts to gain access to management. Second, the conflict of interest within investment firms with investment banking and analyst operations was addressed in the Global Analysts Research Settlements ("GARS"). GARS, as agreed upon on April 23, 2003, between the SEC, NASD, NYSE and ten of the largest U.S. investment firms, includes a number of regulations that were introduced to prevent investment bankers from pressuring analysts to provide favorable projections.

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[3] S. Richardson, S. Teoh, and P. Wysocki, "The Walk-Down to Beatable Analyst Forecasts: The Role of Equity Issuance and Insider Trading Incentives," *Contemporary Accounting Research*, pp. 885−924, (2004).

Appendix B
The Research on Analysts' Long-Term EPS Growth Rate Forecasts

1   The previously cited *Wall Street Journal* article acknowledged the impact of

2   the new regulatory rules in explaining the recent results:[4] "What changed? One

3   potential reason is the tightening of rules governing analyst contacts with

4   management. Analysts now must rely on publicly available guidance or, gasp,

5   figure things out by themselves. That puts companies, with an incentive to set the

6   bar low so that earnings are received positively, in the driver's seat. While that

7   makes managers look good short-term, there is no lasting benefit for buy-and-hold

8   investors."

9   These comments on the impact of regulatory developments on the

10 accuracy of short-term EPS estimates was addressed in a study by Hovakimian

11 and Saenyasiri (2010).[5] The authors investigate analysts' forecasts of annual

12 earnings for the following time periods: (1) the time prior to Reg FD (1984-2000);

13 (2) the time period after Reg FD but prior to GARS (2000-2002);[6] and (3) the

14 time period after GARS (2002-2006). For the pre-Reg FD period, Hovakimian

15 and Saenyasiri find that analysts generally make overly optimistic forecasts of

16 annual earnings. The forecast bias is higher for early forecasts and steadily

17 declines in the months leading up to the earnings announcement. The results are

18 similar for the time period after Reg FD but prior to GARS. However, the bias is

19 lower in the later forecasts (the forecasts made just prior to the announcement).

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[4] Spencer Jakab, "Earnings Surprises Lose Punch," *Wall Street Journal* (May 7, 2012), p. C1.

[5] A. Hovakimian and E. Saenyasiri, "Conflicts of Interest and Analysts Behavior: Evidence from Recent Changes in Regulation," *Financial Analysts* Journal (July-August, 2010), pp. 96-107.

[6] Whereas the GARS settlement was signed in 2003, rules addressing analysts' conflict of interest by separating the research and investment banking activities of analysts went into effect with the passage of NYSE and NASD rules in July of 2002.

For the time period after GARS, the average forecasts declined significantly, but a positive bias remains. In sum, Hovakimian and Saenyasiri find that: (1) analysts make overly optimistic short-term forecasts of annual earnings; (2) Reg FD had no effect on this bias; and (3) GARS did result in a significant reduction in the bias, but analysts' short-term forecasts of annual earnings still have a small positive bias.

B.   RESEARCH ON THE ACCURACY OF ANALYSTS' LONG-TERM EPS GROWTH RATE FORECASTS

There have been very few studies regarding the accuracy of analysts' long-term EPS growth rate forecasts. Cragg and Malkiel (1968) studied analysts' long-term EPS growth rate forecasts made in 1962 and 1963 by five brokerage houses for 185 firms. They concluded that analysts' long-term earnings growth forecasts are on the whole no more accurate than naive forecasts based on past earnings growth.   Harris (1999) evaluated the accuracy of analysts' long-term EPS forecasts over the 1982-1997 time period using a sample of 7,002 firm-year observations.[7] He concluded the following: (1) the accuracy of analysts' long-term EPS forecasts is very low; (2) a superior long-run method to forecast long-term EPS growth is to assume that all companies will have an earnings growth rate equal to historic GDP growth; and (3) analysts' long-term EPS forecasts are significantly upwardly biased, with forecasted earnings growth exceeding actual earnings growth by seven percent per annum. Subsequent studies by DeChow, P., A. Hutton, and R. Sloan (2000), and Chan, Karceski, and Lakonishok (2003) also

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[7] R.D. Harris, "The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts," *Journal of Business Finance & Accounting*, pp. 725-55 (June/July 1999).

1   conclude that analysts' long-term EPS growth rate forecasts are overly optimistic

2   and upwardly biased.[8] The Chan, Karceski, and Lakonishok (2003) study

3   evaluated the accuracy of analysts' long-term EPS growth rate forecasts over the

4   1982-98 time period. They reported a median IBES growth forecast of 14.5%,

5   versus a median realized five-year growth rate of about 9%. They also found the

6   IBES forecasts of EPS beyond two years are not accurate. They concluded the

7   following: "Over long horizons, however, there is little forecastability in earnings,

8   and analysts' estimates tend to be overly optimistic."

9   Lacina, Lee, and Xu (2011) evaluated the accuracy of analysts' long-term

10   earnings growth rate forecasts over the 1983-2003 time period.[9] The study

11   included 27,081 firm year observations, and compared the accuracy of analysts'

12   EPS forecasts to those produced by two naïve forecasting models: (1) a random

13   walk model ("RW") where the long-term EPS (t+5) is simply equal to last year's

14   EPS figure (t-1); and (2) a RW model with drift ("RWGDP"), where the drift or

15   growth rate is GDP growth for period t-1. In this model, long-term EPS (t+5) is

16   simply equal to last year's EPS figure (t-1) times (1 + GDP growth (t-1)). The

17   authors conclude that that using the RW model to forecast EPS in the next 3-5

18   years proved to be just as accurate as using the EPS estimates from analysts' long-

19   term earnings growth rate forecasts. They find that the RWGDP model performs

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[8] P. DeChow, A. Hutton, and R. Sloan, "The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings," *Contemporary Accounting Research (2000)* and K. Chan, L., Karceski, J., & Lakonishok, J., "The Level and Persistence of Growth Rates," *Journal of Finance* pp. 643−684, (2003).

[9] M. Lacina, B. Lee and Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101

1 better than the pure RW model, and that both models perform as well as analysts

2 in forecasting long-term EPS. They also discover an optimistic bias in analysts'

3 long-term EPS forecasts. In the authors' opinion, these results indicate that

4 analysts' long-term earnings growth rate forecasts should be used with caution as

5 inputs for valuation and cost of capital purposes.

6 **C.   ISSUES REGARDING THE SUPERIORITY OF**
7 **ANALYSTS' EPS FORECASTS OVER HISTORIC AND**
8 **TIME-SERIES ESTIMATES OF LONG-TERM EPS GROWTH**
9

10 As highlighted by the classic study by Brown and Rozeff (1976) and the

11 other studies that followed, analysts' forecasts of quarterly earnings estimates are

12 superior to the estimates derived from historic and time-series analyses.[10] This is

13 often attributed to the information and timing advantage that analysts have over

14 historic and time-series analyses. These studies relate to analysts' forecasts of

15 quarterly and/or annual forecasts, and not to long-term EPS growth rate forecasts.

16 The previously cited studies by Harris (1999), Chan, Karceski, and Lakonishok

17 (2003), and Lacina, Lee, and Xu (2011) all conclude that analysts' forecasts are

18 no better than time-series models and historic growth rates in forecasting long-

19 term EPS. Harris (1999) and Lacina, Lee, and Xu (2011) concluded that historic

20 GDP growth was superior to analysts' forecasts for long run earnings growth.

21 These overall results are similar to the findings by Bradshaw, Drake, Myers, and

22 Myers (2009) that discovered that time-series estimates of annual earnings are

23 more accurate over longer horizons than analysts' forecasts of earnings. As the

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[10] L. Brown and M. Rozeff, "The Superiority of Analyst Forecasts as Measures of Expectations: Evidence from Earnings," *The Journal of Finance* 33 (1): pp. 1-16 (1976).

1   authors state, "These findings suggest an incomplete and misleading

2   generalization about the superiority of analysts' forecasts over even simple time-

3   series-based earnings forecasts."[11]

D. STUDY OF THE ACCURACY OF ANALYSTS'
4
LONG-TERM EARNINGS GROWTH RATES
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7   To evaluate the accuracy of analysts' EPS forecasts, I have compared

8   actual 3-5 year EPS growth rates with forecasted EPS growth rates on a quarterly

9   basis over the past 20 years for all companies covered by the I/B/E/S data base.

10   In Panel A of page 1 of Exhibit JRW-B1, I show the average analysts' forecasted

11   3-5 year EPS growth rate with the average actual 3-5 year EPS growth rate for the

12   past twenty years.

13   The following example shows how the results can be interpreted. For the

14   3-5 year period ending the first quarter of 1999, analysts had projected an EPS

15   growth rate of 15.13%, but companies only generated an average annual EPS

16   growth rate over the 3-5 years of 9.37%.   This projected EPS growth rate figure

17   represented the average projected growth rate for over 1,510 companies, with an

18   average of 4.88 analysts' forecasts per company. For the entire twenty-year

19   period of the study, for each quarter there were on average 5.6 analysts' EPS

20   projections for 1,281 companies. Overall, my findings indicate that forecast errors

21   for long-term estimates are predominantly positive, which indicates an upward

22   bias in growth rate estimates. The mean and median forecast errors over the

23   observation period are 143.06% and 75.08%, respectively. The forecasting errors

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[11] M. Bradshaw, M. Drake, J. Myers, and L. Myers, "A Re-examination of Analysts' Superiority Over Time-Series Forecasts," Workings paper, (1999), http://ssrn.com/abstract=1528987.

are negative for only eleven of the eighty quarterly time periods: five consecutive quarters starting at the end of 1995 and six consecutive quarters starting in 2006. As shown in Panel A of page 1 of Exhibit JRW-B1, the quarters with negative forecast errors were for the 3-5 year periods following earnings declines associated with the 1991 and 2001 economic recessions in the U.S. Thus, there is evidence of a persistent upward bias in long-term EPS growth forecasts.

The average 3-5 year EPS growth rate projections for all companies provided in the I/B/E/S database on a quarterly basis from 1988 to 2008 are shown in Panel B of page 1 of Exhibit JRW-B1. In this graph, no comparison to actual EPS growth rates is made, and hence, there is no follow-up period. Therefore, since companies are not lost from the sample due to a lack of follow-up EPS data, these results are for a larger sample of firms. The average projected growth rate increased to the 18.0% range in 2006, and has since decreased to about 14.0%.

The upward bias in analysts' long-term EPS growth rate forecasts appears to be known in the markets. Page 2 of Exhibit JRW-B1 provides an article published in the *Wall Street Journal*, dated March 21, 2008, that discusses the upward bias in analysts' EPS growth rate forecasts.[12] In addition, a recent *Bloomberg Businessweek* article also highlighted the upward bias in analysts' EPS forecasts,

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[12] Andrew Edwards, "Study Suggests Bias in Analysts' Rosy Forecasts," *Wall Street Journal* (March 21, 2008), p. C6.

1   citing a study by McKinsey Associates. This article is provided on pages 3 and 4 of

2   Exhibit JRW-B1. The article concludes with the following:[13]

3   **The bottom line:** *Despite reforms intended to improve Wall Street research, stock*
4   *analysts seem to be promoting an overly rosy view of profit prospects.*

5

6   **E. REGULATORY DEVELOPMENTS AND THE ACCURACY**
7   **OF ANALYSTS' LONG-TERM EARNINGS GROWTH RATES FORECASTS**

8

9

10   Whereas Hovakimian and Saenyasiri evaluated the impact of regulations

11   on analysts' short-term EPS estimates, there is little research on the impact of Reg

12   FD and GARS on the long-term EPS forecasts of Wall Street analysts. My study

13   with Patrick Cusatis did find that the long-term EPS growth rate forecasts of

14   analysts did not decline significantly and have continued to be overly optimistic in

15   the post-Reg FD and GARS period.[14] Analysts' long-term EPS growth rate

16   forecasts before and after GARS are about two times the level of historic GDP

17   growth. These observations are supported by a *Wall Street Journal* article entitled

18   "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant –

19   and the Estimates Help to Buoy the Market's Valuation." The following quote

20   provides insight into the continuing bias in analysts' forecasts:

21   Hope springs eternal, says Mark Donovan, who manages
22   Boston Partners Large Cap Value Fund. "You would have
23   thought that, given what happened in the last three years,
24   people would have given up the ghost. But in large measure
25   they have not.
26

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[13] Roben Farzad, 'For Analysts, Things are Always Looking Up,' *Bloomberg Businessweek* (June 14, 2010), pp. 39-40.

[14] P. Cusatis and J. R. Woolridge, "The Accuracy of Analysts' Long-Term EPS Growth Rate Forecasts," Working Paper (July 2008).

These overly optimistic growth estimates also show that, even with all the regulatory focus on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed. Research remains rosy and many believe it always will.[15]

These observations are echoed in a recent McKinsey study entitled "Equity Analysts: Still too Bullish" which involved a study of the accuracy on analysts long-term EPS growth rate forecasts. The authors conclude that after a decade of stricter regulation, analysts' long-term earnings forecasts continue to be excessively optimistic. They made the following observation (emphasis added):

[16]

> Alas, a recently completed update of our work only reinforces this view—despite a series of rules and regulations, dating to the last decade, that were intended to improve the quality of the analysts' long-term earnings forecasts, restore investor confidence in them, and prevent conflicts of interest. For executives, many of whom go to great lengths to satisfy Wall Street's expectations in their financial reporting and long-term strategic moves, this is a cautionary tale worth remembering. This pattern confirms our earlier findings that analysts typically lag behind events in revising their forecasts to reflect new economic conditions. When economic growth accelerates, the size of the forecast error declines; when economic growth slows, it increases. So as economic growth cycles up and down, the actual earnings S&P 500 companies report occasionally coincide with the analysts' forecasts, as they did, for example, in 1988, from 1994 to 1997, and from 2003 to 2006. <u>Moreover, analysts have been persistently overoptimistic for the past 25 years, with estimates ranging from 10 to 12 percent a year, compared with actual earnings growth of 6 percent. Over this time frame, actual earnings growth surpassed forecasts in only two instances, both during the earnings recovery following a recession. On average, analysts' forecasts have been almost 100 percent too high.</u>

F. ANALYSTS' LONG-TERM EPS GROWTH RATE FORECASTS FOR UTILITY COMPANIES

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[15] Ken Brown, "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation," *Wall Street Journal*, p. C1, (January 27, 2003).
[16] Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity Analysts, Still Too Bullish," *McKinsey on Finance*, pp. 14-17, (Spring 2010).

1   To evaluate whether analysts' EPS growth rate forecasts are upwardly

2   biased for utility companies, I conducted a study similar to the one described

3   above using a group of electric utility and gas distribution companies. The results

4   are shown on Panels A and B of page 5 of Exhibit JRW-B1. The projected EPS

5   growth rates for electric utilities have been in the 4% to 6% range over the last

6   twenty years, with the recent figures at approximately 5%. As shown, the

7   achieved EPS growth rates have been volatile and, on average, below the

8   projected growth rates. Over the entire period, the average quarterly 3-5 year

9   projected and actual EPS growth rates are 4.59% and 2.90%, respectively.

10   For gas distribution companies, the projected EPS growth rates have

11   declined from about 6% in the 1990s to about 5% in the 2000s. The achieved

12   EPS growth rates have been volatile. Over the entire period, the average quarterly

13   3-5 year projected and actual EPS growth rates are 5.15% and 4.53%,

14   respectively.

15   Overall, the upward bias in EPS growth rate projections for electric utility

16   and gas distribution companies is not as pronounced as it is for all companies.

17   Nonetheless, the results here are consistent with the results for companies in

18   general -- analysts' projected EPS growth rate forecasts are upwardly biased for

19   utility companies.

20   **G. *VALUE LINE*'S LONG-TERM EPS GROWTH RATE FORECASTS**

21   To assess *Value Line*'s earnings growth rate forecasts, I used the *Value*

22   *Line Investment Analyzer*. The results are summarized in Panel A of Page 6 of

23   Exhibit JRW-B1. I initially filtered the database and found that *Value Line* has 3-

1   5 year EPS growth rate forecasts for 2,333 firms. The average projected EPS

2   growth rate was 14.70%. This is high given that the average historical EPS

3   growth rate in the U.S. is about 7%. A major factor seems to be that *Value Line*

4   only predicts negative EPS growth for 43 companies. This is less than two

5   percent of the companies covered by *Value Line*. Given the ups and downs of

6   corporate earnings, this is unreasonable.

7   To put this figure in perspective, I screened the *Value Line* companies to

8   see what percent of companies covered by *Value Line* had experienced negative

9   EPS growth rates over the past five years. *Value Line* reported a five-year historic

10 growth rate for 2,219 companies. The results are shown in Panel B of page 6 of

11 Exhibit JRW-B1 and indicate that the average 5-year historic growth rate was

12 3.90%, and *Value Line* reported negative historic growth for 844 firms which

13 represents 38.0% of these companies.

14 These results indicate that *Value Line*'s EPS forecasts are excessive and

15 unrealistic. It appears that the analysts at *Value Line* are similar to their Wall

16 Street brethren in that they are reluctant to forecast negative earnings growth.

17

1   **A.   THE BUILDING BLOCKS MODEL**

2   Ibbotson and Chen (2003) evaluate the ex post historical mean stock and

3   bond returns in what is called the Building Blocks approach.[1] They use 75 years

4   of data and relate the compounded historical returns to the different fundamental

5   variables employed by different researchers in building ex ante expected equity

6   risk premiums. Among the variables included were inflation, real EPS and DPS

7   growth, ROE and book value growth, and price-earnings ("P/E") ratios.   By

8   relating the fundamental factors to the ex post historical returns, the methodology

9   bridges the gap between the ex post and ex ante equity risk premiums. Ilmanen

10   (2003) illustrates this approach using the geometric returns and five fundamental

11   variables – inflation ("CPI"), dividend yield ("D/P"), real earnings growth

12   ("RG"), repricing gains ("PEGAIN"), and return interaction/reinvestment

13   ("INT").[2] This is shown on page 1 of Exhibit JRW-C1. The first column breaks

14   down the 1926-2000 geometric mean stock return of 10.7% into the different

15   return components demanded by investors: the historical U.S. Treasury bond

16   return (5.2%), the excess equity return (5.2%), and a small interaction term

17   (0.3%). This 10.7% annual stock return over the 1926-2000 period can then be

18   broken down into the following fundamental elements: inflation (3.1%), dividend

19   yield (4.3%), real earnings growth (1.8%), repricing gains (1.3%) associated with

20   higher P/E ratios, and a small interaction term (0.2%).

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[1] Roger Ibbotson and Peng Chen, "Long Run Returns: Participating in the Real Economy," *Financial Analysts Journal*, (January 2003).

[2] Antti Ilmanen, Expected Returns on Stocks and Bonds," *Journal of Portfolio Management*, (Winter 2003), p. 11.

1   The third column in the graph on page 1 of Exhibit JRW-C1 shows current

2   inputs to estimate an ex ante expected market return. These inputs include the

3   following:

4   CPI – To assess expected inflation, I have employed expectations of the short-

5   term and long-term inflation rate.   Long-term inflation forecasts are available in

6   the Federal Reserve Bank of Philadelphia's publication entitled *Survey of*

7   *Professional Forecasters*. While this survey is published quarterly, only the first

8   quarter survey includes long-term forecasts of gross domestic product ("GDP")

9   growth, inflation, and market returns. In the first quarter 2015 survey, published

10   on February 13, 2015, the median long-term (10-year) expected inflation rate as

11   measured by the CPI was 2.1% (see Panel A of page 2 of Exhibit JRW-C1).

12   The University of Michigan's Survey Research Center surveys consumers

13   on their short-term (one-year) inflation expectations on a monthly basis.   As

14   shown on page 3 of Exhibit JRW-C1, the current short-term expected inflation

15   rate is 2.8%.

16   As a measure of expected inflation, I will use the average of the long-term

17   (2.1%) and short-term (2.8%) inflation rate measures, or 2.50%.

18

19   D/P – As shown on page 4 of Exhibit JRW-C1, the dividend yield on the S&P

20   500 has fluctuated from 1.0% to almost 3.5% from 2000-2014.   Ibbotson and

21   Chen (2003) report that the long-term average dividend yield of the S&P 500 is

22   4.3%.   Divdned yiels over the past two years have averaged about 2.0%. As of

1   February 2015, the indicated S&P 500 dividend yield was 2.0%. I will use this

2   figure in my ex ante risk premium analysis.

3   <u>RG</u> – To measure expected real growth in earnings, I use the historical real

4   earnings growth rate S&P 500 and the expected real GDP growth rate. The S&P

5   500 was created in 1960 and includes 500 companies which come from ten

6   different sectors of the economy. On page 5 of Exhibit JRW-C1, real EPS growth

7   is computed using the CPI as a measure of inflation. The real growth figure over

8   1960-2014 period for the S&P 500 is 2.9%.

9   The second input for expected real earnings growth is expected real GDP

10   growth. The rationale is that over the long-term, corporate profits have averaged

11   5.50% of U.S. GDP.[3] Expected real GDP growth, according to the Federal

12   Reserve Bank of Philadelphia's *Survey of Professional Forecasters,* is 2.5% (see

13   Panel B of page 2 of Exhibit JRW-C1).

14   Given these results, I will use 2.75%, for real earnings growth.

15   <u>PEGAIN</u> – PEGAIN is the repricing gain associated with an increase in the P/E

16   ratio.   It accounted for 1.3% of the 10.7% annual stock return in the 1926-2000

17   period.   In estimating an ex ante expected stock market return, one issue is

18   whether investors expect P/E ratios to increase from their current levels. The P/E

19   ratios for the S&P 500 over the past 25 years are shown on page 4 of Exhibit

20   JRW-C1. The run-up and eventual peak in P/Es in the year 1999 is very evident

21   in the chart.   The average P/E declined until late 2006, and then increased to

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[3]Marc. H. Goedhart, et al, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p.14.

1   higher high levels, primarily due to the decline in EPS as a result of the financial

2   crisis and the recession. As of February, 2015, the average P/E for the S&P 500

3   was 17.35X, which is above the historic average.[4]   Since the current figure is

4   above the historic average, a PEGAIN would not be appropriate in estimating an

5   ex ante expected stock market return.

6   Expected Return from Building Blocks Approach - The current expected

7   market return is represented by the last column on the right in the graph entitled

8   "Decomposing Equity Market Returns: The Building Blocks Methodology" set

9   forth on page 1 of Exhibit JRW-C1.   As shown, the expected market return of

10   7.25% is composed of 2.50% expected inflation, 2.0% dividend yield, and 2.75%

11   real earnings growth rate.

12   This expected return of 7.25% is consistent with other expected return

13   forecasts.

14   1. In the first quarter 2015 *Survey of Financial Forecasters*, published on

15   February 13, 2015 by the Federal Reserve Bank of Philadelphia, the

16   median long-term expected return on the S&P 500 was 5.79% (see

17   Panel D of page 2 of Exhibit JRW-C1).

18   2. John Graham and Campbell Harvey of Duke University conduct a

19   quarterly survey of corporate CFOs. The survey is a joint project of

20   Duke University and *CFO Magazine.* In the December 2014 survey,

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[4] www.standardandpoors.com.

1   the mean expected return on the S&P 500 over the next ten years was

2   7.2%.[5]

3   **B.**   **THE BUILDING BLOCKS EQUITY RISK PREMIUM**

4

5   The current 30-year U.S. Treasury yield is about 2.50%. This ex ante

6   equity risk premium is simply the expected market return from the Building

7   Blocks methodology minus this risk-free rate:

8

9   Ex Ante Equity Risk Premium   =   7.25%   -   2.50%   =   4.75%

10

11   This is only one estimate of the equity risk premium. As shown on page 6

12   of Exhibit JRW-11, I am also using the results of many other studies and surveys

13   to determine an equity risk premium for my CAPM.

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[5] The survey results are available at www.cfosurvey.org.