THE PROBLEMS WITH ANALYSTS

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I. INTRODUCTION

Investors face a range of choices in deciding where to place their investment money. Most investors seek to obtain as high a return as possible, taking into account the risk of the investment. Investors that are relatively more risk-averse will accept a lower return to obtain a reduced variance of investment outcomes. Less risk-averse investors will accept greater risk to obtain a higher expected return. How do actual investors make such trade-offs? In a perfect world, each investor would have both full information on the risks and expected returns for all possible investment alternatives and the time and expertise to assess this information. The world is unfortunately not so perfect. Investors vary in their ability to collect and assess information. Not all information is publicly available. Moreover, some investors have greater access to certain information than other investors, whether due to privileged relationships or due to a greater willingness to expend resources in collecting information.

For companies whose securities trade in a liquid secondary market, active trading among investors (among other mechanisms) will work, at least partially, to incorporate publicly available information into the stock price. Unsophisticated investors, at least for companies whose securities trade in relatively efficient markets, may look to the market price rather than conduct any of their own research. Not all information, however, is publicly available and not all securities trade in an efficient market. Rather than engage in extensive research, investors may turn to at least two sources of information about a particular securities investment. First, companies themselves may supply information, either voluntarily or through a mandatory disclosure system such as in the United States. Most public companies provide extensive voluntary guidance on earnings in between periodic disclosure at quarterly intervals. Second, sell-side and independent analysts provide investors with an important source of information. Analysts analyze public companies, predict key performance measures including earnings-per-share and price targets, and provide summary recommendation levels (e.g., buy, hold, or sell).

The provision of research, particularly through sell-side and independent analysts, is not free of problems. Scandals in the United States involving the truthfulness of analyst-supplied research—at Merrill Lynch, among other large Wall Street firms, as uncovered by New York State Attorney General Eliot Spitzer in the early 2000s—highlight the risks facing investors that rely uncritically on sell-side research.[1] In Part II, this Article provides an overview of the market failures that affect sell-side and independ-

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1.   *See* Cheryl Winokur Munk, *Merrill Changes Stock-Research Rating Process*, WALL ST. J., June 10, 2002, at C16.

ent analyst research and lead potentially to conflicts of interest and bias in that research. Part III canvasses the existing empirical research on analyst research, identifying key levers that regulators may rely upon in seeking to reform the provision of analyst research. Part IV discusses possible regulatory interventions that may reduce the severity of the market failures affecting analysts, including the possibility of analyst subsidies allocated based on a tournament among analysts.

II. MARKET FAILURE AND ANALYSTS

Despite the potentially important role analysts play in providing information to the market, sell-side and independent analysts face several market failures that may diminish the value of their research. This Part examines these market failures, including the public-good nature of analyst research and conflicts of interest facing analysts.

A. The "Public Good" Nature of Information

Consider the value of a piece of new information. An analyst may determine that Microsoft is about to introduce a new product that will dramatically increase its medium-term earnings outlook. How can the analyst profit from this information? One method would be for the analyst to trade on the information. Buy-side analysts do exactly this (indirectly through their employers). Analysts at Fidelity and other funds, for example, engage in research and, rather than disseminating this research, profit through trades based on the research.

If an analyst does not profit through trades, how else can an analyst obtain a return from information? One answer is that analysts may profit through direct sale of their information to the investing public, as in the case of independent analysts. The trading value of information, however, decreases as the number of people that learn of the information increases. Information about Microsoft's new product will generate large trading profits only if a relatively small number of investors know of the information. If everyone learns about Microsoft's new product at the same time, the information, while objectively important, may nonetheless lead to few if any trading profits. The broader an analyst distributes information, the lower the value of the information is, and, correspondingly, the less the analyst may charge for the information. Analysts that attempt to restrict their sales to only a few investors face another problem: free-riding. Investors that initially purchase information may simply retransmit that information to others. Policing such retransmission would be costly and difficult for an analyst.

Due to the problems with the direct sale of information, few analysts stay independent. Most broadly-disseminated analyst research is provided

by sell-side analysts associated with brokerage firms.[2] Sell-side analysts within brokerage firms are typically cost centers in that they do not earn any revenue directly, but instead provide support for other profit-generating centers within the brokerage firm.[3] Traditionally, sell-side analysts complemented the brokerage business and were subsidized through brokerage commissions.[4] Prior to their deregulation in the United States in 1975, brokerage commissions were substantial.[5] However, after deregulation, brokerage commissions started to drop significantly, and, in search of a source of financing, analyst research within the Wall Street brokerage firms turned increasingly to investment banking revenues.[6] Nothing is free, however. The investment banking solution to the financing problem facing analysts led to a conflict of interest problem.

B.   Conflict of Interest

Anecdotal evidence exists on the impact of investment banking on the accuracy of sell-side analyst research. Well before Eliot Spitzer's investigation of Merrill Lynch and the rest of Wall Street, news sources reported on biases present in some analyst research.[7]

Eliot Spitzer's investigation uncovered numerous e-mails indicating a discrepancy between how analysts at Merrill Lynch viewed recommended companies and the recommendation Merrill Lynch made to the public about these companies.[8] The e-mails also indicated the importance of investment banking revenues in determining how Merrill Lynch analysts crafted their reports and recommendations.[9] Prior to the Eliot Spitzer investigation, analysts would often accompany investment bankers on sales pitches to prospective public offering issuers (a practice known as a "bake-off").[10] As discussed below, not surprisingly, the empirical evidence shows evidence of bias in analyst research, particularly for analysts associated with lead underwriters in a public offering.

Importantly, sell-side analysts may face other conflicts in addition to those due to investment banking. First, many brokerage firms take owner-

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2.   *See* ARTHUR LEVITT WITH PAULA DWYER, TAKE ON THE STREET: WHAT WALL STREET AND CORPORATE AMERICA DON'T WANT YOU TO KNOW 69 (2002) (explaining that "sell-side" research is often publicly available while "buy-side" research is often not).

3.   *Id.* at 70.

4.   *See id.*

5.   *Id.*

6.   *Id.*

7.   *See* BENJAMIN MARK COLE, THE PIED PIPERS OF WALL STREET: HOW ANALYSTS SELL YOU DOWN THE RIVER 50 (Bloomberg Press 2001); *The Rohrbach Memo: "No Negative Comments,"* WALL ST. J., July 14, 1992, at A6.

8.   *See* Affidavit in Support of Application for an Order Pursuant to General Business Law Section 354 at 10–11, Spitzer v. Merrill Lynch & Co., Inc., No. 02/401522 (N.Y. Sup. Ct. Apr. 8, 2002), *available at* http://www.oag.state.ny.us/press/2002/apr/MerrillL.pdf.

9.   *See id.* at 14–16.

10.   Ann Morales Olazábal & Thomas R. Robinson, *Securities Analysts and "Tainted" Research: What Regulations and Professional Standards Apply?*, BUS. L. BRIEF, Spring 2004, at 32.

ship positions in the companies they recommend. A brokerage firm with a large ownership position in a particular company will have an incentive to delay (or avoid) reducing the recommendation on the company due to the negative impact on the brokerage firm's own position.[11]

Second, analysts may value developing close ties with management. Particularly before the SEC promulgated Regulation FD in 2000,[12] many analysts in the United States enjoyed selective disclosures from management.[13] Analysts that desired to maintain close ties with management had an incentive to bias their recommendations and forecasts upwards for such companies. Anecdotal evidence exists that companies affirmatively penalized analysts who issued negative recommendations by cutting off the analysts' access to such selective disclosures of corporate inside information.[14]

Third, analysts face conflicts among different investor clients of the brokerage firm. Large institutional investors with significant positions in a particular company may not wish an analyst to provide a negative sell-recommendation for the company until the institutional investors have had a chance to unwind their positions. Particularly after a public offering, initial institutional investor purchasers of the shares may pressure analysts to maintain high ratings until after they sell out their allotted shares.[15]

Despite the presence of conflicts of interest, simply prohibiting conflicts outright may not improve investor welfare. One could imagine a drastic solution to the conflict problem such as forcing brokerage firms to divest themselves of analyst research entirely. Any attempt to craft a regulatory solution to the problem of wayward analysts must take into account the relationship between the financing and conflict of interest problems. Some analysts are able to survive through the sale of research directly to investors. Gimme Credit LLC, for example, provides bond research to subscribers for a fee.[16] The financing problems nonetheless limit the breadth and scope of such research. While a number of independent analysts may survive even without subsidies, the financing problem results in less research than investors as a group would find beneficial.[17] Following the recent reforms in the United States limiting conflicts of interest, several Wall Street brokerage

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11.   *See* Jill E. Fisch & Hillary A. Sale, The Securities Analyst as Agent: Rethinking the Regulation of Analysts, 88 IOWA L. REV. 1035, 1043–45 (2003).

12.   17 C.F.R. §§ 243.100–.103 (2007).

13.   *See, e.g.*, LEVITT *supra* note 2, at 87.

14.   Fisch & Sale, *supra* note 11, at 1054–56.

15.   *Id.* at 1050. An additional conflict may exist from the desire on the part of analysts to maximize brokerage commissions. *Id.* at 1045. To the extent investors tend to trade more on positive information, analysts will systematically have a bias to put forth more positive recommendations. *Id.*

16.   Gimme Credit, http://daily.gimmecredit.com/gcdaily/request (follow "Products" hyperlink) (last visited Oct. 17, 2007).

17.   Put another way, the more uninformed the information environment, the more valuable research becomes. Thus, even with free-riding on information research, the level of independently supplied research paid through direct subscription fees will not drop to zero. Nonetheless, the fact that some research will persist does not mean that the level of research is as high as the group of investors would want if they could coordinate in paying for more research.

firms took steps to reduce the amount of sell-side research they provided to the marketplace.[18]

To the extent that analyst research is not valuable for investors, eliminating or reducing such research imposes no cost on the securities markets or investors. However, analyst research, as discussed in the next Part, is not valueless.[19] Furthermore, an absence of information due to the lack of sell-side research is unlikely to continue. If investors are unable to satisfy their desire for information from sell-side analysts, they will turn to other sources of information. For example, some may seek to place their money through intermediaries, such as mutual funds, thereby paying for the research of the buy-side analysts employed by the fund. However, more research from buy-side analysts is an imperfect substitute for sell-side research. Unlike sell-side research distributed broadly to the marketplace, buy-side research is restricted solely to the employer of the buy-side analyst. Numerous buy-side analysts in competition with one another may expend greater than socially optimal resources racing with one another to gain even slight time advantages in obtaining information useful for securities trading. The private gain to the buy-side analyst (in the form of trading profits largely obtained at the expense of parties trading opposite to the buy-side analyst's employer) will typically far exceed the social benefit. Little social benefit, for example, may result from the market learning a company's earnings-per-share numbers one week earlier than the official announcement date. However, a buy-side analyst that learns such numbers early may obtain considerable trading profits.[20] Aside from buy-side research, others may turn to the Internet's message boards and chat rooms.[21] Too-drastic measures imposed on sell-side analyst research may simply substitute flawed analyst reports with even more flawed (and misleading) information obtained from anonymous sources on the Internet.[22]

III. EMPIRICAL EVIDENCE ON ANALYSTS

This Part assesses the empirical evidence on the value of analyst research and problems with analyst research. It discusses evidence on objective factors, or "cues", that correlate with more accurate analyst research. How investors respond to analyst research turns crucially on the sophistica-

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18.   Morgan Stanley, for example, announced its intention to cut fifty to sixty stock-research jobs in the United States and Europe in early 2006. *See* Randall Smith & Kate Linebaugh, *Morgan Stanley Plans Reduction in Research Jobs*, WALL ST. J., Mar. 22, 2006, at C1.

19.   *See infra* text accompanying notes 24–49.

20.   *See* Stephen J. Choi & Jill E. Fisch, *How to Fix Wall Street: A Voucher Financing Proposal for Securities Intermediaries*, 113 YALE L.J. 269, 283–91 (2003) (discussing the social benefits of sell-side supplied research compared with buy-side research).

21.   Jill E. Fisch, *Regulatory Responses to Investor Irrationality: The Case of the Research Analyst*, 10 LEWIS & CLARK L. REV. 57, 70 (2006).

22.   *See id.* (noting that investor willingness to look to web sites, chat rooms, and other Internet sources "has led to a dramatic growth in Internet securities fraud").

tion of the investors. This Part then examines the evidence on the differential response of sophisticated and unsophisticated investors to research.[23]

A. *The Value of Analyst Research*

Numerous studies exist demonstrating a significant market reaction to the announcement of analyst research. Such studies also indicate that the market response is relatively stronger for negative analyst research compared with positive research.

Diefenbach provides an early study of the value of analyst research in the 1960s.[24] He examined the stock price performance for recommended firms for the 52-week period commencing on the week in which the recommendation is received.[25] Diefenbach compared the returns against the performance for the Standard & Poor's (S&P) 425 index for the comparable time period. Diefenbach reports that the mean differential between the average return of analyst buy-recommended stocks and the S&P 425 index was only +2.7% (he provided no tests of statistical significance).[26] In contrast, the mean differential between the average return of analyst sell-recommended stocks and the S&P 425 index was -11.2% (again with no test of statistical significance).[27] Diefenbach observed that "analysts have been more selective in making sell recommendations."[28]

In a later study, Womack studied the impact of analyst recommendation changes on market price movements and trading volume.[29] If the market believes that analyst recommendations are worthless, we should see no market movement related to changes in these recommendations. To test the market's view on analyst recommendations, Womack looked at recommendations from the fourteen highest-ranking brokerage firms obtained from the

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23.   The empirical evidence relating to analyst research is vast. I survey here only those articles that directly relate to the possibility of regulatory reform of analyst research. For a broader survey of the existing research on analysts see generally Sundaresh Ramnath, Steve Rock & Philip Shane, A Review of Research Related to Financial Analysts' Forecasts and Stock Recommendations (Jan. 11, 2006) (unpublished manuscript, available at http://ssrn.com/abstract=848248).

24.   R. E. Diefenbach, *How Good Is Institutional Brokerage Research?*, FIN. ANALYSTS J., Jan.–Feb. 1972, at 54. Diefenbach examined a data set of specific analyst buy and sell-recommendations which he characterizes as "verbal or in writing, solicited or unsolicited, received during a period of 80 weeks beginning with the week ended November 17, 1967 and extending through the week ended May 23, 1969." *Id.*

25.   *Id.*

26.   *Id.* at 56.

27.   *Id.* at 57.

28.   *Id*. Groth, Lewellen, Schlarbaum, and Lease also provide an early study of the market reaction to analyst recommendations. *See* John C. Groth, Wilbur G. Lewellen, Gary G. Schlarbaum & Ronald C. Lease, *An Analysis of Brokerage House Securities Recommendation*, FIN. ANALYSTS J., Jan.–Feb. 1979, at 32. They obtained all the analyst recommendations from an unnamed brokerage house from 1964 to 1970, for a total of 6,014 recommendations. *Id.* at 34. Groth et al. report that buy-recommendations are preceded by six months of abnormally positive adjusted returns, culminating in a large positive abnormal return (+1.79%) in the month of the analyst recommendation. *Id.* at 35. To calculate adjusted monthly returns, Groth et al. used the Capital Asset Pricing Model to compute expected returns. *Id.* at 34–35.

29.   Kent L. Womack, *Do Brokerage Analysts' Recommendations Have Investment Value?*, 51 J. FIN. 137, 137–38 (1996).

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October 1989 and 1990 issues of *Institutional Investor*.[30] Womack examined only recommendation changes that add or remove a company from the best analyst rating category (e.g., strong buy) and changes that add or remove a company from the worst analyst rating category (e.g., strong sell).[31] To test the market's reaction to a recommendation change, Womack performed an event study using a three-day window centered on the date of the recommendation change.[32] He reports that a move to a buy recommendation results in a size-adjusted return of +3.0%.[33] In comparison, a change to a sell recommendation received a size-adjusted return of -4.7%.[34] Womack also looked at the abnormal trading volume during the three day event window.[35] He notes that a move to a buy recommendation results in 190% of normal trading volume while a move to a sell recommendation results in 300% of normal trading volume.[36] Womack's study provides evidence that the market views analyst recommendation changes as important information, particularly where the change is a negative recommendation revision.

Asquith, Mikhail, and Au examined analyst ratings put forth by analysts that were members of the *Institutional Investor* All-American Analyst Team from 1997-1999.[37] To determine the strength of an analyst's summary recommendation, Asquith et al. read each analyst report and ranked the report based on twenty-eight separate categories of possible recommendations (e.g., revenues, earnings growth, new product introductions, etc.), giving a one for a positive recommendation and a negative one for a negative recommendation.[38] They then summed the twenty-eight categories to generate an overall measure for the strength of the summary recommendation.[39] They note that upgrades received a mean score of 2.8, reiterations (involving repeats of prior recommendations) received a mean score of 1.7, and downgrades received a mean score of -0.2.[40] The small negative score for downgrades is consistent with analysts seeking to downplay downgrades in an effort not to create ill-will with the covered firm.[41] Asquith et al. tested

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30.   *Id.* at 140–41. Womack focused solely on United States firms (for which Center for Research in Security Prices (CRSP) stock return data is available) and obtained a data set of 1,573 recommendation changes for 822 different companies. *Id.* at 141.

31.   *Id.*

32.   *Id.* at 146. Womack reports that the majority of his rating changes do not coincide with the release of new quarterly earnings releases or other private information releases. *Id.* at 145–46.

33.   *Id.* at 146; *see also id.* at 148–49 tbl.3 Womack calculated size-adjusted returns based on CRSP market capitalization decile returns. *Id.* at 147–49. Womack also looked at raw returns, industry-adjusted returns, and Fama-French excess returns (using calendar months as the measurement period). *Id.*

34.   *Id.* at 146; *see id.* at 148–49 tbl.3. Both three day event window size-adjusted returns are statistically significant from zero. *Id.* at 146.

35.   *Id.* at 151. Abnormal volume is calculated as a ratio of the volume for each relative event day to the average volume from three months before to three months after the event, excluding the three-day event window. *Id.*

36.   *Id.*

37.   *See* Paul Asquith, Michael B. Mikhail & Andrea S. Au, *Information Content of Equity Analyst Reports*, 75 J. FIN. ECON. 245, 245 (2005).

38.   *Id.* at 255, 266.

39.   *Id.* at 255–61.

40.   *Id.* at 258.

41.   *Id.* at 265.

whether information in analysts' reports is more important for upgrades or downgrades.[42] They report that the market reacts more strongly to information related to downgrades.[43]

Given the informational value contained in analyst recommendations, the question exists whether an investor can develop a profitable trading strategy to exploit the information contained in analyst recommendations after taking into account the transaction costs. Barber, Lehavy, McNichols, and Trueman examined analyst recommendations from 1985-1996, obtained from Zacks Investment Research.[44] For each firm that received an analyst recommendation, Barber et al. calculated the consensus analyst recommendation and classified the consensus recommendation into one of five categories, depending on the favorability of the recommendation.[45] They then created five value-weighted portfolios based on a sorting of firms into the five categories of consensus recommendations.[46] Without taking into account transaction costs, Barber et al. report that investing in a portfolio based on the most favorable consensus estimates results in significantly higher annual geometric returns (4.13%) compared with a portfolio of least favorable consensus estimates (-4.91%) after controlling for market risk, size, and other factors.[47] Traders may potentially profit from this differential by, for example, going long on the high recommendation portfolio and shorting the stock of the least favorable consensus recommendation portfolio.[48] Barber et al. report, however, that once transaction costs, including the bid-ask spread and brokerage commissions, among others, are taken into account, the returns from trading based on analyst recommendations are not statistically different from zero.[49]

In sum, the market finds analyst research informative. An analyst change to a buy recommendation results in a significant and abnormal stock price reaction. Changes to a sell recommendation result in an even greater abnormal stock price reaction. Thus, trading strategies based on analyst recommendations can generate abnormal returns, if only before taking into account transaction costs.

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42.   *Id.* at 273–74.

43.   *Id.* at 274 ("[I]nvestors pay closer attention to the total content of analyst reports in the case of downgrades and reiterations.").

44.   *See* Brad Barber, Reuven Lehavy, Maureen McNichols & Brett Trueman, *Can Investors Profit from the Prophets? Security Analyst Recommendations and Stock Returns*, 56 J. FIN. 531, 531–33 (2001). Their data set consisted of more than 360,000 recommendations involving 4,340 analysts and 269 brokerage houses. *Id.* at 533.

45.   *Id.* at 536.

46.   *Id.* at 541 n.8.

47.   *Id.* at 533–34.

48.   *See id.* at 533 ("[P]urchasing the securities in the top portfolio and selling short those in the lowest portfolio yields an average abnormal gross return of 75 basis points per month.").

49.   *Id.* at 535, 553–57. Copeland and Mayers provide similar results based on a trading strategy involving the highest and lowest recommended stocks by Value Line from 1965 to 1978. *See* Thomas E. Copeland & David Mayers, *The Value Line Enigma (1965–1978)*, 10 J. FIN. ECON. 289, 318–19 (1982). They also note that once transaction costs are taken into account, it is unclear whether investors would earn a positive return following such a trading strategy. *See id.* at 319.

B. Problems with Analyst Research

The empirical literature on analysts indicates several problems that may affect analyst research. This section canvasses the empirical evidence on these problems.

1. Coverage Skewed Toward Larger Companies

Studies indicate that analyst coverage is skewed toward larger market-capitalization companies. Womack notes that 99% of the recommendations in his data set were for companies in the eight largest Center for Research in Security Prices (CRSP) market-capitalization deciles, indicating that analysts skew coverage toward larger companies.[50] Barber et al. report in their study of analyst recommendations from 1985 to 1996 that only 59.8% of all firms on the NASDAQ, NYSE, and AMEX have at least one analyst recommendation in the database (covering 95.6% of the total market capitalization).[51] Michaely and Womack examined the analyst recommendations following an initial public offering.[52] Out of a sample of 391 equity initial public offerings (IPOs) with an offering amount of at least $5 million from 1990 to 1991, they report that 191 IPO firms did not have any analyst recommendation in the first year after the IPO.[53] These firms were the smaller issuers in terms of market capitalization.[54]

Any reform measures that increase the costs for sell-side analysts (such as prohibiting certain conflicts of interest that otherwise would generate subsidies for research) will exacerbate the lack of coverage for smaller companies.

2. Buy-Recommendations Outnumber Sell-Recommendations

The empirical studies indicate that the absolute number of buy-recommendations outnumber sell-recommendations. The ratio of buy-to-sell recommendations in Womack's sample is seven to one, supporting the view that analysts are more hesitant to put forth a sell- compared with buy-recommendation.[55] Similarly, Barber et al. report that of the recommendations in their data set, 47.1% are buy- and 5.7% are sell-recommendations.[56] In Asquith et al.'s study of analysts that were members of the *Institutional*

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50.   *See* Womack, *supra* note 29, at 143.

51.   *See* Barber et al., *supra* note 44, at 538.

52.   *See* Roni Michaely & Kent L. Womack, Conflict of Interest and the Credibility of Underwriter Analyst Recommendations, 12 REV. FIN. STUD. 653, 656–57 (1999).

53.   *Id.* at 660, 664.

54.   *Id.* at 664.

55.   *See* Womack, *supra* note 29, at 143. In an early study of analyst recommendations made from 1964 to 1970, Groth et al. report that 77% of the recommendations they examined are in one of the top three out of five possible recommendation categories and that only 13% provided weak-sell or sell-recommendations (with another 10% as unclassifiable). *See* Groth et al., *supra* note 28, at 34.

56.   *See* Barber et al., *supra* note 44, at 538.

Investor All-American Analyst Team from 1997-1999,[57] they report that only 0.5% of the recommendations in their sample are either sell or strong-sell recommendations (the bottom two categories of recommendations).[58]

The fact that analyst reports are skewed toward positive recommendations is consistent either with (a) analyst bias in favor of companies or (b) a self-selection effect. Under the self-selection hypothesis, analysts are not biased but rather choose to provide unbiased research only for companies for which the analysts have formed a positive opinion. McNichols and O'Brien provide evidence to distinguish between these two hypotheses.[59] McNichols and O'Brien's data set consisted of analyst recommendations drawn from Research Holdings, Ltd. and runs from July 1987 to December 1994.[60] McNichols and O'Brien compared analyst recommendations for stocks that are newly added to the set of recommended stocks against other recommended stocks to gauge the relative level of optimism in the recommendations.[61] They predicted that if analysts are generally biased, the bias will be the same across all recommended stocks.[62] In contrast, if analysts selectively add only stocks that they are truly optimistic about, then the level of recommendation for newly added stocks will be greater than the recommendations for other recommended stocks.[63] McNichols and O'Brien report that the level of analyst recommendation is skewed toward more positive recommendations for newly added stocks compared with other covered stocks (i.e., stocks that were originally covered by analysts at the start of the data set time period), supporting the self-selection hypothesis.[64] On the other hand, McNichols and O'Brien report that the analysts in their sample use sell ratings only sparingly, with only 9.5% of analyst ratings being sell.[65] They report that the median time between recommendations for upgrades is lower than for downgrades, supporting the view that analysts delay downgrades.[66] One implication of the McNichols and O'Brien study is that the information environment for firms with poor prospects is much worse, due to lower overall analyst coverage, than for firms with brighter long-term prospects.

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57.   *See* Asquith et al., *supra* note 37, at 246.

58.   *Id.* at 255. The majority (65.5%) of their recommendations are for reiterations of prior recommendations. *Id.* A majority (52.6%) also have some form of underwriting relationship with the subject firm of the report. *Id.* at 256. A majority of the investment banks (84.2%) also hold stock ownership in the subject firm. *Id.*

59.   Maureen McNichols & Patricia C. O'Brien, *Self-Selection and Analyst Coverage*, 35 J. ACCT. RES. 167, 188–93, 197–98 (1997).

60.   McNichols and O'Brien focused on "analysts who report on at least five companies and who are in the database for at least two years" among other criteria, giving 523 analysts. *Id.* at 179–80.

61.   *Id.* at 185.

62.   *Id.* at 168.

63.   *Id.*

64.   *Id.* at 189.

65.   *Id.* at 183. Nonetheless, the sell ratings are distributed widely among covered stocks. The authors report that of the 3,774 stocks covered by analysts in their sample, 30.4% receive a sell rating (4 or 5) at least once. *Id.*

66.   *Id.* at 185.

3. *Biased Recommendations from Analysts at Lead Underwriters*

Michaely and Womack tested whether conflicts of interest for brokerage firms working as lead underwriters for an IPO issuer affect the credibility of the brokerage firms' analyst reports.[67] They focused on the end of the twenty-five-day quiet period after an IPO when the underwriter and other analysts typically begin providing analyst reports on the issuer.[68] Michaely and Womack note that in the one-year period after the end of the quiet period, analysts associated with the lead underwriter issued 50% more buy recommendations than other analysts.[69] To assess the credibility of analysts, Michaely and Womack looked to the stock market reaction to buy recommendations. After controlling for size, closeness in time to an earnings announcement, and whether the analyst recommendation is the first post-IPO recommendation, they report that non-underwriter analyst recommendations result in a 2.8% greater size-adjusted excess return in the market compared with underwriter analysts.[70] Thus, the market views recommendations from non-underwriter analysts as more informative.[71] To see if the market's initial assessment of the lower value of the lead underwriter's analyst recommendation is correct, Michaely and Womack then looked at the long-run performance of firms that receive a buy recommendation from a lead underwriter compared to firms that received a buy-recommendation from other analysts.[72] They report that the mean excess two-year return for lead underwriter-only buy-recommended firms was -18.1% compared with +45.5% for non-lead underwriter buy-recommended firms.[73]

Krigman, Shaw, and Womack examined the importance of analyst research in the decision of issuers to switch lead underwriters from the IPO to a subsequent seasoned equity offering.[74] Starting with IPOs that took place

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67.   *See* Michaely & Womack, *supra* note 52.

68.   *Id.* at 656–57. Their sample consisted of 391 equity IPOs with an offering amount of at least $5 million from 1990–1991 as identified in *Investment Dealer's Digest*. *Id.* at 660. They looked only at initiations and changes to recommendations and obtain 360 recommendations for 200 IPO firms during the first year after the IPO. *Id.* at 664.

69.   *Id.* at 656–57.

70.   The difference is significant at the 10% confidence level. *Id.* at 656.

71.   *See id.*

72.   *Id.* at 673.

73.   *Id.* at 674 tbl.6, 675–76. The difference is significant at the 1% confidence level. *Id.*

Lin and McNichols examined the importance of analyst conflicts of interest in the context of seasoned public offerings, using a data set of equity offerings in the United States from 1989 to 1994. *See* Hsiouwei Lin & Maureen F. McNichols, *Underwriting Relationships, Analysts' Earning Forecasts and Investment Recommendations*, 25 J. Acct. & Econ. 101, 110 (1998). They report that analysts affiliated with the lead underwriter and co-underwriters provided systematically more optimistic overall recommendations than unaffiliated analysts (difference significant at the <1% confidence level). *Id.* at 113.

74.   *See* Laurie Krigman, Wayne H. Shaw & Kent L. Womack, *Why Do Firms Switch Underwriters?*, 60 J. Fin. Econ. 245, 245 (2001).

from 1993 to 1995, they analyzed a data set of 578 firms that engaged in a "seasoned equity offering within three years of their IPO."[75] Almost one-third of the issuers in their sample made such a switch.[76] Comparing issuers that switched with those that did not, Krigman et al. report that no significant difference exists in the level of underpricing in the IPO, the degree of share placement with institutional investors, and the amount of market making activity.[77] Turning to analyst research, Krigman et al. note significant differences in the analyst research for issuers who switched compared with issuers who did not switch the lead underwriter.[78] The IPO lead underwriter for issuers who switched provided only 1.27 research reports on average in the six-month period before the seasoned equity offering, compared with 3.11 reports on average for issuers that did not switch.[79] To measure the quality of the research, Krigman et al. looked at the fraction of lead underwriters that employed an analyst listed as a member of the first, second, or third All-American Research Team in *Institutional Investor*'s annual rankings ("All-Star analyst").[80] They report that only 13% of the issuers that switched were covered by an All-Star analyst from the IPO lead underwriter compared with 25% of the non-switchers.[81] Krigman et al. also note that graduating to a higher-reputation lead underwriter is a significant factor in the decision to switch lead underwriters.[82]

4. Maintaining Access with Management

Francis and Philbrick hypothesized that even "independent" analysts not affiliated with an investment bank may bias their research in favor of management in order to preserve their access to non-public information from management.[83] They examined a set of annual and first-quarter earnings-per-share forecasts obtained from 1987 to 1989 from Value Line, an independent provider of analyst research.[84] Francis and Philbrick hypothesize

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75. *Id.* at 246.

76. *Id.*

77. *Id.* at 258–59.

78. *Id.* at 260–61.

79. *Id.* at 261. The difference was significant at the <1% confidence level.

80. *Id.* at 253.

81. *Id.* at 263.

82. *Id.* at 266. Krigman et al. confirmed their results by using a multivariate probit model for the decision to switch lead underwriters, controlling for various factors including the log of the IPO expected proceeds. *Id.* at 264–65. They report that the quality of the analyst coverage (as proxied by the presence of an All-Star analyst) and the graduation to a higher reputation underwriter are significant explanatory variables in the multivariate probit model. *Id.* Krigman et al. also confirmed their results through a broad based survey of the switching issuers' chief financial officers. *Id.* at 268. Not all of the issuers responded, leading to possible sample selection bias. *Id*. Krigman et al. nonetheless note that the characteristics (offering proceeds, etc.) are similar between those that responded and those that did not. *Id.* Among other things, the survey responses strongly support the hypothesis that analyst research is an important driving force behind the decision of an issuer to switch lead underwriters for a seasoned equity offering. *Id.* at 268–74.

83. *See* Jennifer Francis & Donna Philbrick, *Analysts' Decisions as Products of a Multi-Task Environment*, 31 J. ACCT. RES. 216, 216–17 (1993).

84. *Id.* at 220.

that Value Line analysts will attempt to compensate for a low overall stock recommendation (not directly in the control of the Value Line analysts) through a more optimistic forecast in an effort to appease management.[85] They report that "[t]he average optimism for sell stocks is 12% of the earnings-per-share forecast ($0.23 per share) and is significantly greater (at the .07 level) than the average optimism for hold stocks (9% of the earnings-per-share forecast or $0.19 per share)."[86] This result is consistent with their hypothesis that Value Line analysts use overly optimistic earnings-per-share forecasts to compensate for lower stock recommendations not directly in their control in order to appease management.

Das, Levine, and Sivaramakrishnan also examined the level of optimism among independent financial analysts using a set of December year-end firms for the years 1989 to 1993.[87] As with Francis and Philbrick,[88] Das et al. looked at Value Line analyst forecasts.[89] Controlling for, among other things, firm size (log of average market value of equity), the number of analysts following the firm, and the Value Line level of recommendation, Das et al. note that the level of optimistic forecasts is greater for firms with more unpredictable earnings.[92] They speculate that "analysts have greater incentive to seek and acquire non-public information for low-predictability firms."[93] Access to management inside information is particularly important for analysts for such low-predictability companies, leading analysts possibly to issue optimistic forecasts to obtain such access (during the time period of Das et al.'s study).

In sum, the empirical literature provides evidence that conflicts of interest influence analyst recommendations and earnings-per-share forecasts. Conflicts are particularly acute when a brokerage firm takes on the role of lead underwriter for a covered company. Conflicts even exist for independent research analysts not affiliated with a brokerage house. At least prior to Regulation FD in the United States,[94] independent analysts may have positively skewed their research to curry favor with managers at covered firms, thereby ensuring access to inside information. The desire on the part of analysts to maximize their profits leads to another problem, in addition to con-

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85.   *Id.* at 216–17. Francis and Philbrick note that Value Line analysts do not make stock recommendations. *Id.* at 217. Instead, Value Line stock-selection recommendations, known as "timeliness" ranks that range from 1 (best) to 5 (worst), are made by a separate Value Line group. *Id.*

86.   *Id.*

87.   *See* Somnath Das, Carolyn B. Levine & K. Sivaramakrishnan, *Earnings Predictability and Bias in Analysts' Earnings Forecasts*, 73 ACCT. REV. 277, 280 (1998).

88.   *See supra* text accompanying note 83.

89.   Das et al., *supra* note 87, at 280.

92.   *Id.* at 286–88. Das et al. used a variety of measures of the predictability of earnings. *Id.* at 282–85.

93.   *Id.* at 291.

94.   17 C.F.R. §§ 243.100-.103 (2007).

flicts of interest: analysts tend to focus coverage on larger market-capitalization companies, thus leaving smaller market-capitalization companies with a relatively weak information environment.

C. "Cues" of Analyst Accuracy

Several empirical studies examine the relationship between observable data and both the accuracy of analyst research and the stock market reaction to the public release of research. These studies collectively identify a series of "cues" that investors (and researchers) may use to predict the accuracy of a particular analyst's earnings-per-share forecasts. The "cues" fall into the following categories: 1) cues related to analyst characteristics; 2) cues related to the information environment of the firm; 3) cues related to the past performance of the specific analyst; and 4) cues specific to a particular forecast.

1. Analyst Characteristics

Several studies document a relationship between ex ante observable analyst characteristics and the accuracy of analyst earnings forecasts. Stickel looked at the *Institutional Investor*'s annual All-American Research Team (AART) lists from 1978-88; these lists were developed based on evaluations by 2,000 money managers of investment analysts.[95] Stickel analyzed the accuracy of analyst forecasts of earnings-per-share.[96] Stickel reports that AART analysts have a lower mean forecast error compared with non-AART analysts (a difference of $0.028 per share in forecast error).[97] Stickel also examined the market response to analyst earnings-per-share forecast revisions.[98] Stickel reports that when he restricts his analysis only to those forecasts that are in the top 10% of upward earnings revisions, an AART analyst recommendation results in a 0.21% greater abnormal market reaction compared to non-AART analyst revisions.[99] Stickel's results are

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95. *See* Scott E. Stickel, Reputation and Performance Among Security Analysts, 47 J. FIN. 1811, 1811 (1992).

96. *Id.*

97. *Id.* at 1813. Individual analyst earnings-per-share forecasts were obtained from Zacks Investment Research for 1981–85; actual earnings-per-share data was obtained from COMPUSTAT. *Id.* at 1816. Stickel defined forecast error as the actual annual earnings-per-share minus the forecasted annual earnings-per-share. *Id.* at 1812. Stickel notes that analyst forecasts may become more accurate closer to earnings announcement dates. *Id.* at 1815. To mitigate this possible bias, Stickel created sixty subsamples based on the calendar month in which the forecast fell (within the five-year period from 1981 to 1985) and calculated mean results by subsample. *Id.* He then averaged the means of the subsamples to obtain an overall mean forecast error. *Id.* Stickel also looked at the frequency of forecasts. He reports that AART analysts issue forecasts every eighty-six calendar days on average, as compared with ninety-three calendar days for non-AART analysts. *Id.* at 1812.

98. *Id.* at 1826. For the market response, Stickel calculated the abnormal return for the +0- to +10-day window from the date of an earnings forecast revision using the market model to calculate expected returns. *Id.* at 1826–27. The market model used to calculate abnormal returns was estimated from +251 to +300 days from the date of the revision (with a minimum of 30 return days). *Id.* at 1826.

99. *Id.* at 1828–30, 32. For his analysis, Stickel estimated an ordinary least squares regression model

consistent with the view that the market puts greater weight on reports from AART analysts.[100]

In a later study, Stickel examined the short and long-term adjusted price reactions to brokerage firm analyst changes in recommendations.[101] Using data from Zacks Investment Research, Stickel examined 8,790 buy- and 8,167 sell-recommendations from 1988-91 (including recommendations from 1,510 analysts from over 80 brokerage houses).[102] He examined whether the market reacts more strongly (or weakly) to the reputation of the analyst, the marketing power of the brokerage firm (proxied with the size of the brokerage firm), the strength of the recommendation, or the magnitude of the change in recommendation.[103] He also looked at whether the market reacts more strongly for companies that trade in a weaker information environment (as measured using firm size as a proxy for the information environment).[104] Stickel reports that recommendation changes from analysts that are members of *Institutional Investors'* All-American first-team list result in a significantly greater market response.[105] Also, recommendation changes from larger brokerage houses have a greater market response.[106] These effects disappear when a longer-term event window is used, indicating that the effects are temporary and may reflect a price-pressure effect.[107] Stickel also reports that smaller companies receive a greater market reaction than larger companies and that this effect is permanent across a longer-term horizon.[108] Stickel writes that this effect is "consistent with the existence of

with the cumulative abnormal return as the dependent variable. *Id*. at 1827–28. As explanatory variables, he included a measure of firm size, a dummy variable for an AART analyst, and a variable for the magnitude of the revision. *Id.* at 1829. As a measure of the magnitude of the revision, Stickel used the change in the earnings-per-share forecast divided by the standard deviation of all forecasts outstanding for the particular firm in question on the date of the forecast change. *Id.* at 1826. To avoid time effects based on the closeness in time of a forecast to an earnings revision date and to control for heteroscadisity, Stickel segmented his sample based on the calendar month in which the forecast revision took place (for a total of sixty samples for this five-year period from 1981 to 1985). *Id.* at 1826–28. He then took the mean of the sixty coefficients from the sixty separate regressions to obtain an overall coefficient for each of his independent variables. *See id.* (describing his method of calculating standard errors for the mean coefficients).

100.   *See id.* at 1831, 1836. In contrast, when Stickel restricted the regression to the bottom ten percent of earnings revision (consisting of the largest downward revisions), he reports that in his regression no statistically significant difference exists between AART analyst revisions and non-AART revisions. *Id.* at 1829.

101.   Scott E. Stickel, *The Anatomy of the Performance of Buy and Sell Recommendations*, FIN. ANALYSTS J., Sept.–Oct. 1995, at 25.

102.   *Id.*

103.   *Id.*

104.   *Id.* To test these relationships, Stickel used a multivariate model with the adjusted market reaction as the dependent variable (over a number of different short to long-term windows from the date the analyst recommendation change is distributed). *Id.* at 27. Stickel used the market model to adjust returns to control for overall market movements. *Id.*

105.   *Id.* at 33.

106.   *Id.* at 34.

107.   *See id.* at 33–34. Stickel also reports that the magnitude of the change in recommendation is correlated with the market reaction. Downgrades to strong-sell and sell resulted in a greater negative market reaction than a downgrade to hold. *Id.* at 33. The market reaction, moreover, is significant even for long-term event windows, indicating that the market effect is permanent. *Id.*

108.   *Id.* at 34–35.

fewer alternative information sources about the value of smaller companies."[109]

Mikhail, Walther, and Willis examined the importance of analyst experience in determining analyst earnings-forecast accuracy.[110] They defined analyst firm-specific experience as the number of prior quarters in which an analyst has issued an earnings forecast for a specific company.[111] They performed a time-series analysis of analyst forecast errors.[112] As a consequence, their sample is restricted to analysts with a minimum of thirty-two quarters of data in the Zacks database (from 1980 to 1995).[113] This restriction did not allow Mikhail et al. to test the importance of experience for analysts with relatively less experience (e.g., under eight years of experience).[114] Their time-series model used a measure of analyst forecast error as the dependent variable.[115] As explanatory variables, Mikhail et al. included measures for analyst firm-specific experience; the amount a particular analyst concentrates in a particular industry; the information environment of the covered firm;[116] whether the analyst has recently switched firms; the forecast age; and a dummy variable for whether the forecast is for the fourth quarter.[117] Mikhail et al. report that analyst firm-specific experience and a high information environment for the covered firm are both negatively correlated with the analyst earnings-forecast error.[118] Forecast age is positively correlated with analyst earnings-forecast error.[119]

Clement examined several analyst characteristics that relate to analysts' accuracy in their earnings estimates.[120] Clement's data set was obtained from Institutional Brokers Estimate System (I/B/E/S) for the 1983 to 1994 time period.[121] Clement examined three categories of analyst characteristics: analyst general and firm-specific experience (as measures of skill); brokerage employer size (as a measure of the economic resources available to the analyst); and the number of firms and industries an analyst follows (as a

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109.   *Id.* at 37.

110.   Michael B. Mikhail, Beverly R. Walther & Richard H. Willis, *Do Security Analysts Improve Their Performance with Experience?*, 35 J. ACCT. RES. 131 (1997).

111.   *Id.* at 131.

112.   *Id.* at 132.

113.   *Id.* at 136.

114.   *Id.* Mikhail et al.'s final sample consisted of only 236 analysts and 435 firms. *Id.*

115.   *See id.* at 137 tbl.1. The dependent variable is the log of the "Mean Absolute Percentage Error" defined as "the absolute value of actual quarterly earnings minus the forecast, deflated by end-of-quarter price." *Id.*

116.   *Id.* at 140. Mikhail et al. proxied the information environment using the number of other analysts that cover the specific firm. *Id*.

117.   *Id.*

118.   *See id.* at 143. The coefficients are significant at the <1% confidence level. *Id.*

119.   *See id.* Mikhail et al. also report that the market reaction to forecast revisions is greater for analysts with more firm-specific experience. *Id.* at 152–55; *see also* Patricia C. O'Brien, *Analysts' Forecasts as Earnings Expectations*, 10 J. ACCT. & ECON. 53, 81 (1988) (reporting more recent forecasts are more accurate than older forecasts).

120.   *See* Michael B. Clement, Analyst Forecast Accuracy: Do Ability, Resources, and Portfolio Complexity Matter?, 27 J. ACCT. & ECON. 285, 285 (1999).

121.   *Id.* at 293. Clement reports that his data set "contains over 1 million forecasts for the annual earnings of more than 9,500 companies made by over 7,500 analysts." *Id.*

measure of the complexity of the particular analyst's task).[122] Clement used an analyst's forecast error as the dependent variable in his ordinary least squares model.[123] He included measures of his three categories of analyst characteristics as explanatory variables in the model and the forecast age as a control variable.[124] Clement reports that analyst general and firm-specific experience variables are significantly and negatively correlated with analyst forecast error in the model.[125] More experience is related with lower errors. He also reports that the number of firms and industries an analyst follows is significantly and positively correlated with forecast error.[126] Busier analysts are associated with greater errors. Lastly, association with a top-size decile brokerage firm is significantly and negatively correlated with the forecast error, consistent with the view that increased resources raise the accuracy of analysts.[127]

Jacob, Lys, and Neale examined the relationship of analyst skill and experience and the internal environment of the analyst's brokerage firm with earnings-per-share forecast accuracy.[128] They hypothesized that larger brokerage houses provide analysts with greater distribution outlets for their research as well as more support for the research task itself (including access to possibly greater flows of information on covered companies).[129] Jacob et al. also hypothesized that acclimatizing a new analyst to a brokerage firm may take time, leading to reduced accuracy.[130] Their data set consisted of analyst forecasts obtained from Zacks Investment Research from 1981-92.[131] Among other things, Jacob et al. report that increased forecast frequency, industry specialization, and brokerage firm size are associated with greater forecast accuracy.[132] On the other hand, greater analyst turnover (leaving a brokerage firm) is associated with lower forecast accuracy.[133] Turning to whether analyst accuracy persists across time, Jacob et al. report that analysts differ in their average forecasting performance over time.[134] They attribute this persistence to a "combination of working for a

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122.   *See id.* at 285. Note that brokerage firm size may also correlate with greater access to confidential information obtained from management (at least prior to Regulation FD in the United States). *See id.* at 289–90.

123.   *Id.* at 291. Clement defined an analyst's forecast error as the difference between the analyst's absolute forecast error for a specific firm and the mean absolute forecast error for all analysts covering the specific firm all scaled by the mean absolute forecast error for all analysts covering the specific firm. *Id.*

124.   *Id.* at 292–93. For brokerage firm size, Clement used an indicator variable for whether the brokerage firm is in the top size decile for brokerage firms. *Id.* at 292.

125.   *Id.* at 300.

126.   *Id.*

127.   *Id.* at 301.

128.   John Jacob, Thomas Z. Lys & Margaret A. Neale, *Expertise in Forecasting Performance of Security Analysts*, 28 J. ACCT. & ECON. 51, 51 (1999).

129.   *Id.* at 56–57.

130.   *Id.* at 57.

131.   *Id.* at 58.

132.   *Id.* at 79.

133.   *Id.* at 79.

134.   *Id.* at 79.

particular brokerage house, their own aptitude for forecasting tasks and the quality of the alignments between their skills and aptitudes and the idiosyncrasies of the companies they follow—coupled with a bit of good fortune in forecasting—that results in all-star performance."[135]

2. *Information Environment of the Covered Firm*

Lys and Soo examined whether analyst earnings forecasts are more accurate for firms that are covered by a larger number of analysts.[136] Lys and Soo posit that an analyst's research costs will decrease as the amount of publicly available information for a company increases.[137] In particular, analysts may learn from other analysts' forecasts about a specific company.[138] Lys and Soo's data set consisted of analyst forecasts for sixty-two randomly-selected companies (spread equally across three market capitalization size-based partitions of companies) for the 1980-86 period.[139] Lys and Soo controlled for a number of company-specific factors that may increase the difficulty analysts may face in generating earnings forecasts including the amount of information available for a firm (using both the size of the firm and the amount of coverage in the *Wall Street Journal* as proxies for information), a measure of earnings predictability, the forecast horizon, and the volume of shares traded.[140] They report that after controlling for these company-specific factors, an analyst's forecast precision is positively related with the number of analysts that cover a particular firm.[141]

Asquith et al. examined analyst ratings put forth by analysts that are members of the *Institutional Investor* All-American Analyst Team from 1997-1999.[142] Asquith et al. assessed the market's reaction to the release of analyst reports.[143] They estimated a regression model with the cumulative abnormal return in the market at the time of an analyst report release as the dependent variable.[144] As independent variables, they included percentage change in earnings forecast; whether the report included an upgrade or downgrade; the percentage change in the projected price target; a proxy for the strength of the analysts recommendation; and a variable calculated based on the presence of a relationship between the analyst and the covered

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135.   *See id.* at 80.

136.   Thomas Lys & Lisa Gilbert Soo, *Analysts' Forecast Precision as a Response to Competition*, 10 J. ACCT. AUDITING & FIN. 751, 751 (1995).

137.   *Id.* at 754.

138.   *Id.*

139.   *Id.* at 759–60.

140.   *Id.* at 756–59.

141.   *Id.* at 764.

142.   *See* Asquith et al., *supra* note 37, at 245.

143.   *Id.* To determine the market reaction, Asquith et al. calculated the cumulative abnormal return for the period from -2 to +2 days centered on the release date (a five day window). *See id.* at 259. Asquith et al. report that "[c]onsistent with our expectations and prior research, we find statistically significant mean returns of 4.5% for upgrades and -6.6% for downgrades, and an insignificant mean reaction of 0.0% for reiterations." *Id.*

144.   *Id.* at 259, 260 tbl.2.

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firm (whether underwriting or stock ownership).[145] Among other things, they report that the strength of the analyst's recommendation is correlated positively with the cumulative abnormal return.[146] Asquith et al. report that the information environment of a specific firm affects the market's reaction to an analyst report.[147] For changes in the strength of the analyst recommendation, the market reaction is greater for smaller size firms and firms with a smaller number of analysts, both proxies for a low information environment.[148] Similar with Stickel's 1995 study discussed above,[149] Asquith et al. provide evidence that analyst reports provide relatively more information for companies in a low information environment.[150]

3. Past Analyst Performance

Sinha, Brown, and Das examine whether analysts that provide more accurate earnings-per-share forecasts persist in their accuracy over multiple years.[151] Sinha et al. examined analyst forecasts from 1984 to 1990 as obtained from the I/B/E/S database in the fourteen largest two-digit standard industrial classification groups.[152] After controlling for the age of a forecast and forecast frequency, among other things, Sinha et al. found that prior superior (inferior) analysts (as measured over a period from one to four years) persist with superior (inferior) earnings-per-share accuracy for the subsequent year.[153] Sinha et al.'s results are consistent with the hypothesis that different analysts have varying abilities to forecast earnings-per-share.

Brown examined the importance of prior analyst accuracy in explaining analyst accuracy (and predicting future accuracy).[154] His data set consisted of analyst earning estimates from 1986 to 1998.[155] Brown used a measure of

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145.   *Id.* at 257–60.

146.   *Id.* at 265. To test the importance of positive compared with negative components of the strength of recommendation proxy, they split the variable into separate positive and negative variables. *Id.* While both remain significant, the magnitude of the negative component variable is greater than the positive variable, consistent with the market reacting more strongly to negative information. *Id.* Their findings were significant at the <1% level. *Id.*

147.   *Id.* at 261, 268.

148.   *Id.* at 268–69. To control for the possibility that confounding information events (such as earnings announcements by the firm, dividend changes, merger announcements, lawsuits, new product introductions and so on) may actually drive their findings, the authors re-ran their regression tests on the subsample of firms without any confounding information revent. *Id.* at 261, 270–71. They found qualitatively the same result. *Id.* at 271.

149.   *See supra* text accompanying notes 101–109.

150.   *See* Asquith et al., *supra* note 37, at 268–71.

151.   Praveen Sinha, Lawrence D. Brown & Somnath Das, *A Re-Examination of Financial Analysts' Differential Earnings Forecast Accuracy*, 14 CONTEMP. ACCT. RES. 1, 4 (1997).

152.   *Id.* at 5–6.

153.   *Id.* at 37. Sinha et al.'s study is in response to an earlier study that found no persistence in analyst accuracy but that did not control for the age of the forecast. *See id.* at 5 (discussing as its "[m]otivation" Patricia C. O'Brien, *Forecast Accuracy of Individual Analysts in Nine Industries*, 28 J. ACCT. RES. 286 (1990)).

154.   Lawrence D. Brown, *How Important is Past Analyst Forecast Accuracy?*, FIN. ANALYSTS J., Nov./Dec. 2001, at 44, 44.

155.   *Id.*

the accuracy of an analyst's earnings forecasts as his dependent variable.[156] He then estimated two models to explain the analyst earnings-forecast accuracy.[157] The first model included as explanatory variables forecast age and a variety of factors identified in other studies to explain forecast accuracy, including company-specific experience, general experience, number of companies followed, number of industries followed, and the size of the brokerage house.[158] The second model included as explanatory variables the forecast age and the prior forecast accuracy of the analyst.[159] He reports no significant difference in the adjusted R-squared for the two models, from which he concludes "the past accuracy model performs as well as the analyst characteristics model."[160]

4. *Cues Specific to Particular Forecasts*

Several studies discussed above indicate that the magnitude of an analyst recommendation or earnings forecast revision communicates information to the market. Asquith, Mikhail, and Au, for example, find that the market reaction is positively correlated with the strength of analyst recommendations.[161] Studies indicate that other factors specific to particular forecasts are correlated with greater analyst accuracy.

Brown and Mohd examined the relative importance of the age of forecast compared with other factors identified in prior studies as important in explaining analyst accuracy.[162] The other factors they examined include analyst company-specific experience, analyst general experience, number of companies followed, number of industries followed, the size of the brokerage house, and the frequency of analyst forecasts (defined as the number of forecasts an analyst makes in a specified quarter relative to the mean forecast frequency for analysts following the same firm).[163] Brown and Mohd's data set consisted of quarterly earnings forecasts from 1987-99 as obtained from I/B/E/S.[164] Brown and Mohd estimated two models using forecast er-

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156.   *Id.* at 44–45. The accuracy measure for an analyst for a particular year is equal to:

[t]he individual analyst's forecast error that year minus the mean of the forecast errors of all analysts following the company that year scaled by the mean of the forecast errors of all analysts following the company that year. Forecast error is defined as the absolute value of the difference between I/B/E/S actual annual earnings and the last forecast made by the analyst for that year.

Id. at 45.

157.   *Id.*

158.   *Id.* at 44–45.

159.   *Id.*

160.   *Id.* at 48. Brown also used both models to make predictions on future accuracy for specific analysts and compared the actual accuracy against these predictions. *Id.* at 47. He reports that those analysts predicted to have the highest accuracy in fact did have higher forecast accuracy than those analysts predicted to have the lowest accuracy using the two models. *Id.* at 47–48.

161.   *See supra* notes 142–150 and accompanying text.

162.   Lawrence D. Brown & Emad Mohd, *The Predictive Value of Analyst Characteristics*, 18 J. ACCT. AUDITING & FIN. 625, 626 (2003).

163.   *Id.* at 630–31.

164.   *Id.* at 630.

ror as the dependent variable.[165] The first model consisted of solely the age of the forecast as an explanatory variable.[166] The second model included age of forecast and the other identified factors found important in explaining analyst accuracy in prior studies.[167] Brown and Mohd report that the other identified factors are, as with the prior studies, statistically significant in explaining analyst accuracy.[168] They then constructed a weighted consensus forecast using weights based on the two models, placing more weight on analysts who are predicted to have a higher accuracy.[169] They report that the model with the other factors does not outperform the model that uses only age of forecast as an explanatory variable.[170]

Clement and Tse examined whether "bold" earnings-per-share forecasts are different from other earnings-per-share forecasts.[171] Clement and Tse define a bold forecast as a forecast both greater (or lower) than the analyst's prior forecast and greater (or lower) than the consensus forecast.[172] Analysts concerned about their future career opportunities may engage in herding, ignoring (at least partially) relevant private information on a company and choosing instead to publish forecasts closer to the consensus forecasts.[173] Herding protects analysts from making a forecasting mistake that is greater in magnitude than the error for the average analyst in the market.[174] The authors hypothesized that by herding, analysts may reduce their risk of termination at a particular brokerage firm.[175] Given the incentive to herd, Clement and Tse tested what factors correlate with the decision on the part of an analyst to make bold forecasts.[176] Their data set consisted of annual earnings forecasts from 1989 to 1998 as collected from I/B/E/S.[177] Clement and Tse report that greater general experience of the analyst, greater prior year forecast accuracy, greater brokerage firm size, and higher forecast frequency—all factors other studies find are associated with analyst accuracy—are significantly and positively correlated with the likelihood of issuing a bold forecast.[178] To determine the value of a bold forecast, Clement

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165.   *Id.* at 632. Forecast error is defined as "[t]he ratio of the individual analyst's forecast error for the quarter divided by the mean of all analysts' forecast errors following the firm that quarter, minus 1." *Id.* at 630.

166.   *Id.* at 632.

167.   *Id.* at 634–36.

168.   *Id.* at 645.

169.   *Id.*

170.   *Id.*

171.   Michael B. Clement & Senyo Y. Tse, *Financial Analyst Characteristics and Herding Behavior in Forecasting*, 60 J. FIN. 307, 307 (2005).

172.   *Id.* at 307.

173.   *Id.* at 310.

174.   *Id.* at 311.

175.   *Id.*

176.   *See id.* at 311–12.

177.   *Id.* at 312. Their data set consisted of 57,596 analyst-firm-year observations. *Id.* The mean brokerage firm size was approximately thirty analysts, and each analyst followed a mean of twenty-one firms in six industries in their data set. *Id.* at 320.

178.   *Id.* at 308. For their analysis, they estimated a logit model using whether a forecast is bold or not as the binary dependent variable. *Id.* at 315–17. For explanatory variables they included, among other things, the prior-year accuracy of the analyst's forecasts; the size of the brokerage firm (based on the

and Tse estimated a model with the forecast accuracy as the dependent variable.[179] Clement and Tse report that forecast accuracy in the regression model is significantly and positively correlated with a bold forecast.[180]

Similar with Clement and Tse's study of bold analysts, Cooper, Day, and Lewis examined the impact of lead forecast revisions (as opposed to forecast revisions following an earlier revision by another analyst).[181] Given the tendency of analysts to herd in their forecasts, Cooper et al. posited that an analyst that chooses not to herd but instead provides the lead forecast does so because of superior forecasting ability.[182] Cooper et al.'s data set consisted of earnings forecasts as obtained from I/B/E/S from 1993 to 1995 for firms in two industries they described as[183] "(1) high-tech firms that manufacture semiconductors and printed circuit boards and (2) low tech firms in the restaurant industry."[184] Cooper et al. report that "analyst rankings based on forecast timeliness are more informative than rankings based on abnormal trading volume and forecast accuracy."[185] They also report that the stock market responds with greater magnitude to the lead forecast compared with follow-on forecasts.[186]

In sum, the empirical studies indicate the existence of several publicly-available, objective cues that are significantly correlated with analyst earnings-per-share forecast accuracy. These cues include factors that are related to the specific analyst and analyst brokerage firm (firm-specific and general experience of the analyst, reputation of the analyst, brokerage firm size, and the number of firms and industries covered by an analyst); the covered firm's information environment (whether information availability is proxied through market capitalization or the number of analysts following the firm); past forecast accuracy; and characteristics of the specific forecast (the "boldness" of the forecast, the frequency of the forecast, whether the forecast is the lead forecast, and the age of the forecast).

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number of analysts employed); the frequency of an analyst's forecasts for a particular firm; the number of companies and industries a particular analyst follows in a given year; and the experience of the analyst (broken out between experience in following the specific firm and general experience). *Id.* at 315–16.

179.   *Id.* at 317. They included explanatory variables identified in prior studies as correlated with forecast accuracy including, among others, the prior-year accuracy of the analyst; the size of the brokerage firm; the frequency of analyst forecasts; the number of companies and industries followed by the analyst; and the experience (firm-specific and general) of the analyst. *Id.* at 315–17. They also included a variable for whether the forecast was bold or not as an explanatory variable. *Id.* at 317.

180.   *Id.* at 332–33; *see also* Cristi A. Gleason & Charles M. C. Lee, *Analyst Forecast Revisions and Market Price Discovery*, 78 ACCT. REV. 193, 206, 207–10 tbl.3 (2003) (reporting evidence that analyst forecasts that bring new information to the market (high innovation forecasts) have a greater effect on the market price).

181.   Rick A. Cooper, Theodore E. Day & Craig M. Lewis, *Following the Leader: A Study of Individual Analysts' Earnings Forecasts*, 61 J. FIN. ECON. 383, 384 (2001).

182.   *Id.* at 384–86.

183.   *Id.* at 389–90.

184.   *Id.* at 389.

185.   *Id.* at 415.

186.   *See id.* at 415–16.

D. Unsophisticated Investors

A question exists whether the abnormal returns and trading volume surrounding an analyst recommendation change are due to the activity of large, more sophisticated investors or to the activity of smaller investors who are likely to be less sophisticated. Where abnormal returns and trading volume are due to smaller, less sophisticated investors, there is a greater concern that investors who do not realize the extent of analyst conflicts-of-interest may be trading based on such biased research. Mikhail, Walther, and Willis provide evidence that smaller investors are responsible for much of the abnormal returns and trading volume related to an analyst recommendation change.[187] Their data set consisted of individual analyst recommendation revisions from 1993 to 1999 as obtained from Zacks Investment Research.[188] They used trade size (in terms of dollar value) as a proxy for the size of the investor.[189] They defined large traders as those who make a trade of more than $30,000, and small traders as those who make a trade for less than $7,000.[190] Medium size traders were ignored.[191] They compared the reaction of investors with large trade-sizes against the reaction of small trade-size investors to see if smaller investors reacted differently to analyst research.[192] Mikhail, Walther, and Willis estimated separate models of abnormal trading volume for each type of trader.[193] From the models, they report that, in terms of trading volume, small investors respond more than large investors to the mere occurrence of an analyst recommendation change.[194] Mikhail, Walther, and Willis state that their results support the view that "large traders consider the arguments contained in the analyst's report more than small traders."[195] In addition to abnormal trading volume,

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187.   Michael B. Mikhail, Beverly R. Walther & Richard H. Willis, *When Security Analysts Talk, Who Listens?*, 82 ACCT. REV. (forthcoming Oct. 2007) (manuscript at 35–36, *available at* http://ssrn.com/abstract=709801).

188.   *Id.* (manuscript at 9). Their data set contained 50,076 recommendation changes. *Id.* (manuscript at 10). They obtained intraday trading data from Trade and Quote (TAQ) data. *Id.* (manuscript at 8). To eliminate the possibility of confounding the market responses to information, they eliminated analyst recommendations where an earnings or dividend announcement was made within a five day event window centered on the recommendation date. *Id.*

189.   *Id.* (manuscript at 10). They also looked at the number of shares traded and found similar results. *Id.*

190.   *Id.*

191.   *Id.* (manuscript at 10–11).

192.   *Id.* (manuscript at 3–4).

193.   *Id.* (manuscript at 11–12). They used for explanatory variables the abnormal market trading volume during the five day event window; the recommended firm size (log of market capitalization); brokerage firm size (number of analysts employed at the brokerage firm); prior performance (equal to the "quintile ranking of the profitability of the recommendation revisions the analyst issued in the prior year"); and magnitude for recommendation change (defined as the absolute value of the current recommendation on a five point scale minus the prior recommendation). *Id.* (manuscript at 13–15). As explanatory variables, they also included interaction terms between the magnitude of the recommendation change and the other explanatory variables and an intercept term. *Id.* Mikhail, Walther & Willis estimated their models separately for small and large trades using seemingly unrelated regression. *Id.* (manuscript at 16).

194.   *Id.* (manuscript at 17).

195.   *Id.* (manuscript at 35). Mikhail, Walther & Willis also report that small traders have a greater

they looked at the abnormal return for the five-day window centered on the analyst recommendation release date.[196] They report that large trader volume accounts for more of the price reaction for downgrades and that small trader volume accounts for more of the price reaction for upgrades.[197] This result is consistent with large traders focusing more on downgrades and small traders focusing more on upgrades.

Bonner, Walther, and Young examined whether sophisticated investors, compared with unsophisticated investors, respond differently to cues in predicting the relative accuracy of analyst quarterly earnings forecasts.[198] Their data set consisted of 101,238 revisions in quarterly earnings forecasts as obtained from Zacks Investment Research from 1981 to 1999 (encompassing 3,290 analysts and 1,757 firms).[199] They first developed a "statistical model" that determined which factors correlate significantly with greater analyst forecast accuracy.[200] Bonner et al. examined the importance of several cues in determining forecast error including measures for an analyst's status in Institutional Investors All-American survey for the previous year; analyst turnover from one brokerage house to another; the size of the brokerage house; the age of the forecast (more "stale" forecasts are less accurate); the analysts' forecast frequency; the analysts' firm-specific and general experience; and the number of firms and industries followed by an analyst.[201] Using these factors, they estimated a multivariate regression model with the analyst accuracy forecast as the dependent variable.[202] They used

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abnormal trading volume than large traders for recommendation upgrades (significant at the <1% level). *Id.* (manuscript at 23–24). On the other hand, large traders responded with more trading volume, among other things, for recommendation downgrades. *Id.* (manuscript at 24).

196.   *Id.* (manuscript at 12). They calculated five-day buy-and-hold characteristic-adjusted excess returns. *Id.* They defined characteristic-adjusted excess returns as "equal to the firm's compounded raw return minus the value-weighted compounded return on the characteristic-sorted benchmark portfolio to which the firm belongs in the year of the recommendation change." *Id.* (manuscript at 12 n.12).

197.   *Id.* (manuscript at 35–36).

198.   Sarah E. Bonner, Beverly R. Walther & Susan M. Young, *Sophistication-Related Differences in Investors' Models of the Relative Accuracy of Analysts' Forecast Revisions*, 78 ACCT. REV. 679, 679–80 (2003). Bonner et al. used Brunswik's lens methodology as adapted from behavioral research to assess whether the factors sophisticated and unsophisticated investors use in determining the value of analyst research corresponds with the factors that a statistical model predicts are important to analyst accuracy (including the age of forecast and the prior accuracy of particular analysts). *Id.* at 679–85. They described the lens methodology as follows:

In the traditional application of the lens model, individuals are given a set of factors and are asked to make predictions of outcomes (e.g., analyst forecast accuracy) in a laboratory setting. Using these data, the researcher would calculate a statistical model and each individual decision-maker's model of analyst forecast accuracy, both based on the given set of factors. The correlation between the fitted values from the statistical model and the fitted values from an individual decision-maker's model is called the matching index.

Id. at 683.

199.   *Id.* at 687–88.

200.   *Id.* at 688–89. Analyst forecast accuracy is defined based on the difference in a particular analyst's forecast error (relative to the actual earnings outcome) and the mean forecast error for all analysts covering a particular firm. *Id.* at 683.

201.   *Id.* at 690. Many of the measures are relative to the mean for all analysts following the specific firm. *See id.*

202.   *Id.* at 690–91.

this model as the base "statistical model," providing a measure of what cues are statistically related to analyst accuracy.[203]

Bonner et al. then estimated a second multivariate regression model using the size-adjusted market reaction to the analyst forecast revision announcement as the dependent variable.[204] They used this second model as a measure of what investors in the market focus upon when deciding to utilize analyst forecast revisions.[205] They included the forecast revision as an independent variable (e.g., a positive revision correlates with a greater stock price positive abnormal return).[206] They also included interaction terms between the forecast revision and the "cue" variables they use in the statistical model.[207] This allowed the authors to get an assessment of which "cue" variables are important in investors' decision-making.

To obtain a test of the difference between sophisticated and unsophisticated investors, Bonner et al. divided their sample of firms based on which firms have relatively more sophisticated investors as proxied through the number of analyst following the firm, percentage of institutional ownership for the firms, number of institutions holding shares, the number of shares held by institutions, and the dollar trading volume of the firm.[208] Bonner et al. then compared the factors that the more-sophisticated and less-sophisticated investors focus upon in reacting to analyst information.[209] They report that sophisticated investors place weight on the different cues that are much closer to the statistical model than less-sophisticated investors.[210] Among other things, Bonner et al. note that sophisticated investors are more likely to assign the correct weight on the age of the forecast in determining forecast accuracy while unsophisticated investors do not apply the correct weight.[211] They conclude that their "results are consistent with [their] prediction, suggesting that sophisticated investors exhibit more 'adaptive decisionmaking.' Taken together, the findings suggest that sophisticated investors not only have more knowledge overall about the set of factors related to analysts' forecast accuracy, but they also have greater knowledge of the individual factors that are most beneficial to use."[212]

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203.   *Id.*
204.   *Id.* at 691–92.
205.   *See id.* at 691–93.
206.   *Id.* at 691.
207.   *See id.*
208.   *Id.* at 680.
209.   *Id.*
210.   *See id.* at 696–97. Bonner et al. conclude that "sophisticated investors have greater knowledge overall than unsophisticated investors about the appropriate signs and weights for the set of factors that can be used to predict forecast accuracy." *Id.* at 697.
211.   *Id.* at 696–97.
212.   *Id.* at 680.

IV. RETHINKING THE REGULATION OF ANALYSTS

Although the empirical study of analysts leaves many questions unanswered about analyst behavior and the impact of analyst research on the stock market and investors, several common themes come out of the research. Analyst research is considered important by the securities markets, and certain types of analyst research are more informative than others. Analyst reports of negative information, although rare, result in a much greater market reaction. Simply doing away with all analysts may therefore leave the marketplace with significantly less information, leading to more inaccurate securities prices. Despite the value of analyst research, several problems affect the quality of analyst research. Analysts disproportionately provide coverage for larger market-capitalization companies. Correspondingly, the value of analyst research is greater for companies that trade in a low information environment, such as for smaller market-capitalization companies. Analyst research also displays bias towards more optimistic recommendations. The degree of analyst bias is greater for analysts that are involved as a lead underwriter for a company right around the time of the offering. The degree of bias is also greater (at least when selective disclosures are not prohibited) where analysts highly value access to information obtained from management.

In addressing the problems with analyst research, regulators should take into account that the accuracy of analyst research is correlated with several observable "cues". Analysts with greater reputation, with greater firm-specific and general experience, and with a history of prior accurate reports tend to produce more accurate research. Analysts from large brokerage houses and that publish more frequent reports also produce more accurate research. Analysts that herd provide less accurate research. The accuracy of analyst research also drops with the age of the forecast and the number of firms and industries followed by the analyst. Regulators should also take into account that unsophisticated investors, when compared with more sophisticated investors, are less likely to give appropriate weight to such cues,.

Given the empirical evidence, how should regulators respond to market failures affecting analyst research? Regulators have at their disposal a number of possible interventions with varying costs and benefits. At one end of the spectrum, regulators may seek to simply provide investor education materials. In Canada, the Securities Industry Committee on Analyst Standards Final Report on "Setting Analyst Standards," among other things, recommended greater education of investors.[213] While such efforts pose the lowest

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213. SEC. INDUS. COMM. ON ANALYST STANDARDS, SETTING ANALYST STANDARDS: RECOMMENDATIONS FOR THE SUPERVISION AND PRACTICE OF CANADIAN SECURITIES INDUSTRY ANALYSTS 13–14 (2001) (Can.),

http://www.medac.qc.ca/documentspdf/documentation/etudesrapports/Securities-industry-committee-on-analyst-standards-rapport-final-Purdy-Crawford-Toronto-Stock-Exchange-octobre-2001-texte-en-anglais.pdf.

risk of regulatory error and impose the least cost on market participants, they are also likely to provide the lowest potential benefit to investors. At the other (extreme) end of the spectrum, regulators could, in theory, simply supplant the function of analysts through the provision of government-supplied research analysis of securities. Indeed, regulators could prohibit the securities of companies that do not meet minimum regulatory quality standards from trading in the secondary markets (e.g., merit regulation). While merit regulation offers the greatest promise of protecting investors, such regulation also offers the greatest possibility of regulatory error.

How are regulators to choose among available regulatory options? A move to eliminate conflicts of interest, for example, may have the negative effect of reducing the overall level of sell-side analyst coverage of companies. Investors, left with no other alternative, may either make worse investment decisions or turn to alternative, less accurate, and potentially more fraudulent sources of information available through the Internet.[214] Alternatively, buy-side analysts may fill the vacuum with duplicative (and wasteful) levels of research.[215] Legal interventions also may crowd out more market-based innovations to protect investors. For example, the recently created U.S. Public Company Accounting Oversight Board (PCAOB) may very well generate increased auditing standards.[216] On the other hand, the very presence of the PCAOB may cause the private marketplace to eschew attempts at shoring up the auditing provision out of a fear that the PCAOB may co-opt such private attempts and perhaps push them further than the marketplace desires. Alternatively, the PCAOB may simply override such private attempts, giving private actors less incentive to engage in such private efforts in the first place.

Legal interventions may also become difficult to reverse once put into place, resulting in regulatory lock-in, particularly for more intrusive forms of regulation.[217] Special interest groups within an industry may benefit from the existence of a particular regulatory intervention even if the intervention is not good for the marketplace as a whole. An outright ban on analyst conflicts of interest, for example, may increase the profits to independent analysts unaffiliated with any investment bank. In the absence of sell-side research, research supplied through independent analysts will increase in value, allowing independent analysts to charge more for their research. Such independent analysts may therefore oppose any move to lift a ban on conflicts of interest within investment banks once such a ban is in place even if

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214.   *See* Fisch, *supra* note 21; *supra* text accompanying notes 21–22. Indeed, some argue that conflicts of interest may actually improve on the overall accuracy of analyst forecasts. *See* Terence Lim, *Rationality and Analysts' Forecast Bias*, 56 J. FIN. 369, 369–70 (2001) (arguing that positive bias on the part of analysts may improve overall forecast accuracy if the bias enables the analysts to obtain greater access to inside information from management).

215.   *See supra* text accompanying notes 19–20.

216.   *See* Sarbanes-Oxley Act of 2002 §§ 101–109, 15 U.S.C. §§ 77s, 78m, 7211–7219 (Supp. III 2003).

217.   *See* Stephen J. Choi & A.C. Pritchard, *Behavioral Economics and the SEC*, 56 STAN. L. REV. 1, 45–46 (2003).

the overall level of research supplied to the marketplace is less than where sell-side research is not prohibited. Regulators may also become accustomed to particular schemes of regulation. Once engaging in a specific regulatory approach to the analyst industry becomes the norm (such as prohibiting analysts at brokerage firms from receiving compensation directly tied to investment banking revenues), regulators may address all future problems with a similar approach first without much consideration of other intervention options. Regulators may also resist any efforts at reducing the scope of regulatory intervention to the extent this reduction reduces the regulator's own authority and influence in the industry (resulting in lower prestige and compensation for the regulators).

Less-intrusive means of intervention, such as education and disclosure, suffer less from the effects of regulatory lock-in. Fewer special interests groups, for example, stand to benefit from investor education or disclosure efforts. The market is less displaced (if at all) through disclosure efforts than with more structural innovations such as prohibitions on conflicts of interest (that eliminate certain market arrangements) and the imposition of quasi-regulatory organizations such as the PCAOB (that may chill market-led efforts at reform). Where less-intrusive mechanisms prove ineffective over time, regulators may always later "ramp up" the level of regulation if necessary. Regulators may therefore wish to err on the side of less-intrusive regulatory intervention unless a clearly demonstrable need exists to do more. Given a desire to use less intrusive responses, when possible, in addressing the defects of analyst research, this Part discusses three forms of possible regulatory intervention increased company disclosure, analyst disclosure, and structural reforms aimed at reducing conflicts of interest among analysts.

A. Company Disclosure

In thinking about the value of analyst research, determining the relationship of analyst research and company-provided information is important. First, some analyst information may consist of information obtained directly from the company ahead of a company disclosure announcement (to the extent allowed under Regulation FD). An analyst, for example, may obtain information from the company that gives the analyst guidance on where earnings are going for the particular company, allowing the analyst to publish relatively accurate information on earnings before the company publicly announces its earnings. In such situations, the analyst benefits the market only by moving up in time when the information that otherwise would be disclosed later (by the company) is actually disclosed. Such "time-shift" research, however, does not ultimately provide the market with any new information; information is simply provided earlier in time. It is un-

clear what value the market obtains from possessing slightly more accurate securities prices earlier in time.[218]

Second, other analyst information may represent new information different from information that a company may supply directly. Analysts may use their expertise and broader industry knowledge to synthesize information obtained from a particular company to form an earnings outlook more accurate and different from that supplied from within a company. Analysts may also use their expertise to boil down company-supplied information (together with information on competitors in the same industry) to come up with a "bottom-line" recommendation that investors, particularly individual investors, may find easier to digest than the information provided by a company in a periodic disclosure filing. Similarly, analysts may engage in detailed research of "outside" information important to the valuation of a particular company. Information on the economy in general and the activities of competitors are examples of "outside" information that may prove salient to the valuation of a particular company. Where analyst research is comprised of a greater percentage of such new information (as opposed to time-shift information obtained from a covered company), analysts provide greater long-term improvements to overall price accuracy in the marketplace.[219]

So do analysts primarily add value by re-transmitting information obtained from companies or through the generation of new information? Evidence exists that a large part of the value sell-side analysts provide is based on the collection and revelation of information obtained from inside followed companies.[220] If a major part of the benefit analysts provide to the market is to channel information from inside the company to the marketplace, regulators may consider simply requiring companies to supply more information directly to the marketplace, increasing the scope and frequency of mandatory disclosure from covered firms.

Providing more company information directly to the marketplace may have the effect of reducing the importance of analyst research. For companies without any analyst coverage, the provision of company-supplied information may lead to more accurate securities prices to the benefit of all investors. For larger companies with several analysts providing coverage, the provision of company-supplied research will work to reduce duplicative research efforts on the part of analysts that otherwise would have been expended to uncover the company-specific information.[221] The provision of

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218. Secondary market traders unaware of the new earnings guidance may lose. On the other hand, they are just as likely (absent the presence of any insiders or other knowledgeable traders in the market) to gain from this lack of information. More accurate price signals may benefit the economy more generally. However, the benefits of moving up earnings disclosure in time within a quarterly period are unclear.

219. *See supra* note 180.

220. *See* Zoran Ivković & Narasimhan Jegadeesh, *The Timing and Value of Forecast and Recommendation Revisions*, 73 J. FIN. ECON. 433, 462 (2004) (reporting that analyst recommendation revisions are least informative immediately after a public earnings announcement from a covered firm).

221. John Coffee makes this point in his seminal 1984 piece on mandatory disclosure. *See* John C.

research may then give such analysts an incentive (and subsidy) to expand their research into other areas, shifting more attention, for example, to analysis of company-supplied and other information rather than simply waiting for inside information disclosure from management.[222]

The United States has been moving steadily toward requiring Exchange Act reporting issuers to supply more information to the market. The U.S. Congress in the Sarbanes-Oxley Act imposed a mandate on the SEC to move towards a system of continuous disclosure.[223] The SEC responded with a shortened timeframe (now four business days), in which Exchange Act reporting companies have to file with the SEC a Form 8-K detailing certain important events after they occur.[224] The SEC also expanded the number of items that require disclosure under Form 8-K.[225]

Limits, nonetheless, exist on how much company-supplied information is net beneficial to the marketplace. Requiring disclosure of competitive-ness-related information may result in companies either actively hiding such information or choosing not to engage in new competitive projects (out of a fear that they must disclose information on such projects thereby reducing the competitive value of such projects). Similarly, requiring too-detailed and personal disclosure of the backgrounds of executives may prove of little use to investors while imposing large personal costs on executives (who may choose not to serve as executives in the first place as a result).

B.   Analyst Disclosure

In theory, if investors in the marketplace have good information on the presence of bias or other problems with analyst research, they may choose not to rely on such research. This, in turn, will have at least two consequences. First, investors will not lose money based on poor research. Second, analysts will face a greater incentive to provide unbiased and higher-quality research, leading to more accurate securities prices.

The SEC has moved recently to increasing the amount of disclosure required of analysts under Regulation AC.[226] Regulation AC requires analysts to certify that the reports reflect the analyst's "personal views" and disclose conflicts of interest.[227] It is unclear whether such disclosure will have much effect on investors and thus on analyst behavior. Regulation AC disclosures provide no comparative information between analysts (e.g., a relative rank-

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Coffee, Jr., *Market Failure and the Economic Case for a Mandatory Disclosure System*, 70 VA. L. REV. 717, 728–29 (1984).

222.   *See id.*

223.   *See* Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (codified in scattered sections of 15 U.S.C).

224.   *See* Securities Exchange Act of 1934 § 13, 15 U.S.C. §§ 78a–78*lll* (2000 & Supp. III 2003); SEC Form 8-K.

225.   *See* SEC Form 8-K.

226.   *See* Regulation AC—Analyst Certification, 17 C.F.R. §§ 242.500–.505 (2007).

227.   *Id.* § 242.501(a).

ings) and give investors little with which to compare analysts.[228] The National Association of Securities Dealers and the NYSE also both imposed rules requiring analysts to disclose the meaning of their investment rating categories and the distribution of their ratings across these categories.[229]

Providing greater information on conflicts of interest provides useful information (at least if the information is not already known) for institutional investors.[230] Whether such information is useful for individual, unsophisticated investors—where bias in analyst research arguably has the greatest impact—is less clear.[231] Regulators must take into account the potential lack of resources and time on the part of such investors. In addition, investors may suffer from a number of behavioral biases that may weaken the effect of disclosure.[232] Overconfident investors may simply ignore boilerplate regulatory warnings.[233] Investors may pay too much attention to more recent salient information while ignoring potentially informative, less salient information.[234] Simply providing certifications of accuracy and detailed lists of conflicts of interest may not have much impact on the behavior of individual investors.

Given the existing research on the behavioral biases that affect individual investors and the lack of resources and time that individual investors have to process analyst disclosures, determining an optimal set of disclosures aimed at individual investors is difficult. No one unified theory of how behavioral biases affect investor decision-making exists. Absent such a unifying theory, predicting how regulatory reforms will affect investors becomes difficult. Nonetheless, it is possible to make some tentative suggestions:

> *Simple disclosure will be the most effective.* Flooding individual investors with extremely detailed disclosures on a particular analyst (or a laundry list of conflicts) will likely tax the bounded rationality of most individual investors (and may lead overconfident investors

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228.   *See generally* 17 C.F.R. §§ 242.500–.505 (2007).

229.   *See* NASD, Inc., Conduct R. 2711(h)(4)–(5) (2003); NYSE, Inc., Gen. R. 472(k)(1)(i)(f)–(h) (2007) (formerly NYSE, Inc., Gen. R. 472(k)(2)(iv) (2003)). Whether greater disclosure of investment ratings distributions will have an appreciable effect on the percentage of negative, sell-type recommendations is unclear. Baird U.S. Equity Research, for example, reported that: "As of July 31, 2007, Baird U.S. Equity Research covered 499 companies, with 48% rated Outperform, 49% rated Neutral and 3% rated Underperform." Baird Research Disclosure,

http://www.rwbaird.com/ecm/fr3_ecm_fr_research_disclosure.aspx (last visited Aug. 31, 2007). Similarly, William Blair & Company disclosed that as of Dec. 31, 2005 its ratings were distributed as follows: Outperform (Buy): 59%; Market Perform (Hold): 37%; and Underperform (Sell): 4%. William Blair & Company Equity Research,

http://www.williamblair.com/Pages/news_story_dept.asp?uid=963&depID=4 (last visited Aug. 31, 2007).

230.   *See supra* Parts II.B, III.A, III.D.

231.   *See supra* Part III.D.

232.   For a discussion of behavioral biases that may plague investors, see Choi & Pritchard, *supra* note 217, at 12.

233.   *Id.*

234.   *See id.* at 16.

to determine that the high cost of digesting the information is not worthwhile for investors with their high expertise). Any disclosure based approach aimed at individual investors must therefore take a simple approach, providing only one or, at most, a few salient pieces of information on analysts.

The approach taken in the United States of requiring greater disclosure of conflicts of interest is not likely to provide much useful information to individual investors. Lacking expertise, individual investors may also fail to appreciate the magnitude of the various conflicts and how such conflicts should affect their willingness to rely on analyst research. Over time, the repeated reference to the same set of conflicts (investment banking, stock ownership, etc) may become akin to boilerplate. Even if the information on conflicts is new information, individual investors may simply ignore such information. Where the decision-making of individual investors is important, either because the market price is determined in part by the activities of such individuals or because such individuals may make trades based on flawed analyst research to their own detriment, regulators should consider a simpler approach to disclosure.

Focus on cues related to analyst accuracy. Given the constraint that disclosure must be simple, what exactly should regulators require analysts to disclose? The empirical studies indicate that different types of investors (e.g., more sophisticated institutional investors compared with less-sophisticated individual investors) react differently to informational cues related to analyst accuracy.[235] Regulators may wish to focus disclosure aimed at individual investors on those cues demonstrated in the empirical studies to correlate with analyst accuracy.

The bottom line for why investors look to analyst research is the accuracy of the analyst's predictions about a company. Focusing disclosure on conflicts of interest only gets at accuracy indirectly. Indeed, some conflicts of interest may, on net, improve overall accuracy. Investment banking conflicts may result in a bias in research. However, if greater investment banking revenues are allocated to research as a result, enabling the employment of more skilled analysts for example, overall accuracy may increase.[236] Likewise, at least prior to Regulation FD in the United States, analysts may have added an optimistic bias to their research in an effort to please company management, thereby affording the analysts access to selective disclosures of inside information.[237] Such information, nonetheless, may lead to

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235.   *See supra* Part III.

236.   *See supra* Part III.C.1.

237.   *See supra* Part III.B.4.

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an overall increase in accuracy of analyst research (due to the access to in-side information) despite the optimistic bias.[238]

Since accuracy is the end goal for most investors looking at research, regulators may avoid having to consider the magnitude of different conflicts and the potential for conflicts to increase accuracy. Instead, regulators may simply require the disclosure of information closely tied as "cues" of analyst accuracy. Importantly, not all the cues are alike. The mere act of publishing specific cues may lead to a market response that undermines the informational value of the cues. Studies have shown that larger brokerage firms typically produce more accurate analyst forecasts.[239] However, if this factor is highlighted to investors and investors respond by focusing more on large brokerage house forecasts, opportunism may arise. For example, smaller firms may aggregate to form larger firms simply to appear larger on rankings based on brokerage firm size. Consider the following potential cues identified in the empirical studies:

1. Prior analyst forecast accuracy.

Studies have shown that prior analyst earnings-per-share forecast accuracy is significantly correlated with the accuracy of an analyst's current earnings-per-share forecast.[240] Brown reports a correlation between the prior one-year forecast accuracy and the current-year accuracy.[241] Sinha, Brown, and Das report a correlation between prior earnings-per-share forecast accuracy (as measured for a one- to four-year time period) and the subsequent one-year earnings-per-share forecast accuracy.[242] Analysts that were accurate in the past tend to be accurate into the future. Importantly, reporting on an analyst's past accuracy in its earnings-per-share forecasts is not susceptible to opportunistic manipulation on the part of analysts. The only way to improve an analyst's rating is to improve on prior accuracy of forecasts (an objective that helps investors relying on the analyst's forecasts). Therefore, regulators should consider requiring analysts to report on the accuracy of their past earnings-per-share forecasts. While the exact number of prior years of forecast accuracy that correlate with subsequent earnings-forecast accuracy is not certain, regulators may wish to start with a moderate term of years (for example, three to four years) and expand the number of years if providing such data proves useful for investors and subsequent research indicates that less-recent accuracy data also correlates with subsequent forecast accuracy.

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238.   *See supra* Part III.B.4.

239.   *See supra* Part III.C.1.

240*.   See supra* Part III.C.3.

241.   Brown, *supra* note 154, at 48.

242.   Sinha et al*., supra* note 151; *see also supra* notes 151–153 and accompanying text.

2. *Number of industries and firms followed by an analyst.*

The empirical evidence demonstrates that analysts that follow a large number of industries are less accurate than those that follow only a small number of industries.[243] Intuitively, an analyst that actively learns about and covers numerous industries will have less time and attention to devote to analyzing a particular company in one industry. Unsophisticated investors are less aware of the number of industries or firms that an analyst follows and the importance of such information.[244] Providing such information may improve on the ability of investors to rely on investor research. On the other hand, brokerage firms may react opportunistically to a regulatory reliance on such a cue. For example, firms may hire greater numbers of less-expert analysts (at low salaries) simply to maintain a lower industry covered-to-analyst ratio.

3. *Analyst firm-specific and general experience.*

Studies have shown that analysts with greater experience covering a particular firm and greater overall experience are more accurate in their forecasts.[245] Unlike the size of the brokerage firm, analysts have less ability to manipulate disclosures based on years of experience. If experience is touted as an important factor, brokerage firms nonetheless may keep analysts on the payroll longer than warranted to boost the experience rating.

4. *Analyst forecast frequency.*

Studies show that analysts providing frequent forecasts are more accurate in their forecasts.[246] Frequent forecasts may indicate greater attention to a particular firm, leading to greater accuracy. Unfortunately, brokerage firms may manipulate forecast frequency. Although no evidence exists of such behavior today, under a regime that made forecast frequency the focus of analyst disclosure, regulators would have to focus on the possibility that analysts might re-issue older forecasts without additional analysis simply to improve on their forecast frequency score.

5. *Age of forecast.*

Studies demonstrate that forecasts grow stale with time.[247] Older forecasts provide less information than newer forecasts. Studies also indicate that unsophisticated investors pay too little attention to the age of a fore-

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243.   *See supra* notes 125–126 and accompanying text.
244.   *See supra* Part III.D.
245.   *See supra* Part III.C.1.
246.   *See supra* notes 162–170 and accompanying text.
247.   *See supra* notes 119, 162–170 and accompanying text.

cast.[248] Nonetheless, one problem with using forecast age as a factor for disclosure is that analysts may easily update the forecast (with a simple cut and paste) without changing any information in order to simply lower the age of the forecast. While informative, shifting the focus of disclosure on the age of the forecast may not improve on investor decision-making as a result.

6. Bold forecasts and herding.

Analysts have strong incentives to herd.[249] While being better than average may result in a pay increase, an analyst that does significantly worse than average may get fired.[250] This asymmetrical payoff leads analysts to ignore private information and put too much weight on simply following the consensus forecast (out of a desire to avoid being the worst analyst).[251] Studies indicate that those analysts that do deviate from the consensus (with "bold" forecasts) tend to provide more accurate earnings-per-share forecasts. However, once regulators focus on "bold" forecasts as an indicator of accuracy, analysts may opportunistically shift toward providing overly bold forecasts different from the consensus.[252] Such forecasts, rather than reflecting any true private information, may simply reflect the desire of analysts to score well on an analyst disclosure ranking measure based on boldness.

Given the constraint that any disclosure-based scheme aimed at individual investors must remain simple, regulatory disclosure regimes should initially focus solely on one or two easily observable and hard-to-manipulate cues, such as prior analyst forecast accuracy. Consider the prior accuracy cue. Unlike the present *Institutional Investor* ranking, which relies on subjective polling (and therefore may be subject to lobbying pressures by particular brokerage firms), an objective ranking based on prior analyst performance is harder to corrupt. While academic studies show that other cues are related to analyst accuracy,[253] the possibility of opportunism on the part of brokerage firms makes these other cues less workable as a method of ranking analysts in practice.

How should regulators provide investors with information relating to a cue such as prior analyst accuracy? Regulators could simply allow analysts to report their prior earnings-per-share forecasts in any format the analysts' wish. However, providing cue information in a standardized format gives investors the ability to compare analysts against one another. The ability to compare allows investors to determine quickly which analysts are the "best," according to the cue. Information presented in a manner that allows comparison also gives individuals with less knowledge about the meaning

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248.   *See supra* Part III.D.
249.   *See supra* text accompanying notes 171–180.
250.   *See supra* text accpompanying note 175.
251.   *See supra* text accompanying note 173.
252.   *See supra* text accompanying note 180.
253.   *See supra* Part III.C.

of particular cues an "anchor" with which to judge the cue. An individual may not know whether or not an analyst who was right twenty five percent of the time in her prior earnings-per-share forecasts is a good analyst based on this one piece of information. However, the same individual may learn more from the knowledge that the analyst who was right twenty five percent of the time in the past ranks last among twenty other analysts covering firms in the same industry (who were all accurate more than twenty five percent of the time).

To enhance further the ability of investors to compare cue information across different analysts, regulators should consider explicitly adopting a relative disclosure format for the accuracy cues. Presently, regulators in the United States do not require such relative disclosure. Instead, analysts must provide information on their own system of rating categories and the percentage of its recommendations that fall into each category.[254] A relative comparison among analysts, nonetheless, offers many advantages. Secondary sources such as the *Wall Street Journal* already provide annual analyst rankings.[255] Unlike a list of analyst rankings, regulators may tailor ranking information to the needs of more unsophisticated investors. Regulators could require the disclosure of analyst rankings based on prior accuracy (and, possibly, other cues such as an analyst's coverage of firms and industries and frequency and type of downgrades) in a linear scale form much like energy ratings that are placed on a relative and easily understandable scale for consumers of appliances in the United States. Regulators could also require that analysts display this relative ranking linear scale prominently on the cover page of every analyst report. Such a placement would increase the salience of the information for individual investors (in a way currently not provided through secondary sources like the *Wall Street Journal*).

Relative comparisons have the advantage of packaging a large amount of information into one easily digestible form for investors. An accuracy range scale combined with where an analyst fits on the scale tells an investor about overall analyst accuracy, as well as about the particular analyst whose report the investor is considering. Providing a relative comparison form of disclosure will also generate competition among analysts to provide more accurate forecasts. Analysts would receive greater compensation and better opportunities the higher they rank compared with other analysts. Institutionalizing a common framework for comparison will further spur such competition to provide more accurate research. Regulators may also consider placing analyst cue information together in one centralized website, such as the SEC's, for investors to search and compare different analysts. Providing information at one centralized location will assist investors who

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254.   *See* NASD, Inc., Conduct R. 2711(h)(4)–(5) (2003) (Research Analysts and Research Reports).

255.   The *Wall Street Journal* provides a ranking of analysts annually in its *Best on the Street Analyst Survey. See, e.g.*, *Best on the Street 2006 Analyst Survey*, WALL ST. J., May 22, 2006, at R1 (providing ranking of analysts based on the stock market return of recommended companies).

face bounded rationality and high costs of collecting and processing information.

Consider the prior accuracy cue. Regulators could give each analyst a score based on how many percentage points on average the analyst's prior earnings-per-share forecasts were different from the actual earnings-per-share for each company for which the analyst provides forecasts (averaged over the prior one- and three-year time horizons). Given this score, regulators could then determine how the analyst compared against a comparison group of analysts. This comparison group could be the pool of all active analysts, or it could be more a more tailored group, such as the pool of all active analysts covering firms in the same type of industry. To the extent that the primary concern is with coverage of smaller issuers, one could use the group of analysts covering firms below a certain market capitalization as the comparison group. Investors that seek to invest in smaller-capitalization issuers could then refer to the ranking of analysts that deal in this sector of publicly traded firms to determine how to value research.

One criticism of this proposal is that the prior accuracy cue may only crudely predict future accuracy. It is possible for an analyst who was not accurate in the past to increase in accuracy in the future. Even where the identified factors related to analyst accuracy are not completely related to accuracy, they nonetheless impose a burden on analysts who score poorly to explain why their reports are nonetheless accurate. Analysts may claim expertise and skill in predicting stock performance; making such claims credibly becomes more difficult for an analyst that ranks at the bottom among comparable analysts. Imposing relative ranking disclosure may work more to help investors to avoid the worst analysts in the marketplace rather than necessarily pinpoint the very best analyst in terms of accuracy of forecasts.

It is also possible that some analysts may seek to act opportunistically even with a measure based on past accuracy. Analysts that receive a high past-accuracy ranking, for example, may seek to "cash in" on their credibility by offering to provide biased research to the highest-bidding company. However, at least two factors weigh against such a possibility. First, cashing in on credibility will provide only a short-lived advantage since the analyst's performance ranking would drop as a result in the next ranking period. To the extent that analysts receive a continuing financial return from a higher performance ranking, in the form of greater investor attention for the brokerage firm, they will hesitate to cash in on their reputation in this manner. Second, regulators may look for dramatic swings in rankings as a sign of such opportunism and shift their investigatory resources toward such situations, providing a background level of public deterrence against fraudulent reports in such instances.

Lastly, an analyst report consists of more than the bottom line recommendation and earnings per share forecasts. The report will typically give the analyst's explanation of the issuer's financial results, a discussion of competitors and market trends among other possible forms of analysis. Nonetheless, analyst recommendations and earnings per share projections

are typically part of the subset of the report that is widely distributed among investors (through websites such as finance.yahoo.com). More investors (particularly individual, less sophisticated investors) will focus solely on this part of the analyst report. The bottom line recommendation and earnings per share projections also provide a relatively standardized form of analyst information with which investors may compare analyst performance.

In addition to providing cue-based relative rankings of analysts (and brokerage firms overall), regulators may also wish to highlight specific events that relate to the reliability of analyst recommendations to the marketplace. Canada has already moved in this direction with its Investment Dealers Association of Canada (IDA) Policy 11.[256] IDA Policy 11 requires that members "must issue notice of their intention to suspend or discontinue coverage of an issuer."[257] Because analysts may choose to drop coverage rather than provide a negative recommendation for an issuer, the requirement of notice to the market serves two purposes. First, it highlights to the market that an important informational event, the dropping of coverage, has occurred. Second, it may lead some firms to choose not to drop coverage out of a desire not to tarnish their reputation as an objective research source.

Regulators may go farther than IDA Policy 11. For example, empirical studies indicate that downgrades provide greater informational content for investors.[258] Moreover, unsophisticated investors tend to place too little weight on the downgrade information.[259] Regulators may require that analysts post downgrades in recommendations at a centralized web site and aggregate all such downgrades in one place. Investors may then easily find and compare such downgrades, increasing the informational impact of such downgrades.

Ironically, a successful disclosure policy may result in another problem for regulators. Where disclosure allows investors to avoid analysts corrupted with a conflict of interest (by focusing on the relevant cues associated with analyst accuracy), such conflicts may become less prevalent. However, as discussed in the next Section, if conflicts of interest arise from a financing problem on the part of analysts, a successful disclosure policy may drastically reduce the amount of analyst coverage in the economy.[260] Just as with conflict-of-interest prohibitions, regulators may therefore wish to consider financing solutions in conjunction with greater analyst disclosure requirements.

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256.   INVESTMENT DEALERS ASSOCIATION OF CANADA (IDA), POLICY 11, 26 ONTARIO SEC. COMMISSION BULL. 7007, 7009 (2003) (Can.) (setting forth research analyst disclosure requirements), *available at* http://www.osc.gov.on.ca/MarketRegulation/SRO/ida/rr/srr-ida_20031024_pol11.pdf.

257.   *Id.*

258.   *See supra* notes 142–150, 197 and accompanying text.

259.   *See supra* Part III.D.

260.   *See infra* Part IV.C.

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C. *Structural Changes and Subsidies*

As a more intrusive regulatory option than disclosure, regulators may seek to make structural changes in how sell-side analyst research is provided. In the United States, regulators have implemented several recent structural changes. As part of a 2002 settlement between New York State Attorney General Eliot Spitzer, the SEC, NASD, and ten Wall Street brokerage firms, the Wall Street firms agreed, among other things, to some separation of analyst research from the investment banking business, including "prohibiting analysts from receiving compensation for investment banking activities, and prohibiting analysts' involvement in investment banking 'pitches' and 'roadshows.'"[261] Under the settlement, the analyst research department's budget must be determined independent of any revenues obtained from investment banking.[262]

The Sarbanes-Oxley Act of 2002 requires the SEC or self-regulatory organizations in the United States (such as the NYSE and NASD) to adopt rules "reasonably designed to address conflicts of interest that can arise when securities analysts recommend equity securities in research reports and public appearances. . . ."[263] In response to the Sarbanes-Oxley Act, the NYSE and NASD adopted rules targeting conflicts of interest.[264] The rules require analysts to obtain educational training on ethics and professional responsibility-related topics.[265] Additionally, the rules prohibit analysts from offering favorable research as an inducement to firms to generate investment banking business.[266] Analysts associated with the manager or co-manager of a securities offering are prohibited from issuing a research report within forty days after an initial public offering.[267] The rules also restrict the ability of investment banking personnel at a brokerage firm to de-

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261.   Press Release, SEC, Ten of Nation's Top Investment Firms Settle Enforcement Actions Involving Conflicts of Interest Between Research and Investment Banking (Apr. 28, 2003), *available at* http://www.sec.gov/news/press/2003-54.htm. The list of other settling Wall Street firms includes Bear Stearns & Co. Inc, Credit Suisse First Boston LLC, Lehman Brothers Inc., J.P. Morgan Securities Inc., Morgan Stanley & Co. Inc., Citigroup Global Markets Inc., UBS Warburg LLC, and U.S. Bancorp Piper Jaffray Inc. *Id.*

262.   *Id.* The settlement goes on to provide that "[r]esearch management will make all company-specific decisions to terminate coverage, and investment bankers will have no role in company-specific coverage decisions." *Id.* The settlement also provides that "the ten firms have collectively entered into a voluntary agreement restricting allocations of securities in hot IPOs—offerings that begin trading in the aftermarket at a premium—to certain company executive officers and directors, a practice known as 'spinning.'" *Id.*

263.   Sarbanes-Oxley Act of 2002, 15 U.S.C. § 78o–6 (Supp. III 2003).

264.   *See* Research Analyst Conflicts of Interest Orders, Exchange Act Release No. 34-45908, 67 Fed. Reg. 34,968, 34,973 (May 16, 2002), *available at* http://www.sec.gov/rules/sro/34-45908.htm; Research Analyst Conflicts of Interest Orders, Exchange Act Release No. 34-48252, 68 Fed. Reg. 45,875, 45,877 (Aug. 4, 2003), *available at* http://www.sec.gov/rules/sro/34-48252.htm.

265.   Research Analyst Conflicts of Interest Orders, Exchange Act Release No. 34-48252, 68 Fed. Reg. at 45,878.

266.   Research Analyst Conflicts of Interest Orders, Exchange Act Release No. 34-45908, 67 Fed. Reg. at 34,970.

267.   *Id.*

termine the compensation of analysts.[268] Importantly, the rules do not prohibit brokerage firms from running both investment banking and research analyst businesses within the same corporate organization.[269]

At first glance, structural changes offer the promise of directly addressing the conflict-of-interest problem in analyst research. If cross-subsidies from investment banking business compromise the quality of sell-side analyst research, then regulators may simply prohibit brokerage firms to house both an investment banking division and a sell-side analyst division. Focusing regulations solely on eliminating conflicts of interest, however, is not a panacea. First, not all conflicts of interest are as easily prohibited as investment banking conflicts. Conflicts that involve large institutional investor clients of brokerage firms (versus other investors) are, for example, more difficult to prohibit.

Second, as discussed above, simply prohibiting conflicts of interest may leave sell-side analysts with no funding for their research.[270] The ultimate result of conflict-of-interest prohibitions, therefore, may be a reduction in the overall supply of analyst research. For larger companies with multiple analysts following the company, the prospect of brokerage commissions alone may lead at least some firms to continue to supply sell-side research. However, the loss of financing may lead analysts to drop coverage, particularly for smaller companies. The reduction of analyst-supplied research may then lead retail investors to turn to other, less informative and potentially more misleading sources of information.[271] In addition, institutional investors may expand the amount of in-house, buy-side analyst research they perform. More buy-side analysts in the face of reduced sell-side coverage will raise information disparities between institutional and retail investors, putting retail investors at a greater disadvantage.[272] Any solution that seeks to reduce or eliminate conflicts of interest must therefore also focus on the funding issue.

The following table details a comparison of analyst coverage for different size U.S. firms. To construct the table, I (together with Adam Pritchard) randomly sampled ten U.S. firms in each market-capitalization segment (based on market capitalization in December, 2005).[273] We then collected

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268.   *Id.*
269.   *See id.* at 34,970–71.
270.   *See supra* Part II. Anecdotal evidence exists that analyst coverage is dropping in the United States. *See, e.g.*, Joseph A. Giannone, *Wall St. Research Suffers Since Spitzer Deal*, NAT'L POST, Feb. 28, 2006, at FP10.
271.   *See supra* text accompanying note 14.
272.   Greater buy-side research may also result in duplicative research costs. Rather than having a more centralized source of research (sell-side analysts) providing research broadly to the market, dispersed buy-side research may result in a large number of in-house analysts at different institutions all racing with one another (and engaged in the same research effort) to become the first to uncover useful trading-related information on a public company. While privately valuable, this race may result in only a marginal increase in the speed with which the market learns of the new information and thus be socially wasteful.
273.   Adam Pritchard and I collected data for the table as part of our reports submitted to the Task Force to Modernize Securities Legislation in Canada in 2006. *See* TASK FORCE TO MODERNIZE

the number of analyst recommendations available for each company from I/B/E/S for December, 2005.

Table 1. Number of Analysts by Market Capitalization of Firm

Market Capitalization (in millions)	Average Number of Analysts
$1,000-$2,000	10.7
$900-$1,000	8.2
$800-$900	5.4
$700-$800	8.6
$600-$700	4.6
$500-$600	4.9
$400-$500	4
$300-$400	5.6
$200-$300	3.7
$75-$200	1.8
Overall	**5.8**

For companies with a market capitalization of under $700 million, corresponding to the cut-off for Well-Known Seasoned Issuer (WKSI) status,[274] the average number of analysts is less than five per company. The data in the Table open up the question of what minimum number of analysts is necessary for quality research. As discussed above, the empirical literature indicates that a correlation exists between a large number of analysts covering a company and increased analyst accuracy.[275] Several possible reasons exist for this relationship: perhaps larger firms have more analysts and larger firms tend to disclose more information voluntarily to the marketplace; competition among analysts keeps them on their toes; or analysts provide research which enriches the information environment, increasing the precision for all other analysts. In theory, two analysts in competition with one another may be enough to keep analysts honest in their research. However, for smaller issuers, analysts often choose to cover the firms only where the brokerage firm has some other relationship with the issuer (e.g., an investment banking relationship). Where conflicts exist, greater numbers of analysts may be necessary to ensure a competitive and relatively bias-free environment. The SEC set the WKSI threshold at $700 million based on an

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SECURITIES LEGISLATION IN CANADA, CANADA STEARNINGS-PER-SHARE UP (2006) (Can.), *available at* http://www.tfmsl.ca/#.

274. This definition is articulated in the rules promulgated pursuant to the Securities Act of 1933. 17 C.F.R. § 230.405 (2007).

275. *See supra* text accompanying notes 136–141.

implicit assumption that such companies have sufficient analyst coverage to ensure a rich information environment. As Table 1 shows, in both the United States and Canada, firms with a market capitalization of over $700 million have at least five analysts covering the firm (and generally more than seven analysts). Thus, it seems that the SEC views at least five (and more likely seven) analysts as the minimum number of analysts to ensure a rich information environment.

Particularly for smaller issuers, regulators may wish to consider providing a financing option coupled with any measure designed to reduce conflicts of interest. Regulators in the United States have largely ignored the problem of financing analyst research. One notable exception is the Spitzer settlement with ten Wall Street brokerage firms.[276] Under the terms of the Spitzer settlement, Wall Street firms agreed to set aside $432.5 million for independent securities analyst research for a period of five years.[277] During that five-year period, each Wall Street firm is required to contract with at least three independent research firms to provide securities research to customers of that firm and give an "independent consultant" the final decision-making authority in selecting the research firms.[278]

Any subsidy plan must take into account two issues: who should pay the subsidy and the magnitude of the subsidy; and how the subsidies should be distributed. First, consider who should pay the subsidy and what amount the subsidy should be. In theory, investors directly benefit from greater information flows to the extent they may make better-informed investment decisions. This will in turn reduce the risk facing investors in making an investment in any one company. However, investors may face a collective action problem in providing funding for analyst research.[279] The traded firms provide a possible collectivizing agent. Money taxed from each firm comes pro rata out of the wealth of the shareholders of the firms.

Precedent exists for taxing public companies for services provided for the benefit of shareholders. Securities exchanges fund themselves partly through listing fees imposed on listed firms.[280] Automatic Data Processing, Inc. (ADP) provides services relating to proxy voting (distributing proxy materials and collecting shareholder votes) in return for fees imposed on traded companies according to a rate schedule provided by the NYSE rules and approved by the SEC.[281] As established under the Sarbanes-Oxley Act,

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276.   Press Release, SEC, *supra* note 261.

277.   *See id.*

278.   *Id.*

279.   For example, an individual investor may choose not to provide money for research when the investor can instead free-ride on the payment by other investors for research.

280.   The NYSE charges a maximum original listing fee of $250,000 and a maximum continuing annual fee of $500,000. NYSE, Inc., Listed Company Manual § 902.02–.03 (2007) (formerly § 902.02 (2002)), *available at*
http://www.nyse.com/Frameset.html?nyseref=http%3A//www.nyse.com/regulation/listed/118250812442
2.html&displayPage=/lcm/lcm_section.html.

281.   *See id.* § 402.10(A); NYSE, Inc., Gen. R. 451.90, 465.20 (2003); *see also* Proxy Reimbursement 2002, 67 Fed. Reg. 15,444 (Apr. 1, 2002) (approving the NYSE's proposed proxy distribution rate

the Public Company Accounting Oversight Board in the United States is funded through a fee imposed on publicly traded companies.[282] The fee, moreover, varies in proportion to the market capitalization of the firms.[283] Regulators could also support analyst research through such a fee based on market capitalization. While beyond the scope of this Article, regulators could first set a fixed total amount of subsidy dollars—say $50 million per year. A pro rata fraction of this amount could be assessed from all firms with publicly traded stock above a cut-off market capitalization (say $100 million market cap). Regulators may then gradually adjust the fee over time as they gain experience on the degree to which conflict-of-interest prohibitions affect the overall coverage of analyst research.

Second, consider the question of how to distribute the subsidy dollars. Ideally, a central planner with perfect expertise would allocate analyst research dollars to their highest-value use (from the perspective of improving the information environment for investors). Investors face particularly weak information environments in smaller firms. Faced with the prospect of reduced cross-subsidies from the prohibition of selective disclosures and investment banking fees, analysts are likely to disproportionately reduce their coverage of small firms. Yet, not all small firms warrant analyst coverage. A firm that trades in an extremely illiquid market with only one transaction every month does not warrant the expenditure of resources in providing analyst research distributed out to the public marketplace. A central planner would have to determine which firms' investors, if they could act collectively, would pay for research and which firms investors would not pay. Even with this decision made, a central planner would then have to determine which analyst research firms should receive the subsidy.

Perhaps because of the daunting informational requirements of a subsidy program, regulators in the United States (outside of the Spitzer settlement) do not provide for an explicit subsidy program for analyst research. Simpler subsidy programs, nonetheless, are possible. Mandatory disclosure already acts as a subsidy for analyst research (and also reduces the overall societal need for such research). Outside of forcing issuers to provide more information, Jill Fisch and I have elsewhere made the argument that the market could be harnessed in determining where to allocate subsidy dollars through an analyst research voucher program.[284]

An even simpler subsidy approach is possible based on utilizing competitive forces. For example, regulators may divide publicly-traded compa-

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schedule).

282. *See* Sarbanes-Oxley Act of 2002 §§ 101–109, 15 U.S.C. §§ 77s, 78m, 7211–7219 (Supp. III 2003).

283. *See* 15 U.S.C. § 7219(d)(2) (Supp. III 2003) (stating that "[t]he rules of the Board under paragraph (1) shall provide for the equitable allocation, assessment, and collection by the Board (or an agent appointed by the Board) of the fee established under paragraph (1), among issuers, in accordance with subsection (g) of this section, allowing for differentiation among classes of issuers, as appropriate"); *id.* § 7219(g) (allocating support fees according to relative market capitalization).

284. Choi & Fisch, *supra* note 20.

nies into deciles by market capitalization. Then regulators could then establish a tournament, awarding a "prize" out of the subsidy fund of several million dollars to the top ten analysts in a particular market-capitalization decile. Such an award is likely to have only a minimal direct effect on the number of analysts covering the highest decile of largest firms. Nonetheless, the mere establishment of a tournament will have reputational effects that will give analysts a greater incentive to publish more accurate research for the largest firms. For smaller decile firms, such a tournament will both provide needed research dollars and give analysts greater incentives to provide research. Alternative tournaments are also possible. Regulators may establish a tournament for all firms in a particular sector where evidence exists that the analysts provide a disproportionately low amount of research in the sector. Regulators could also establish a tournament solely for the smallest firms, concentrating subsidy dollars on those public companies that presently have the least amount of research. To the extent that investors view the range of small companies as substitute investments for one another, such a grouping would lead to active competition among such analysts for both subsidy dollars and investor attention.

V. Conclusion

An easy solution to the problem of potentially biased analyst research exists. Regulators may simply ban conflicts of interest that affect analyst research or, in the extreme, prohibit all sell-side research from brokerage firms. The difficulty with eliminating conflicts of interest within brokerage firms is that the conflicts arise as a solution to a financing problem facing the broad dissemination of analyst research. Without conflicts of interest, investment banks will lose their incentive to subsidize sell-side research. In the absence of research, investors may turn to even more biased (and potentially fraudulent) sources of information on the Internet that may arise in the resulting vacuum. Alternatively, buy-side analysts may engage in greater levels of duplicative and wasteful research to fill the vacuum. Regulators must therefore consider measures that both reduce the problem of biased and conflicted research while also addressing the financing problem facing analysts to ensure that investors continue to receive an adequate amount of broadly disseminated investment research.

Focusing on specific regulatory measures, this Article makes three suggestions for lines of potential regulatory reform. First, the empirical literature indicates that much of the value analysts provide investors results not from information obtained independent of management, but rather from information obtained directly from covered firms. This Article suggests that regulators should consider increasing (incrementally) the scope of mandatory disclosure from covered firms as a means of reducing the "information gap" into which analysts now supply needed information to the market.

Second, disclosure on analyst quality has the potential of harnessing market forces to discipline analysts who, because of conflicts of interest and

other deficiencies, provide flawed research. This Article suggests that regulators have focused on the wrong types of disclosure. If the target audience consists of less-sophisticated investors, then regulators should require that analysts provide short, standardized, and relative comparison information (against other analysts) relating to "cues" on analyst accuracy. Regulators should focus on cues, such as prior analyst accuracy, that are relatively difficult for analysts to manipulate. Such cues will allow investors to digest easily the value of a particular analyst's reports, while utilizing competitive forces to give analysts an incentive not to end up at the bottom of the relative ranking.

Lastly, this Article suggests that regulators provide an alternative financing strategy to bolster the overall amount of research in the marketplace. Regulators may ease into a subsidy system for analysts with both relatively small subsidies and objective, tournament-based methods of distributing the subsidies using relative rankings based on cues relating to analyst accuracy. With experience and greater empirical evidence (such as the degree with which analyst coverage responds to the subsidy amounts), regulators may then adjust both disclosure- and subsidy-based regulations into the future.