Appendix B
The Research on Analysts' Long-Term EPS Growth Rate Forecasts
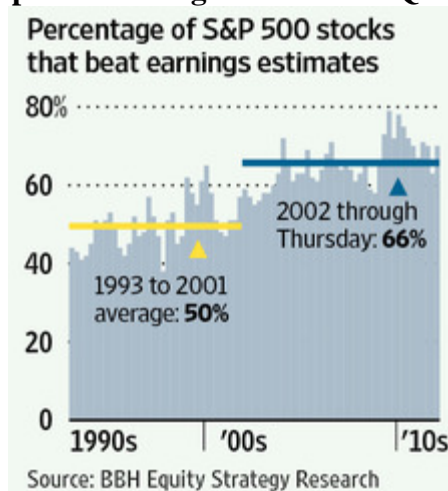
Most of the attention given the accuracy of analysts' EPS forecasts comes from media coverage of company's quarterly earnings announcements. When companies' announced earnings beat Wall Street's EPS estimates ("a positive surprise"), their stock prices usually go up. When a company's EPS figure misses 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 estimate is the consensus EPS 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 recent *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 a quarterly basis over the past twenty years.

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

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

Percentage of S&P 500 stocks that beat earnings estimates

2002 through Thursday: **66%**

1993 to 2001 average: **50%**

Source: BBH Equity Strategy Research

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

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

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

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

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

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

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

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

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

17   upward bias in earnings growth rates declines in the quarters leading up to 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).

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).

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); (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

7   **C.   ISSUES REGARDING THE SUPERIORITY OF**
8   **ANALYSTS' EPS FORECASTS OVER HISTORIC AND**
9   **TIME-SERIES ESTIMATES OF LONG-TERM EPS GROWTH**
10

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

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

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

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

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

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

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

18   (2003), and Lacina, Lee, and Xu (2011) all conclude that analysts' forecasts are

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

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

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

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

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

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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).

more accurate over longer horizons than analysts' forecasts of earnings. As the authors state, "These findings suggest an incomplete and misleading generalization about the superiority of analysts' forecasts over even simple time-series-based earnings forecasts."[11]

D. STUDY OF THE ACCURACY OF ANALYSTS' LONG-TERM EARNINGS GROWTH RATES

To evaluate the accuracy of analysts' EPS forecasts, I have compared actual 3-5 year EPS growth rates with forecasted EPS growth rates on a quarterly basis over the past 20 years for all companies covered by the I/B/E/S data base. In Panel A of page 1 of Exhibit JRW-B1, I show the average analysts' forecasted 3-5 year EPS growth rate with the average actual 3-5 year EPS growth rate for the past twenty years.

The following example shows how the results can be interpreted. For the 3-5 year period prior to the first quarter of 1999, analysts had projected an EPS growth rate of 15.13%, but companies only generated an average annual EPS growth rate over the 3-5 years of 9.37%.   This projected EPS growth rate figure represented the average projected growth rate for over 1,510 companies, with an average of 4.88 analysts' forecasts per company. For the entire twenty-year period of the study, for each quarter there were on average 5.6 analysts' EPS projections for 1,281 companies. Overall, my findings indicate that forecast errors for long-term estimates are predominantly positive, which indicates an upward bias in growth rate estimates. The mean and median forecast errors over the

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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.

observation period are 143.06% and 75.08%, respectively. The forecasting errors 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 have 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, citing a study by

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

1   McKinsey Associates. This article is provided on pages 3 and 4 of Exhibit JRW-B1.

2   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.*

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

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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

15   in 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,

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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).

1   people would have given up the ghost. But in large measure
2   they have not.

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

8

9   These observations are echoed in a recent McKinsey study entitled

10   "Equity Analysts: Still too Bullish" which involved a study of the accuracy on

11   analysts long-term EPS growth rate forecasts. The authors conclude that after a

12   decade of stricter regulation, analysts' long-term earnings forecasts continue to be

13   excessively optimistic. They made the following observation (emphasis added): [16]

14   Alas, a recently completed update of our work only reinforces this view—
15   despite a series of rules and regulations, dating to the last decade, that
16   were intended to improve the quality of the analysts' long-term earnings
17   forecasts, restore investor confidence in them, and prevent conflicts of
18   interest. For executives, many of whom go to great lengths to satisfy Wall
19   Street's expectations in their financial reporting and long-term strategic
20   moves, this is a cautionary tale worth remembering. This pattern confirms
21   our earlier findings that analysts typically lag behind events in revising
22   their forecasts to reflect new economic conditions. When economic
23   growth accelerates, the size of the forecast error declines; when economic
24   growth slows, it increases. So as economic growth cycles up and down,
25   the actual earnings S&P 500 companies report occasionally coincide with
26   the analysts' forecasts, as they did, for example, in 1988, from 1994 to
27   1997, and from 2003 to 2006. Moreover, analysts have been persistently
28   overoptimistic for the past 25 years, with estimates ranging from 10 to 12
29   percent a year, compared with actual earnings growth of 6 percent. Over
30   this time frame, actual earnings growth surpassed forecasts in only two

[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   instances, both during the earnings recovery following a recession. On
2   average, analysts' forecasts have been almost 100 percent too high.

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

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

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

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

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

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

13 twenty years, with the recent figures approximately 5%. As shown, the achieved

14 EPS growth rates have been volatile and on average, below the projected growth

15 rates. Over the entire period, the average quarterly 3-5 year projected and actual

16 EPS growth rates are 4.59% and 2.90%, respectively.

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

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

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

20 3-5 year projected and actual EPS growth rates are 5.15% and 4.53%,

21 respectively.

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

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

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

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

26 utility companies.

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

To assess *Value Line'*s earnings growth rate forecasts, I used the *Value Line Investment Analyzer*. The results are summarized in Panel A of Page 6 of Exhibit JRW-B1. I initially filtered the database and found that *Value Line* has 3-5 year EPS growth rate forecasts for 2,333 firms. The average projected EPS growth rate was 14.70%. This is high given that the average historical EPS growth rate in the U.S. is about 7%. A major factor seems to be that *Value Line* only predicts negative EPS growth for 43 companies. This is less than two percent of the companies covered by *Value Line*. Given the ups and downs of corporate earnings, this is unreasonable.

To put this figure in perspective, I screened the *Value Line* companies to see what percent of companies covered by *Value Line* had experienced negative EPS growth rates over the past five years. *Value Line* reported a five-year historic growth rate for 2,219 companies. The results are shown in Panel B of page 6 of Exhibit JRW-B1 and indicate that the average 5-year historic growth rate was 3.90%, and *Value Line* reported negative historic growth for 844 firms which represents 38.0% of these companies.

These results indicate that *Value Line*'s EPS forecasts are excessive and unrealistic. It appears that the analysts at *Value Line* are similar to their Wall Street brethren in that they are reluctant to forecast negative earnings growth.