An Examination of Potential Bias in the Stock Ratings
of Investment Bank Research Analysts

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Abstract

This paper examines the stock picks of sell-side securities analysts and compares them with those of independent analysts to determine whether bias exists in the recommendations of the former. Stock ratings issued by sell-side analysts for the Dow Jones 30 Companies and compiled by First Call/ Thomson Financial were compared to ratings of independent analysts collected by Investars™. Independent analysts were found to be more objective in their ratings than sell-side analysts. Sell-side analysts were found to revise their recommendations downward after the fact more frequently than independent analysts. The authors' findings serve as a caution to unsophisticated investors that an excessive "buy" bias may still exist among sell-side analysts, despite the extensive publicity of recent months.

I. Introduction

In recent years, the financial media have cited numerous instances of bias and conflict of interest in the stock recommendations of many analysts employed by Wall Street investment banks. A study by Dunbar, Hwang, and Shastri (1997) provides examples of the problem's magnitude. The authors reviewed three years of recommendations made by stock analysts at U.S. investment banks on the stocks of companies that had gone public, and found that 37% of their original "buy" recommendations were reversed downward within one year. As part of a legal settlement of these and similar allegations, the large Wall Street firms agreed to contribute a half billion dollars to support independent research and disseminate it to the investing public.

Many on Wall Street believe that investment analysts are, by the very nature of their employment, in a precarious situation. These experts have pointed out that if an investment bank's analysts don't rate a client company's securities favorably, there is some likelihood that the investment bank will be passed over for future lucrative underwriting business. [See Ambrose (2002).] Exacerbating the problem is the fact that underwriters often own stock in the companies that they are taking public. By talking up the stock, the underwriter can boost the share price and thereby increase the likelihood of obtaining future underwriting deals. This practice can be viewed as a non-arm's length transaction and a conflict of interest. The very firm that is helping to sell the stock, brings the stock to market, holds the stock, and recommends the stock to the public. Consequently, the firm is handling all of the major components of the transaction. This, in turn, may lead to pressure on the underwriter by its clients to make positive comments about their stock, even though such comments may be unwarranted. For this reason, many skeptics question whether the "buy" recommendations of such sell-side analysts have any value.

In a poll of 1,600 chief financial officers from the CFO Forum conducted by *Institutional Investor Magazine*, CFOs acknowledged their own biases. When selecting underwriters and

merger advisers, 77.4% of CFOs said that the opinion of the analyst covering their company at each underwriting firm was of at least some importance to their decision. Similarly, 20% said they have withheld banking business from a securities firm because its analyst rated their companies' shares unfavorably (Editorial Staff – IIMagazine.com: CFO Forum, 2000). Based on these findings, there appears to be at least some pressure on analysts to rate specific stocks favorably, when in fact they may be less than optimal investments.

A study conducted by Harvard University and the Wharton Business School titled, "The Relationship Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offering," concluded the following:

> "Our evidence suggests that the coexistence of brokerage services and underwriting services in the same institution leads sell-side analysts to compromise their responsibility to brokerage clients in order to attract underwriting business. Investment banks claim to have "Chinese Walls" to prevent such conflicts of interest. Our evidence raises questions about the reliability of the "Chinese Walls." We document that analysts affiliated with the lead underwriter of an offering tend to issue more overly optimistic growth forecasts than unaffiliated analysts. Furthermore, the magnitude of the affiliated analysts' growth forecast is positively related to the fee basis paid to the lead underwriter. Finally, equity offerings covered only by affiliated analysts experience the greatest post-offering underperformance, suggesting that these offerings are the most overpriced".[1]

This study clearly indicates that the so-called Chinese Wall, commonly believed to prevent or at least limit such agency conflicts, in fact has shortcomings previously unforeseen, particularly in light of the evolution of increasingly complex transactions.

A study at Cornell University by Michaely and Womack (1999) reviewed two years of "buy" recommendations made by analysts working for underwriters, and determined that biases did, in fact, exist. The study found that, in the month following the end of the quiet period of an initial public offering, lead underwriter analysts issued 50% more "buy" recommendations for the company than did analysts from other brokerage firms. They also found that, on average, stock prices of companies recommended by lead underwriters fell in the 30 days before the recommendations were issued, while prices of companies recommended by non-underwriters rose. Most significantly, the stock performance over time of companies recommended by their underwriters was "significantly worse" than that of companies recommended by other brokerage houses. Michaely and Womack (2002) explained that brokerage firm analysts work for their employers and are not meant to be watchdogs for the public. One study states that, "In some investment bank firms, negative sell recommendation reports may not get published. The unpopularity of sell recommendations helps explain why, out of all the analysts' recommendations tracked by First Call/Thomson Financial, only about 1% are sell recommendations." [2]

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[1] Dechow, Hutton & Sloan (2000). See also McCauley (2001).
[2] Etzel (2001).

Further analysis leads to the conclusion that this apparent bias is part of a larger agency problem. Carleton, Chen, and Steiner (1998) stated that analysts make recommendations as agents for the investor. Their research investigated the principal/agent relationship in the investment industry, and the potential influence of the production environment on that relationship. Specifically, they tested and compared the research environment faced by brokerage (sell-side national and regional) firms with that of non-brokerage (buy-side) firms. The study had four major findings: (1) regional and national brokerage firms tend to produce more optimistic recommendations than non-brokerage firms, (2) regional and national brokerage firms tend to "inflate" recommendations compared to non-brokerage firms, (3) non-brokerage firms' recommendations tend to reflect investment performance more accurately than those of national or regional brokerage firms, and (4) non-brokerage firms therefore have higher credibility than national or regional brokerage firms.

The findings of these researchers are the catalyst for the research presented in the present paper, whose objective is to examine the differences, if any, between the stock recommendations of independent researchers and those of Wall Street investment banks and national brokerage firms.

Investment analysts at the major Wall Street firms produce the bulk of the information disseminated to the investing public. They are content experts on the companies they cover; they receive direct information from corporate officers, and they review that information as an integral part of their jobs. They and their firms typically have broad access to the media in disseminating their message. Using these resources, their mission is to absorb as much information as possible about companies they cover, and to use this information to generate recommendations regarding these companies' shares.

If individual investors were to perform equivalent analyses on securities in their own portfolios, they could easily require time, resources and knowledge beyond their capabilities. Not only would they have to familiarize themselves with a number of different companies, industries, and market sectors, but they would also have to interpret complex financial statements and filings to determine companies in which to invest. Moreover, even after investors gain a comfort level with the securities of companies in their portfolios, they would have to decipher the myriad of recommendations published by investment research firms. Even the categories of such recommendations can be endless and confusing: strong buy, buy, outperform, hold, accumulate, neutral, maintain, long-term buy, underperform, sell, etc. Faced with such a daunting task, the individual investor could turn to online independent research as an alternative.

Two years ago, as reported in Morgenson, (2002), New York Attorney General Eliot Spitzer asked the online independent research firm Investars^{TM} to analyze the recommendations of more than 400 analysts covering 51 industries, who had been ranked at or near the top of their profession by *Institutional Investor* magazine. The performance of these analysts' stock picks was measured during the 12 months before they were named to the magazine's three-tier all-star team. Investars^{TM} found that 38% to 45% of these analysts turned in a performance below that of the average analyst in the sector. In addition, the returns of half the top-ranked analysts lagged those of analysts who ranked below them in the poll. None of the 51 first-tier analysts ranked at the top of their industry group based on performance in 2000, and only one did so in both 2001 and 2002. Spitzer concluded that these findings demonstrated the difficulty faced by individual

investors attempting to assess the likely performance of analysts' recommendations. He stated that, "The answer to this issue is to have disclosures that will permit the marketplace to actually rank analysts according to returns based upon their stock picks. This is the only measure that retail investors really care about."

Stock analysts at large investment banking firms have a different perspective from those working for independent research firms: the compensation of the former is funded, at least in part, by lucrative underwriting business from client corporations; for the latter, it is accurate and objective research that generates return business from satisfied users. The revenues generated by Wall Street firms from investment banking dwarf those from individual retail investing, and the analyst plays a major role in securing those big-ticket deals.

As a consequence of Spitzer's investigations, a $1.4 billion dollar settlement was reached with the major Wall Street firms to address this area of potential interest conflict in stock analysts' research. While almost $900 million of the settlement consisted of fines, another $450 million was allocated to support independent stock research, while a further $85 million was earmarked for investor education.[3] In addition, major brokerage firms agreed to sever existing links between research and investment banking, and in particular to decouple the compensation of stock analysts from investment banking revenues. For the five years following the settlement, Wall Street firms must fund "independent" stock research to complement their own analysts' reports. Also, rating and price-target forecasts for stocks must be disclosed and updated. In the IPO process, there is a complete ban on the "spinning" of such offerings and on the allocation of shares to executives and directors of client companies as inducements for future underwriting and other corporate business. In addition, stock analysts are banned from pre-IPO "roadshows" and other pitches used to lure corporate clients. As part of these sweeping changes on Wall Street, the Securities and Exchange Commission now requires research analysts to certify that they actually believe their research reports and public statements, and to verify that they did not receive compensation for specific stock recommendations or research products. The implementation of Regulation FD, on October 23, 2000, has also increased the pressure on corporations and analysts regarding chatter and selective disclosure of information. Under this SEC regulation, all public firms are required to disclose all material information, while selective disclosure is strictly prohibited.

A last poignant perspective comes from Thornton (2002), a *BusinessWeek* editorial titled "Research Should Pay Its Own Way." Its two notable points were (1) that Wall Street firms' research departments should pay their own way to help foster a healthy market for quality research and to compete on a level playing field with independent research firms, and (2) that there is a need to create two groups of analysts, one to advise investment bankers and the other to advise retail investors. The industry appears to perceive two audiences. The institutional audience is apparently being fully served, while the individual investor may still be underserved.

This paper addresses the dilemma faced by investors as they assess the views of analysts that may vary significantly from one another because of the conflicts described above. It presents an investment recommendation matrix and decision model developed by the authors and examines, in the context of this model, the stock picks of independent analysts (IA) and those made by

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[3] Craig (2002).

non-independent analysts (NIA). Two basic hypotheses are tested. The first is that Investars[TM], an online independent investment research firm, provides more objective buy/sell recommendations than Wall Street brokerage firms for the Dow Jones 30 companies. The second is that Investars[TM] is less likely to alter a buy/sell recommendation following a decrease of 20% or more in the price of the subject stock. The authors' research focuses on asymmetries between independent analysts' (IA) recommendations and those of the non-independent analysts' (NIA) following significant events affecting the stocks being rated.

The next section discusses the sample, variables, and predictions. Section III discusses the results of statistical tests. The last section concludes with final remarks, observations on the usefulness and limitations of the study, and recommendations for further research.

II. Sample and Variables

A. Selection of the Sample

This study examines analysts' ratings for the Dow Jones 30 Companies during the period of March 2002 to March 2003. The Dow Jones 30 Companies were selected so as to keep the sample size manageable, and because movements in the share prices of these companies are generally highly correlated with movements in the overall market. Once the sample was selected, the next objective was to identify a proxy set of information about the 30 companies, similar to that which typical retail investors could obtain without expending excessive resources to conduct their own due diligence. From a practical perspective, online information accessible to the average retail investor was selected, as described below.

For independent research analysis, the proxy chosen was Investars[TM], because it is reasonably inexpensive, because it contains easily understandable information, and because Investars[TM] pools information from a representative cross-section of 100 independent research firms. The source of non-independent research selected was First Call/Thomson Financial Network, Thomsonfn.com. Their sample consists primarily of the major Wall Street firms. On-line access to this information is free, and it is similarly easy to understand.

B. Variables Used in the Tests

The next phase in the analysis of the data was to compare the ratings made by each type of analyst group. The recommendations of independent analysts (IA) fall into nine categories, as follows: -4.00 to -3.51, very strong sell; -3.50 to -2.51, strong sell; -2.50 to -1.51, sell; -1.50 to -0.51, underperform; -0.50 to 0.51, perform; 0.51 to 1.50, outperform; 1.51 to 2.50, buy; 2.51 to 3.50, strong buy; and 3.51 to 4.00, very strong buy. For the sake of uniformity and apples-to-apples comparison with data from non-independent analysts (NIA), the nine Investars'[TM] categories were further aggregated into three overall groups in presentation order: the first group of three, sell; the second group of three, hold; and the third group of three, buy.

The responses of the independent (IA) and non-independent analysts (NIA) to stock price movements were examined. The focus was on what actions, if any, were taken by each type of analyst when the stock price of covered companies decreased by 20% or more during the

observed period. The coverage action measures used were upgrade, neutral (no action), downgrade, or dropped coverage. Stock price decreases of 20% or more were identified by selecting the highest share prices for each of the 30 Companies in each quarter of the study period and comparing them to the lowest prices of the same stock in the subsequent quarter. A total of 746 recommendations and 90 coverage action ratings issued by independent analysts (IA) were collected and reviewed. Table 3 summarizes the sample data for the independent analysts (IA) collected from Investars^{TM}. The table shows the buy, hold and sell recommendations for each of the Dow Jones 30 companies made by independent analysts.

The non-independent analysts' (NIA) research data was extracted from the First Call/Thomson Financial website. This site contains a representative cross-section of Wall Street firms, and includes the buy/hold/sell recommendations which they have made over time. Their recommendations fall into the following categories: strong buy, buy, hold, underperform, sell. These were likewise aggregated by the authors into three groups: buy, hold and sell. A total of 5,952 recommendations and 90 coverage action ratings by non-independent analysts (NIA) were collected and reviewed. Table 4 summarizes the sample data for the non-independent analysts (NIA) collected from Thomson.com First Call. The table shows the buy, hold and sell recommendations for each of the Dow Jones 30 companies made by non-independent analysts.

C. Hypotheses

The following null hypotheses were tested to determine whether a statistically significant relationship exists between the recommendations and actions of independent analysts (IA) and non-independent analysts (NIA):

> Hypothesis 1: Independent analysts provide equally objective or less objective buy/sell recommendations for the Dow Jones 30 Companies than non-independent analysts.

> Hypothesis 2: Independent analysts are equally likely as, or less likely than, non-independent analysts to alter their buy/sell recommendations when the stock of a Dow Jones 30 Company falls by 20% or more.

A quarterly comparison was also performed in testing the second hypothesis. This process provided a clear indication of actions taken by analysts, and pointed to their potential motives for maintaining or changing their recommendations. It also identified those analysts who tended to be more proactive in addressing market issues and providing timely information to the investing public.

Frequency distributions were constructed to examine analysts' recommendations and coverage actions. Cross-tabulation data are presented in Tables 1 and 2. Six non-parametric tests were applied to the data described above to test the hypotheses.

III. Results

The tests of the first null hypothesis examined six attributes of the data sets relating to the two analyst groups: (1) means, (2) medians, (3) variances, (4) relationships, (5) distributions, and (6) ranges. The results of these tests are presented in Tables 5 and 6. Four of the six tests (means, medians, independence, and ranges) identified thirteen companies for which the null hypothesis was rejected. The companies are Alcoa, American Express, AT&T, Citicorp, General Electric, General Motors, Home Depot, Hewlett-Packard, JP Morgan, Microsoft, Philip Morris, SBC, and Wal-Mart. Ratings for these companies differ among the two groups of analysts at significance levels of between < 0.1% and 5%, demonstrating the existence of extremely strong to moderately strong bases for rejecting the null hypothesis.

In the remaining two tests, variances and distributions, the null hypothesis was rejected for ten companies: American Express, AT&T, Citicorp, General Electric, Hewlett-Packard, JP Morgan, Microsoft, Philips Morris, SBC, and Wal-Mart. Significance levels for these tests ranged from under 0.1% to 10%, presenting extremely strong to moderate evidence for rejecting the null hypothesis.

The second null hypothesis relates to the actions taken by each group of analysts following significant stock price movements, specifically decreases of 20% or more. As indicated above, analysts' actions were grouped into one of the following categories: upgrade, neutral (no change), downgrade, or drop coverage. The specific questions addressed for each Dow Jones 30 component company were:
>   (1) Did a 20% or greater stock price decrease occur during the study period?
>   (2) How did the different types of analysts react to this change?

The cross-tabulation of this information, presented in Table 1, shows that 13 of the Dow Jones 30 Companies underwent share price decreases of 20% or more at some point during the period examined. It also indicates that the non-independent analysts (NIA) subsequently downgraded nine of the 13, while the remaining four experienced no change. Among independent analysts (IA) no changes to recommendations were made. This finding is not surprising, as it points to the fact that the independent analysts made appropriate recommendations in the first place. On the other hand, the majority of non-independent analysts (NIA) changed their recommendations following the price declines in response to their overly optimistic original recommendations. Table 7 shows changes in coverage action and rating by quarter throughout the observation period for non-independent analysts. Table 8 shows similar data for independent analysts (IA).

The cross-tabulation presented in Table 2 examines all changes of recommendation for the 30 Companies made by the two groups of analysts during the study period regardless of whether or not share price decreases of 20% or more took place. Table 2 shows that, for the samples reviewed, independent analysts (IA) did not change their recommendations. However, non-independent analysts (NIA) changed their recommendations for 17 of the Dow Jones 30 Companies. The information again points to the original recommendations of independent analysts (IA) being appropriate when made and not requiring changes in reaction to subsequent events, as shown in Table 7.

The results show that the frequency of recommendation changes, as well as the type of change actions, differs between the independent (IA) and non-independent analysts (NIA). The non-parametric tests provide clear evidence rejecting the null hypothesis. The independent analysts' (IA) lack of change actions, when compared to the frequent changes made by non-independent analysts (NIA), indicates the existence of two separate behavior patterns with different means, medians, variances, relationships, distributions, and ranges.

Overall, the results of this research demonstrate that independent analysts (IA) appear to be more conservative, issuing mostly "hold" recommendations, in contrast to non-independent analysts (NIA), the majority of whose recommendations tend to be "buy." From this evidence, a clear inference can be made that independent analysts (IA) are more objective in their recommendations than non-independent analysts (NIA). Furthermore, non-independent analysts alter their recommendations more often than independent research analysts. An examination of the test results points to the conclusion that the reason for these frequent changes is that non-independent analysts (NIA) are usually too optimistic to begin with. Independent analysts' (IA) recommendations, on the other hand, are probably more realistic and, therefore, do not need to be changed as often to reflect subsequent declines in the share prices of rated companies.

IV. The Recommendation Model

Based on the results of this research, the authors constructed an analytical recommendation model, depicted in Figure 1. This model is intended for use by unsophisticated retail investors in assessing the recommendations of specific Wall Street analysts and determining the reliability and value of their stock picks. The Recommendation Matrix presents a conceptual framework of the analysts' recommendations and operating environment. The horizontal axis depicts increasing levels of agency conflict. Such conflict tends to be higher among non-independent analysts (NIA) than among independent analysts (IA) for the reasons discussed above and outlined in Table 11.

The vertical axis of the Recommendation Matrix represents the proportion of "buy" recommendations made by both types of analysts. The proportion of buy recommendations made by non-independent analysts reached a high 64.6 percent in April, 2002, as revealed by a monthly analysis of the data summarized in Tables 4 and 10. The literature shows NIA "buy" recommendations at historically greater levels than 64.6%. In contrast, the highest proportion of "buys" among independent analysts was only 36.9 percent for the period ending March 2003, as reflected in Tables 3 and 9**.**

Based on these findings, a threshold of 60% to 70% is used to establish the boundary between the upper and lower halves of the Recommendation Matrix. The boundary between the right and left halves can be set at the distinction between independent and non-independent analysts, although this metric is not sufficient, in and of itself, to guide the decisions of individual investors. Both decision parameters, independence and recommendations, must be analyzed in concert to establish the analysts' motives and determine the usefulness of their stock picks.

Figure 1. Recommendation Matrix

This figure depicts the level of agency conflicts and the proportion of "buy" recommendations issued by independent and non-independent analysts. It describes the environment in which each type of analyst operates and its likely effects on their objectivity.

	NON-INDEPENDENT ANALYSTS	INDEPENDENT ANALYSTS

LOW ↑ Proportion of "Buy" Recommendations ↓ **HIGH**	**POTENTIALLY BIASED**
	
	BAD: High Conflicts of Interest
	GOOD: Low Proportion of "Buy"
	          Recommendations
		OBJECTIVE
		
		GOOD: Low/No Conflicts of Interest
		GOOD: Low Proportion of "Buy"
		          Recommendations

	HIGH LIKELIHOOD OF BIAS
	
	BAD: High Conflicts of Interest
	BAD: High Proportion of "Buy"
	        Recommendations
		MOTIVES QUESTIONABLE
		
		GOOD: Low/No Conflicts of Interest
		BAD: High Proportion of "Buy"
		          Recommendations

HIGH ← Conflicts of Interest → LOW

Clearly, the most desirable quadrant is the northeast one, which is labeled as "Objective" in Figure 1. Here, the analysts are independent, they have low levels of interest conflict, and their "buy" recommendations represent a small fraction of their total. Ideally, individual investors would do well to base their investment decisions primarily on recommendations from analysts who satisfy the criteria for placement in this quadrant.

In contrast, the least desirable quadrant is the southwest one, which is labeled "High Likelihood of Bias" in Figure 1. Among the non-independent analysts located in this quadrant, the authors have observed a high potential level of conflicts of interest, coupled with a high proportion of "buy" recommendations. Individual investors should probably avoid basing their investment decisions on the recommendations of these analysts.

Recommendations by analysts situated in the two remaining quadrants pose somewhat greater challenges to the individual investor. The northwest quadrant (identified as "Potentially Biased") depicts an environment where conflicts of interest can be present, as it is populated by non-independent (investment bank) analysts. However, these analysts somehow manage to produce fewer "buy" recommendations and more "hold" and "sell" recommendations than their NIA peers in the southwest quadrant. They may be acting out of conscience or fear of regulators, knowing that fines and penalties might be assessed by the SEC or the courts. Their ability to overcome inherent agency conflicts may be long-lived or may be reflexive and temporary, like motorists slowing down when they see a driver pulled over by the police. A recent example of the latter was the $1.4 billion fine imposed on Merrill Lynch and others for violations of the Sarbanes-Oxley Act, documented by Associated Press (2003), which may have motivated other investment banks to clean up their act, at least temporarily. However, regulators may have put too much faith in the deterrent effects of making an example, and there is mounting evidence that, with attention now focused elsewhere, the "sell" recommendations of the non-independent analysts are again at levels not significantly different from those prior to the Merrill Lynch settlement. [See Krampf (2004).] Although recommendations of analysts in this quadrant may be objective and useful during periods of strict regulatory enforcement, the risk of recidivism, particularly in the long run, should always be considered by individual investors.

Lastly, the southeast quadrant (labeled "Motives Questionable") is populated by independent analysts, who may have low apparent interest conflicts, but who may nevertheless be trying to compete for the attention of the large Wall Street investment banks, which are now obligated under the terms of the Merrill Lynch settlement to fund the publication of independent analysts' opinions. The individual investor must be aware that some analysts in this quadrant may, even if only subconsciously, subordinate their independence to the desire to have their research funded by the investment banks. They may also be vying for attention in niche markets by giving "buy" ratings to emerging companies, which may be too small to warrant coverage by the larger investment banks. Individual investors must be wary of these more subtle and non-traditional agency issues which could motivate analysts in this group, and should consider these possible conflicts in using their output as the basis for investment decisions.

V. Summary and Conclusion

This study examined data from two different online sources, Investars^{TM} (independent analysts) and Thomson First Call (non-independent analysts), which were shown to represent two different perspectives. Environments and actions were taken into consideration so as to gain an understanding of the rationale and motive for the recommendations made by each group. In previous studies, it was clearly documented that biases and conflicts of interest exist in stock research produced by the investment banking firms. Myers and Majluf (1984) identified information asymmetries. Beneish (1991) discussed stock price reaction to analysts' information. McNichols and O'Brien (1997) found that analysts tend to initiate coverage of firms they view favorably and drop coverage of firms they no longer favor. Michaely and Womack (2002) found that analysts are, first and foremost, marketing agents for their employers. Carleton, Chen, and Steiner (1998) demonstrated that regional and national brokerage firms tend to produce more optimistic recommendations than non-brokerage firms.

The findings of the present study corroborate those of this previous research and provide a clear indication of why retail investors need to diversify their sources of investment advice. Non-independent analysts (NIA) often seek to please corporate clients, whereas independent analysts (IA) work for the benefit of money managers, such as pension or mutual funds. Their recommendations, although not free to retail investors, may thus be more valuable in making investment decisions than the free research provided by Wall Street firms. The analytical recommendation model discussed above and presented in Figure 1 was created to guide retail investors in determining the extent to which they should rely on the recommendations of independent analysts (IA) as compared to non-independent analysts (NIA).

With the availability of information on the internet, retail investors now have an easily accessible means of evaluating investment decisions and facilitating portfolio analysis. Other options are less desirable. Doing one's own due diligence is complex and time-consuming for the average retail investor. Free information from sources that provide non-independent research may be biased. Investor complaints and lawsuits after the fact may not be viable, either. A recent lawsuit filed by retail investors against Wall Street brokerage firms claimed that their analysts' recommendations were the cause of portfolio losses. However, these claims were dismissed by a federal judge who said, "The investors knew full well the stock market was a freewheeling casino. Investors who lost money were high-risk speculators who now hope to twist the federal securities law into a scheme of cost-free speculators' insurance."[4]

Several limitations were noted by the authors in conducting this study. One was the unavailability on-line of Thomson First Call recommendation data for September and October 2002. Two attempts to acquire this information directly from Thomson First Call were unsuccessful. Second, in the tests of Hypothesis 2, 50% threshold was used for determining whether the majority of recommendations were "buy" or "hold." On a quarter-to-quarter basis, determining an action in some cases may have been close. Lastly, the most recent recommendations were captured in March 2003. The beginning of a change in the trend of "buy" recommendations issued by non-independent analysts (NIA) is possible. These decreased from a high of 64.6% of all stocks covered in April 2002 to a low of 46.1% in January 2003. If sustained into the future, this trend could be indicative of at a least partial success for the reforms of 2002.

It would be instructive to study whether the change noted above demonstrates that the reforms have indeed made the ratings of non-independent analysts (NIA) more objective and brought them closer to those of independent analysts (IA). There should now be enough data to attempt at least a preliminary analysis of this possible effect. A related study might focus on retail investors and examine whether their use of independent research has increased as a result of recent publicity and because such research is now funded by the 2002 settlement and therefore presumably more accessible to the retail investor. Further research might address issues regarding the actual use by retail investors of free, non-independent recommendations as opposed to paid advice supplied by brokers or sourced online. With more and more investment sites appearing on the internet, it should be interesting to examine whether retail investors utilize this newly-available medium to increase their level of analytical sophistication, or whether it will simply make it easier for them to rely to an even greater degree on the suggestions of others.

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[4] Lohse (2003).

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Table 1: Analyst Category vs. Change Type for 20%+ Stock Price Decreases

This table presents the change of recommendations by analyst category. Each analyst's recommendations by company were screened to determine if a stock price had decreased by 20% or more for the Dow Jones 30 Companies during each quarter in the period of March 2002 to March 2003. It was found that 13 stocks met this criterion. A further screening of independent analysts (IA) vs. non-independent analysts (NIA) was made, based on the rating action that was taken: upgrade, neutral (no action/change), downgrade, or dropped coverage. The cross-tabulation shows that when a 20% or greater stock price decrease occurred, independent analysts (IA) did not change their recommendations. However, non-independent analysts (NIA) downgraded 9 of the 13, or 69.2%.

Analyst Category	Change Type		
	No Change	Downgrade	Total
Independent Analyst (IA)	13		13
Non-Independent Analyst (NIA)	4	9	13
Total	17	9	26

Table 2: Analyst Category vs. All Rating Changes Regardless of Price Change

This table presents the change of recommendations by analyst category. Each analyst's recommendations by company were reviewed without price screening for the Dow Jones 30 Companies during the period of March 2002 to March 2003. A screening of independent analysts (IA) vs. non-independent analysts (NIA) was made to determine if any change was made regardless of stock price activity. The cross-tabulation shows that independent analysts (IA) did not change their recommendations for any of the Dow 30 Companies. However, non-independent analyst (NIA) made changes for 17 of the Dow 30 Companies, or 56.6%.

Analyst Category	Change of Recommendations		
	No	Yes	Total
Independent Analyst (IA)	30		30
Non-Independent Analyst (NIA)	13	17	30
Total	43	17	60

Table 3: Investars ^{TM} - Dow Jones 30 Companies vs. Recommendation Type

This table shows the sample data for the independent analysts (IA) collected from Investars ^{TM}. It reflects the buy, hold and sell recommendations for the Dow Jones 30 companies for the period of March 2002 to March 2003.

Dow Jones 30 Companies	Buy	Hold	Sell	Total
3M	10	15		25
AT&T	7	20	1	28
Alcoa	7	14		21
Amex	5	19		24
Boeing	7	13	1	21
Caterpiller	7	13		20
Citicorp	14	9	2	25
CocaCola	7	13		20
Dupont	5	11		16
Eastman Kodak	5	11	3	19
Exxon Mobile	11	12	2	25
General Electric	9	12	1	22
General Motors	9	14	3	26
Hewlett Packard	9	21	1	31
Home Depot	10	16	2	28
Honeywell	8	15	1	24
IBM	11	18		29
Intel	12	26		38
International Paper	5	11		16
Johnson and Johnson	14	10	1	25
JP Morgan	6	19	3	28
McDonalds	6	15	1	22
Merck	6	23	1	30
Microsoft	22	13		35
Philip Morris	6	9		15
Proctor Gamble	13	4	1	18
SBC Communication	6	27	2	35
United Technologies	9	12		21
Wal-Mart	14	13		27
Walt Disney	15	16	1	32
Total	**275**	**444**	**27**	**746**

Table 4: Thomson.com First Call - Dow Jones 30 Companies vs. Recommendation Type

This table provides the sample data for the non-independent analysts (NIA) collected from Thomson.com First Call. It reflects the buy, hold and sell recommendations for the Dow Jones 30 companies for the period of March 2002 to March 2003.

Dow Jones 30 Companies	Buy	Hold	Sell	Total
3M	99	56	14	169
AT&T	137	103	6	246
Alcoa	130	45	10	185
Amex	103	86		189
Boeing	74	89		163
Caterpillar	88	92		180
Citicorp	183	24	4	211
CocaCola	99	68		167
Dupont	71	76	2	149
Eastman Kodak	24	80	10	114
Exxon Mobile	110	131	3	244
General Electric	113	27	2	142
General Motors	82	73	1	156
Hewlett Packard	104	92		196
Home Depot	156	94	1	251
Honeywell	73	60		133
IBM	132	102		234
Intel	144	111	6	261
International Paper	86	42	12	140
Johnson and Johnson	143	78	9	230
JP Morgan	100	98		198
McDonalds	63	98	14	175
Merck	82	190	12	284
Microsoft	255	43		298
Philip Morris	98	18		116
Proctor Gamble	100	33		133
SBC Communication	136	153	7	296
United Technologies	81	109		190
Wal-Mart	190	53		243
Walt Disney	155	101	3	259
Total	**3411**	**2425**	**116**	**5952**

Table 5: Non-Parametric Tests for Differences between Recommendation Sources for the Dow Jones 30 Companies – Hypothesis Test 1: P-Value Analysis

This table provides information regarding the six non-parametric tests performed on the Dow Jones 30 Company data. For each company, it shows the significance levels of comparisons between independent analysts' (IA) and non-independent analysts' (NIA) recommendations.

Company Name	Do the means differ?[A]	Do the medians differ?[B]	Do the variances differ?[C]	Does a relationship exist?[D]	Do the distributions differ in any way?[E]	Do the ranges ranks differ?[F] C/E
All Groups – IA/NIA	VS	VS	VS	VS	VS	VS
1. 3M	I	I	S	M	I	VS
2. Alcoa	VS	VS	I	VS	VS	VS
3. American Express	SE	SE	VS	SE	M	VS
4. AT&T	SE	SE	VS	SE	M	VS/VS
5. Boeing	I	I	I	M	I	M/VS
6. Caterpillar	I	I	VS	I	I	VS/VS
7. Citicorp	VS	VS	VS	VS	M	VS/VS
8. Coca Cola	M	M	I	M	I	VS/VS
9. Du Pont	I	I	M	I	I	VS/SE
10. Eastman Kodak	I	I	I	I	I	I/I
11. Exxon Mobil	I	I	S	S	I	SE/I
12. General Electric	VS/SE	VS	SE	VS	SE	VS/VS
13. General Motors	SE/M	M	I	SE	I	SE/S
14. Home Depot	VS/SE	SE	I	VS	S	VS/SE
15. Honeywell	M	M	I	M	I	SE/VS
16. Hewlett-Packard	SE	SE	VS	SE	S	VS/VS
17. IBM	S	S	I	S	I	VS/VS
18. Intel	M	M	SE	SE	M	VS/VS
19. International Paper	I	S	M	SE	I	VS/SE
20. Johnson & Johnson	I	I	I	I	I	VS/VS
21. JP Morgan	VS	VS	VS	VS	M	SE/S
22. McDonalds	I	I	I	I	I	M/VS
23. Merck	I	I	S	I	I	M/VS
24. Microsoft	VS/M	VS	VS	VS	S	VS/VS
25. Philips Morris	VS/SE	VS	VS	VS	SE	VS/M
26. Proctor & Gamble	I	I	S	M	I	VS/SE
27. SBC	VS	VS	VS	SE	M	VS/M
28. United Technology	I	I	I	I	I	VS/VS
29. Wal-Mart	SE/M	SE	VS	SE	S	VS/VS
30. Walt Disney	I	I	I	I	I	VS/VS

Legend

    A.   The Independent groups two-tailed t test
    B.   The Mann-Whitney two-tailed U test
    C.   Levene's Test for equality of variances
    D.   Chi-Square Test of Independence – test relationship between independence and recommendations.
    E.   Kolmogorov-Smirnov two-tailed test
    F.   Moses extreme reaction

Interpreting Significance Levels	P-values
I H_0 = "Insufficient evidence against H_0"	>10%
S H_0 = "Slight evidence against H_0"	5 – 10%
M H_0 = "Moderate evidence against H_0"	1- 5%
SE H_0 = "Strong evidence against H_0"	0.1 – 1%
VS H_0 = "Very Strong evidence against H_0"	< 0.1%

* All significance tests were performed with an alpha of .05

Table 6: Significance Levels Obtained through Non-Parametric Tests for Differences Between Recommendation Sources for the Dow Jones 30 Companies - Hypothesis Test 1

This table provides information regarding the six non-parametric tests performed on the Dow Jones 30 Company data. For each company, it shows the significance levels and p-values of comparisons between independent analysts' (IA) and non-independent analysts' (NIA) recommendations.

Company Name	t-test[G]	Mann-Whitney[H]	Levene's Test[I]	Chi-Square Test of Independence[J]	Kolmogorov Smirnov Test[K]	Moses Extreme Reaction Test C/E[L]
All Groups – IA/NIA	.000	.000	.002	.000	.000	.000
1. 3M	.447/.363	.212	.070	.021	.440	.000/.000
2. Alcoa	.018/.010	.002	.466	.000	.012	.000/.000
3. American Express	.002/.001	.002	.000	.002	.016	.000/.000
4. AT&T	.004/.003	.003	.000	.009	.018	.001/.000
5. Boeing	.154/.202	.205	.405	.014	.949	.028/.000
6. Caterpillar	.240/.242	.239	.000	.238	.878	.000/.001
7. Citicorp	.000/.010	.000	.000	.000	.029	.000/.001
8. Coca Cola	.039/.047	.039	.235	.038	.243	.000/.001
9. Du Pont	.275/.251	.243	.013	.383	.832	.000/.007
10. Eastman Kodak	.898/.913	.950	.300	.500	1.000	.153/.651
11. Exxon Mobil	.484/.556	.651	.057	.057	1.000	.008/.118
12. General Electric	.000/.003	.000	.007	.001	.007	.000/.000
13. General Motors	.012/.040	.032	.410	.001	.469	.003/.054
14. Home Depot	.001/.008	.003	.272	.000	.059	.000/.012
15. Honeywell	.024/.041	.036	.353	.013	.301	.004/.000
16. Hewlett-Packard	.005/.009	.009	.001	.003	.091	.001/.000
17. IBM	.060/.066	.060	.140	.059	.342	.000/.000
18. Intel	.023/.014	.012	.002	.010	.050	.000/.000
19. International Paper	.200/.115	.069	.048	.007	.146	.000/.003
20. Johnson & Johnson	.602/.615	.565	.697	.826	1.000	.000/.000
21. JP Morgan	.000/.001	.001	.000	.000	.032	.003/.059
22. McDonalds	.696/.668	.612	.162	.539	.998	.029/.000
23. Merck	.421/.379	.385	.066	.550	.983	.031/.000
24. Microsoft	.001/.011	.001	.000	.001	.079	.000/.000
25. Philips Morris	.000/.005	.000	.001	.000	.010	.000/.014
26. Proctor & Gamble	.457/.563	.691	.067	.024	1.000	.001/.002
27. SBC	.001/.000	.001	.000	.004	.011	.001/.022
28. United Technology	.984/.985	.984	.969	.984	1.000	.000/.000
29. Wal-Mart	.002/.015	.003	.001	.003	.069	.000/.000
30. Walt Disney	.128/.162	.143	.241	.289	.724	.000/.000

Legend	Interpreting Significance Levels	P-values
G. The Independent groups two-tailed t test	I H_0 = "Insufficient evidence against H_0"	>10%
H. The Mann-Whitney two-tailed U test	S H_0 = "Slight evidence against H_0"	5 – 10%
I. Levene's Test for equality of variances	M H_0 = "Moderate evidence against H_0"	1- 5%
J. Chi-Square Test of Independence – test relationship between independence and recommendations.	SE H_0 = "Strong evidence against H_0"	0.1 – 1%
	VS H_0 = "Very Strong evidence against H_0"	< 0.1%
K. Kolmogorov-Smirnov two-tailed test		
L. Moses extreme reaction		
* All significance tests were performed with an alpha of .05		

Table 7: Non-Independent Analysts (NIA) First Call/Thomson.com Recommendations

This table displays the recommendations made by non-independent analysts (NIA) for the period March 2002 to March 2003. It reflects a quarterly analysis based on the type of recommendation, stocks with significant price changes of 20% or more, and changes in coverage action and rating by quarter throughout the period.

Non-Independent Analyst (NIA) Recommendations

									1 QTR vs 2 QTR	Chg Type	2 QTR vs 3 QTR	Chg Type	3 QTR vs 4 QTR	Chg Type	Did stock < 20% in the period? (Yes/No)	Out of 3 Qtrs, stock < 20%? (1,2,3)	Analysts change Rating? (Yes/No)	# of Qtrs change Rating	Type of Change (Majority > 50%)
Source: ThomsonFn.com		**Majority**		**Majority**		**Majority**		**Majority**											
Dow Jones 30	1 Qtr	**Rating**	2 Qtr	**Rating**	3 Qtr	**Rating**	4 Qtr	**Rating**											
1 3M	122.45	**Buy**	123.80	**Buy**	122.44	**Buy**	124.99	**Buy**	1.1%	NC	-1.1%	NC	2.1%	NC	No		No		
2 Alcoa	36.52	**Buy**	28.65	**Buy**	21.82	**Buy**	21.76	**Buy**	-21.6%	NC	-23.8%	NC	-0.3%	NC	Yes	2	No		NC
3 American Exp	41.41	**Buy**	35.75	**Buy**	33.98	**Hold**	35.64	**Hold**	-13.7%	NC	-4.9%	DG	4.9%	NC	No		Yes		
4 AT&T	14.34	**Buy**	10.41	**Buy**	14.55	**Hold**	23.40	**Hold**	-27.4%	NC	39.8%	DG	60.8%	NC	Yes	1	Yes	2	DG
5 Boeing	45.97	**Buy/Hold**	41.07	**Buy**	32.77	**Hold**	31.60	**Hold**	-10.7%	NC	-20.2%	DG	-3.6%	NC	Yes	1	Yes	1	DG
6 Caterpillar	55.48	**Buy**	45.74	**Buy**	40.78	**Hold**	45.37	**Hold**	-17.6%	NC	-10.8%	DG	11.2%	NC	No		Yes		
7 Citigroup	45.42	**Buy**	36.26	**Buy**	32.74	**Buy**	35.32	**Buy**	-20.2%	NC	-9.7%	NC	7.9%	NC	Yes	1	No		NC
8 Coca Cola	52.96	**Buy**	52.29	**Buy**	47.70	**Hold**	43.03	**Buy**	-1.3%	NC	-8.8%	DG	-9.8%	UG	No		Yes		
9 DuPont	46.27	**Buy**	42.29	**Buy/Hold**	39.85	**Hold**	40.45	**Hold**	-8.6%	NC	-5.8%	DG	1.5%	NC	No		Yes		
10 Eastman Kodak	32.13	**Hold**	29.70	**Hold**	30.73	**Hold**	34.34	**Hold**	-7.6%	NC	3.5%	NC	11.8%	NC	No		No		
11 Exxon Mobil	41.64	**Hold**	37.10	**Buy**	33.75	**Hold**	34.29	**Hold**	-10.9%	UG	-9.0%	DG	1.6%	NC	No		Yes		
12 General Electric	34.88	**Buy**	29.73	**Buy**	25.99	**Buy**	24.51	**Buy**	-14.8%	NC	-12.6%	NC	-5.7%	NC	No		No		
13 General Motors	62.15	**Buy**	49.38	**Buy**	37.08	**Hold**	36.47	**Hold**	-20.5%	NC	-24.9%	DG	-1.7%	NC	Yes	2	Yes	2	DG
14 Home Depot	47.44	**Buy**	33.10	**Buy**	28.48	**Buy**	23.04	**Hold**	-30.2%	NC	-13.9%	NC	-19.1%	DG	Yes	1	Yes	3	DG
15 Honeywell Int'l	38.35	**Buy**	33.08	**Buy**	23.73	**Hold**	23.84	**Hold**	-13.7%	NC	-28.3%	DG	0.5%	NC	Yes	1	Yes	1	DG
16 Hewlett-Packard	18.56	**Hold**	14.98	**Buy**	14.40	**Buy**	18.36	**Buy**	-19.3%	UG	-3.9%	NC	27.5%	NC	No		Yes		
17 IBM	91.95	**Buy**	73.13	**Buy**	72.09	**Buy**	80.38	**Hold**	-20.5%	NC	-1.4%	NC	11.5%	DG	Yes	1	Yes	3	DG
18 Intel	29.81	**Buy**	19.18	**Buy**	16.41	**Hold**	16.87	**Hold**	-35.7%	NC	-14.5%	DG	2.8%	NC	Yes	1	Yes	2	DG
19 Int'l Paper	42.51	**Buy**	40.49	**Buy**	35.33	**Hold**	35.91	**Hold**	-4.8%	NC	-12.7%	DG	1.6%	NC	No		Yes		
20 Johnson Johnson	62.70	**Buy**	53.39	**Buy**	56.75	**Buy**	53.86	**Buy**	-14.8%	NC	6.3%	NC	-5.1%	NC	No		No		
21 JP Morgan	35.11	**Buy**	28.67	**Buy**	20.38	**Hold**	24.04	**Hold**	-18.3%	NC	-28.9%	DG	18.0%	NC	Yes	1	Yes	1	DG
22 McDonalds	28.59	**Hold**	26.22	**Hold**	18.41	**Hold**	15.48	**Hold**	-8.3%	NC	-29.8%	NC	-15.9%	NC	Yes	1	No		NC
23 Merck & Co.	56.97	**Hold**	49.17	**Hold**	50.82	**Hold**	56.33	**Hold**	-13.7%	NC	3.3%	NC	10.9%	NC	No		No		
24 Microsoft	56.49	**Buy**	50.77	**Buy**	25.42	**Buy**	25.85	**Buy**	-10.1%	NC	-49.9%	NC	1.7%	NC	Yes	1	No		NC
25 Philip Morris	53.29	**Buy**	48.68	**Buy**	40.72	**Buy**	39.42	**Buy**	-8.7%	NC	-16.3%	NC	-3.2%	NC	No		No		
26 Proctor & Gamble	88.68	**Buy**	88.55	**Buy**	88.32	**Buy**	85.24	**Buy**	-0.2%	NC	-0.3%	NC	-3.5%	NC	No		No		
27 SBC	35.04	**Buy**	28.93	**Buy**	24.20	**Hold**	25.74	**Hold**	-17.4%	NC	-16.4%	DG	6.4%	NC	No		Yes		
28 United Tech	71.20	**Hold**	65.31	**Hold**	59.12	**Buy/Hold**	62.32	**Hold**	-8.3%	NC	-9.5%	NC	5.4%	NC	No		No		
29 Wal-Mart	58.76	**Buy**	52.47	**Buy**	53.80	**Buy**	49.69	**Buy**	-10.7%	NC	2.5%	NC	-7.6%	NC	No		No		
30 Walt Disney	23.71	**Buy**	17.91	**Buy**	16.52	**Hold**	17.08	**Hold**	-24.4%	NC	-7.7%	DG	3.3%	NC	Yes	1	Yes	2	DG

The table header "March 1, 2002 through February 28, 2003 — Average Stock Price" spans the price/rating columns.

* **Type of Rate Change – UG = Upgrade, N = Neutral** (No Change), DG = Downgrade, D = Dropped   Chg Type = coverage action rating
* **Majority of Rating = By firms during each quarter, Buy/Hold/Sell**
* **Analyst change rating** – only considers those companies whose stock decreased 20% or greater for the period.

Table 8: Independent Analysts (IA) Investars.com Recommendations Analysis

This table displays the recommendations made by independent analysts (IA) for the period March 2002 to March 2003. It reflects a quarterly analysis based on type of recommendation, stocks with significant price changes of 20% or more, and changes in coverage action and rating by quarter throughout the period.

Independent Analysts (IA) Recommendations

Source: Investars.com Dow Jones 30 InvestarRating™	1 Qtr	Majority Rating	2 Qtr	Majority Rating	3 Qtr	Majority Rating	4 Qtr	Majority Rating	1 QTR vs 2 QTR	Chg Type	2 QTR vs 3 QTR	Chg Type	3 QTR vs 4 QTR	Chg Type	Did stock < 20% in the period? (Yes/No)	Out of 3 Qtrs, stock < 20%? (1,2,3)	Analysts change Rating? (Yes/No)	# of Qtrs change Rating	Type of Change (Majority > 50%)
1 3M	122.45	Hold	123.80	Hold	122.44	Hold	124.99	Hold	1.1%	NC	-1.1%	NC	2.1%	NC	No		No		
2 Alcoa	36.52	Hold	28.65	Hold	21.82	Hold	21.76	Hold	-21.6%	NC	-23.8%	NC	-0.3%	NC	Yes	2	No		NC
3 American Exp	41.41	Hold	35.75	Hold	33.98	Hold	35.64	Hold	-13.7%	NC	-4.9%	NC	4.9%	NC	No		No		
4 AT&T	14.34	Hold	10.41	Hold	14.55	Hold	23.40	Hold	-27.4%	NC	39.8%	NC	60.8%	NC	Yes	1	No		NC
5 Boeing	45.97	Hold	41.07	Hold	32.77	Hold	31.60	Hold	-10.7%	NC	-20.2%	NC	-3.6%	NC	Yes	1	No		NC
6 Caterpillar	55.48	Hold	45.74	Hold	40.78	Hold	45.37	Hold	-17.6%	NC	-10.8%	NC	11.2%	NC	No		No		
7 Citigroup	45.42	Hold	36.26	Hold	32.74	Hold	35.32	Hold	-20.2%	NC	-9.7%	NC	7.9%	NC	Yes	1	No		NC
8 Coca Cola	52.96	Hold	52.29	Hold	47.70	Hold	43.03	Hold	-1.3%	NC	-8.8%	NC	-9.8%	NC	No		No		
9 DuPont	46.27	Hold	42.29	Hold	39.85	Hold	40.45	Hold	-8.6%	NC	-5.8%	NC	1.5%	NC	No		No		
10 Eastman Kodak	32.13	Hold	29.70	Hold	30.73	Hold	34.34	Hold	-7.6%	NC	3.5%	NC	11.8%	NC	No		No		
11 Exxon Mobil	41.64	Hold	37.10	Hold	33.75	Hold	34.29	Hold	-10.9%	NC	-9.0%	NC	1.6%	NC	No		No		
12 General Electric	34.88	Hold	29.73	Hold	25.99	Hold	24.51	Hold	-14.8%	NC	-12.6%	NC	-5.7%	NC	No		No		
13 General Motors	62.15	Hold	49.38	Hold	37.08	Hold	36.47	Hold	-20.5%	NC	-24.9%	NC	-1.7%	NC	Yes	2	No		NC
14 Home Depot	47.44	Hold	33.10	Hold	28.48	Hold	23.04	Hold	-30.2%	NC	-13.9%	NC	-19.1%	NC	Yes	1	No		NC
15 Honeywell Int'l	38.35	Hold	33.08	Hold	23.73	Hold	23.84	Hold	-13.7%	NC	-28.3%	NC	0.5%	NC	Yes	1	No		NC
16 Hewlett-Packard	18.56	Hold	14.98	Hold	14.40	Hold	18.36	Hold	-19.3%	NC	-3.9%	NC	27.5%	NC	No		No		
17 IBM	91.95	Hold	73.13	Hold	72.09	Hold	80.38	Hold	-20.5%	NC	-1.4%	NC	11.5%	NC	Yes	1	No		NC
18 Intel	29.81	Hold	19.18	Hold	16.41	Hold	16.87	Hold	-35.7%	NC	-14.5%	NC	2.8%	NC	Yes	1	No		NC
19 Int'l Paper	42.51	Hold	40.49	Hold	35.33	Hold	35.91	Hold	-4.8%	NC	-12.7%	NC	1.6%	NC	No		No		
20 Johnson Johnson	62.70	Hold	53.39	Hold	56.75	Hold	53.86	Hold	-14.8%	NC	6.3%	NC	-5.1%	NC	No		No		
21 JP Morgan	35.11	Hold	28.67	Hold	20.38	Hold	24.04	Hold	-18.3%	NC	-28.9%	NC	18.0%	NC	Yes	1	No		NC
22 McDonalds	28.59	Hold	26.22	Hold	18.41	Hold	15.48	Hold	-8.3%	NC	-29.8%	NC	-15.9%	NC	Yes	1	No		NC
23 Merck & Co.	56.97	Hold	49.17	Hold	50.82	Hold	56.33	Hold	-13.7%	NC	3.3%	NC	10.9%	NC	No		No		
24 Microsoft	56.49	Buy	50.77	Buy	25.42	Buy	25.85	Buy	-10.1%	NC	-49.9%	NC	1.7%	NC	Yes	1	No		NC
25 Philip Morris	53.29	Hold	48.68	Hold	40.72	Hold	39.42	Hold	-8.7%	NC	-16.3%	NC	-3.2%	NC	No		No		
26 Proctor & Gamble	88.68	Buy	88.55	Buy	88.32	Buy	85.24	Buy	-0.2%	NC	-0.3%	NC	-3.5%	NC	No		No		
27 SBC	35.04	Hold	28.93	Hold	24.20	Hold	25.74	Hold	-17.4%	NC	-16.4%	NC	6.4%	NC	No		No		
28 United Tech	71.20	Hold	65.31	Hold	59.12	Hold	62.32	Hold	-8.3%	NC	-9.5%	NC	5.4%	NC	No		No		
29 Wal-Mart	58.76	Hold	52.47	Hold	53.80	Hold	49.69	Hold	-10.7%	NC	2.5%	NC	-7.6%	NC	No		No		
30 Walt Disney	23.71	Hold	17.91	Hold	16.52	Hold	17.08	Hold	-24.4%	NC	-7.7%	NC	3.3%	NC	Yes	1	No		NC
		***		***		***		***							YES = 13	No = 13			

* **Type of Rate Change – UG = Upgrade, N = Neutral** (No Change), DG = Downgrade, D = Dropped   Chg Type = coverage action rating
* **Majority of Rating = By firms during each quarter, Buy/Hold/Sell**
* **Average Stock Price – The arithmetic average stock price during the quarter.**
* **** From actual Investars Yearly Recommendations Numbers.**
* **Analyst change rating** – only considers those companies whose stock decreased 20% or greater for the period.

Table 9: Independent Analyst (IA) Recommendation Summary

This table displays the summary of all independent recommendations made during the period March 2002 to March 2003. It reflects all 746 recommendations, by type, made by the 989 firms in the period (not all firms gave ratings).

Source: Investars™.com Dow Jones 30	Very Strong Sell (-4)	Strong Sell (-3)	Sell (-2)	Under Perform (-1)	Perform (0)	Out Perform (1)	Buy (2)	Strong Buy (3)	Very Strong Buy (4)	Buy	Hold	Sell	# of Firms (A)	Average Investar Rating	Action Rating	Buy	Hold	Sell	Total
1 3M						1.45				-	1.45	-	33	1.45	**Hold**	10	15	-	25
2 Alcoa						0.93				-	0.93	-	30	0.93	**Hold**	7	14	-	21
3 American Exp						0.79				-	0.79	-	31	0.79	**Hold**	5	19	-	24
4 AT&T				(0.63)						-	(0.63)	-	36	(0.63)	**Hold**	7	20	1	28
5 Boeing						0.6				-	0.62	-	30	0.62	**Hold**	7	13	1	21
6 Caterpillar					0.02					-	0.02	-	28	0.02	**Hold**	7	13	-	20
7 Citigroup						1.08				-	1.08	-	32	1.08	**Hold**	14	9	2	25
8 Coca Cola						1.15				-	1.15	-	28	1.15	**Hold**	7	13	-	20
9 DuPont						0.56				-	0.56	-	24	0.56	**Hold**	5	11	-	16
10 Eastman Kodak						0.62				-	0.62	-	27	0.62	**Hold**	5	11	3	19
11 Exxon Mobil				(1.24)						-	(1.24)	-	33	(1.24)	**Hold**	11	12	2	25
12 General Electric						0.89				-	0.89	-	30	0.89	**Hold**	9	12	1	22
13 General Motors						0.75				-	0.75	-	35	0.75	**Hold**	9	14	3	26
14 Home Depot						0.79				-	0.79	-	37	0.79	**Hold**	10	16	2	28
15 Honeywell Int'l						0.69				-	0.69	-	32	0.69	**Hold**	8	15	1	24
16 Hewlett-Packard						0.63				-	0.63	-	38	0.63	**Hold**	9	21	1	31
17 IBM						0.60				-	0.60	-	38	0.60	**Hold**	11	18	-	29
18 Intel						1.03				-	1.03	-	46	1.03	**Hold**	12	26	-	38
19 Int'l Paper						1.03				-	1.03	-	26	1.03	**Hold**	5	11	-	16
20 Johnson Johnson					(0.46)					-	(0.46)	-	33	(0.46)	**Hold**	14	10	1	25
21 JP Morgan					0.30					-	0.30	-	38	0.30	**Hold**	6	19	3	28
22 McDonalds				(0.92)						-	(0.92)	-	29	(0.92)	**Hold**	6	15	1	22
23 Merck & Co.						0.60				-	0.60	-	37	0.60	**Hold**	6	23	1	30
24 Microsoft							1.61			1.61	-	-	43	1.61	**Buy**	22	13	-	35
25 Philip Morris						1.07				-	1.07	-	23	1.07	**Hold**	6	9	-	15
26 Proctor & Gamble							2.00			2.00	-	-	26	2.00	**Buy**	13	4	1	18
27 SBC					0.26					-	0.26	-	44	0.26	**Hold**	6	27	2	35
28 United Tech						0.95				-	0.95	-	29	0.95	**Hold**	9	12	-	21
29 Wal-Mart						1.33				-	1.33	-	34	1.33	**Hold**	14	13	-	27
30 Walt Disney					(0.32)					-	(0.32)	-	39	(0.32)	**Hold**	15	16	1	32
	0	0	-	(3)	(0)	18	4	0	0	0.45	0.69	-	989	32.97		275	444	27	746
(A) Not all firms gave a rating.	**Sell**	**Sell**	**Sell** 3.6%	**Hold**	**Hold**	**Hold** 59.5%	**Buy**	**Buy**	**Buy** 36.9%							36.9%	59.5%	3.6%	100%

Table 10: Non-Independent Analyst (NIA) Recommendation Summary

This table displays the summary of all non-independent analysts' (NIA) recommendations made in the period March 2002 to March 2003. It indicates the various types of the 5,952 recommendations made during the period.

	Source: ThomsonFn.com **Recommendations** *Dow Jones 30*	Strong Buy	Buy	Hold	Under perform	Sell	Total	Majority %	Majority Rating	Buy	Hold	Sell	Total	Avg # Ratings by Mo.
										Summarized by Ratings				
1	3M	37	62	51	5	14	169	59%	Buy	99	56	14	169	17
2	Alcoa	52	78	41	4	10	185	70%	Buy	130	45	10	185	19
3	Amercian Express	52	51	68	18	-	189	54%	Buy	103	86	0	189	19
4	AT&T	72	65	99	4	6	246	56%	Buy	137	103	6	246	25
5	Boeing	22	52	69	20	-	163	45%	Hold	74	89	0	163	16
6	Caterpillar	39	49	88	4	-	180	49%	Hold	88	92	0	180	18
7	Citigroup	114	69	19	5	4	211	87%	Buy	183	24	4	211	21
8	Coca Cola	40	59	68	-	-	167	59%	Buy	99	68	0	167	17
9	DuPont	20	51	66	10	2	149	48%	Hold	71	76	2	149	15
10	Eastman Kodak	3	21	39	41	10	114	21%	Hold	24	80	10	114	11
11	Exxon Mobil	33	77	123	8	3	244	45%	Hold	110	131	3	244	24
12	General Electric	61	52	27	-	2	142	80%	Buy	113	27	2	142	14
13	General Motors	35	47	72	1	1	156	53%	Buy	82	73	1	156	16
14	Home Depot	96	60	84	10	1	251	62%	Buy	156	94	1	251	25
15	Honeywell Int'l	34	39	57	3	-	133	55%	Buy	73	60	0	133	13
16	Hewlett-Packard	53	51	92	-	-	196	53%	Buy	104	92	0	196	20
17	IBM	56	76	102	-	-	234	56%	Buy	132	102	0	234	23
18	Intel	63	81	109	2	6	261	55%	Buy	144	111	6	261	26
19	International Paper	29	57	30	12	12	140	61%	Buy	86	42	12	140	14
20	Johnson & Johnson	70	73	73	5	9	230	62%	Buy	143	78	9	230	23
21	JP Morgan	36	64	90	8	-	198	51%	Buy	100	98	0	198	20
22	McDonalds	45	18	78	20	14	175	36%	Hold	63	98	14	175	18
23	Merck & Company	39	43	168	22	12	284	29%	Hold	82	190	12	284	28
24	Microsoft	113	142	43	-	-	298	86%	Buy	255	43	0	298	30
25	Philip Morris	33	65	18	-	-	116	84%	Buy	98	18	0	116	12
26	Proctor & Gamble	73	27	33	-	-	133	75%	Buy	100	33	0	133	13
27	SBC	44	92	142	11	7	296	46%	Hold	136	153	7	296	30
28	United Tech	51	30	106	3	-	190	43%	Hold	81	109	0	190	19
29	Wal-Mart	70	120	53	-	-	243	78%	Buy	190	53	0	243	24
30	Walt Disney	73	82	78	23	3	259	60%	Buy	155	101	3	259	26
		1558	1853	2186	239	116	5952			3,411	2,425	116	5,952	595

Buy	Buy	Hold	Hold	Sell
	57.3%		40.7%	1.9%

*Total of 5,952 ratings divided by 10 months = Average rating by brokers.

*10 months used because Sep & Oct 2002 rating info missing.

Table 11: Research Environment and External Influences

This table shows the research environment and external influences characteristic of non-independent analysts (NIA) and independent analysts (IA).

NIA Research Environment:	IA Research Environment:
Investment bank or analyst ownership of covered stock	No investment banking activity
Underwriting	No proprietary trading
Bring offerings of stock to market (IPOs and Secondaries)	Money management
Analyst may go on Marketing road shows (touts stocks)	Not directly or indirectly owned by funds or sell side firms
Pressure on research analyst from investment banking side	No restrictions by information providers
Commission and compensation may be tied to stock recommendations	Seek transparency and accountability to institutional and retail investors
Complex Buy/Sell stock rating system	Commission and compensation not tied to recommendation and performance
Dropping coverage of stock has high negative impact	Simple Buy/Sell stock rating system
	Dropping coverage of stock has low negative impact
NIA External Influences:	**IA External Influences:**
Regulation tightened, but still relatively low	Lobbyists
Lobbyists	Retail investor may not want to pay for formerly free research
Government influence pro big business	Government move to more regulation of Wall Street
"Old Boys" Network	Purist attitude to research from academics and grass-root consumers
Long-term relationships with Fortune 500 Companies	Institutional investor and credit rating agency demand for good information.
Ease of access to media	Communication through newsletters and websites