

***Brokerage Recommendations:
Stylized Characteristics, Market Responses, and Biases***

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Introduction

The study of decision-making by security analysts, specifically the decisions by sell-side analysts to issue recommendations to buy, sell, or hold various stocks, provides evidence on some of the most fundamental questions in finance.¹ Among these are: Can analysts consistently predict winners and losers? If so, how quickly do prices incorporate the information value of these recommendations? Do investors' profits from these recommendations exceed transaction costs? Can analysts intentionally manipulate stock prices even temporarily from their equilibrium values? And perhaps most importantly, what does the evidence about analyst recommendations say about the efficiency of financial markets?

Not only do sell-side analysts through their recommendations attempt to predict and influence relative stock price movements in individual stocks and industries, but also they are important contributors to the underwriting arm of their investment banks, in many cases helping the investment bankers to secure new business through their knowledge of the target firm's industry and their reputation as a key opinion leader and valuation expert for the industry.

Sell-side analysts have come under fire from investors, politicians, and regulators in 2001 and 2002 for their perceived power in influencing investors' decisions and stock prices. The broad claim has been that analysts have been manipulative and insincere,

¹ "Sell-side analysts" are securities analysts employed by banks and brokerage firms. "Buy-side analysts" are those employed by institutional investment firms, such as pension funds, mutual funds, and insurance companies.

recommending stocks not necessarily because they expect them to be out-performers, but rather because doing so will increase the investment banking or trading profits of their firms, their compensation, or even their own personal investments. Largely motivated by angry investors reeling from technology stock losses, Congress held hearings titled “Analyzing the Analysts” in the summer of 2001. By early 2002, analysts again made front-page news, accused of contributing to massive losses experienced by Enron investors. Fifteen of seventeen analysts covering Enron were still recommending the company’s stock as a “buy” or “strong buy” just six weeks before its bankruptcy filing.² The analysts’ employers, the largest banks and brokerage houses, had received hundreds of millions of dollars in fees for lending, underwriting, merger and acquisition advice, and trading.³ In the spring of 2002, Merrill Lynch settled with the State of New York, agreeing to pay \$100 million in fines and change some research practices after analysts’ private emails, trashing the stocks of some companies they touted publicly, were disclosed.⁴ In the aftermath, several reforms have been proposed and enacted that may help to safeguard against some potential abuses. It is premature to opine on the effect of these reforms, but many investment professionals believe that the early reforms will be beneficial in enhancing the integrity of the markets.⁵

² *Wall Street Journal*, “Most Analysts Remained Plugged in to Enron”, October 26, 2001, page C1.

³ *Wall Street Journal*, “How the Street Greased Enron’s Money Engine”, January 14, 2002, page C1.

⁴ *Wall Street Journal*, “Merrill Lynch to Pay Big Fine, Increase Oversight of Analysts – New York Attorney General Wins \$100 Million Penalty; Emails Exposed Research”, May 22, 2002, page A1.

⁵ See Boni and Womack (2002a) for a further discussion of the developments that led to passage of new NASD Rule 2711 and amendments to NYSE Rule 472 on analyst research. See Boni and Womack (2002b) for a discussion of these new rules and insights from buy-side professionals.

The evidence is overwhelming that analysts' announcements of changes in recommendations have significant market impacts, affecting the prices of individual stocks not just immediately but for weeks after the announcement. However, we also document that errors in analysts' judgments are systematically biased, particularly when their judgments are challenged by conflicting agency and incentive problems like selling and underwriting relationships.

Analysts' recommendations, which attempt to forecast relative stock prices, typically are made in two ways: they *anticipate* changes in company fundamentals in some recommendations or they *react* to new news or company reports (e.g. earnings reports) in others. Womack (1996) found that about 12% of recommendation changes were within one day of a quarterly earnings report in the 1989-1991 time period. With the implementation of Regulation Fair Disclosure ("Reg. FD") in October 2000, it is possible (and an interesting question for future research) that an even larger proportion of recommendation changes are likely to be reactions to "official" company news.

Most, if not all, empirical research finds that on average, the market reacts favorably to a positive change in recommendation and has a negative reaction to a drop in recommendation. These market reactions to brokers' announcements of changes in the level of recommendations are quite substantial. For example, Womack (1996) reports that the average return in the three-day period surrounding changes to "buy", "strong buy" or "added to the recommended list" was 3%. This compares to new "sell" recommendations where the average reaction is even larger at about -4.5%.

Investors transact vigorously in response to recommendation upgrades or downgrades whether or not they are coincidental with other corporate news. Thus, they have important *perceived* information content. **Figure 1** shows that for the average recommendation upgrade from a top-15 brokerage firm, the volume approximately doubles, relative to an average day's volume. For recommendation downgrades (e.g. from "buy" to "hold"), volume on average triples.

[**Figure 1** about here]

In the 1980s and earlier, recommendation changes were essentially private or quasi-private information: there was no easy way for investors who were not customers of the brokerage firm making a new pronouncement to become aware of the news. However, over the last decade, it has become easier for investors to become aware of most recommendation changes in a timely manner. There are web sites that accumulate this news, so that even investors that are not customers of the brokerage firm making the change can be informed of the fact of a recommendation change within a few hours of its transmittal. The text and reasons supporting the recommendation are less available for non-customers.

If the only significant empirical results were event period returns in the direction recommended by analysts, one might (and probably should) conclude that the market is quite efficient in reacting to the new brokerage information. However, there is also evidence that stock prices of recommended companies continue to drift in the direction recommended by analysts for one to several months after the recommendation change announcement. Womack (1996), for example, finds that for new buy recommendations,

the one-month excess return beginning on the third day after the recommendation is more than 2 percent. Extending the time frame beyond one month shows that the excess return drift ends after about 6 weeks.

Market reactions to *removals* of buy recommendations are also quite significant. The initial excess return is about -2% , with the subsequent 6-month period return ranging from -2 to -5 percent. In other words, markets, on average, respond at least as much if not more to the negative reports.

While the frequency of sell recommendations is low, their value to investors is even greater than for buy recommendations. The initial reaction by the market to the news of a new sell recommendation is, on average, large and negative. Depending on the benchmark used, stocks given “sell” by analysts average a decline 4 to 5% in the three-day window around the announcement. Even more significant, however, is the post-event decline. Depending on the benchmark used, stocks with new sell recommendations declined an additional 5 to 9% on average over the six-month period after the event.

There is also clear evidence that analysts are biased: the buy-to-sell recommendations ratio was about 10-to-1 up to the early 1990s but even more skewed thereafter. There is evidence that analysts’ recommendations are over-optimistic in general (Rajan and Servaes, 1997) and in particular when the brokerage house they work for has investment banking relation with the firm they recommend (Michaely and Womack, 1999).

In this chapter, we will assess the informational inputs and outputs of analysts, drawing the conclusion that the recommendations that analysts provide investors have

modest investment value, at least in the short term of several weeks or months after the recommendations are out (not counting for transaction costs). The accumulated evidence also makes it clear that sell-side analyst recommendations are biased, and that investors may not recognize the full extent of the bias.

The rest of this chapter is organized as follows. We first explain why the study of analysts' recommendations provides one of the purest tests of market efficiency. We then describe the sell-side research environment, analysts' incentives and several stylized facts about the stocks they tend to follow. Section 3 reviews the literature on the short and long-term market reaction to analysts' recommendations. Section 4 is devoted to the literature on analysts' biases, and Section 5 concludes.

Market Efficiency and the Investment Value of Recommendations

If markets are efficient, can anyone consistently forecast which stocks to buy or sell? Analyst recommendations offer one of the purest tests of whether investment "skill" exists. Security analysts are usually industry specialists. They typically cover between 5 and 25 stocks. They regularly have a portion of the stocks they follow on their "buy list" as well as maintain a quasi-numerical rating of all stocks within their followed universe. A significant aspect of their job is to update the relative valuation of the stocks they follow and transmit this information to their customers. It seems clear that this level of specialization qualifies them as "informed investors" in the Grossman (1976) sense if indeed informed (non-insider) investors exist. Thus, there is a reason to believe that analysts' efforts to become informed lead to corresponding superior performance of the

stocks they recommend. In equilibrium, with enough analysts, the marginal costs of gathering and obtaining this information should be equal to its marginal benefit, or the rent analysts receive. Those rents may be a function of the success of their recommendation, although there may be other yardstick which will be discussed later).

The empirical results suggest that excess returns are somewhat predictable. Controlling for the market and industry in various ways, research shows that investors can earn abnormal profits (before transactions costs) by transacting at the time of recommendation changes. It is an unresolved question what an optimal trading strategy is for using brokerage information and how much of these excess returns are “given back” in transactions costs.

As discussed in the following sections, investors who react to analyst recommendations most quickly can expect, on average, to earn the greatest abnormal profits. Interestingly, prices continue to drift for weeks or months in the direction of analyst recommendation. Are financial markets inefficient in incorporating the value of changes of recommendations? Perhaps an even more important question is whether analysts, through recommendations, can intentionally manipulate stock prices? Throughout the remainder of the chapter, we address these questions, examining the evidence on biases in analyst recommendations and discussing the conflicts of interest that potentially motivate these biases. We also examine whether investors are able to recognize the bias in analyst recommendations when conflicts of interest exist.

The Sell Side Research Environment and Some Stylized Facts

A. The Mechanics of Delivery of Sell-Side Recommendations to Customers

Recommendations are not the only informational output analysts provide for investing clients; in fact, they are only one of the products of an extensive analysis that includes building pro forma valuation models, forecasting future earnings, cash flows and price targets. Hence, even though this chapter will not review the literature on earnings estimate projections by analysts in depth, that function and its literature precede and share common themes with the research on recommendations discussed here.

Brokerage analysts (“sell-side” analysts) distribute reports such as “buy” recommendations to investors. These provide external (“buy-side”) customers with information and insights into particular companies they follow. Most analysts focus on a specific industry, although some are generalists, covering multiple industries or stocks that do not easily fit into industry groupings.

The analyst’s specific information dissemination tasks can be categorized as 1) gathering new information on the industry or individual stock from customers, suppliers, and firm managers; 2) analyzing these data and forming earnings estimates and recommendations; and 3) presenting recommendations and financial models to buy-side customers in presentations and written reports.

The analyst’s dissemination of information to investment customers occurs in three different time circumstances: urgent, timely, and routine. The result is the main “information merchandise” that is transmitted to customers on a given day. An urgent

communication may be made following a surprising quarterly earnings announcement or some type of other corporate announcement while the market is open for trading. In this case, the analyst immediately notifies the salespeople at the brokerage firm, who in turn call customers who they believe might care (and potentially transact) on the basis of the change. Once the sales force is notified, the analyst may directly call, fax, or send e-mail to the firm's largest customers if the analyst knows of their interest in the particular stock.

Less urgent but timely information is usually disseminated through a morning research conference call. Such conference calls are held at most brokerage firms about two hours before the stock market opens for trading in New York. Analysts and portfolio strategists speak about, interpret, and possibly change opinions on firms or sectors they follow. Both institutional and retail salespeople at the brokerage firm listen to this call, take notes, and ask questions.

After the call, and usually before the market opens, the salespeople will call and update their larger or transaction-oriented customers (professional buy-side traders and portfolio managers) with the important news and recommendation changes of the day. The news from the morning call is duplicated in written notes, and released for distribution to internal and external sources such as *First Call*. Important institutional clients may receive facsimile transmissions of the highlights of the morning call from many different brokerage firms.

Thus, the "daily news" from all brokerage firms is available to most buy-side customers, usually well before the opening of the market at 9:30 AM. The information is

sometimes retransmitted via the Dow Jones News Service, Reuters, CNNfn, or other news sources when the price response in the market is significant.

The importance and timeliness of the “daily news” varies widely. One type of announcement is a change of opinion by an analyst on a stock. New “buy” recommendations are usually scrutinized by a research oversight committee or the legal department of the brokerage firm before release. Thus, a new added-to-buy recommendation may have been in the planning stage for several days or weeks before an announcement. Sudden changes in recommendations (especially, removals of “buy” recommendations) may occur in response to new and significant information about the company. Womack (1996) shows that new recommendation changes, particularly “added to the buy list” and “removed from the buy list”, create significant price and volume changes in the market. For example, on the day that a new buy recommendation is issued, the target stock typically appreciates 2 percent or more, and its trading volume doubles.

For routine news or reports, most of the items are compiled in written reports and mailed to customers. At some firms, a printed report is dated several days after the brokerage firm first disseminates the news. Thus, smaller customers of the brokerage firm who are not called immediately may not learn of the earnings estimate or recommendation changes until they receive the mailed report.

More extensive research reports, whether an industry or a company analysis, are often written over several weeks or months. Given the length of time necessary to prepare an extensive report, the content is typically less urgent and transaction-oriented.

These analyst reports are primarily delivered to customers by mail, and less often cause significant price and volume reactions.

B. Sell-Side Security Analysts' Compensation, Incentives, and Biases

An important aspect of the recommendation environment is sell-side security analysts' compensation, since a significant portion of it is based on their ability to generate revenue through service to the corporate finance arm of the investment bank.

At most brokerage firms, analyst compensation is based on two major factors. The first is the analyst's perceived (external) reputation. The annual *Institutional Investor* All-American Research Teams poll is perhaps the most significant external influence driving analyst compensation (see Stickel, 1992). All-American rankings are based on a questionnaire asking over 750 money managers and institutions to rank analysts in several categories: stock picking, earnings estimates, written reports, and overall service. Note that only the first two criteria are directly related to accurate forecasts and recommendations.

The top analysts in each industry are ranked as first, second, or third place winners or (sometimes several) runner-ups. Directors of equity research at brokerage firms refer to these results when they set compensation levels for analysts. Polls indicate that analysts' being "up to date" is of paramount importance. The timely production of earnings estimates, buy and sell opinions, and written reports on companies followed are also key factors. Polls also indicate that initiation of timely calls on relevant information is a valuable characteristic in a successful (and hence, well-compensated) analyst.

An analyst's ability to generate revenues and profits is a very significant factor in his or her compensation. An analyst's most measurable profit contribution comes from involvement in underwriting and merger deals. Articles in the popular financial press describe the competition for deal-making analysts as intense. Analysts who help to attract underwriting for clients have in the past received a portion of the fees or, more likely, bonuses that are several times those of analysts without underwriting contributions. The distinction between vice president and managing director (or, partner) for analysts at the largest investment banks has been highly correlated with contributions to underwriting fees (see Galant [1992], and Raghavan [1997], and Dorfman [1991]). Despite recent reforms designed to eliminate or moderate compensation for analysts directly tied to investment banking fees, Boni and Womack (2002a) suggest that it will be quite difficult to devise a compensation scheme where the implicit incentive to report more positively on more highly profitable investment banking transactions will be subverted.⁶ The reality is that commissions from trading do not cover the cost of research departments completely. Some estimates put the subsidy from investment banking towards research department costs at higher than 50%.

Another potential source of revenues, commissions generated by transactions in the stock of the companies the analyst follows, may also be a factor in the analyst's compensation. It is difficult, however, to define an analyst's precise contribution to trading volume. There are many other factors, including the trading "presence" of the

⁶ Several brokerage houses such as Merrill Lynch, recently announced that in the future, their analysts' compensation would be independent of their contribution to the revenue stream of the investment banking division.

investment bank that affect it. Moreover, customers regularly use the ideas of one firm's analysts, but transact through another firm. For institutional customers, this is the rule rather than the exception. In the short run, institutional "buy-side" customers seek out the most attractive bids and offers independently of analysts' research helpfulness. Over a quarter or a year, the allocation of commission dollars among brokerage firms is more closely tied to research value-added, but it is important to emphasize that a brokerage firm putting out a new research recommendation will not typically garner even a majority of the immediate transaction volume in the stock it recommends.

C. Cross-Sectional Characteristics of Recommended Stocks

What are the characteristics of stocks that analysts follow and recommend? First, there is a large capitalization bias in the stocks followed and recommended by sell-side analysts. Using size decile cutoffs on the NYSE/AMEX CRSP files, Womack reports that 57% of recommendations by the top 14 brokers are on stocks in the top two capitalization deciles while only 1% of recommendations are on stocks in the bottom two size deciles. This is to be expected if analysts are producing research that caters to investors' needs, since investors by definition own larger holdings in large cap stocks and also because institutional investors face severe trading costs and constraints in smaller stocks and thus would be less likely to own them.

Jegadeesh et al (2002) document that analysts tend to prefer growth stocks with glamour characteristics. Specifically, stocks with high positive price momentum, high volume, greater past sales growth, and higher expected long-term earnings growth rates

are given more positive recommendations by analysts. Thus, ironically, analysts typically favor growth firms that are over-valued according to traditional valuation metrics. Even more importantly, they show that the most valuable recommendations *ex post* are those with positive changes in the recommendation consensus level combined with favorable quantitative characteristics (i.e. value stocks and positive momentum stocks).

Welch (1999) shows that analysts' recommendations are influenced by the recommendations of previous analysts. In effect, analysts "herd" on short-lived information in the most recent analysts' recommendation revisions. Presumably, it is not surprising that in stocks where there might be a 20- to 30-analyst following, that analysts' opinions would be positively correlated.

Do Analysts' Recommendations Provide Investment Value?

A. Recommendations Research in the 1980s and Earlier

The fundamental question of whether "experts" can beat the market has attracted much attention from very early on. Alfred Cowles, a pioneering economist at Yale, wrote a study in 1933 titled, "Can Stock Market Forecasters Forecast?" In it, Cowles documents that 20 fire insurance companies and 16 financial services attempted to "forecast the course of individual stock prices" during the time period January 1928 to July 1932. His conclusion was that the recommendations of most analysts did not produce abnormal returns. Naturally, we know with hindsight that this was a particularly

difficult period in the stock market that included the great crash of 1929 and that, at that time, there was not a good understanding of benchmarking investments relative to risk incurred . Hence, it may be that Cowles' computations showing underperformance by the "experts" were incorrect and misstated the risks of recommended stocks relative to the simple benchmark of the market index that he used.

After Cowles, the research on analysts' recommendations in academic outlets was essentially non-existent until the 1960s and 1970s. In those decades, several papers attempted to quantify the value of tips or recommendations given by analysts or other sources. Colker (1963) tried to measure the "success" of recommendations in the Wall Street Journal "Market Views—ANALYSIS" section from 1960 and 1961 using the SP425 as a market benchmark. He found that those recommendations slightly outperformed the market but concluded "either the state of the art does not permit professional securities dealers to translate their financial acumen into an impressive degree of prophecy, or their best projections do not become public knowledge."

Logue and Tuttle (1973) examined the recommendations of six major brokerage firms in 1970 and 1971 using *The Wall Street Transcript*, which at that time was a comprehensive source. They found that "brokerage house recommendations did not lead to the kind of superior investment performance that one might have expected given the cost of obtaining such recommendations." Interestingly, they did find that "sell" advice was more valuable in that those stocks underperformed the market significantly after 3 and 6 months. This is a common theme that will be addressed further.

Bidwell (1977) used a beta-adjusted benchmark on the recommendations of 11 brokerage firms, and found that using recommendations produced no superior investment results. Groth, et. al. (1979) analyzed the complete set of recommendations by one firm from 1964 to 1970 and found, interestingly, that there was much more excess return *prior* to a positive recommendation than after one.

Yet, until the 1980s, it was difficult for researchers to test the essential idea in a systematic and unbiased way. First, without comprehensive databases, finding representative samples that were not biased by survivorship or availability biases was difficult. Second, the issue of the appropriate benchmarking of stocks relative to their fundamental risks was being rapidly developed through the decade of the 1990s, so that, even if the samples were legitimate and unbiased, it was hard to know whether tests failing to reject the null hypothesis of market efficiency were bona fide results or failures to benchmark appropriately.

Two significant papers on analysts' recommendations stand out as noteworthy in the decade of the 1980s. Dimson and Marsh (1984) gathered through a UK investment manager a substantial dataset of unpublished stock return forecasts made by the major UK brokerage houses. One of the benefits of this study was the lack of ex post selection bias because the decision to undertake the research was made before the data were collected and analyzed. They collected 4,187 one-year forecasts on 206 UK stocks made in 1980-1981 by 35 brokers. The analysis was not an event study per se but a measurement of the correlation between forecast return and actual return. Dimson and Marsh's findings suggest that analysts were able to distinguish winners from losers, albeit with some amount of overconfidence. The forecast returns of quintiles were -10, -1, 3, 8,

and 18 percent while the actual returns were -3.6 , 0 , 1 , 4.4 and 4.5 percent. Hence, brokers, while directionally correct, had a tendency to exaggerate in the sense that high forecasts tended to be over-estimates and low forecasts tended to be under-estimates.

Elton, Gruber and Grossman (1986) examined an extensive database comprising 720 analysts at 33 brokerage firms from 1981 to 1983. They chose to focus predominately on larger capitalization stocks by eliminating stocks where there were not at least 3 analysts following the company. The data were sell-side analysts' end-of-the-month ratings on a 1 to 5 scale. Not surprisingly, 48% of the ratings were buys (1's or 2's) while only 2% were sells (5's). Approximately 11% of ratings changed each month.

The important analysis in Elton, Gruber, and Grossman (1986) focused on changes each month to a new rating from a lower ("upgrades") or a higher ("downgrades") one. Upgrades, especially to the most favorable category ("1"), resulted in significant (beta-adjusted) excess returns of 3.43% in the month of the announcement plus the next two. Downgrades (to "5" or "sell") resulted in negative excess returns of -2.26% . While the analysis of Elton, Gruber, and Grossman is large scale and beta-adjusted, a potential weakness of the work is its use of only calendar monthly returns. If markets respond rapidly to new information, it is not clear from looking at monthly returns what the actual response to the recommendation change is, and what other relevant information like earnings releases might have occurred in the same month. By not using daily returns, the power of the tests to determine the response to the information in recommendation changes (as opposed to other information) was diluted.

B. New Dimensions in Analyzing Recommendations in the 1990s and Beyond

Using more comprehensive databases and careful empirical analysis Stickel (1995) and Womack (1996), were able to provide new insights about the sell-side recommendations environment. The benefits of these newer studies in the 1990s were several fold.

First, the analyses identified more precisely the dates of the recommendation changes and used daily returns to increase the precision of the results. The earlier comprehensive papers, by Elton, Gruber, and Grossman (1986) and Dimson and Marsh (1984), used calendar-month return data. Monthly data obscured the precise market response to brokerage information versus other contaminating information releases. Another benefit of the 1990s studies was the combining of other information into the event studies, for example, including earnings release dates and cross-sectional characteristics of the firms and analysts making the recommendations.

Stickel (1995) used a large database of about 17,000 recommendation changes from 1988-1991. His database, supplied by Zacks Investment Research, obtained recommendation changes by attempting to collect recommendation information from the various brokerage firms. The weakness of that database in that particular time frame (1988-1991) was that the precise day of the recommendation change was not always well identified. It appears that often the dates identified as changes in Zacks were a few days to a week or more after the actual informative announcement. In an environment in which full information is impounded into stock prices over approximately 4 to 12 weeks, an error of a week or more in reporting the “date” of the recommendation change can

cause several improper inferences. The approach taken by Womack (1996) to correct the dating problem was to search a different real-time database, *First Call*, for all “comments” by the 14 most prominent U.S. brokers and then to scan using key-word searches to identify all recommendation *changes* to and from “buy” and “sell”. In that way, he specifically identified the date and time of brokerage announcements. Earlier studies, for example, Bjerring, Lakonishok, and Vermaelen (1983), were tainted by ex post selection bias, where the data source (a broker) agreed after the fact to allow its data to be analyzed. One of First Call’s advantages was no possibility of hindsight bias since it was captured in real time each day as the brokerage firms submitted it. The potential weaknesses of Womack’s approach were (1) that the database he collected was several times smaller than Stickel’s (1,600 vs. 17,000 recommendation changes), (2) his time series was about half as long as that of Stickel (18 months for most of the sample), and (3) he focused on the largest 14 firms that potentially had larger responses to their new information than smaller brokers.

Correspondingly, the benefits of Womack’s approach were (1) precision in identification of the correct dates of changes in recommendations and (2) higher confidence that the information events analyzed were available to and regularly used by professional investment managers (since most prominent investment managers would have brokerage relationships with most or all of the 14 brokers analyzed).

Finally, newer techniques of benchmarking using Fama-French factors and industry-adjusted returns were used by Womack and later papers to adjust more appropriately for risk and allow a more thorough analysis of the return characteristics of stocks recommended.

Consistent with previous studies, Womack (1996) reports that the average return in the three-day period surrounding changes to “buy”, “strong buy” or “added to the recommended list” was over 3%. A stock that was added to the “sell” recommendation list experience, on average, a price drop of 4.5%. Perhaps more importantly, Womack reports a positive price drift for up to three months after positive changes in recommendations, and negative price drifts after downgrades in recommendations. Using size-adjusted, industry-adjusted, and the Fama-French three factor models, he finds that for new buy recommendations, the one-month excess return (beginning on the third day after the recommendation is made) is more than 2 percent. The post-3-month excess returns are roughly the same as the post-1-month. Obviously, these numbers are *averages* across many recommendations and do not reflect any one actual recommendation. Individual stock returns (even excess returns) are quite volatile: the average one-month post-event return of 2% has a standard deviation of about 8%. Therefore, if these returns repeat in future periods, to implement an excess return trading strategy would require a portfolio approach. A randomly chosen recommended stock has about a 40% chance of *underperforming* its benchmarks over the post-event one or three month periods. Only in larger portfolios have the averages of abnormal performance been consistently positive.

The long-term drift after sell recommendation is negative and highly significant. The average decline is somewhere between four to nine percent (depending on the benchmark used) over the six months period after the recommendation is made.

Womack (1996) makes two additional observations. First, the post-event excess returns are not mean-reverting. That is, the market appears to move in the direction

predicted by the analysts, and this does not appear to be temporary price pressure that corrects after a few weeks or months. Second, Womack (1996) goes on to decompose the excess returns into industry and stock-specific portions. He finds that pessimistic recommendations (added-to-sell and removed-from-buy types) are aided by significant industry underperformance in the post-event period. The results suggest that the positive post-event excess returns following new buy recommendations however are not primarily an industry effect but rather stock specific abnormal returns.

Barber, Lehavy, McNichols, and Trueman (2001) provide evidence on the profitability of analyst recommendations using specific strategies and imputed transactions costs. Whereas the Stickel and Womack papers primarily analyze event-time returns, Barber, et. al. focus on a calendar-time perspective. Specifically, they analyze whether changes in the consensus rating (the average across all analysts following a particular stock) provides returns that are sufficient to justify the transactions costs to capture those returns.

The main finding of the paper is that, controlling for Fama-French and momentum factors, the most highly recommended stocks earn a positive alpha of over 4% per year while the least favorably recommended stocks earn a negative alpha of almost 5% per year. As in Womack (1996), the results are most pronounced for small firms.

However, Barber, et. al. show that these returns are very time sensitive. For investors who react after two weeks (as opposed to daily), the excess returns are about half as large and not reliably different from zero. Naturally, when one attempts to trade on the information content of recommendations, transaction costs should also be

accounted for. Barber, et al suggest that very frequent rebalancing (and the associated high transactions cost) is crucial to capturing the excess returns. They claim that under the assumption of daily rebalancing of the buy and sell portfolios, the turnover would be in excess of 400 percent annually. Less frequent rebalancing leads to lower turnover but also lower excess returns. Their conclusion is that the semi-strong form of market efficiency is probably not violated by analysts' information. In essence, the study supports the implications of the earlier studies that the market significantly responds to analyst information, but that the value of that information to investors decays rapidly over 4 to 6 weeks for buy recommendations and somewhat longer for sell recommendations. Whether portfolio strategies based on analysts' recommendations can outperform their benchmark after transaction costs is still an open question.⁷

In the past several years (particularly since 1997) many brokerage houses issued price target forecasts in addition to recommendations. Target prices are available for about 90% of firms, in terms of market value. These are prices research analysts project those firms to have a year out. A natural question is whether those target prices provide information over and above recommendations. In a recent paper, Brav and Lehavi (2002) address this issue. Using recommendations and target prices data from 1997-1999, they document a significant market reaction to changes in target prices. For the group of stocks with the largest change in target price (relative to current price), they document a

⁷ The sensitivity to the time period is best illustrated by the following example: During the year 2000 the stocks least favorably recommended by analysts earned an annualized market-adjusted return of 48.66 percent while the stocks most highly recommended fell 31.20 percent, a return difference of almost 80 percentage points. As Barber et al (2002) concludes: "the year 2000 was a disaster". (See Barber et al (2002) for a more detailed description.)

price reaction of around 2%. For those with a negative revision in the target price, the market reaction is negative but the magnitude is a lower, though both are significant.

Consistent with prior studies, Brav and Lehavy document a positive price drift of around 3% for the 6-month period following recommendation upgrades. Perhaps more interestingly, they show that price drifts are almost twice as high when stocks receive both an upgrade and are in the category of “most favorable price revision”. Thus price targets have information content beyond what is contained in recommendations. The excess positive price drift associated with favorable price revision placement suggests that the market fails to recognize the full value of this information.

Another related question is whether the speed of adjustment to analysts’ comments and recommendations depend on the type of audience and distribution method. Presumably, if recommendations are disseminated through mass media, such as newspapers or television, their price impact should be more immediate. Barber and Loeffler (1993) examine the impact of analysts’ recommendations as they appeared in the Dartboard column in the Wall Street Journal. On the publication day, they find a significant price impact of over 4% for the pros’ picks, and no price impact for the Dartboard stocks. Likewise, the trading volume for the pro’s picks is highly significant (80% above normal trading volume), but no abnormal trading for the Dartboard’s picks. Barber and Loeffler also report that after 25 days, some of the abnormal return reverses itself, but that at least a portion of the impact is still visible even a month after the recommendation. The Dartboard column, which ran in the WSJ for 14 years and ended in 2000, pitted a randomly chosen group of stocks against individual picks of experts for 142 six-month contests. All in all, the pros came out ahead, with a semi-annual average

return of 10.2%. The darts managed just a 3.5% six-month gain, on average, over the same period, while the Dow industrials posted an average rise of 5.6%. The pros beat the Dow in 53% of the contests. Despite the obvious biases (e.g., pros tend to chose riskier portfolios), this evidence seem to suggest that there is some value in investment research, though it is not clear whether investors can devise a trading strategy that can capitalize on it; accounting for transaction costs.

Busse and Green (2002) examine the impact of analysts' views about individual stocks that are broadcast when the market is open on CNBC Morning Call and Midday Call segments. They find that stocks discussed positively experience a statistically and economically significant price impact beginning seconds after the stock is first mentioned and lasting approximately one minute. The response to negative reports is more gradual, lasting 15 minutes, perhaps due to the higher costs of short selling. Overall, the price response pattern is similar to the pattern of abnormal performance in work on traditional analyst recommendations, such as Womack (1996), only measured in minutes instead of days or months.

C. Research About Non-Brokerage Recommendations

Empirical research often tends to be constrained by the availability of data. In that regard, before the 1990s, it was difficult to assemble a brokerage database that was not

tainted with single firm, hindsight or lookback biases.⁸ Therefore, not surprisingly, other easier-to-access data sources were used to examine issues similar to brokerage recommendations.

Value Line was the world's largest published advisory service in the 1970s and 1980s. It provided a convenient source of data in that it ranked 1700 stocks on a "1" (most attractive) to "5" (least attractive) with possible ranking changes occurring each week. A study by Black (1971) indicated significant positive abnormal performance of stocks ranked "1" and "2" and negative abnormal performance of stocks ranked "4" and "5". The results were very significant and appeared to be a convincing violation of semi-strong-form efficiency. Copeland and Mayers (1982) re-analyzed a longer time series of Value Line data and came to the same conclusion, albeit with lesser economic significance. They find, depending on the market model benchmark used, roughly 1.5% outperformance for "1"s and 3% underperformance for "5"s over a six-month time horizon after ranking changes. Over a one-year time frame, stocks ranked "1" outperformed stocks ranked "5" by 6.8%. Stickel (1985) re-examined the Value Line results in short-run event studies, and observed that while there were modest returns available to investors in the first few days after the "announcement" date, the ranking upgrades and downgrades were a response to large stock price movements previous to the change dates. He also showed, not surprisingly, that smaller market capitalization companies responded more vigorously to the ranking changes. In fact, abnormal returns in approximately the top quartile were not necessarily above transactions costs necessary

⁸ Bjerring, Lakonishok, and Vermaelen (1983) is one example of a single brokerage firm's attempt to beat

to earn the returns. Stickel reports that stocks with significant abnormal returns at the event day continue to move over a multiple day period, but he does not concentrate on this issue.

The weakness of the Value Line studies is that while it is not a brokerage firm per se, its ranking scheme is a singular process. Should it be generalized? Might there be even better processes? In the 1990s, as other (especially on-line) databases have become available, research effort expended towards Value Line has waned.

The Trouble with Sell-Side Analysts: Biases in Recommendations

A. The Sell-Side Environment: The Many Hats of Brokerage Analysts

Investment banks traditionally have had three main sources of income: (1) corporate financing, the issuance of securities, and merger advisory services; (2) brokerage services; and (3) proprietary trading. These three income sources may create conflicts of interest within the bank and with its clients. A firm's proprietary trading activities, for example, can conflict with its fiduciary responsibility to obtain "best execution" for clients. One of the potentially more acute conflicts of interest occurs between a bank's corporate finance arm and its brokerage operation. The corporate finance division of the bank is responsible primarily for completing transactions such as initial public offerings (IPOs), seasoned equity offerings, and mergers for new and current clients. The brokerage operation and its equity research department, on the other hand, are motivated

the market.

to maximize commissions and spreads by providing timely, high-quality--and presumably unbiased-- information to their clients. These two objectives may conflict.

Many reports in the financial press also suggest that conflicts of interest in the investment banking industry may be an important issue and have a potentially significant effect on the analyst's job environment and recommendations. For example, according to a story appeared in *The Wall Street Journal* on July 13, 1995, Paine Webber allegedly forced one of its top analysts to start covering Ivax Corp., a stock that it had taken public and sold to its clients. According to the story, the "stock was reeling and needed to be covered." In another story, on February 1, 1996, the *Wall Street Journal* reported that the attitude of the investment bank analysts toward AT&T was a major factor in AT&T's choice of the lead underwriter of the Lucent Technologies IPO.

One source of conflict lies in the compensation structure for equity research analysts. It is common for a significant portion of the research analyst's compensation to be determined by the analyst's "helpfulness" to the corporate finance professionals and their financing efforts (See, for example, *The Wall Street Journal*, June 19, 1997: "All Star Analysts 1997 Survey."). At the same time, analysts' external reputations depend at least partially on the quality of their recommendations. And, this external reputation is the other significant factor in their compensation.

When analysts issue opinions and recommendations about firms that have business dealings with their corporate finance divisions, this conflict may result in recommendations and opinions that are positively biased. A Morgan Stanley internal memo (*Wall Street Journal*, July 14, 1992), for example, indicates that the company takes

a dim view of an analyst's negative report on one of its clients: "Our objective . . . is to adopt a policy, fully understood by the entire firm, including the Research Department, that we do not make negative or controversial comments about our clients as a matter of sound business practice." Another possible outcome of this conflict of interest is pressure on analysts to follow specific companies. There is implicit pressure on analysts to issue and maintain positive recommendations on a firm that is either an investment banking client or a potential client.

Thus, the working environment and the pay structure can lead to several distortions (relative to a perfect world without conflict of interests). First, analysts may be encouraged to cover in a positive way some firms that they would not cover otherwise. In the same vein, they would also be encouraged not to issue negative opinions about firms. Issuing negative recommendations is likely to reduce their access to information from the company, and at the same time may negatively affect the ability of their investment banking firm to do business with that company in the future. The outcome of these pressures is the optimism bias. This optimism bias is an outcome of conflict of interest between the principle (the investing public) and the agents (the investment bank in general and the research analysts in particular).

This optimism bias manifests itself in analysts' reluctance to issue sell-recommendations. Indeed we have observed a ratio of 10 buy recommendations to 1 sell recommendation throughout the 1980s and an even higher ratio in the 1990s. It also may manifest itself in generally over-optimistic forecasts of earnings, recommendations and price targets. There are substantially more "buy" recommendations than "unattractive" or "sell" recommendations. Stickel (1995) states that 55 percent of recommendation changes

move to “buy” or “strong buy” in the 1988 to 1991 period. Barber, et. al. (2001) reports that 53 percent of recommendations are in the “buy” and “strong buy” categories in the larger period from 1985 to 1996. Only 3 percent of recommendations recorded by Zacks in the same period are coded “sell”.

In a comprehensive study, Chan, Karceski and Lakonishok (2002) examine the relation between analysts’ forecasts of earnings’ growth rates and realized growth rates. They report evidence of consistent over-optimism by analysts. For example, over the period 1982 to 1998, the median of the distribution of IBES growth forecasts is about 14.5 percent while the median realized five-year growth rate for income before extraordinary items is about nine percent. This result is even more pronounced for those stocks with high past earnings’ growth: the median forecast growth is 22.4 percent, much higher than the median realized growth rate, which is only 9.5 percent.

Rajan and Servaes (1997) examine analysts’ optimism bias and its potential effect on the market in the context of IPOs. They find that analysts at the time of the IPO systematically over-estimate the future earnings of these firms. They also find that the extent of this over-optimism increases as the length of the forecast period increase. The result is that analysts are overly optimistic in general and even more overly optimistic about the firm’s long-term prospects. Rajan and Servaes also relate the extent of the over-optimism to stock price performance. They find that firms with the highest projected growth significantly under-perform their benchmarks. Firms with the lowest growth

prospect significantly outperform their benchmark. This is an important finding, as it indicates that investors tend to believe those inflated forecasts and act on them.⁹

Another way to examine the potential bias in analysts' recommendation is through their forecast of price targets. Brav, Lehavy and Michaely (2002) compared the consensus price target estimate of sell-side analysts to the forecast of price target of Value-line service, an independent research provider. During the years 1997 to 2001, after controlling for risk factors, the sell-side analyst consensus was on average 14% higher than that of Value-line. This evidence suggests that the bias not only exists, but that it is also more acute for sell-side analysts than for independent analysts.

This overall optimism bias may be particularly acute during periods when corporations are selecting banks to assist them with borrowing, mergers and acquisitions, and seasoned offerings. Under these circumstances, analysts whose firms are bidding for a corporation's financing business have greater incentives than other analysts to boost that company's stock.

There is another possibility for this optimism bias. And that reason has its roots in heuristics and cognitive biases. It is possible that analysts genuinely believe that the firms they underwrite are better than other firms. In fact, history (or research) is not likely to change their priors. They strongly believe in their recommendations.

⁹ Many other papers, in different settings, also document the optimism bias in analysts' forecasts. See for example, Dugar and Nathan (1994) and McNichols and O'Brien (1996).

B. Underwriting Conflicts of Interest and Resulting Biases

Conflicts between the desire of corporate finance to complete transactions and the need of brokerage analysts to protect and enhance their reputations are likely to be particularly acute if corporate transactions promise to generate significant fees for investment banks. The IPO process is a case in point. First, this market is a lucrative one for the investment banking industry: the average fees are 7%. Moreover, recent SEC investigations allege that laddering and commission kickback arrangements make this 7% a pittance compared to these other “fringe benefits” and give the investment banks a chance to benefit their preferred client handsomely.¹⁰

Second, implicit in the underwriter-issuer relationship is the underwriter’s intention to follow the newly issued security in the aftermarket: that is, to provide (presumably positive) analyst coverage. This coverage is important to most new firms because they are not known in the marketplace, and they believe that their value will be enhanced when investors, especially institutional investors, hear about them. For example, Galant (1992) and Krigman, Shaw, and Womack (1999) report surveys of CEOs and CFOs doing IPOs in the 1990s. About 75 percent of these decision makers indicated that the quality of the research department and the reputation of the underwriter’s security analyst in their industry were key factors in choosing a lead underwriter. Hence, a well-known analyst who follows a potential new client’s industry represents an important marketing tool for the underwriters.

¹⁰ Wall Street Journal, “NASD proposes tougher rules on IPO abuses---Agency would bar brokers from allocating hot issues to curry favor with clients”, July 29th 2002, Page A1.

Finally, a positive recommendation after an IPO may enhance the likelihood that the underwriter will be chosen to lead the firm's next security offering. Consequently, there may be substantial pressure on analysts to produce positive reports. The potential conflict of interest between a research analyst's fiduciary responsibility to investing clients and the analyst's responsibility to corporate finance clients suggests several implications. First, underwriter analysts may issue recommendations that are overly optimistic (or positively biased) than recommendations made by their non-underwriter competitors. Second, these analysts may be compelled to issue more positive recommendations (than non-underwriter analysts) on firms that have traded poorly in the IPO aftermarket, since these are exactly the firms that need a "booster shot" (a positive recommendation when the stock is falling). The implication is that rational market participants should, at the time of a recommendation, discount underwriters' recommendations compared to those of non-underwriters.

Michaely and Womack (1999) test these implications in the context of analysts' recommendations during the first year after the firm has gone public. Consistent with the notion of some potential bias, they find that in the month after the quiet period (where no recommendations are allowed) lead underwriter analysts issue 50 percent more buy recommendations on the IPO than do analysts from other brokerage firms.

The results of testing these implications above are described in Table 1 and in Figure 2. The first thing to note is that indeed, the market reacts differently to recommendation announcements by underwriters and non-underwriters. Both are greeted positively by the market (2.7% and 4.4% return respectively), but those recommended by non-underwriter analysts are received more positively by the market. The market seems

to recognize, at least to some extent the potential bias and self-interest in underwriters' recommendations. If investors are *fully* aware of the bias, however, we should expect no difference in the long-term performance of those stocks recommended by their own underwriters' analysts and those that are recommended by independent analysts.

In the year following recommendations, the firms recommended by underwriter analysts underperformed the non-underwriter analysts' recommendations by a wide margin of 18.4%. This difference in abnormal performance is also statistically significant. In fact the strategy of buying stocks recommended by the underwriters' analysts yields a negative abnormal return of 5.3%. This important evidence documents that underwriters' analysts recommendations are biased and that the market does not understand the full extent of the bias.

If underwriters attempt to boost stock prices of firms they have taken public, the time to administer a booster shot is when it is really needed—is when a firm's stock price is hurting. Indeed, as can be seen in figure 2 and table 1, the abnormal price performance of companies prior to buy recommendations is significantly different for underwriters and non-underwriters. Returns of firms with underwriter recommendations declined, on average, 1.6 percent in the 30 trading days prior to a buy recommendation, while firms receiving non-underwriter buy recommendations increased 4.1 percent, over the same period, a significant difference (t-statistic = 2.36). Sixty percent of the firms recommended by their own underwriters experience negative price movement in the 30 days before the recommendation announcement, compared with only 34 percent of the firms recommended by independent sources.

Michaely and Womack also analyze the performance of IPO stocks, depending on whether they are recommended by only the underwriter, by non-underwriters, or by both. Excess returns from the first day of trading are calculated contingent on the source of the recommendation. The IPOs in the sample are categorized into five groups by source using information available from *First Call*. Four of these are analyzed in Table yy. First, there are 191 firms for which there are no recommendations available on *First Call* within one year of the IPO date. Second, there are 63 firms with recommendations made only by their lead underwriters. Third, there are 41 firms with recommendations made by both underwriters and non-underwriters. Finally, there are 44 firms with recommendations made only by non-underwriters. The fifth group, omitted from Table 6, is the 52 firms with non-buy recommendations.

For each group shown, initial returns average around +10.5 percent (Figure 3). Within six months after the IPO, however, a distinct difference among the groups becomes evident. The IPOs recommended only by their own underwriter have increased by 7.7 percentage points (to an 18.1 percent excess return, including the first day), while the group recommended only by non-underwriters averages an additional excess return of 18.6 percentage points (to 28.9 percent). The difference in performance between the two groups is even larger after one and two years. The mean excess return for the IPOs recommended by underwriters is -18.1 percent after two years, compared with a mean excess return of +45 percent for the IPOs recommended by non-underwriters.

These results clearly show that underwriter recommendations, on average, underperform those of non-underwriters. They also reveal that the best indicator for long-term performance of an IPO is not what the underwriter forecasts, but what the more

non-underwriter sources predict. Stocks recommended by non-underwriter analysts do well in the long run, with or without the underwriter analyst's blessing, and similarly stocks not recommended by non-underwriter analysts do poorly.

Michaely and Womack's results suggest that underwriters' recommendations are biased and, in the long run, inferior to recommendations by non-underwriters. As we discussed earlier, this bias may have its roots in an investment bank's agency relationship with the IPO firm from which it receives sizable underwriting fees. Alternatively, it may be a result of some cognitive behavior of analysts. That is, it is possible that underwriter analysts genuinely believe that the firms they underwrite are better than the firms underwritten by other investment banks and history (or research) is unlikely to change their priors. This reasoning is a direct outcome of what Kahneman and Lovallo (1993) label "the inside view."

According to this theory, analysts view IPOs underwritten by their firms in a unique narrow frame (much like parents who see their children as special). They are unable to accept the statistical reality that many of their IPOs will turn out to be average or below average. Unaffiliated analysts take the "outside view," developing their judgment about the quality of an IPO by considering *all* IPOs in comparable situations, as well as other statistical information. Thus, they are able to frame the problem more broadly and, it turns out, more appropriately.¹¹

¹¹ A related cognitive bias is the "anchoring bias." The underwriter analysts establish or anchor their views and opinions during the due diligence phase, long before the firm goes public. This anchoring bias explains not only why they recommend stocks that have dropped in price (51 percent of underwriter analyst recommendations are for firms that experienced a price depreciation of more than 20 percent from the offering day), but also why they do not always recommend stocks that rise in price when non-affiliated

To get some indication which explanation is more dominant here, Michaely and Womack conducted a survey of investment professionals to determine respondent *perceptions* of the cause for the bias. The survey pool consisted of MBA recipients with at least 4 years' work experience in either the investment banking or investment management industry. When survey participants were asked to choose between the conflict of interest explanation and the selection bias explanation, they overwhelmingly chose conflict of interest. In fact, 100 percent of investment managers (buy-side respondents) believed the conflict of interest story best explains the documented bias. Moreover, only 3 of 13 of investment-banking professionals, or 23 percent, chose the benign winner's curse explanation.

Evidence of bias by underwriter analysts around other events such as seasoned equity offerings (SEOs) is not as dramatic. Lin and McNichols (1997) report that recommendation classifications are more positive for underwriters' recommendations. Dugar and Nathan (1995) find, despite the fact that affiliated analysts are more optimistic, that their earnings forecasts "are, on average, as accurate as those of non-investment banker analysts." More recently, however, Dechow, Hutton, and Sloan (1997) conclude that the earnings estimates of underwriters' analysts are significantly more optimistic than those of unaffiliated analysts, and that stocks are most overpriced when they are covered by affiliated underwriters.

analysts do. Their priors are presumably fixed and do not change, whatever the market says and does. They are too anchored to change their views. This anchoring idea is consistent with the underwriter firm giving an implicit recommendation at the offering price. In essence: "If I sold this IPO to you at \$18, it sure better be attractive at \$14," but, since "I sold it to you at \$18 and it is now \$28, I'm 'off the hook' and don't need to recommend it." Presumably, unaffiliated analysts are less anchored by the offering price and are more willing to recommend high-momentum new issues.

Overall, if market participants are informed and rational, and can incorporate information and can understand incentives, then this bias in analysts' recommendations is benign. The market will simply discount biased recommendations accordingly. But as the empirical results of Michaely and Womack show, this is not the case. The market does not comprehend completely, at least in the short run, the full extent of the bias.

Conclusions and Suggestions for Further Research

What is the role of security analysts in the capital markets? It seems clear that analysts are, in economic terms, first and foremost marketing agents for their employers, most of which are hybrid brokerage/investment banks. Their *raison d'être* is to increase the revenues and profits of their employers. Thus, their reports and recommendations are designed to increase brokerage commissions and generate investment banking fees.

However, investors, regulators, and politicians have expected from and given analysts a larger role as unbiased advisors to the public on the valuation of marketable securities. In fact they implicitly expect analysts to have a fiduciary responsibility towards the investing public (despite the fact that analysts are not in a fiduciary relation with the investing public). The assumption these parties make, naturally, is that analysts' advice is unbiased and somewhat valuable to investors and the markets as a whole. The hope is that security analysts will be the market's financial "watchdogs," keeping managements honest and focused through their criticism as well as their praise. If analysts are producers of valuable information, then they will strengthen the integrity and efficiency of the securities market.

As part of their marketing efforts, investment banks and analysts claim that their views are unbiased. For example, Morgan Stanley's response to the accusation that the corporate finance division "put pressure on the firm's research analysts to influence their view of the stock" (*WSJ*, July 14, 1992) is exactly along these lines. Morgan Stanley argued that customers of its equity research reports recommendations are too sophisticated to accept research influenced by investment banking pressure, and thus there is no reason for the corporate finance division to exert any pressure on research analysts.

What does the empirical evidence tell us about these issues? On average, the value of analysts as information gatherers *is* modestly justified, since their pronouncements move stock prices to new price equilibria that are not mean reverting. It is reasonable to say, therefore, that analysts do make the market more efficiently priced. But as we also point out their pronouncements and advice are not unbiased. Their projections are over-optimistic and they issue many more buy than sell recommendations, at least partially as part of their marketing efforts. The corporate finance arm of the bank, corporate issuers and, to a lesser extent, institutional investors prefer to hear positive analysis rather than negative. As Ken Lay, former chairman of now bankrupt Enron so blatantly put it in criticizing Merrill's Enron analyst who had maintained the unattractive "hold" recommendation on his firm (as reported in *The Wall Street Journal*), "We are for our friends." Later, when that analyst was replaced with another who upgraded his Enron recommendation, Merrill landed substantial investment banking business from the

company.¹² It is not difficult to imagine how unpopular an analyst would be, both internally and externally, if he downgrades or issues negative recommendations on his firm's best clients.

If investors are aware of this marketing bias and discount it appropriately, then, to some extent, no harm is done: Analysts gather information, issue recommendations (albeit biased) and investors, recognizing the bias, discount their recommendations, especially when banking relationships exist. But the empirical evidence suggests that investors do not recognize the full extent of the bias. Despite the fact that the long-term performance after positive recommendations by conflicted analysts is negative, the immediate market reaction is positive. At least some investors cannot separate the information content from poor incentives.

The market inefficiency in this case has at least two real economic consequences: First it damages the integrity of the market in that some (private) investors feel that they were not privileged to the same information others had. Institutional investors may know when a buy recommendation means a buy and when it does not. But potentially many individual investors do not. Second, and even more important from a policy perspective, the gap between investors' perspective of the role of analysts and what they really do may erode investors' confidence in the integrity of financial markets with the end result that capital is scarcer and cost of capital is increased for those firms that are able to raise capital.

¹² *Wall Street Journal*, "Merrill Defends Ties to Enron Before Congress --- Yet a Veteran Analyst's Perspective On the Firms' Dealings Shows Pressures From Major Clients" Jul 31, 2002, page C1.

Presently, in 2002, there is considerable foment among politicians, regulators, and investors to increase the disclosure by analysts and their firms about the affiliations they have with the firm being recommended. Almost surely, this is a good thing, and it would appear to be an important research agenda to analyze which reforms are most valuable. The solutions to these problems are not trivial. The first and most obvious step that has been accomplished is to force analysts to explicitly and prominently state their connection to the firms they recommend as has been recently adopted. Just as the Surgeon General forces the tobacco companies to label cigarettes as posing a danger to health, the NASD or the SEC has asked analysts to display in their reports, and in public appearances, the nature of their personal and the corporate relationships to the firms they recommend. The recent increased disclosures give investors the some tools to attempt to “debias” analysts’ potentially optimistic or misleading reports.

Since many of the abuses are related to IPO firms, as part of an effort “to reassure investors and build investor confidence”, the NASD is proposing new rules that would bar any association between IPO allocations and future business with the investment bank that serves as the underwriter that would result in excessive compensation.¹³

A more significant change in the industry structure is a separation of investment banking from research, suggested for example by New York State Attorney General

¹³Wall Street Journal, “NASD proposes tougher rules on IPO abuses---Agency would bar brokers from allocating hot issues to curry favor with clients”, July 29th 2002, Page A1. The proposed rule states that it “would prohibit the allocation if IPO shares in exchange for excessive compensation relative to the services provided by the underwriter.”

Spitzer.¹⁴ Given the current structure of the industry, it is not clear that there is a demand (i.e., clients that are willing to pay) for independent equity research: Investment banks claim that institutional and especially private investors do not pay the full cost of investment research through their trading commissions. Recall that brokerage research is a bundled good, meaning that investors do not pay “hard” dollars for it, they instead pay for the research through trading commissions, and taking investment banking deals. Institutional investors pay about 4-5 cents per share and trading costs are said to be about half of that per share. Thus the marginal revenue available to help pay for investment research departments is one to two cents per share, far lower than the cost of the research being produced. Thus, the investment banking arm subsidizes the research department by paying more than 50% of the direct costs of analysts’ salaries and other research costs. Currently, there is no convincing evidence that investors are willing to pay for independent research. It is possible that regulatory intervention could force such a market and make it viable, but it is also possible that the unintended impact would be less information gathering and less price transparency.

The literature on security analysts in general and on analysts’ recommendations in particular show that behavioral biases matter. Biases affect analysts’ choices and recommendations, and even more importantly, biases affect how investors interpret those recommendations. Potentially the most valuable outcome of the current rulemaking and proceedings is to make investors more aware of the potential bias in analysts’

¹⁴ *Wall Street Journal*, Merrill Lynch Will Negotiate With Spitzer, April 15, 2002, page C1.

pronouncements, since it is unlikely any time soon that most market participants will choose to pay the full cost of (possibly unbiased) investment research.

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Table 1: Excess Returns before, at, and after Analyst Buy Recommendations Differentiated by Underwriting Relationship

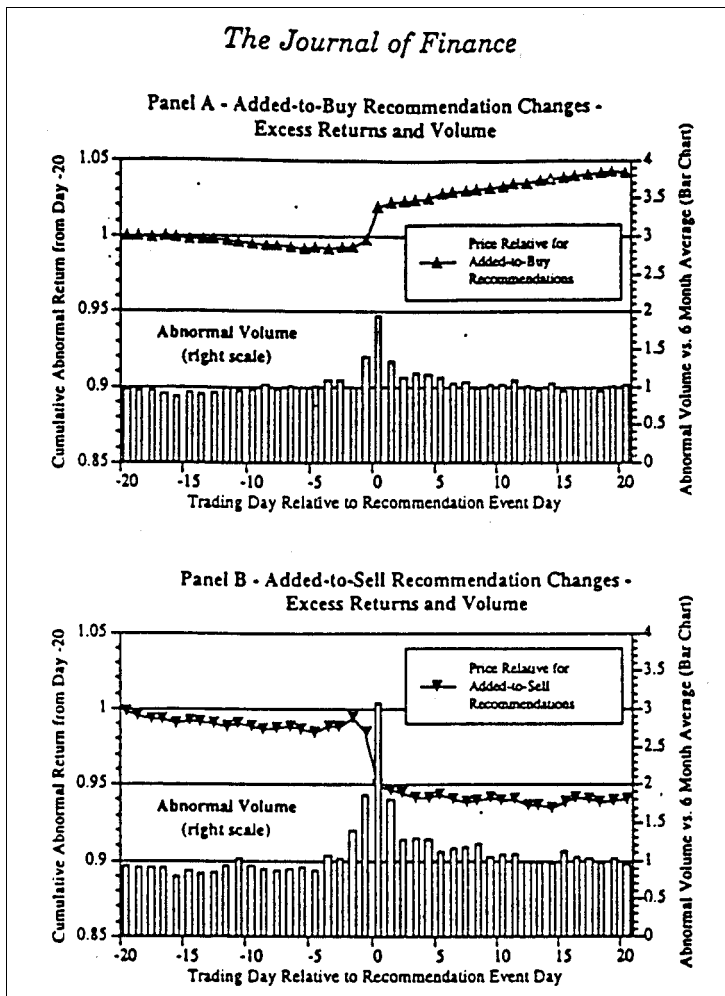
Excess returns (size-adjusted mean and median buy-and-hold returns) are calculated for periods before, at, and after the added-to-buy recommendation event date given on *First Call* for the 214 observations in our sample. Size adjustment is calculated by subtracting the buy-and-hold return from the appropriate value-weighted CRSP decile. We define “by underwriter” as recommendations made by equity research analysts of the lead manager of the IPO and “by non-underwriter” as recommendations made by other brokerage firm analysts. “Days after IPO date” is the number of days after the initial IPO date until the added-to-buy recommendation. T-statistics are calculated using the cross-sectional variance in the excess returns and assume independence. The Z-statistic from the Wilcoxon rank-sum test compares the distributions of the underwriter and non-underwriter recommendations non-parametrically.

Added-to-Buy Recommendations	All Buy Recs N=214	By Underwriter N=112	By Non – Underwriter N=102	T-Statistic/ Z-Statistic of the Difference U vs. Non-U
<u>Excess Return, prior 30 days.</u>				
Mean	1.2 %	-1.6 %	4.1 %	2.36*
Median	0.7 %	-1.5 %	3.5 %	2.71*
Excess Return, 3-day Event				
Mean	3.5 %	2.7 %	4.4 %	1.55
Median	2.5 %	2.2 %	2.8 %	1.15
Days after IPO date, Mean	83	66	102	2.60*
Days after IPO date, Median	50	47	63	3.48*
<u>Excess Return, Event + 3 mos.</u>				
Mean	7.8 %	3.6 %	12.5 %	2.43*
Median	6.3 %	3.3 %	8.0 %	2.44*
<u>Excess Return, Event + 6 mos.</u>				
Mean	8.2 %	3.2 %	13.8 %	1.69
Median	5.7 %	3.9 %	7.8 %	1.58
<u>Excess Return, Event + 12 mos.</u>				
Mean	3.5 %	-5.3 %	13.1 %	2.29*
Median	-5.1 %	-11.6 %	3.5 %	2.71*

* Significant at 0.05 level.

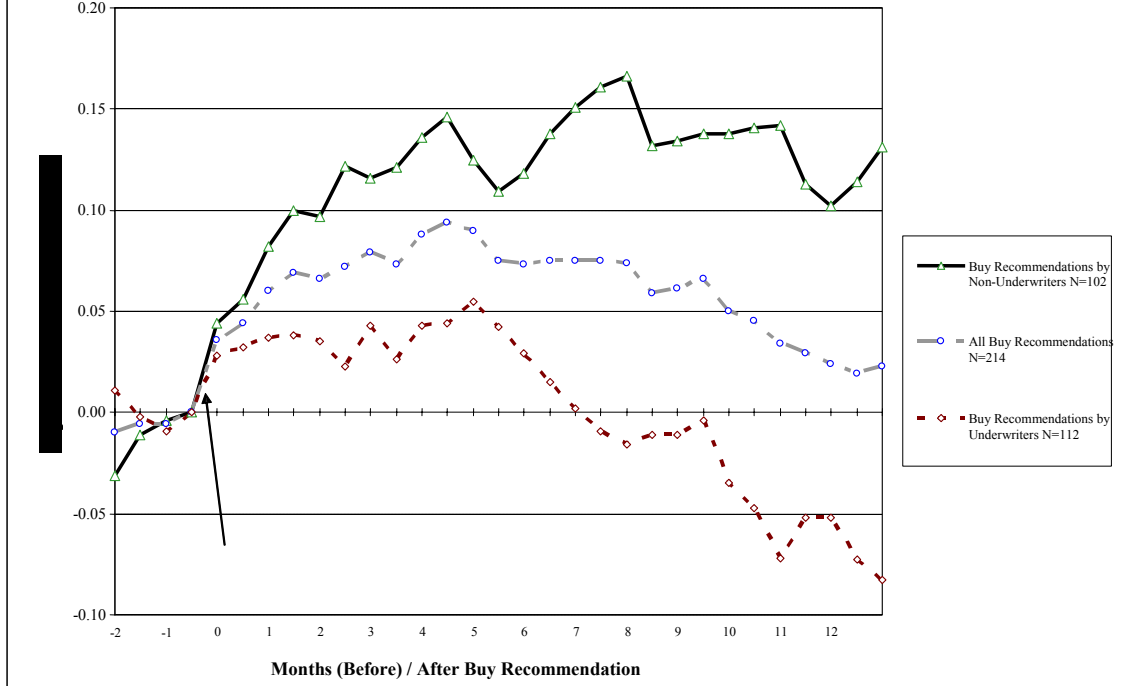
Source: Michaely, Roni, Kent L. Womack. 1999. Conflict of Interest and the Credibility of Underwriter Analyst Recommendations. *The Review of Financial Studies* Special 1999, Vol. 12 (No. 4):653-686.

Figure 1



Source: Womack, Kent L. 1996. Do Brokerage Analysts' Recommendations Have Investment Value? *The Journal of Finance* L1 (no.1):137-167.

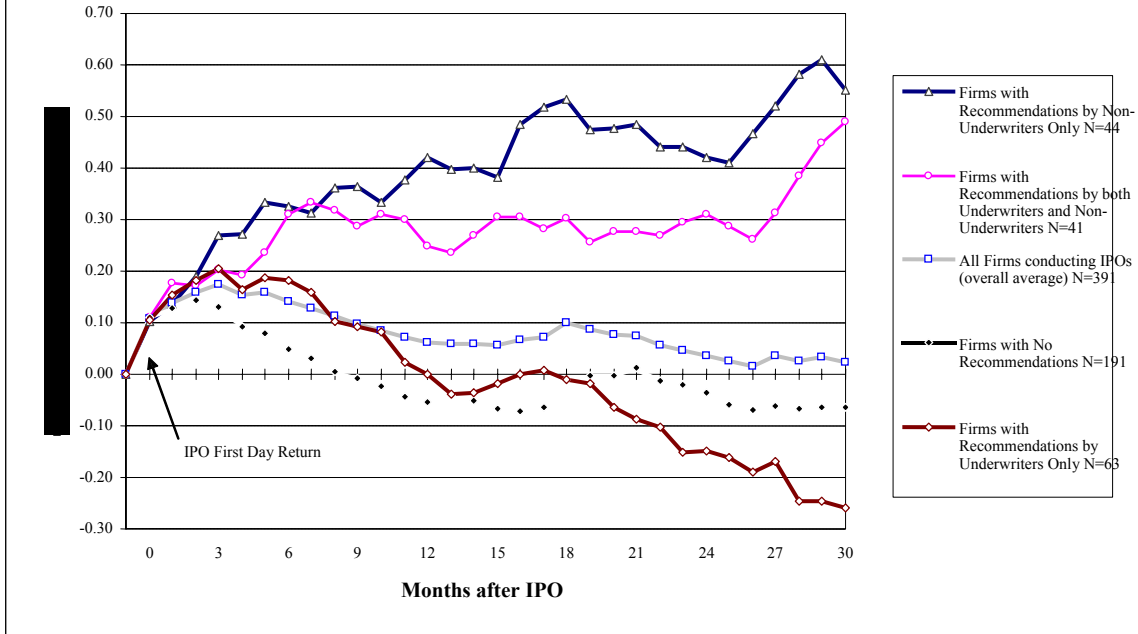
Figure 2: Cumulative Mean Size-Adjusted Event Return for Firms Receiving New Buy Recommendations within One Year of their IPO, Conditional Upon the Source of Recommendation



Source: Michaely, Roni, Kent L. Womack. 1999. Conflict of Interest and the Credibility of Underwriter Analyst Recommendations. *The Review of Financial Studies* Special 1999, Vol. 12 (No. 4):653-686.

Figure 3 : Cumulative Mean Buy-and-Hold Size-Adjusted Return for Companies Conducting Initial Public Offerings in 1990-1991 Conditional Upon Source of Brokerage Recommendations.

Cumulative Return begins at the IPO Price.



Source: Michaely, Roni, Kent L. Womack. 1999. Conflict of Interest and the Credibility of Underwriter Analyst Recommendations. *The Review of Financial Studies* Special 1999, Vol. 12 (No. 4):653-686.