Conflicts of Interest, Regulations, and Stock Recommendations

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Abstract

This paper examines how sell-side equity research companies (brokerage houses) responded to the increased scrutiny of their equity research business regarding conflicts of interest between investment bank and research departments. This scrutiny materialized in new regulations adopted by the Self-Regulatory Organizations (SROs) NASD and NYSE – affecting all brokerage houses – and in the Global Settlement – affecting the big 10 brokerage houses. I find evidence of an overall change in the distribution of recommendations issued by brokerage houses after the new regulations took effect, in which they leaned towards less optimistic ratings. However, the big change is crosssectional, with the big 10 brokerage houses that were part of the Global Settlement aggressively downgrading recommendations, to the point where the distribution of their consensus recommendations after the regulations took effect became fairly symmetrical between optimistic and pessimistic ratings. More importantly, the results suggest that the regulations achieved their goal of curbing effects of conflicts of interest in how recommendations are issued. While in the pre-regulatory period underwriter recommendations were more likely to be optimistic, and this bias was only partially recognized by the market, after the regulations were adopted the underwriter status is no longer a determinant of optimism in recommendations.

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1. Introduction

Over the last decade, academic papers and the financial press have pointed to the presence of conflicts of interest in the relationship between investment bank and sell-side research departments, while investors have grown suspicious of the quality of research put out by security analysts employed by these research departments.¹ Around 2001, perhaps as an effect of the downturn of the stock market, the clamor for change in the way security analysts work was finally heard. The first steps were taken during the summer of 2001, when the US Congress held hearings entitled "Analyzing the Analysts", but the main changes occurred in 2002. New regulations aimed at curbing the conflicts of interest were put into effect starting in July 2002 by the Self-Regulatory Organizations (SROs), NASD and NYSE, affecting the work of virtually every security analyst. Around the same time, the Global Analyst Research Settlement ("Global Settlement"), involving top investment banks, was being prepared, and it was formally announced later in that year.

Michaely and Womack (1999) showed that conflicts of interest have indeed had asset pricing implications, as the biased optimism originating in these conflicts has not been completely recognized by investors. Therefore, it is important to investigate the impact of regulations specifically designed to cope with conflicts of interest. In this paper I examine the effects of the new regulations on the research produced by companies having a sell-side equity research department (hereafter, referred to as brokerage houses). I ask whether the regulations were successful in curbing conflicts of interest linked to investment bank business.

Changes in the behavior of brokerage houses are examined through recommendations they issued for US common stocks between July 1995 and December 2003. In the first part of the paper I investigate the mechanics of changes in research output that are associated with the adoption of the new regulations. In analyzing the distribution of new and consensus recommendations, I split my sample of brokerage houses in two groups, depending on whether or

¹ Examples in the academic literature include: Dugar and Nathan (1995), Lin and McNichols (1998), Michaely and Womack (1999), Boni and Womack (2002A) and Chan, Karceski and Lakonishok (2003). Examples in the financial press include: *Wall Street Journal*, "Wall Street Grows Treacherous for Analysts Who Speak Out", April 5, 1990, page C1; *Wall Street Journal*, "Merrill Alters a Policy on Analysts", July 11, 2001, page C1; *Wall Street Journal*, "Under Pressure: At Morgan Stanley, Analysts Were Urged to Soften Harsh Views", March 25, 1992, page A1; *Wall Street Journal*, "Incredible Buys: Many Companies Press Analysts to Steer Clear of Negative Ratings", July 19, 1995, page A1; *Wall Street Journal*, "Jack of All Trades: How One Top Analyst Vaults 'Chinese Walls' to Do Deals for Firm", March 25, 1997, page A1; *Financial Times*, "Shoot All The Analysts", March 20, 2001, page 22; *Fortune*, "Where Mary Meeker Went Wrong", May 14, 2001, pages 68-82; *Wall Sreet Journal*, "Outlook for Analysts: Skepticism and Blame", June 13, 2001, page C1; *Wall Street Journal*, "The Real Telecom Scandal", September 13, 2002, page A16.

not the brokerage house participated in the Global Settlement. While the SROs' new rules and the Global Settlement had the same objectives, I argue that the brokerage houses affected by the Global Settlement were more likely to change their behavior. Besides the monetary fines and the extra spotlight brought upon the top ten brokerage houses included in the Global Settlement, it established a powerful precedent from which legal lawsuits can be developed in case conflicts of interest persist in these brokerage houses.

I report that, prior to the new regulations, brokerage houses in general disproportionately issued upbeat recommendations with sell recommendations being virtually absent from the sample – a pattern that, certainly, worked as an important motivator for the adoption of the regulations. On the cross-sectional dimension, there is hardly any difference in the distribution of new and consensus recommendations between the two groups in the period prior to the new regulations. The period after regulations were adopted reveals a significant change in the pattern of these distributions. In general, every brokerage house started issuing more hold and pessimistic (underperform or sell) recommendations and less optimistic (strong buy and buy) ones, but the big difference is in the cross-sectional dimension. Big 10 brokerage houses now issue pessimistic recommendations much more aggressively. This shift starts with the adoption of new ratings systems by 8 of the big 10 brokerage houses are twice as likely to put a stock in a pessimistic category, and, amongst the big 10 brokerage houses, the same fraction of stocks are now in optimistic ratings.²

I next investigate the value of recommendations as perceived by investors. Analysis of market reactions to recommendations when the new regulations took effect indicates that investors were initially dismissive of the increase in pessimistic recommendations by the big 10 brokerage houses. Returns associated with recommendations during the adoption of new ratings systems – when the new patterns of more balanced distribution were achieved – do not show the usual pattern of positive (negative) event and future returns associated to optimistic (pessimistic) recommendations. However, informativeness of the recommendations is present for the sample after the new ratings systems are already in place. In particular, the analysis of longer horizon returns does not reveal any decrease in the big 10 recommendations' ability to predict future returns after the new ratings systems are adopted. In fact, there is evidence, both pre- and post-regulation, of overreaction to recommendations coming from big 10 brokerage houses: event

 $^{^{2}}$ In concurrent work, Barber et al (2003B) also discuss the time-series of distribution of recommendations from 1996 to 2003, and report that bigger brokerage houses generally have a smaller fraction of buys than the sample as a whole.

returns to big 10 recommendations are more pronounced as compared to non-big 10 recommendations, but long-term returns are not significantly different between the two groups.

While the new distribution of recommendations indicates an overall reduction of *declared* optimism, it does not necessarily translate into a reduction of *inferred* optimism. In fact, the analysis of market reactions suggests that the change in the distribution of recommendations partly comes about due to a corrective process of renaming of ratings. In particular, I corroborate anecdotal evidence that brokerage houses were used, before the new regulations took place, to aggregate stocks with pessimistic prospects under the hold recommendation level. After the new regulations, the big 10 brokerage houses seem to "mean what they say" when they distribute stocks between hold and sell recommendations, as revealed by market reactions that correctly impose a negative tone solely to the explicitly pessimistic (sell) recommendations, but no longer do so for hold recommendations (for non-big 10 brokerage houses the disguise of sell recommendations as hold still seems to be occurring). The attainment of correct naming of ratings conforms to the objectives of regulations, which, for example, prescribe that "definitions of ratings terms also must be consistent with their plain meaning" and that a "'hold' rating should not mean or imply that an investor should sell a security".

In drafting the new rules, regulators were especially concerned about whether conflicts of interest arising from investment banking business could be influencing how recommendations were determined. I examine this issue by looking at the occurrence of underwriting business (IPO or SEO) between the brokerage house and the stock being recommended as a proxy for the existence of conflicts of interest. I show evidence of a reduction of optimism linked to this proxy: other things equal, the presence of underwriting business implied a 50% increase of the odds of a new recommendation being optimistic before the new regulations took effect, but since then the effect has largely disappeared.

Results on market reactions are consistent with the idea that rational markets should be able to discount a biased optimism and with the prediction in Chen and Marquez (2004) that reduced optimism should be accompanied by a bigger price impact of optimistic recommendations. Before the regulations, the market recognized the optimistic bias associated with underwriting business by discounting optimistic recommendations coming from brokerage houses with potential conflicts of interest at play, but as in Michaely and Womack (1999), the adjustment to the bias was only partial. After regulations were adopted, and consistent with the elimination of excess optimism linked to underwriting relationships, there are no incremental effects on market reactions to recommendations issued by brokerage houses with potential conflicts of interest.

My results have important policy implications. They suggest that the new regulations were successful in their objectives of curbing the excessive optimism and the conflicts of interest between investment banking and research departments, revealed in the recommendations issued by the brokerage houses. The Global Settlement, however, elicited a more powerful response from the brokerage houses. The distribution of recommendations is now very balanced between buy and sell recommendations (which are no longer disguised under the "hold" umbrella); this change was not carried out at the expense of informativeness of recommendations; and the link between the presence of underwriting business and optimistic recommendations was removed.

The paper is organized as follows. Section 2 describes the new regulations affecting the security analysts' industry and develops the hypotheses of this study. Section 3 describes the data and the sample selection procedures. Section 4 examines the ratings systems in use by the biggest brokerage houses, and analyzes the events of changes in the ratings systems that occurred when the new regulations became effective. Section 5 examines the pattern of recommendations through time and across brokerage houses, and how they relate to the new regulations. Section 6 examines the value of recommendations as proxied by market reactions to newly issued recommendations. Section 7 explores whether and how conflicts of interest are associated with optimism in recommendations in the period pre- and post-regulations. Section 8 concludes.

2. The New Regulations of the Securities Analysts' Industry

During the summer of 2001, the US Congress held the "Analyzing the Analysts" hearings. While the congressional initiative did not result in specific outcome in terms of regulatory practice, it certainly contributed to draw attention to the issue of conflicts of interest in brokerage house research. For example, the statement by the SEC Acting Chairman Laura Unger emphasized that:

It has become clear that research analysts are subject to several influences that may affect the integrity and the quality of their analysis and recommendations. (...) Analyst practices are now firmly in the spotlight. That spotlight has exposed the conflicts analysts face. This exposure is beneficial for investors. (...) I am hopeful that recent industry initiatives will help to reduce or more effectively manage the conflicts of interest that threaten analysts' fairness and objectivity. I am also optimistic that appropriate amendments to SRO rules, coupled with vigilant enforcement of these rules, will improve disclosure of conflicts of interest by firms and their analysts.³

³ See pages 228 to 240 of the Analyzing the Analysts Hearings of the Committee on Financial Services, U.S. House of Representatives, July 14; July 31, 2001, Serial No. 107-25. Documentation on the hearings can be found at

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_house_hearings&docid=f:73368.pdf.

The self-regulatory organizations (SROs) were indeed the first to act. In the summer of 2002, new rules for sell-side analysts became effective through NYSE and NASD.⁴ July 9, 2002 marked the start of the new rule 2711 in NASD and of the amended rule 472 in NYSE. According to SEC, "the NASD and NYSE rules, as amended, are substantially identical and are intended to operate identically";⁵ they were adopted to complement existing regulations that were both uncoordinated and insufficient to address the growing complaints from the public.

The main purpose of the SROs' new rules was to sever the ties between investment bank (IB) and research departments. Among other measures, the rules limit the relationships and communications between IB and research personnel, prohibit analyst compensation that is based on specific IB transactions, prohibit the subject company from reviewing a research report before publication (except for checking factual accuracy) and establish quiet periods during which a firm acting as manager or co-manager of a securities offering can not issue research reports on a company.

The new rules also establish very stringent disclosure requirements for research reports. The disclosure requirements are aimed at providing investors with better information to properly interpret the research output, to be aware of the possibility that the research might be subject to conflicts of interest and to verify, ex-post, its value. For example, a research analyst has to disclose when issuing a research report if she received compensation based on IB's revenue, if she holds a position as officer or director in the subject company or if the subject company is a client of the firm. To make research output more meaningful and easily comparable across different analysts and firms, the rules prescribe that every research report must explain the meaning of its ratings system, disclose the percentage of all ratings as mapped to buy/hold/sell categories and provide a price chart that maps past prices of the recommended stock together with the points at which ratings were assigned or reviewed.⁶

⁴ In accordance with federal law, virtually every securities firm doing business with the US public is a member of NASD. NASD takes disciplinary actions against firms and individuals for violations of NASD rules; federal securities laws, rules, and regulations; and the rules of the Municipal Securities Rulemaking Board. These disciplinary actions include fines on firms and individuals, suspending or barring individuals from working with security firms or expelling firms from the NASD system.

⁵ See page 5 of the text on the SEC approval of the new rules, Release No. 45908, which can be found at <u>www.nasdr.com/pdf-text/rf02_21_app.pdf</u>. A complete description of NYSE rule 472 can be found at <u>http://www.nyse.com/pdfs/rule472.pdf</u> and a complete description of NASD rule 2711 and its amendments can be found at <u>http://www.nasdr.com/filings/rf02_21.asp</u>. Boni and Womack (2002A) provide a good description of the steps leading to the SROs' new rules as well as a discussion of their main provisions.

⁶ The Sarbanes-Oxley Act of July 24th, 2002 also added to the increasing scrutiny of analysts. The Act mandates the SEC, either directly or indirectly through the SROs, to adopt not later than one year after the date of enactment of the Act "rules reasonably designed to address conflicts of interest that can arise when

Simultaneous to the adoption of SROs' new rules, the Global Settlement was being prepared, and, at the end of 2002, it was formally announced. The Global Settlement was an agreement established among the Securities and Exchange Commission (SEC), New York Attorney General, North American Securities Administrators Association (NASAA), NYSE, state securities regulators and the 10 "top investment firms to resolve issues of conflicts of interest at brokerage firms".⁷ In terms of objectives, the Global Settlement closely mirrored the SROs' new regulations passed in the summer of 2002, most importantly with respect to attempts to sever the ties between investment banking and research departments. Similarly to the NASD 2711 and the NYSE 472 regulations, the Global Settlement included measures to (1) restrict investment banking relationship with research department and to (2) impose stringent disclosure requirements on the analysts' research. In a few cases, the Global Settlement's mandates extend beyond the SROs' new rules, for example by requiring that the participants have their investment bank and research departments physically separated and that the research department have a dedicated legal department.

The Global Settlement went a step further, though. First, it certainly brought extra public attention on the big 10 participants as they were singled out as concrete examples of the bad practices the Global Settlement and the new SROs' rules were set to fix. It also included heavy monetary sanctions on the participants (a total of \$1.4 Billion). The sanctions included penalties and monies to be used for investor restitution, investor education and to establish independent research channels. Moreover, the settlement included a Letter of Acceptance, Waiver and Consent (AWC) from each participant that documented in rich details many instances of conflicts of interest, violations of NASD rules and firm's internal policies or simply fraudulent reports. While the settlement guaranteed that "NASD will not bring any future actions against Respondent alleging violations based on the same factual findings" contained in the AWC, it also expressed that the AWC "will become part of Respondent's permanent disciplinary record and may be considered in any future actions brought by NASD, or any other regulator, against respondent" (e.g. page 1 of J.P. Morgan's Letter of AWC). That is, for the participants of the Global Settlement, misdeeds of the past were settled for the moment, but repetitions of misdeeds in the

securities analysts recommend equity securities in research reports and public appearances, in order to improve the objectivity of research and provide investors with more useful and reliable information" (see SEC Release no. 34-47110 at <u>http://www.sec.gov/rules/sro/34-47110.htm</u>). Some of the later amendments of rules 2711 and 472 are likely to have been influenced by the requirements of the Sarbanes-Oxley Act.

⁷ Quotation from the 2/20/2002 press-release announcing the Global Settlement. The press-release provides a general description of the Global Settlement and can be found at <u>www.nyse.com/pdfs/global-j.pdf</u>. More detailed information, including the Letters of Acceptance, Waiver and Consent for all the participants of the settlement, can be found at www.nasd.com/global_settlement.asp.

future might lead to even harsher measures given that there is already a documented precedent to support a legal case.

Thus, in terms of rules and guidelines for how analysts should do their work in order to avoid conflicts of interest, the NASD and NYSE regulations and the Global Settlement are very similar (hereafter, I use the term regulation, if not further defined, as to refer to the combined NASD and NYSE new rules and the Global Settlement). While the SROs' regulations affect all the brokerage houses, the Global Settlement involves only the top brokerage houses. If one accepts that the effects of both sets of regulations are the same, no incremental effects should be observed on the big 10 brokerage houses beyond what is observed among the other brokerage houses. However, one can expect that the Global Settlement was more effective as a motivator for change, given the limelight it put on the big 10 brokerage houses, a few extra requirements on how research department should be structured, the monetary sanctions and the legal precedent to pursue future misdeed in case they persisted. Moreover, by virtue of their size, the big 10 brokerage houses have a special appeal to regulators. As a recent article in the Wall Street Journal proclaims, smaller brokerage houses can be more lenient regarding regulations "mostly because overworked regulators have spent most of their energy on the best-known and biggest securities firms" (Wall Street Journal, "Research Rules Trickle Down to Small Firms", January 19, 2004, page C1). Therefore, I hypothesize that the Global Settlement acted as a more powerful mechanism to entice different behavior from brokerage houses.

While brokerage houses produce many other pieces of information about stocks they track (such as general research reports, and forecasts on earnings, sales, growth etc), I analyze the effects of the regulations based on stock recommendations. First, recommendations were always the center point of the complaints about conflicts of interest and of the demand for the regulations discussed above. For example, the SEC describes the purpose of the new regulations passed by NYSE and NASD as to "address conflicts of interest that are raised when research analysts recommend securities in public communications" (page 3, SEC Release no. 45908). Moreover, recommendations seem to represent a research output that is more binding. Elton, Gruber and Grossman (1986) describe recommendations as "one of the few cases in evaluating information content where the forecaster is recommending a clear and unequivocal course of action rather than producing an estimate of a number, the interpretation of which is up to the use" (page 699). Recommendations, thus, constitute the best data in order to examine whether the new regulations elicited new behavior from brokerage houses.

I first examine the distribution of recommendations over time and across different brokerage houses. Chen and Marquez (2004) examine in a theoretical setting the impact of adoption of regulations addressing conflicts of interest between investment bank and research departments. I investigate their model's prediction that such new regulatory regime would provoke an overall decrease in optimism. I also examine possible incremental effects of the Global Settlement, by looking at cross-sectional differences between participants of the Global Settlement and the other brokerage houses.

An alternative, non-mutually exclusive, hypothesis for an overall decrease in optimism is that a new distribution can come from a mechanism of renaming the recommendations' categories. Rule 472 states that "definitions of ratings terms also must be consistent with their plain meaning" and that "a 'hold' rating should not mean or imply that an investor should sell a security" (Rule 472, page 9). For example, if brokerage houses change their behavior by agreeing with the regulation's suggestion that they were putting a stock on hold when they meant sell, a simple impact of the regulations would be an increase in the pessimistic recommendations. If the criticism applied to the other categories as well, there could be an overall shifting or downgrade of recommendation (i.e. a reduction in declared optimism) without necessarily meaning a reduction in inferred optimism.

More crucial to assess the regulation is to understand its effects on conflicts of interest. In order to get a better understanding on whether reduction in optimism in fact comes from reduction of conflicts of interest, I examine cross-sectional differences in optimism based on the sample where conflicts of interest, as described in the regulations, are most likely to happen. For example, Lehman Brothers' Letter of AWC stated that "pressure on analysts to assist in obtaining investment banking deals and to maintain banking relationships adversely affected the integrity of analyst's report (...) regarding companies that were investment banking clients". Thus, I use the occurrence of a previous underwriting relationship as a proxy for the importance of conflicts of interest.

The second prediction in Chen and Marquez (2004) refers to the asset pricing implications of the regulations. It establishes that the overall decrease in optimism would be accompanied by a bigger "credibility or price impact of optimistic stock reports". This is an extension of the idea that investors should be able to discount an optimism bias if rational market participants are at play. Beyond Chen and Marquez (2004)'s prediction, though, a fundamental aspect of determining the relevance of conflicts of interest refers to whether the bias, if it is present, is completely adjusted for by investors. I examine how investors recognize and respond to optimism

in both periods – before regulations, when biased optimism should be more acute, and after regulations, if in fact it was curbed. A better assessment is obtained, though, by looking at what happens for the sample where conflicts of interest are most likely to occur.

3. Data and sample selection

Data on new recommendations come from I/B/E/S Detail Recommendations dataset and are complemented by data on prices and returns from CRSP database and on underwriting business from SDC. The end of I/B/E/S sample is December 2003. Some investigations that require the use of 6-month returns after a recommendation preclude the use of any recommendation data beyond June 2003. Moreover, since some of the investigations are done on a yearly basis, I start the sample in July 1995, leading to eight 12-month periods of analysis. Along these periods I collect all recommendations that refer to a US common stock (share code=10 or 11) with a valid match in CRSP database.

While brokerage houses sometimes employ different ratings on their recommendations, I/B/E/S classifies all recommendations in its database according to a 5-level ratings system (strong buy, buy, hold, underperform and sell). A sixth category that shows up in the database refers to 'stopped records', i.e. instances in which an analyst or brokerage house signals discontinuation of coverage or cancellation of an outstanding recommendation. Table 1 shows that, ignoring stopped records, there are 256,469 new recommendations in my final sample, from July 1995 to December 2003.

There are 460 brokerage houses identified by I/B/E/S database that have at least one recommendation issued for a US common stock during the period of analysis of this study (in order to maintain the confidentiality of the database, the names of each brokerage house will be omitted in this study). However, the distribution of recommendations is highly concentrated among big brokerage houses. Table 1 indicates that the group of 10 brokerage houses involved in the Global Settlement is responsible for 27% of all the new recommendations in our sample, and, together with the group of the next 15 biggest brokerage houses (where size is simply proxied by the total number of recommendations issued by the brokerage house in our sample), they account for more than 50% of the sample. This distribution is also fairly stable through the years.⁸

Table 2 presents a closer look at the biggest brokerage houses in my final sample. It shows yearly summary statistics for the brokerage houses belonging to the 'big 10' group as well as for

⁸ Except that the big 10 group seems to have a lower share of the market for the early years. This is in part due to the fact that data on one of the big 10 brokerage houses is only available in I/B/E/S starting on the second half of 1998.

20 biggest brokerage houses on the 'non-big 10' groups (brokerage houses are ranked based on the total number of recommendations issued in the period). To save space, I show results for recent years only. Indeed the brokerage houses in the 'big 10' group are big, no matter what proxy for size is used; in general, they issue more recommendations per year, employ more analysts and track more US common stocks than the other brokerage houses. On the other hand, the table suggests that the Global Settlement did not include companies solely based on size of the research department; in particular the 10th brokerage house in the group of big 10 seems to be "smaller" – according to the size proxies seen above - than some of the non-big 10 brokerage houses.

The last columns in Table 2 present summary statistics on underwriting business. For this, I match the I/B/E/S database with SDC data on IPO and seasoned equity offerings, identifying for each equity offering deal the brokerage houses that were its underwriters. In terms of the statistics shown in Table 2, I consider that a brokerage house participated in a deal if it was a lead underwriter. For each brokerage house, I first report the number of deals it was a lead underwriter for, and its market share – as a fraction of all deals in the year. I also summarize the importance of this participation in the last column, by reporting the yearly sum of proceeds of all its deals as a fraction of all proceeds from the underwriting market in that specific year. The results reinforce the idea that the participants in the Global Settlement were singled out due to their importance in the market for underwriting business. With the exception of the smallest among them, the big 10 brokerage houses are indeed the biggest underwriters, more so if we take as a proxy for market participation their market share in terms of proceeds.⁹ This is not surprising, given that the main motivation of the Global Settlement was to curb the conflicts of interest between investment bank and research department, whence a brokerage house with a more active and important investment bank department is the natural candidate to examine in terms of the potential conflicts of interest.

In summary, Table 2 suggests that, while big 10 brokerage houses are in fact bigger than nonparticipants of the Global Settlement, the more fundamental difference among them happens in how often they participate in the underwriting market.¹⁰

⁹ Notice that summing up the big 10 proceeds as a fraction of all proceeds can easily surpass 100%. This happens because I double count the proceeds when there are joint lead underwriters in the same deal.

¹⁰ There might be a concern on whether the two groups of brokerage houses are indeed comparable, more so if one uses the full sample of non-big 10 brokerage houses. Later in the empirical examination I account for this concern by alternatively defining the non-big 10 group as containing only the biggest among the whole population of non-big 10 brokerage houses, as they seem to be similar to the big 10 brokerage houses. Size of research department is one dimension of interest when comparing different brokerage houses, and Table 2 indicates that the big 10 are comparable at least to the biggest among all other

4. Ratings Systems

A. Characteristics of Ratings Systems

One important aspect of the new regulations presented in Section 2 is the stringent disclosure requirements imposed on how information is produced and disseminated by the brokerage houses. In particular, brokerage houses are now obliged to "define in research reports the meaning of all ratings used in the ratings systems" (SEC Release No. 45908, page 7). By aiming at providing investors with "better information to make assessments of a firm's research" (SEC Release No. 45908, page 7), the new rules expressed a concern about ratings systems that were loosely defined and maybe not properly understood by the research's clients.

In this section, I examine this concern. By analyzing the I/B/E/S dataset, using articles in the media and information from each brokerage house's webpage, I collect information on whether each brokerage house changed its ratings system after 2001. I also collect the exact meaning of the ratings system that is currently in operation (and the previous one in case it has changed recently), in terms of how many levels the system has and the performance benchmark that is used to put a stock in each of these tiers. Table 3 summarizes this information for the 30 brokerage houses that were analyzed in Table 2.

It is clear from the table that the adoption of new ratings system was widespread, at least for the subsample of biggest brokerage houses. Eight out of the 10 participants of the global settlement adopted a new ratings system in 2002, and 10 of the next 20 biggest brokerage houses adopted a new ratings system starting in 2002 (beyond these 30 brokerage houses, I was able to identify only 3 other brokerage houses that had their ratings system changed after 2001 and up to the end of 2003).

Regarding the number of categories in the ratings system, Table 3 indicates that most of the biggest brokerage houses nowadays operate in a 3-tier methodology. In particular, every new ratings system adopted after 2001 carries a 3-tier methodology, a change whose motivation can be linked to the disclosure requirements of the new regulations, that "regardless of the ratings system that a member employs, a member must disclose in each report the percentage of all

brokerage houses. The results on participation in underwriting business, both in terms of number of number of deals each brokerage house led and in terms of the proceeds raised in these deals, suggest that the 'size' of investment bank department is another important dimension distinguishing the brokerage houses. Fortunately, it seems that these two dimensions are correlated. Moreover, there is only one non-big 10 brokerage house in Table 2 having no participation in underwriting business whatsoever, i.e. a pure research brokerage house; all the others have an active investment bank department and therefore conflicts of interest between investment bank and research departments – the main motivation of the new regulations – can be considered an issue for them.

securities rated by the member which the member would assign a buy, hold/neutral or sell rating" (Rule 2711, page 7). The meaning of the 3-tier system is very uniform amongst all brokerage houses: although the exact term may differ in each system, for all purposes they can be mapped directly to categories that I term optimistic, neutral and pessimistic.¹¹

A fundamental aspect of the meaning of a ratings system is the performance benchmark used to categorize the stock's prospects. In the period before the new regulations were put into effect, it was very common for brokerage houses to either use the overall market as a performance benchmark or to use no benchmark at all. The results in Table 3 suggest that the adoption of new ratings system was often accompanied by a change in the system's performance benchmark. The pattern of changes among the big 10 brokerage houses is once more very uniform, with 7 out of the 8 new ratings systems using the industry/sector as the new performance benchmark. Among the non-big 10 brokerage houses, only 3 adopted the industry/sector benchmark, and the other 7 brokerage houses that adopted new ratings system kept their traditional benchmarks.

I now ask whether the adoption of a new ratings system comes together with a more balanced distribution between optimistic and pessimistic recommendations. For the results reported in Table 3, I consider the distribution of a brokerage house's recommendations to be balanced if the fraction of stocks rated in a pessimistic ranking is above 15%. This is clearly the case for the big 10 brokerage houses: among the 8 brokerage houses that changed their ratings system, 7 ended up with a concentration of recommendations in the pessimistic classification surpassing the 15% threshold. For the non-big 10 brokerage houses, the pattern is not so striking, as only half of the new ratings systems are accompanied by a more balanced distribution of recommendations.

In summary, the results in Table 3 suggest that the new regulations provoked extensive adoption of new ratings systems by brokerage houses. The new ratings systems are simplified in terms of number of rating categories, tend to use the industry/sector as the benchmark to which stock's performance should be compared, and are often associated with distributions that are more balanced between optimistic and pessimistic recommendations. Finally, these effects are more pronounced among the big 10 brokerage houses: they overwhelmingly adopt new ratings systems, more consistently adopt the industry benchmark and more consistently achieve balanced distributions.

¹¹ Some of the terms that the brokerage houses use are (Outperform, Neutral, Underperform), (Outperform, In-line, Underperform), (Overweight, Neutral, Underweight), (Outperform, Market Perform, Underperform), (Outperform, Peer Perform, Underperform), (Buy, Hold, Sell), etc. One article in the press commented how the ratings systems virtually eliminated the "S" word, as the "Sell" term is rarely used to identify the pessimistic category (see http://www.snl.com/real_estate/archive/20020923.asp).

B. The Event of Change in Ratings Systems

Given the widespread adoption of new ratings systems for big 10 brokerage houses when the new regulations became effective, and the substantial changes brought by these new systems, a closer analysis of these episodes is warranted. In this section, I analyze the event of the change in ratings system for the big 10 brokerage houses that adopted a new system starting in 2001.

For each such brokerage house, I identify in the company's website and in press articles the exact date when the new system was put into place (event date). Around this event date, the I/B/E/S database first documents a sequence of stopped records to invalidate all outstanding recommendations for this brokerage house, followed by a sequence of new recommendations already under the new system. In terms of timing, the stopped records usually appear up to one business day before the event date and all new recommendations appear exactly at the event date. I report in Table 4 some summary statistics around these event dates.

The first row reports the day each new system was put into place. There is a concentration of adoption of new systems in September 2002 (5 adoptions, 4 of them on the same day) and only one such adoption occurred before July 2002 (the month when the new NASD and NYSE regulations became effective). The dates of adoption of new ratings system usually matches events related to the adoption of the NASD and NYSE rules. September 9, 2002 (the day after 4 of the big 10 brokerage houses adopted new systems) and November 6, 2002 (right after another brokerage house adopted its new system) are dates in which some clauses of the new rules became effective. In particular, September 9, 2002 marked the introduction of the rule that brokerage houses have to disclose the distribution of their outstanding recommendations together with every new research report. Therefore, in terms of timing, all but one of the new ratings systems were adopted after the new regulations; for the remaining adoption, in March 2002, it comes after the Rule 2711 was submitted to SEC (February 2002) and is not clear to what extent the decision was associated with the Global Settlement, in that it is difficult to assess how advanced was at that point the investigations that would lead to the Global Settlement (although the spotlight on conflict of interests influencing how brokerage houses recommended stocks was already a hot issue at that point, as discussed in Section 2).

Next, I examine whether the adoption of ratings systems is associated with changes in the portfolio of stocks tracked by each brokerage house and how that relates to the post-adoption distribution of recommendations between optimistic and pessimistic recommendations. First, the results in the 2nd and 3rd rows from Table 4 indicate that all brokerage houses reduced their coverage when they adopted the new ratings, with an average reduction of 12% of their

portfolios.^{12,13} The next rows reports how the new recommendations are distributed among the 3 rating levels. All but the 2nd brokerage house ended up with the fraction of pessimistic ratings around and beyond 20%; this is particularly striking given that all of them had, the day before the new ratings systems became effective, less than 2% of the stocks rated in a pessimistic level.¹⁴

The next rows analyze the previous classification of the new recommendations in each rating category. In the row 'initiated' I report the fraction of stocks in each category that were additions to the portfolio of tracked stocks, while the following rows indicate the fraction of stocks that were sell/strong sell, hold or buy/strong buy before the new ratings were adopted. They indicate that the new distribution is not achieved by addition of new stocks to the portfolio of tracked stocks, as the fraction of initiated stocks in each category never reaches beyond 1% of the final portfolio. Instead, new distributions were obtained by reshuffling – and, for the most part, downgrading – of outstanding recommendations. All the brokerage houses that started weighting heavier on the pessimistic rating did so by effectively downgrading stocks in their old portfolio: for then, more than 90% of the stocks newly rated pessimistic were at least rated neutral under the old system, and more than 40% of the stocks newly rated neutral were at least buy/strong buy under the old system. On the other hand, less than 5% of the stocks newly rated optimistic were not already considered as such under the old ratings system.

These results suggest that the event of adoption of new ratings system was significant in that it provoked a remarkable change in the classification of the stocks – in terms of their assessment regarding future prospects – tracked by each brokerage house. One might ask, however, whether all these changes were relevant, in the sense of conveying new information to the market. To examine this issue, I focus on price reactions to the newly issued recommendations as a proxy of the investor's perception regarding the value of the recommendations.

¹² In this examination I do not consider stopped records referring to stocks that were delisted before the event date (i.e. stocks that the brokerage house did not have the option to keep on tracking).

¹³ In unreported results, I analyze for each brokerage house the sample of stocks whose coverage was discontinued (dropped stocks). Results suggest that the decision to drop a stock was related to size and past performance rather than the stock's future prospects. Thus, the tendency of analyst to drop stocks with unfavorable prospects (e.g. McNichols and O'Brien (1997)) is not revealed here, perhaps unsurprisingly given that the goal of the adoption of new rating system seemed to be the achievement of a distribution more balanced between optimistic and pessimistic recommendations, which required the presence of stocks with unfavorable prospects in the sample of stocks with continued coverage.

¹⁴ Again, observe that the date of adoption of most new ratings systems leading to a more balanced distribution between optimistic and pessimistic recommendations coincides with the introduction of the rule that brokerage houses have to disclose the distribution of the outstanding recommendations together with each research report. One research professional quoted in a press article before this date (*Wall Street Journal*, "Should You Trust Wall Street's New Ratings?", July 17, 2002, page D1) voiced the expectation that analysts' reluctance to issue pessimistic recommendations would be diminished once sell-side firms were forced to display their distribution of rating.

I analyze price reactions based on measures of abnormal returns obtained from 2 different return-generating models. Size-adjusted returns for each stock are computed by subtracting from the stock's actual return the return of the CRSP market capitalization decile portfolio corresponding to the stock. Given the prominence of industry benchmarks in the ratings systems, I also use industry-adjusted returns. Similar to the approach used by Womack (1996), industry-adjusted returns are computed as follows. First, size-adjusted return is computed for each stock in my sample as well as all other stocks from NYSE and NASDAQ in the same industry – using Fama and French (1997) 48-industries classification. The industry-adjusted return for each stock is then computed as the difference between the size-adjusted return for the stock and the mean of the size-adjusted returns for the industry-matched stocks.

The last set of rows in Table 4 present statistics on size- and industry-adjusted returns computed around the adoption of new ratings system. First, buy-and-hold returns for the 6-month period before the event of change in ratings system – i.e. along the interval [-122,-2], where day 0 is the day the new ratings system became effective – are reported. They indicate a strong association between the new classification of the recommendations and momentum, e.g. documented in Jegadeesh et al (2004). Stocks set with optimistic recommendations are preceded by industry-adjusted returns that are economic and significantly positive for all brokerage houses, while stocks ranked as pessimistic are preceded by abnormal returns that are negative for all brokerage houses' adoptions, and significantly so for all but one of them. For the stocks ranked in a neutral category, results are mixed, with abnormal returns that are not significantly different from 0 for 6 out of the 8 events of adoption of new ratings systems.

I now turn to the more relevant question on whether the new recommendations elicit price reactions, by examining the buy-and-hold size- and industry-adjusted returns for the event period (interval [-1,+1]) and the post-event period (interval [-1,+122]). For the stocks classified in an optimistic category, industry-adjusted event returns are significantly positive in 5 out of 8 brokerage houses (for another brokerage house the event returns are significantly negative), but the effect largely disappears, as in all the cases the 6-month ahead adjusted returns are not significantly different from 0. Thus, the classification of stocks into the optimistic category did not seem to be conveying new information to the market, a result somewhat expected given that, as seen above, these stocks were by and large selected from a rating that was already optimistic before the adoption of the new system.

For the stocks classified in a pessimistic rating, though, one would expect it to be carrying new information, as for the most part they were not classified in a pessimistic category before the event. However, the results indicate no effect of the inclusion of stocks in the pessimistic category: Event returns are not significantly different from 0 for all brokerage houses, and only in one case the group of pessimistic stocks presents a significantly negative industry-adjusted return along the 6-month post-event period. However, under the hypothesis that hold recommendations were already recognized as having a pessimistic tone, it might be the case that only the pessimistic recommendations whose previous rating was a buy or strong buy really correspond to a downgrade. However, computing event returns for subsamples of pessimistic recommendations, based on whether they come from hold or previously optimistic recommendations, does not reveal any differential pattern beyond the ones discussed above. In other words, during the event of adoption of new ratings system, classifying a stock in a pessimistic rating did not seem to convey new information to the market.

This investors' behavior is consistent with at least two scenarios. In the first scenario, investors perceived the myriad of downgrades from big 10 brokerage houses as essentially not carrying any value-added information, either because they were the sole result of the pressure from new regulations or because the investors simply were discounting the truthfulness of big 10 recommendations given the barrage of bad publicity resulting from the Global Settlement revelations. In the alternative scenario, though, the downgrades were free of information content, but in addition they were taken to be correcting the status of stock recommendations from an optimistic bias that the Global Settlement indicated was prevalent in the past.^{15,16}

¹⁵ It is interesting to observe that all but one of the brokerage houses that achieved a balanced distribution did so at the moment of adoption of a new ratings system. One might wonder about the main motivation for the brokerage houses to change their ratings systems. The motivation presented by the brokerage houses can be summarized in the words "simplicity" and "clarity" (especially with respect to the adoption of the 3tier systems) appearing in the majority of the announcements of a change in ratings systems. However, it is more arguable whether the adoption of new performance benchmarks contributed to this simplicity, more so when different brokerage houses adopt different benchmarks or when the concept of industry or sector might be not as clear as the overall market. In this regard, some brokerage houses expressed the view that the new benchmarks allowed for a better fit for the analysts' skills, given that many analysts are essentially industry specialists. Nevertheless, even if only by coincidence, the adoption of a new benchmark was interesting in that it allowed a complete reshuffle of the outstanding recommendations – including, as seen above, setting pessimistic outlooks for many stocks that were not rated in a negative tone before the change - without an admission that the outstanding recommendations were flawed. For example, the presentation of the new system for one such brokerage house included the disclaimer "Our new ratings system, in which stock is rated relative to a coverage universe, is not directly comparable to our previous ratings system, in which stocks were rated relative to market averages". This was certainly a useful feature, especially during a period in which a plethora of criticism was set over the brokerage houses' emphasis on optimistic recommendations.

¹⁶ This includes the view that some of these stocks were already classified in a pessimistic rating before the new ratings system was adopted, e.g. if the market interpreted a hold in the old rating system as a pessimistic rating. I return to this issue in Section 6.

5. The Distribution of Recommendations

The previous section reported that the change in ratings systems often led to a more balanced distribution of recommendations between optimistic and pessimistic ratings. However, it was not shown to what extent distributions were unbalanced in the past or whether this balanced pattern was sustained after the new ratings were adopted. The objective of this section is to fill this gap, and examine in details the distribution over time of stock recommendations.

A. Consensus Recommendations

I first analyze consensus recommendations. In order to define the consensus recommendation for a stock in a certain month, I average its outstanding recommendations for that month. Since ratings systems sometimes differ between the pre- and post-regulation periods, I adopt two form of averaging, one based on the traditional 5-tier I/B/E/S ranking and other based on a reduced, 3-tier, rating system. Details on the averaging are discussed in Appendix A.

When separating the sample in stocks that are tracked by two different groups of brokerage houses, I have to address the concern of whether the two resulting subsamples are comparable. For example, it could be the case that the two groups of brokerage houses track different sets of stocks, let's say, because non-big 10 could be catering to a different clientele and, maybe, tracking smaller stocks more consistently than big 10 brokerage houses. If that is true, any inference based solely on the pattern of distribution of consensus recommendations between these two groups would be inadequate if it did not control for the differences in the subsamples characteristics. Rather than trying to control for differences in subsamples that are freely formed, I opt to define subsamples that are directly comparable. For this, the research design includes consensus recommendations in a month for a given firm only if this firm had outstanding recommendations from at least one big 10 and one non-big 10 brokerage house in that month.

Figure 1 and Figure 2 report the monthly distribution of consensus recommendations for the group of big 10 and non-big 10 brokerage houses according to the 2 alternative definitions of consensus. Let's focus first on the patterns of the distribution up to mid 2002, that is, in the period before any of the new regulations had become effective. Notice that, during this period, the vast majority of the brokerage houses (in particular, all the big 10) were still using the expanded, 4- or 5-tier ratings systems, thus the inferences using I/B/E/S classifications can be deemed appropriate.

The concerns about the truthfulness of information embedded in recommendations is highlighted by how rare underperform and sell recommendations are. Sell recommendations are virtually absent and underperform recommendations never reach more than 2% of the sample. The bulk of consensus recommendations is concentrated in the strong buy and buy categories, together accounting for around 60% or more of the stocks in the sample. Hints of conflicts of interest can also be found in the pattern of increasing fraction of buy recommendations, at the expense of a decreasing fraction of hold recommendations, up to year 2000. The period in which buy recommendations were so prominent coincides with a hot market period for underwriting business, and the decline in the presence of buy recommendations coincides with the downturn of the market and of the underwriting business conditions.

Along the cross-sectional dimension, Figure 1 suggests that there is not much difference in the distribution of consensus recommendations between groups of big 10 and non-big 10 brokerage houses. The only noticeable difference is that, among strong buy and buy categories, big 10 brokerage houses tended, up to year 2001, to lean more towards strong buy recommendations. However, aggregating strong buy and buy categories results in numbers that are very similar among the two groups – added to the fact that underperform and sell categories are so rare, this implies that the fraction of consensus recommendation in the hold category for the two groups are also very similar.

However, when I turn to the last 18 months of the sample, a completely different pattern emerges. Now, of course, it is important to take into consideration that most of the big 10 and also some other brokerage houses started using the reduced 3-tier system, so inferences are made using both Figure 1 and Figure 2. First, for big 10 brokerage houses, there is an overall increase in the fraction of stocks rated pessimistic. The increase starts in early 2002, when the first big 10 brokerage house adopted a new ratings system, but really spikes in the second half of the year, most noticeably September 2002, when 5 brokerage houses adopted the new system: the fraction of stocks in the pessimistic category jumps from 3% to about 20%. This occurs at the expense of stocks rated at strong buy and buy (optimistic) categories. Finally, stocks rated at a hold or neutral experience a slight increase through the same period. After November 2002, the distribution of the consensus recommendations for big 10 brokerage houses seems to have reached a new equilibrium, with virtually the same fraction of stocks rated at the symmetric optimistic categories and with the bulk of the recommendations – more than 60% - concentrated at the hold/neutral category.

The close similarity of the distribution of consensus recommendations between big 10 and non-big 10 brokerage houses that was discussed above does not persist in the last part of the sample. While one also observes a decrease (increase) in the fraction of stocks rated in the strong buy and buy (hold and underperform) categories for non-big 10 brokerage houses, the fractions after the regulations take place are not even close to the ones presented by the big 10 brokerage houses. Non-big 10 brokerage houses are now more upbeat than the big 10, keeping more of the stocks rated as optimistic. More strikingly so, brokerage houses from big 10 group are now twice more likely than the ones from the non-big 10 group to put a stock in a pessimistic rating.¹⁷

B. New Recommendations

Of course, consensus recommendations are merely the result of aggregating each newly issued recommendation, whether it is a change in recommendation from a previous level, a recommendation issued for the first time for a specific stock, or a cancellation of an outstanding recommendation (a stopped record). For example, a pattern of more downward consensus recommendations can result from increasing the issuance of recommendations that imply downgrading from previous recommendations, or, alternatively, from removing recommendations that were upbeat.

In order to investigate what is behind the consensus recommendation of big 10 and non-big 10 brokerage houses, I present in Figure 3 and in Figure 4 the monthly distribution of newly issued recommendations. I aggregate recommendations in the groups of big 10 and non-big 10 brokerage houses by defining another consensus measure, this time based only on the recommendations that were issued in the current month (i.e., Figure 3 and Figure 4 show the distribution of consensus of *only the newly issued* recommendations for each stock, while Figure 1 and Figure 2 discussed above showed the distribution of consensus of *all outstanding* recommendations for each stock). The results indicate that the same patterns discussed above for the consensus of outstanding recommendations are observed for the consensus of newly issued recommendations: overall decrease (increase) in optimistic (pessimistic) recommendations and more pronounced effects for the group of big 10 brokerage houses. The important diagnostic coming from the figures, though, is that the pattern of the consensus recommendations does not seem to be driven by a localized spur in how new recommendations are issued (in particular, not driven by how recommendations were issued by the occasion of the change in ratings system) as the pattern of distribution of consensus of newly issued recommendations is sustained over time.

¹⁷ I analyze further the formation of the consensus recommendation. Results (unreported) indicates that the in the distribution of recommendations does not come with greater disagreement among brokerage houses regarding prospects of the stocks they track. Moreover, when looking at each brokerage house alone, I find that each group's pattern is fairly consistent throughout individual components of the group. Finally, I check that the results are not driven by changes in portfolio formation and that they are robust to keeping in the group of non-big 10 brokerage houses only those that are comparable in size to the big 10 brokerage sizes.

Another way to examine the distribution of new recommendations is to quantify the propensity of brokerage houses to issue recommendations of different types, over time and across brokerage houses. This propensity is examined by a logistic regression where the dependent variable is a dummy that equals 1 whenever the recommendation is of a specific type, and the data points are all new recommendations issued along the period under analysis. In this analysis, only stocks that had one or more recommendations are included in the sample. That would be a concern if one wanted to assess the propensity of a stock to be recommended. However, the objective here is to evaluate, *conditional* on a stock having received a recommendations, the likelihood of this new recommendation being optimistic (or pessimistic) given the observable characteristics of the recommendation – e.g. whether it was issued by a big 10 brokerage house.

I run cross-sectional time-series (fixed effects) logistic regressions. Similarly to the traditional panel data regression, the fixed effects logistic regression is equivalent to having one intercept for each stock.¹⁸ This allows controlling for possible stock characteristics that are robustly linked to the likelihood of receiving recommendations of certain types. Since I want to quantify the differential likelihood of big 10 issuing optimistic or pessimistic recommendations, I include a *Big10* dummy for whether the new recommendation is coming from a big 10 brokerage house. Given the overwhelming evidence that momentum is an important determinant of new recommendations (see Table 4, or Womack (1996) and Jegadeesh et al (2004)), I include *Ret6Bef*, the buy-and-hold industry-adjusted returns over the 6-month period before the recommendation date, as a control variable. Finally, I interact these controls with *Pre* and *Pos* dummies for whether the recommendation is issued before or after September 2002.

The regression includes, thus, data from before and after the time the new regulations were adopted. Two other criteria apply to the sample selection. First, I include recommendations in a month for a given firm only if this firm had recommendations issued by both a big 10 and non-big 10 brokerage house in that month. This sample selection procedure is intended to control for differences in the characteristics of firms for which big 10 and non-big 10 brokerage houses issued recommendations. Second, given that the pattern of new recommendations at events of change in ratings systems was already dissected in the previous section, I do not include in the sample the recommendations issued during an event of change in ratings system. The results of the regressions are presented in Table 5.

¹⁸ Although in this case these intercepts are not estimated. Given the formulation of the logistic function, the likelihood function does not include the dummies. This is also important in that, by avoiding the inclusion of the firms' dummies, the estimation procedure does not face the incidental parameters problem. For details on the fixed effects logistic regression, see Chamberlain (1980) and Greene (1997).

Let's first analyze the likelihood of having a pessimistic recommendation, in Model I of Table 5. Momentum effect is very robust, as the coefficients for momentum are significantly negative in both pre- and post-regulations periods. The biggest determinant of this likelihood, though, is the *Pos* dummy (t-stat of 21.10); its odds ratio of 4.42 indicates an increase of 340% in the odds of a new recommendation being of a pessimistic nature if it is issued after September 2002. Now, regarding how the type of brokerage house is linked to this likelihood, the coefficient *Big10*Pre* is significantly negative (t-stat of -6.65): its odds ratio of 0.58 indicates that the fact that a recommendation, issued before September 2002, comes from a big 10 brokerage houses' propensity to issue more pessimistic nature. On the other hand, the big 10 brokerage houses' propensity to issue more pessimistic recommendations after September 2002 is captured by the significantly positive coefficient *Big10*Pos* (t-stat of 4.64): its odds ratio of 1.342 indicates that the *incremental* effect – after accounting for the fact that the observation is post-September 2002 – of coming from a big 10 brokerage is an increase in 30% of the odds of being pessimistic.

Model II reports a similar analysis done by modeling the likelihood of the recommendation being optimistic. Of course, the results of Model I and Model II are not independent. Anyway, Model II's results corroborate the overall patterns seen so far, that there are fewer optimistic recommendations post-regulations, that big 10 were less likely to issue optimistic recommendations recently and that momentum has always been a good determinant of this likelihood.

In summary, this section presents evidence of an overall change in the distribution of recommendations issued by brokerage houses after the new regulations took effect, in which they lean less towards optimistic ratings. The new distributions were started mostly at the events of changes in ratings systems, but the new patterns of distribution are sustained over time. The major change is cross-sectional, with big 10 brokerage houses aggressively issuing downgrading recommendations, to the point that the distribution of consensus recommendations for big 10 after the regulations took effect is fairly symmetrical between optimistic and pessimistic ratings.

¹⁹ I revisit the issue whether the new pattern of distribution of recommendations (either outstanding or consensus) is associated with changes in the portfolio of stocks tracked by the brokerage houses. As an indication on whether brokerage houses are shifting their portfolio of tracked firms, I examine the subsample of initiations of coverage, i.e. of instances in which a brokerage house issues a recommendation for a stock for the first time. The results (unreported, available upon request) indicate that the distribution of recommendation levels for the subsample of initiations of coverage closely follows the pattern of the distribution for the complete sample presented in Figure 1 and Figure 2. Also, the patterns on the distribution of consensus recommendations shown in the figures above are robust to the removal, from the sample, of stocks whose initiation of coverage occurred after 2001. Therefore, the shift in the way big 10

6. The Value of Recommendations: Market Reactions to New Recommendations

In this section I analyze the relevance of recommendations. The issue of relevance – i.e. whether recommendations convey useful information – was already analyzed in Section 4 with respect to the events of changes in ratings system; the results then suggested that the new recommendations issued at the occasion of a change in ratings system were not informative. I now pursue this issue further, by examining the relevance of recommendations beyond the events of changes in ratings systems, i.e. in the periods before and after new regulations became effective. I focus on price reactions to newly issued recommendations, because they are more likely to indicate investor's perception regarding the value of the recommendation.²⁰ I analyze price reactions based on measures of actual and abnormal returns. As in Section 4, I use size-adjusted and industry-adjusted measures of abnormal returns.

Table 6 reports summary statistics on actual, size-adjusted and industry-adjusted buy-andhold returns for different periods around the recommendation announcement date. The returns are separated by whether the recommendation comes from a big 10 or from a non-big 10 brokerage house, and by whether it is an upgrade and downgrade recommendation.²¹ Since I want to analyze the informativeness of recommendations beyond what happens at the events of changes in ratings systems, which was already analyzed in Section 4, I exclude from the present sample the

and non-big 10 brokerage houses recommended stocks does not seem to be driven by a change in its portfolio of tracked stocks.²⁰ Barber et al (2001) document that investment strategies designed to take advantage of recommendations

²⁰ Barber et al (2001) document that investment strategies designed to take advantage of recommendations do a much better job when portfolios are rebalanced immediately after changes in recommendations, while Green (2004) reports that most of the reactions to recommendations occurs at the very short term. Given that a consensus is obtained through the aggregation of outstanding recommendations that are on average very old, the price reaction to consensus recommendation (e.g. examining whether the consensus is a good predictor of future returns) is less likely to capture investor's perception of the value of the information supplied by the brokerage houses' research than the price reaction to newly issued recommendations. Corroborating this view, Jegadeesh et al (2004) find that changes in consensus recommendations (i.e. the direct effect of newly issued recommendations) is a robust predictor of future returns that does a much better job than the consensus of all outstanding recommendations.

²¹ One might argue that performance benchmark of each brokerage house should define what kind of return to be used in order to analyze price reactions to recommendations. Thus, one caveat of the analysis is that I aggregate all observations from a certain group (e.g., all downgrades from big 10 brokerage houses), disregarding the performance benchmarks, and then compute the average abnormal returns. The alternative – to use subsamples based on each performance benchmark – would bring much dispersion in the data and provoke loss of power in identifying return responses. The underlying questions, though, are well defined. First, to what extent are the empirical results affected by the use of different benchmarks? Leaving aside the raw returns, all other return measures (size-adjusted, industry-adjusted and, although not reported, simple market-adjusted returns) are very correlated and the general results in Table 6 as well in the regressions ahead seem to be robust to either alternative. The second, and more subtle question, is whether and to what extent these performance benchmarks are really used as the yardsticks defining the recommendations. Of course, there is no clear answer for that, although simple arguments – peer pressure, herding behavior etc – would indicate more of convergence than divergence in how analysts would actually benchmark their recommendations.

recommendations associated with changes in ratings systems. I also exclude from the sample the initiations of coverage (the existence of previous recommendation for the stock from the same brokerage house is necessary in order to label the new recommendation an upgrade or downgrade) and reiterations of recommendations (since it is not clear whether it corresponds to an upgrade or to a downgrade).²²

Event period abnormal returns are significantly positive (negative) for upgrades (downgrades) for all yearly periods. They are also economically significant, with the mean industry-adjusted return for upgrades being consistently higher than 2%, and for downgrades consistently lower than -3%. The association between changes in recommendation and momentum, e.g. documented in Jegadeesh et al (2004), is evidenced by the statistics on the 6-month and 1-month periods before event. Downgrades are preceded by average abnormal returns that are negative in the 6-month and the 1-month periods before the event for all years in the sample, and significantly so except for the first year. The results for upgrades are not so clear cut; average abnormal returns on the 6-month preceding the event are significantly positive for most of the years, but returns on the month preceding the sample of big 10 or at the sample of non-big 10 brokerage houses, and using either of the measures of abnormal returns.

The predictive ability of changes in recommendations is analyzed through Table 6 statistics on longer horizon returns following recommendations. Downgrades are associated with 6-month ahead average abnormal returns that are significantly negative in all periods – and the magnitude of the negative averages are similar between the big 10 and non-big 10 samples. Upgrades are also followed by 6-month average returns that are significantly positive in all but one year.²³

²² Ivkovic and Jegadeesh (2004) report that a big fraction (in their sample, 20%) of recommendations are issued around earnings announcements. Since it is difficult to disentangle price reactions to earnings announcements from price reactions to recommendations when they come together, and in order to avoid the possibility that reactions to earnings announcements are driving the empirical results here, I repeat the sampling procedure from Table 6 (and from the regressions below) after removing recommendations issued around earnings announcement dates: the (unreported) results are qualitatively and quantitatively the same.

 $^{^{23}}$ An important characteristic of the measures of longer-horizon returns is that they include the return at the recommendation issuance (i.e. a measure of total market impact). An alternative is to examine the postevent longer-horizon return, i.e. not including the event return. For example, for the 6-month ahead, the post-event return is computed using the interval [+1,122]. In unreported results, post-event longer-horizon returns are in the most cases not significant, indicating that in general the market effects of recommendations is to evaluate upgrades and downgrades together – as how they separate the sample of tracked stocks –, and compare returns after upgrades with returns after downgrades. Under this approach, post-event 6-month abnormal returns following upgrades are consistently higher than returns following downgrades, for all the years and for either subsample. For post-event 1-month abnormal returns, upgrades in general lead to better returns than downgrades, but the results are not as robust as with 6-month returns.

In summary, Table 6 does not single out any strikingly different pattern of returns around recommendations that are related to whether a recommendation does or does not come from a big 10 brokerage house. In fact, returns are similar in magnitude no matter what the recommendation source, the holding period, the sample year and whether it is an upgrade or a downgrade. This could be expected for the early years of the sample, given the overwhelming evidence in Section 5 that big 10 and non-big 10 brokerage houses are very alike in terms of new and consensus recommendations. However, even for the last year of the sample, the results between big 10 and non-big 10 are similar.

Now I adopt a regression model that can better combine all available data and discriminate further among different types of recommendations. The analysis is based on regression models in which the dependent variable is the abnormal return and the regressors are dummies associated with each classification category of a new recommendation. The basic model is as follows:

 $AbnRet = \alpha_1 Up_to_Optimistic + \alpha_2 Up_to_Neutral + \alpha_3 Optimistic_Reiterated + \alpha_4 Down_to_Neutral + \alpha_5 Pessimistic + \varepsilon$ (1)

where:

Up_to_Optimistic	=	dummy set to 1 if it is beginning of coverage with optimistic recommendation or if the recommendation is optimistic and previous recommendation was at most neutral
Up_to_Neutral	=	dummy set to 1 if it is beginning of coverage with neutral recommendation or if recommendation is neutral and previous recommendation is pessimistic (sell or underperform)
Optimistic_Reiterated	=	dummy set to 1 if both the previous and the new recommendations are optimistic
Down_to_Neutral	=	dummy set to 1 if the recommendation is neutral and previous recommendation was optimistic (strong buy or buy)
Pessimistic	=	dummy set to 1 if the recommendation is pessimistic (sell or underperform)

Notice that the classification above is defined according to the 3-tier model. Results using the expanded 5-tier model, for the period before the regulations became effective, are qualitatively similar to the ones reported here. In order to examine the effects of the recommendation origin, I interact the dummies above with dummies for whether a recommendation comes from a big 10 or from a non-big 10 brokerage houses. Tests of difference in coefficients allows for an examination of differential market reactions to recommendations coming from different brokerage houses.

 $AbnRet = \alpha_1 non_Big10*Up_to_Optimistic + \alpha_2 non_Big10*Up_to_Neutral + \alpha_3 non_Big10*Optimistic_Reiterated + \alpha_4 non_Big10*Down_to_Neutral + \alpha_5 non_Big10*Pessimistic + \beta_1 Big10*Up to Optimistic + \beta_2 Big10*Up to Neutral +$

$\beta_{3} Big10*Optimistic_Reiterated + \beta_{4} Big10*Down_to_Neutral + \beta_{5} Big10*Pessimistic + \varepsilon$ (2)

As before, in order to control for differences in the characteristics of firms for which big 10 and non-big 10 brokerage houses issued recommendations, the research design includes recommendations in a month for a given firm only if this firm had recommendations issued by both a big 10 and a non-big 10 brokerage house in that month. Finally, I exclude from the regression sample the recommendations associated with the events of changes in ratings systems.

I first run regressions (1) and (2), on a yearly basis, for the 3-day buy-and-hold industryadjusted event return around the recommendation announcement date.²⁴ Panel A of Table 7 shows results of the first regression model. The pattern of upgrades (downgrades) being associated with positive (negative) event returns is reinforced by the coefficients' estimates.²⁵ Downgrade recommendations towards a buy (most of the 'reiterations' of Optimism for the preregulations years is composed of transitions from strong buy to buy) or hold level and pessimistic recommendations are associated with significantly negative returns in all sample years; upgrades towards optimistic (buy or strong buy) are associated with positive returns in all sample years too, significantly so for 6 out of 8 years. The only category of change in recommendations which is not consistently significant throughout all the years is the upgrade towards a neutral: it is significantly negative in 5 out of 8 years.

The analysis of market reactions allows me to resume the discussion about the hypothesis that what happened in terms of changes in the patterns of issuance of recommendations is, at least partly, a result of a renaming in ratings categories. For example, if the market interpreted a hold in the old ratings system as a pessimistic category, then the increase in the fraction of pessimistic categories might have come from an implicit agreement between the brokerage houses and investors that what was being termed hold will simply be named pessimistic after the regulations.

²⁴ Results reported for the full sample, i.e. including data on all brokerage houses. Results are robust, though, to a more stringent definition of the non-big 10 group, e.g. including only the 15 or 20 biggest brokerage houses that did not participate in the Global Settlement.

²⁵ Notice that the reactions to pessimistic recommendations are higher in magnitude than reactions to upgrades towards optimistic recommendations, for all years in the sample. This is consistent with survey results in Boni and Womack (2002A) that suggest that buy-side professionals – important users of sell-side research – place little value on new buy recommendations and more value on sell (and downgrade) recommendations. That the relevance of a new recommendation might be related to its type is also suggested by Michaely and Womack (1999); they argue that new optimistic recommendations are "usually scrutinized by a research oversight committee or the legal department of the brokerage firm before release", thus taking some time before the release, while "sudden changes in recommendations", such as downgrades from buy recommendations, occurs in response to urgent information.

Here is how the press viewed the issue in 2001: "In the language of Wall Street, where firms are loath to issue sell recommendations, a neutral rating is tantamount to a sell", and one brokerage house was already "encouraging its analysts to call a stock a sell instead of hiding behind euphemisms such as neutral or market perform" (Wall Street Journal, "Merrill Alters a Policy on Analysts", July 11, 2001, page C1). In fact, a survey of buy-side professionals taken before the new regulations (Boni and Womack (2002A)) showed that 79% of respondents interpreted a hold recommendation as a sell recommendation. Finally, some results regarding the adoption of new ratings systems presented in Table 4 are consistent with this view: among the brokerage houses that achieved a more balanced distribution at the adoption of new ratings systems, at least 66% of the stocks newly rated pessimistic were rated hold immediately before the new ratings took place.

Panel A of Table 7 reveals that, except for the first year in the sample, upgrades to hold recommendations were accompanied by negative market reactions in all yearly samples – and economic and significantly so for the last 5 years – before the new regulations were adopted. Moreover, Panel B indicates no significant differential market reaction related to whether the hold recommendation comes from a big 10 brokerage house. However, return reactions to hold recommendations in the year where the regulations were in place present a different picture. When aggregating all data, the average market reaction is now positive, albeit not significant, but this non-significance is explained by the fact that there are now strikingly different market reactions to hold recommendations according to the type of brokerage house issuing them: Panel B reveals still negative (although non-significant) market reactions to hold recommendations coming from non-big 10 brokerage houses, but now there is a significantly positive reaction to hold if issued by a big 10 brokerage house.

These market reactions support the hypothesis that hold recommendations carried indeed a pessimistic tone, across all brokerage houses, in the years before the regulations were in place, and that they not convey a pessimistic tone anymore, especially when they are issued by the big 10 brokerage houses. The market believes the brokerage house now "mean what they say", and that they are not disguising pessimistic recommendations under the neutral rating anymore.

The hypothesis of a renaming in categories can be examined further for the other categories. For example, the fraction of stocks set to optimistic after regulations is higher than the fraction of stocks previously rated strong buy, but smaller than the fraction of stocks previously rated strong buy *or* buy. Analysts could have achieved this distribution by setting as optimistic all the stocks that were previously named strong buy and some (but not all) of the stocks previously named buy (i.e. optimistic is a new name for old ratings strong buy and - part of - buy). One should thus expect that market reactions to the optimistic rating after the regulation are smaller (bigger) than market reactions to the buy (strong buy *or* buy together) rating before the regulations. Similarly, less restrictive criteria to set a stock in a pessimistic tone after the regulations imply that one should expect lower (in absolute values) negative reactions to pessimistic recommendations under the new regime. These predictions are largely confirmed (results unreported) when comparing event reactions to the different categories in the years before and after the new regulations were adopted (except that market reactions to optimistic recommendations after regulations are not significantly different from market reactions to strong buy before the regulations).

I next investigate the returns following the recommendations. Event returns may not be a good measure of the quality of a recommendation if it takes time for the market to incorporate the new information embedded in the recommendation.²⁶ For example, Womack (1996) reports that price reactions to new buy and sell recommendations can last for one or even 6 (in the case of downgrades) months after the recommendation date. Table 8 reports results of running regressions (1) and (2) having as the dependent variable the 6-month industry-adjusted returns after the recommendation announcement.²⁷ This return is computed using the interval [-1,122] (or up to the final listing date, in case the company goes bankrupt or is delisted). The rationale for including the event return in the measure of the longer horizon return is that I want to assess the predictive ability of a new recommendation, disregarding whether this predictive ability is reflected in the short term return. The results in Panel A indicate that the predictive ability of recommendations as measured by longer-term abnormal returns mimics the results obtained for short-term (event) returns. Upgrades to optimistic ratings are followed by positive abnormal returns; downgrades to neutral, reiterations on optimistic recommendations and the pessimistic recommendations predict negative returns; and upgrades towards neutral mimic results seen for event reactions.

²⁶ If the information is readily incorporated, there is no purpose in looking at longer term returns. But, if that is case, then analysts should revise their recommendations after the incorporation of the new information, which would be almost right after it was initially issued. The fact that the median number of days between recommendation revisions is 174 suggests that the prospectus of firms recommended by the analysts are based on information that is not completely absorbed in the short term.

²⁷ While many papers uses 6-month as the longer term horizon to investigate returns after recommendations (e.g. Womack (1996), Green (2004) and Jegadeesh et al. (2004)), Lin and McNichols (1998) use a maximum span of 250 trading days and Michaely and Womack (1999) use a 12-month window. In this setup, though, in order to make use of the full sample of recommendations, which ends in December 2003, I am constrained to use a 6-month window (by finishing the sample in June 2003).

Finally, Panels B of Table 7 and Table 8 allow me to compare differences in informativeness of recommendations between big 10 and non-big 10 brokerage houses. First, there does not seem to be much evidence that big 10 have different predictive abilities from non-big 10 brokerage houses: coefficients' estimates using long-horizon returns are usually not different between the two groups. These results suggest that the increase in pessimistic recommendation issued by big 10 brokerage houses, while in part dismissed by investors initially (when new ratings systems were adopted), is not associated with a decrease in predictive ability of the recommendations.

The lack of difference in predictive ability of big 10 recommendations revealed in Table 8 can be confronted with the overall pattern in Table 7 that big 10 recommendations are more influential in the short-term – its event returns are bigger in absolute values and in the direction prediction by the recommendation ratings. For example, upgrades towards optimistic rating have bigger positive event returns if they come from big 10 brokerage houses for all years in the sample, and significantly so in 6 of the them (including the post-regulatory period). Thus, it seems markets overreact to recommendations coming from big 10 brokerage houses. Given that these are the brokerage houses that heavily participates in the investment bank business – the source of conflicts of interest that is the focus of the new regulations – this might resemble evidence of unadjusted bias from excess optimism, but a simpler, alternative, hypothesis is that the 10 brokerage houses are more influential simply because they are bigger, reach a wider audience, get more media attention etc.

7. Conflicts of Interest and Recommendations

I now turn to fundamental question on whether the new regulations indeed succeeded in curbing conflicts of interest between investment bank and research departments. While the changes in the distribution of recommendations point in the direction of a reduction in overly optimistic ratings, the results so far do not control for underwriting relationships. Lin and McNichols (1998) and Michaely and Womack (1999) report that brokerage houses tend to bias their recommendations for the group of firms with which they have underwriting relationships. Moreover, a survey of investment bankers and investment managers conducted by Michaely and Womack (2002A) suggests that the presence of conflicts of interest between investment bank and research departments is more likely to be the cause of the bias. Given the finding that the big 10 brokerage houses responded more forcefully to a regulation that aimed to curb conflicts of interest supposedly coming from underwriting relationships, it is important to investigate whether the effects documented here – e.g. the decrease in optimistic recommendations by big 10 - are

related to whether or not the brokerage house has had an underwriting relationship with the recommended firm.²⁸

In order to tackle this issue I define, for each newly issued recommendation, whether the brokerage house has had an underwriting relationship with the stock being recommended. Underwriting relationship is proxied by whether the brokerage house participated in any equity offering (IPO or seasoned) in the last 24 months preceding the issuance of the recommendation. Then I run cross-sectional time-series (fixed effects) logistic regression on whether a newly issued recommendation is optimistic, including as an explanatory variable a dummy *UWR*, set to 1 when a certain type of underwriting relationship is present. I run separate regressions for each type of underwriting participation, whether as a lead or co-lead underwriter, as a co-manager or simply as a syndicate member. Finally, I confine the sample to the recommendations issued by the group of big 10 brokerage houses, since, as presented in Table 2, the participation as lead underwriter is very concentrated in this group. Results are reported in Table 9.

Results are similar over the three definitions of underwriting relationship. As an example, I discuss here the numbers in Models I and II, obtained from UWR defined as a dummy equal to 1 whenever the brokerage house was a lead underwriter for the stock being recommended at some point during the 24 months period before the recommendation date. As before, momentum is an important determinant of optimistic recommendations, both pre- and post-regulations. The biggest determinant of optimism, though, seems to be the dummy for the post-regulation period, this time indicating a reduction of about 80% of the odds of an optimistic recommendation if it is issued in the more recent period. Regarding the presence of underwriting relationships, the effect is pronounced in the period before regulations: the coefficient UWR*Pre in Model II has odds ratio of 1.47 (t-stat of 4.34), indicating an increase in 50% of the odds of being optimistic if the recommendation is issued by a big 10 brokerage house that has recently had an underwriting relationship with the stock being recommended. However, there is no effect of an underwriting relationship in the likelihood of issuing an optimistic recommendation in the post-regulation period, as indicated by the insignificance of the coefficient UWR*Pos. Moreover, I also present a reduced regression in Model I, to emphasize that the inclusion of momentum as a regressor is not responsible for the results regarding the underwriting relationship dummies. The results suggest that the changes adopted by the big 10 brokerage houses after the new regulations are associated

²⁸ A recent report in the Wall Street Journal ("Stock Analysts Put Their Clients First", April 7, 2003, page C1) analyzes the basic research statistics that brokerage houses now must disclose when issuing research reports, and finds that the top security firms still consistently give higher ratings to their own banking clients.

with the reduction of importance of the presence of underwriting business as a determinant of optimistic recommendations.²⁹

There are two main arguments in the literature associating the presence of underwriting relationships and optimism in sell-side research (Lin and McNichols (1998), Michaely and Womack (1999)). First, and the focus of the new regulations, conflicts of interest between investment bank and sell-side research can lead to optimism in recommendations, as the pressure from investment bank to attract underwriting business and cultivate relationship with the firm being recommended preclude the research department from releasing a recommendation with a negative tone (strategic bias). Causality could work on the other direction, though, if the firm beforehand select underwriters that are by nature more optimistic about the firm (selection bias). The analysis presented here does not allow me to directly disentangle these two drivers of the optimism in recommendations issued by underwriters. It is possible that the reduced correlation between the presence of underwriting relationships and optimistic recommendations results from a combination of changes in conflicts of interest and changes in how firms choose underwriters.

However, I argue that reduction of conflicts of interest is more likely to be driving the reduction in underwriters' optimism. First, a survey of investment bankers and investment managers conducted by Michaely and Womack (1999) indicates that conflicts of interest, rather than the selection bias mechanism, is the dominant factor in determining the bias in stock recommendations. Moreover, the results discussed in the previous section lend credibility to the hypothesis that brokerage houses changed the way they recommend stocks as a result of the new regulations. While these regulations' foremost motivation was to curb conflicts of interest, there is no apparent reason why they would influence the mechanism by which firms, which were not the subject of the regulations, would select their underwriters. Thus, to the extent that that the selection mechanism has not been affected by the regulations, the regression results indicate a reduction of conflicts of interest as determinant of optimism in recommendations.

Markets should discount recommendations coming from underwriters if they believe that conflicts of interest are driving the optimism in recommendations. On the other hand, discounting

²⁹ Boni and Womack (2002B) discuss many factors that might damage the independence and objectivity of analysts' research output: (1) conflicts of interest between investment bank and research departments, (2) conflicts created by analysts' personal investment, (3) pressure from management of the covered companies, (4) pressure from institutional investor clients, (5) analysts' cognitive failures, and (6) influence of competition (herding behavior). The new regulations discussed in this paper were aimed at eliminating (1) and, to some extent, reducing the influence of (2) (since information about ownership now has to be disclosed), but they did not intend to interfere with the remaining factors. I am abstracting from these remaining factors, given that there is no ex ante reason for them to have changed as compared to the exogenous shock of the new regulations influencing factors (1) and (2).

of optimism due to pre-selection of optimistic underwriters is likely to be not so severe, since this optimism is not *per se* result of wrong assessment (e.g., optimism might come from special skills that enable that specific brokerage house to better understand the future prospects of the firm). In order to examine how the markets viewed the excess optimism linked to the presence of underwriting relationships, I examine price reactions to recommendations coming from underwriters as compared to other brokerage houses' recommendations. For this, I run regressions similar to Equations (1) and (2), with the difference that I now interact the classification dummies with a dummy for underwriter participation, i.e. set to 1 whenever the brokerage house issuing the recommendation was a lead underwriter in an equity offering for the stock being recommended in the last 24 months before the recommendation date (results are similar when using co-manager or syndicate member instead of lead underwriter). Results are presented in Table 10.

Let's first focus on results for event returns in Panel A, regarding differential value of a recommendation coming from brokerage houses acting also as underwriters. In the period before the regulations were in place, optimistic recommendations (upgrades toward optimistic rating, reiteration of optimistic rating, upgrades toward neutral rating) coming from a lead underwriter were significantly discounted. For example, regarding upgrades towards optimistic ratings, event returns to recommendations coming from underwriters is 1.29%, which is economic and significantly smaller than the 2.64% event return to recommendations coming from non-underwriters. However, in the period after the regulations this effect is not present anymore. These results are consistent with the market's perception that conflicts of interest were driving underwriter's optimism in the pre-regulatory period but not anymore.

Panel B examines the predictive ability of recommendations as proxied by the 6-month ahead returns. All 3 optimistic dummies interacted with underwriting participation are significantly negative in the period before but not in the period after the regulation, indicating that stocks with optimistic recommendations from lead underwriters used to significantly underperform their peers before the regulations. Again, this is consistent with the argument that the optimism from lead underwriters was unwarranted in the pre-regulatory period.

Finally, I compare event and 6-month ahead returns in order to verify to what extent the bias in underwriter recommendations is recognized by investors. For the period before regulations, the difference in market reactions between underwriter and non-underwriter optimistic recommendations is expanded when moving from event to 6-month ahead returns. For example, the average event return associated with upgrades towards optimistic coming from nonunderwriter is 2.64% and increases to 3.68% for the 6-month ahead return; for underwriters, the event return is 1.29% but the 6-month ahead is not significantly different from 0. Similar patterns occur for upgrades towards neutral and for reiterations of optimism. Thus, consistent with results in Michaely and Womack (1999), the bias in the optimistic recommendations coming from underwriters is not fully adjusted for by investors when a new recommendation is issued in the pre-regulatory period. After the regulations, when there is no apparent excess optimism derived from underwriter status, one should expect, and the market reactions reveal, no detrimental expansion in the differential reactions to underwriter recommendations.

8. Conclusion

I examine the effects of rules NASD 2711 and NYSE 472 and of the Global Settlement. These were initiatives aimed at curbing conflicts of interest between investment bank and research departments, with stringent requirements on the operations of the security analysts' industry. Using stock recommendations as a proxy, I investigate how research put out by brokerage houses changes in response to the new regulations.

I analyze the role of the presence of an underwriting relationship between the brokerage house and the stock being recommended as a determinant of the recommendations' ratings. In fact, for the big 10 brokerage houses that participated in the Global Settlement, having a leading role in an underwriting business with the stock being recommended was strongly associated with the issuance of optimistic recommendations for that specific stock throughout the period before the regulations became effective. Moreover, asserting the detrimental effects of conflicts of interest, this biased optimism was not fully adjusted for by investors. However, the effect has largely disappeared in the period after the regulations became effective. There is no longer evidence of excess optimism from brokerage houses having an underwriting relationship, and the market does not discount optimistic recommendations coming from such brokerage houses.

Therefore, the regulations have achieved their main goal. But other differences in the way recommendations are issued are also observed under the new regulatory regime. The advent of the regulations is associated with a dramatic change in the distribution of recommendations. In general, every brokerage house started issuing more neutral and pessimistic recommendations and less optimistic ones after the regulations took effect. However, the big difference is in the cross-sectional dimension: the big 10 brokerage houses that were involved in the Global Settlement started to issue pessimistic recommendations much more aggressively than other brokerage houses (there is hardly any difference between the two groups before the regulations). Big 10 are now twice more likely to put a stock in a pessimistic category than a non-big 10 brokerage house,

and they now rate the same fraction of stocks positively and negatively. The more pronounced shift in the behavior of the big 10 brokerage houses suggests that the Global Settlement was more effective at eliciting a change in behavior.

I provide evidence supporting the view that the change in the distribution of recommendations partly comes about due to a corrective process of renaming of ratings. For example, market reactions indicate that the aggregation of stocks with a negative prospect under the hold umbrella was prevalent before the new regulations, but it does not occur anymore, especially for big 10 brokerage houses. The achievement of this more meaningful use of ratings is in conformance to the requirement, e.g. in NYSE rule 472, that "definitions of ratings terms also must be consistent with their plain meaning".

Boni and Womack (2002B, 2003B) discuss how recommendations are used differently by institutional investors and retail investors. In particular, they conclude that institutional investors "are able to de-bias the brokerage research they receive", while more naïve retail investors, "who lack the awareness or education necessary to adequately filter the recommendations", are left disenfranchised. Along this line, anecdotal evidence around 2001 indicated that individual investors "unaware of Wall Street semantics often take ratings at their face value" (Wall Street Journal, "Merrill Alters a Policy on Analysts", July 11, 2001, page C1). Thus, the achievement of the new rules' objective of the meaningful use of ratings levels provides for a more leveled playing field between institutional and retail investors.

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Appendix A: Definition of Consensus Recommendation

In order to define the consensus recommendation for a stock in a certain month, some form of averaging of outstanding recommendations among different brokerage houses must be adopted. Here, the issue of changing ratings systems has to be taken into consideration. The question is how to compare the distribution of recommendations if the types of recommendations that are issued differ, both over time for each brokerage house that trimmed its rating levels when it adopted a new system, and across brokerage houses since not all of them trimmed their rating levels.

I analyze two approaches that can be used to define the inputs to the computation of the consensus. One is simply to rely on the I/B/E/S mapping of each brokerage house's classification into the 5-tier I/B/E/S ranking. This certainly works well for the recommendations issued before 2002 – when the vast majority of the brokerage houses used a 5-tier ratings system. However, as brokerage houses started using fewer tiers, one has to be cautious about inferences – for example, if there is only one tier for the optimistic recommendations, there is not much sense in analyzing how a brokerage house spreads upbeat recommendations between strong buy and buy categories.

The alternative is to use a reduced, 3-tier, ratings system. A natural, direct, mapping between I/B/E/S classification and the 3-tier is readily available: strong buy and buy are translated to optimistic, hold is translated to neutral, and underperform and sell are translated to the pessimistic tier. Of course, this mapping is trivial for the recommendations issued by brokerage houses that adopted 3-tier systems. However, some brokerage houses were still using 4- or 5-tier systems recently, as most of them did in the period before 2002. For recommendations coming from these brokerage houses, the drawback of using the reduced system to analyze the pattern of distribution is that information can be lost – e.g. no distinction is made between strong buy and buy categories if they are all treated simply as optimistic.

In this paper, I do not take stands for one or another alternative. Since the objective here is to understand how brokerage houses used recommendations, I try to use both methods of reporting time-series distribution of recommendations. The computation of consensus recommendations for each stock is, thus, done using 2 methods. For the alternative of relying on I/B/E/S classification, I first average its outstanding recommendations at the end of the month, according to the convention [1=sell, 2=underperform, 3=hold, 4=buy and 5=strong buy], from each group of brokerage houses (either big 10 or non-big 10). In the second step, I define the consensus recommendation using the following convention on the resulting average: 0<=average<=1.8

implies sell, 1.8<average<=2.8 implies underperform, 2.8<average<=3.8 implies hold, 3.8<average <=4.8 implies buy and average>4.8 implies strong buy.³⁰

For the consensus based on the reduced 3-tier model, I first map I/B/E/S classification of the outstanding recommendations into a 3-tier method using the direct mapping explained above. Then, for each stock I average its outstanding recommendations using the convention [2=pessimistic, 3=neutral, 4=optimistic]. In the last step, the consensus recommendation is established according to the following rule on the resulting average: 0<=average<=2.8 implies pessimistic, 2.8<average<=3.8 implies neutral and average>3.8 implies optimistic.

³⁰ The general patterns on the distribution of monthly consensus recommendations are robust (1) to using an alternative definition of consensus recommendation, e.g. setting $0 \le exerage \le 1.6$ is sell, $1.6 \le exerage \le 2.6$ is underperform, $2.6 \le exerage \le 3.5$ is Hold, $3.6 \le exerage \le 4.6$ is buy, average > 4.6 is strong buy, (2) to an alternative definition of consensus recommendation based on the median instead of mean recommendation and (3) to whether I expand the sample to include not only companies that have consensus recommendations available in the month from both groups of big 10 and non-big 10 brokerage houses, but rather all the companies in the database. For brevity, I do not present results using these alternatives.

Table 1. Time Series of Recommendations

This table summarizes the stock recommendations used in this study. The table includes all recommendations (except stopped records) in the I/B/E/S database that refer to US common stocks (share codes 10 or 11) during the period 07/1995-12/2003. The *big 10* are the 10 brokerage houses that are involved in the Global Settlement. The *15 biggest among non-big 10* are the 15 brokerage houses not involved with the Global Settlement that have the largest number of recommendations in the sample.

	All brokerage houses	Big 1	0	15 bigg amor non-big	gest 1g g 10	Remain brokera house	ing ige s
Period	# of rec	# of rec	% of total	# of rec	% of total	# of rec	% of total
07/1995-06/1996	26,686	6,161	23%	7,040	26%	13,485	51%
07/1996-06/1997	25,525	5,555	22%	7,737	30%	12,233	48%
07/1997-06/1998	28,185	6,259	22%	7,564	27%	14,362	51%
07/1998-06/1999	31,690	8,077	25%	9,026	28%	14,587	46%
07/1999-06/2000	29,626	6,759	23%	9,411	32%	13,456	45%
07/2000-06/2001	29,278	8,239	28%	8,069	28%	12,970	44%
07/2001-06/2002	29,959	8,816	29%	7,925	26%	13,218	44%
07/2002-06/2003	39,209	14,239	36%	8,132	21%	16,838	43%
07/2003-12/2003	16,311	4,227	26%	2,747	17%	9,337	57%
07/1995-12/2003	256,469	68,332	27%	67,651	26%	120,486	47%

Table 2. Summary Statistics on Brokerage Houses

This table presents yearly summary statistics on the big 10 brokerage houses participants of the Global Settlement plus 20 next biggest brokerage houses. Size of brokerage house is proxied by the number of recommendations issued in the period Jan 2001 thru Dec 2003 for US common stocks with valid permno in CRSP. Only recommendations issued for common stocks with valid permno in CRSP are considered. I consider that a brokerage house participated in an equity offering if it was a lead underwriter for the offering. Equity offerings include all IPOs and seasoned offerings.

Drokorago	Big							<i>Щ</i> _ £ Т Т	0 -41 4			Ee	quity of	fferings:			Equ	ity offering	gs:
House	(V/N)	# of rec	ommondat	ions	# of	analvete		# 01 U	S SLOCKS I	гаскеа		all c	# and	%0 01	r		all proc	eeds as %	01 Noor
Tiouse	(1/1)	2001	2002	2002	2001	2002	2003	2001	2002	2003		all (20	s per yea	u 24	002	2001	2002	2002
	-	2001	2002	2003	2001	2002	2003	2001	2002	2003	2	001	20	02	2	003	2001	2002	2003
#1	Y	964	1878	998	127	128	95	749	1142	641	156	14.9%	150	14.8%	121	11.7%	16.8%	27.1%	21.9%
#2	Y	1067	1968	749	151	172	106	756	1090	571	136	13.0%	162	15.9%	130	12.5%	29.5%	30.5%	25.5%
# 3	Y	803	1744	1067	111	112	91	610	1028	680	70	6.7%	107	10.5%	115	11.1%	15.0%	15.6%	19.5%
#4	Y	755	1831	787	118	160	121	545	924	531	94	9.0%	42	4.1%	54	5.2%	13.2%	12.2%	12.7%
# 5	Y	897	789	1626	117	99	105	676	579	957	37	3.5%	65	6.4%	82	7.9%	2.7%	7.9%	8.8%
# 6	Y	1140	1365	722	104	106	91	823	872	573	24	2.3%	62	6.1%	56	5.4%	3.7%	6.8%	6.7%
# 7	Y	524	1871	804	103	106	71	446	916	503	108	10.3%	65	6.4%	45	4.3%	29.3%	17.5%	14.3%
# 8	Y	600	1573	901	96	94	87	490	933	632	63	6.0%	46	4.5%	55	5.3%	3.4%	4.2%	9.1%
# 9	Y	501	1313	726	76	103	92	420	741	458	29	2.8%	19	1.9%	30	2.9%	2.1%	1.3%	2.5%
# 10	Y	549	490	453	41	39	39	396	353	325	20	1.9%	24	2.4%	14	1.4%	0.4%	0.5%	0.4%
#11	Ν	1180	987	425	60	64	51	598	667	297	3	0.3%	3	0.3%	19	1.8%	0.8%	0.4%	1.6%
# 12	Ν	759	1348	378	69	67	56	477	655	287	7	0.7%	10	1.0%	17	1.6%	0.1%	0.2%	1.3%
# 13	Ν	606	1108	660	64	74	60	442	691	421	27	2.6%	16	1.6%	11	1.1%	1.1%	0.8%	0.5%
# 14	Ν	661	1130	557	84	83	88	508	681	420	49	4.7%	24	2.4%	27	2.6%	9.5%	2.6%	3.0%
#15	Ν	662	685	995	75	70	72	526	539	734	27	2.6%	28	2.8%	35	3.4%	1.7%	3.5%	3.9%
#16	Ν	721	554	802	58	44	44	476	427	501	19	1.8%	1	0.1%	5	0.5%	1.0%	1.5%	0.4%
#17	Ν	390	672	554	49	64	54	296	398	362	4	0.4%	5	0.5%	13	1.3%	0.1%	0.2%	0.4%
#18	Ν	400	471	735	60	42	42	320	339	465	1	0.1%	0	0.0%	12	1.2%	0.0%	0.0%	0.4%
# 19	Ν	298	713	400	32	32	29	217	367	267	1	0.1%	2	0.2%	5	0.5%	0.0%	0.0%	0.2%
# 20	Ν	535	492	334	42	44	41	345	389	277	8	0.8%	5	0.5%	7	0.7%	0.5%	0.7%	0.4%
# 21	Ν	394	587	370	42	39	38	295	351	277	3	0.3%	18	1.8%	24	2.3%	0.0%	0.5%	1.3%
# 22	Ν	362	609	272	33	36	31	281	371	215	0	0.0%	1	0.1%	3	0.3%	0.0%	0.0%	0.0%
# 23	Ν	291	606	318	33	43	41	191	375	242	0	0.0%	0	0.0%	6	0.6%	0.0%	0.0%	0.2%
# 24	Ν	346	383	422	26	33	39	218	272	307	2	0.2%	3	0.3%	6	0.6%	0.0%	0.1%	0.3%
# 25	Ν	283	360	393	14	15	20	136	165	222	0	0.0%	0	0.0%	0	0.0%	0.0%	0.0%	0.0%
# 26	Ν	867	104	62	66	36	9	621	100	51	2	0.2%	9	0.9%	5	0.5%	0.1%	2.8%	3.7%
# 27	Ν	753	211	0	54	37	0	494	188	0	0	0.0%	0	0.0%	1	0.1%	0.0%	0.0%	0.1%
# 28	Ν	287	285	371	25	31	30	202	231	253	13	1.2%	7	0.7%	5	0.5%	0.3%	0.1%	0.1%
# 29	Ν	213	271	384	20	23	30	154	202	288	0	0.0%	0	0.0%	0	0.0%	0.0%	0.0%	0.0%
# 30	Ν	257	297	308	36	41	47	195	230	245	13	1.2%	14	1.4%	7	0.7%	1.2%	1.2%	0.2%

Table 3. Brokerage Houses and Ratings Systems

This table describes the ratings system of the biggest brokerage houses and whether a new ratings system was adopted after 2001. The brokerage houses are the same shown from Table 2. A brokerage houses is considered "balanced recently" if the monthly distribution of its outstanding recommendations has at least 15% of the sample with a pessimistic rating (underperform or sell) in the last 6 months of the sample.

	Big					
Brokerage	10	Changed	Whon?	Balanced	Rating	Pating defined based on performance of
House	(1/N) V	Tatilig:		Kecentry?	Levels	Rating defined based on performance of
# 1	Ŷ	Yes	Sep-02	Yes	3	stock compared to industry coverage/sector
#2	Y	Yes	Sep-02		3	stock expected total return
# 3	Y	Yes	Sep-02	Yes	3	stock compared to industry coverage/sector
#4	Y	Yes	Mar-02	Yes	3	stock compared to industry coverage/sector
# 5	Y				3	stock compared to market return
#6	Y	Yes	Sep-02	Yes	3	stock compared to industry coverage/sector
# 7	Y	Yes	Nov-02	Yes	3	stock compared to industry coverage/sector
# 8	Y	Yes	Aug-02	Yes	3	stock compared to industry coverage/sector
#9	Y	Yes	Sep-02	Yes	3	stock compared to industry coverage/sector
# 10	Y				4	stock compared to market return
# 11	Ν			Yes	4	stock compared to industry coverage/sector
# 12	Ν	Yes	Sep-02		3	stock compared to market return
# 13	Ν	Yes	Aug-02	Yes	3	stock compared to industry coverage/sector
# 14	Ν	Yes	Sep-02		3	stock expected total return
# 15	Ν	Yes	Jan-03		3	stock expected total return
#16	Ν	Yes	Sep-03	Yes	3	stock expected total return
#17	Ν				4	stock compared to market return
#18	Ν				3	stock compared to market return
# 19	Ν	Yes	Sep-02		3	stock compared to market return
# 20	Ν	Yes	Apr-03	Yes	3	stock compared to industry coverage/sector
# 21	Ν	Yes	Nov-02	Yes	3	stock compared to industry coverage/sector
# 22	Ν	Yes	Dec-02	Yes	3	stock expected total return
# 23	Ν	Yes	Jun-02		3	stock expected total return
# 24	Ν				3	stock compared to industry coverage/sector
# 25	Ν				4	stock expected total return
# 26	Ν				4	stock compared to market return
# 27	Ν				4	stock expected total return
# 28	N				4	stock expected total return
# 29	Ν				4	stock expected total return
# 30	Ν				4	stock compared to market return

Table 4. Summary Statistics of Change of Ratings Event

This table presents summary statistics on the event of change of ratings system for the 8 brokerage houses among the big 10 that changed their system in 2002. Size-adjusted returns are computed by subtracting from the firm's raw return the corresponding decile portfolio return. Industry-adjusted returns are computed by subtracting from the firm's size adjusted return the mean size adjusted return of all other firms in the same industry (using Fama and French (1997) 48-industries classification). Taking the recommendation announcement date as day 0, the 6-month before period is the interval [-122,-2], event period corresponds to the interval [-1,+-1] and the 6-month after event is the interval [-1,+122]. For statistics on returns, standard deviations and t-statistics are computed cross-sectionally using all recommendations with valid return. ^a denotes significance at the 5% level.

		H	Broker 1	1	I	Broker 2	2	F	Broker 3	;	E	Broker	4	E	Broker	6	E	Broker	7	E	Broker	8	В	sroker 9)
Date o # of disconti # stocks cove	of change inued coverage red after change	20	002090 136 1019	8	20	002090 143 946	8	20	002090 80 916	8	20	002031 70 768	.7	20	002092 128 743	25	20	002110 141 736)4	20	002080 97 791)4	20	02090 119 639	8
		Pessimistic	Neutral	Optimistic	Pessimistic	Neutral	Optimistic	Pessimistic	Neutral	Optimistic	Pessimistic	Neutral	Optimistic	Pessimistic	Neutral	Optimistic	Pessimistic	Neutral	Optimistic	Pessimistic	Neutral	Optimistic	Pessimistic	Neutral	Optimistic
Distribut recomm	tion of new nendations	_																							
# of recon % o	nmendations of total	205 20	391 38	423 42	51 5	445 47	450 48	257 28	348 38	311 34	165 21	350 46	253 33	192 26	332 45	219 29	152 21	410 56	174 24	216 27	317 40	258 33	113 18	278 44	248 39
Sourc	e of new ons (% of rating)	_																							
ini	tiated	0	1	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	1	0	1
was sell/stro	ong sell before	4	0	0	96	0	0	8	1	0	5	0	0	4	0	0	11	0	0	2	0	0	7	0	0
was ho	old before	80	60	2	2	87	0	77	37	3	85	57	3	71	33	1	71	40	2	78	28	2	66	44	2
was buy/stro	ong buy before	15	40	98	2	13	99	15	62	97	10	42	96	24	6/	98	18	60	97	20	12	98	26	56	97
Return recomm	ns around nendations	_																							
Period	Return																								
6-month	Size Adj	-17.7	^a -6.9 ^a	^a 3.5 ^a	-21.8	^a -8.2 ^a	5.5 ^a	-11.2	^a -3.6 ^a	2.5	1.2	14.0	^a 17.3 ^a	-18.3	^a -6.3	^a 4.1 ^a	-17.8	^a -4.5	^a 2.7	-6.5	^a -2.4	7.9 ^a	-16.4	^a -6.5 ^a	¹ -1.4
before	Ind Adj	-10.4	^a -1.1	7.1 ^a	-10.1	^a -4.4 ^a	6.4 ^a	-8.0	^a -0.2	4.6 ^a	-2.5	9.4	^a 12.5 ^a	-11.1	^a 1.6	9.7 ^a	-12.4	^a -0.7	6.0 ^a	-4.7	^a -0.5	5.6 ^a	-9.8	^a 0.7	4.7
Event	Size Adj	-0.2	0.5	1.3 ^a	0.7	-0.2	0.4	-0.2	0.1	1.0 ^a	0.5	0.2	0.2	0.5	-0.5	0.4	3.8	^a 1.2	^a -0.5	-1.0	^a -0.3	0.0	0.6	1.3 ^a	1.6
	Ind Adj	-0.4	0.4	1.3 ^a	0.5	-0.1	0.5 ^a	0.0	0.2	1.1 ^a	0.4	0.0	-0.1	0.8	-0.2	0.7 ^a	2.0	0.0	-1.4 ^a	-0.6	0.2	0.4	0.4	1.0 ^a	1.5
6-month	Size Adj	-0.7	3.0 ^a	^a -0.4	10.2	-1.1	-0.9	-0.9	4.3 ^a	-0.4	-11.2	^a -8.2	^a -2.9	7.0	3.5	1.0	16.9	^a 4.3	^a 0.2	1.1	1.5	-0.8	3.0	2.9	3.2
after	Ind Adj	-0.8	2.9 ^a	¹ 0.9	9.8	-0.9	0.9	-0.6	3.8 ^a	0.8	-6.4	^a -2.3	1.1	3.4	-0.1	-0.8	14.0	1.7	-1.0	1.2	2.1	-0.6	1.3	3.5	2.1

Table 5. Panel Data Logistic Regressions to Explain Optimistic and Pessimistic New Recommendations

This table presents results of conditional (fixed effects) logit regressions of the characteristic of a new recommendation. The dependent variable is a dummy set to one whenever the new recommendation is pessimistic (underperform or sell) in Model I or optimistic (strong buy or buy) in Model II. *Big10* is a dummy set to 1 whenever the recommendation is issued by a big 10 brokerage house. *Ret6Bef* is the industry-adjusted 6-month buy-and-hold return over the period [-122,-2] where the recommendation announcement date is taken as day 0. *Pre* and *Pos* identify whether the recommendation is issued before or after Sep 2002. I include recommendations in a month for a given firm only if this firm had recommendations issued by at least one big 10 and one non-big 10 brokerage houses in that month, and I exclude recommendations associated with a change in ratings system. The sample period is from 07/2000 through 06/2003. The t-statistics are shown below each coefficient estimate.

	Mode	el I	Mode	1 II
	Dependent V Prob(Rec=Pe	Variable: essimistic)	Dependent Prob(Rec=O	Variable: ptimistic)
	Coeff	Odds Ratio	Coeff	Odds Ratio
Big10*Pre	-0.530 (-6.65)	0.588	0.113 (3.91)	1.119
Ret6Bef*Pre	-0.683 (-4.98)	0.504	0.836 (15.61)	2.306
Pos	1.486 (21.10)	4.420	-1.020 (-27.25)	0.361
Big10*Pos	0.295 (4.64)	1.342	-0.338 (-7.33)	0.713
Ret6Bef*Pos	-0.323 (2.70)	0.724	0.234 (3.63)	1.264
# obs	33,200		33,200	
Pseudo R ²	10.80%		5.86%	

Table 6. Cumulative Returns Around New Recommendations

This table presents returns statistics over periods surrounding the recommendation announcement date (day 0). Size-adjusted returns are computed by subtracting from the firm's raw return the corresponding decile portfolio return. Industry-adjusted returns are computed by subtracting from the firm's size adjusted return the mean size adjusted return of all other firms in the same industry (using Fama and French (1997) 48-industries classification). The 6-month before event is the interval [-122,-2], the 1-month before event is the interval [-22,-2], event period corresponds to the interval [-1,+-1], 1-month after event is the interval [-1,+22] and the 6-month after event is the interval [-1,+122]. Upgrade is new buy or strong buy whose previous recommendation was at least one level below. Downgrade is a new sell, underperform or hold whose previous recommendation was at least one level above. I include recommendations in a month for a given firm only if this firm had recommendations issued by at least one big 10 and one non-big 10 brokerage houses in that month, and I exclude recommendations associated with a change in ratings system. Measures of returns are in percentage terms. Standard deviations and t-statistics are computed cross-sectionally using all recommendations with valid return. ^a denotes significance at the 5% level.

		Big 10								Other Broke	rage Houses		
			Upgrade			Downgrade			Upgrade			Downgrade	
		Actual Return	Size Adj Return	Ind Adj Return	Actual Return	Size Adj Return	Ind Adj Return	Actual Return	Size Adj	Ind Adj Return	Actual Return	Size Adj Return	Ind Adj Return
	Period	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
	07/1995-06/1996	16.0 ^a	2.0 ^a	3.3 ^a	9.8 ^a	-4.5 ^a	-2.5	16.9 ^a	2.3 ^a	3.7 ^a	10.8 ^a	-4.0 ^a	-1.6
6-	07/1996-06/1997	10.9 ^a	1.8	1.8	0.0	-8.8 ^a	-7.1 ^a	10.4 ^a	1.8	2.2 ^a	1.6	-7.2 ^a	-5.3 ^a
month	07/1997-06/1998	14.8 ^a	-0.1	0.1	8.0 ^a	-6.6 ^a	-5.6 ^a	14.4 ^a	-0.3	0.2	4.9 ^a	-9.7 ^a	-8.0 ^a
period	07/1998-06/1999	17.8 ^a	8.3 ^a	9.0 ^a	-9.0 ^a	-12.5 ^a	-11.5 ^a	9.8 ^a	3.1 ^a	4.4 ^a	-3.8 ^a	-9.2 ^a	-8.7 ^a
before	07/1999-06/2000	20.3 ^a	9.8 ^a	9.5 ^a	-5.2 ^a	-15.7 ^a	-10.2 ^a	21.9 ^a	10.6 ^a	9.6 ^a	-2.6 ^a	-12.9 ^a	-9.7 ^a
event	07/2000-06/2001	2.5	9.2 ^a	11.0 ^a	-19.8 ^a	-13.2 ^a	-5.4 ^a	-3.2 ^a	3.9 ^a	7.1 ^a	-26.3 ^a	-18.9 ^a	-8.9 ^a
	07/2001-06/2002	-0.5	2.8 ^a	2.0 ^a	-16.4 ^a	-14.2 ^a	-11.0 ^a	-3.3 ^a	-0.3	-0.7	-20.2 ^a	-17.6 ^a	-13.8 ^a
	07/2002-06/2003	-1.8	5.5 ^a	5.3 ^a	-13.9 ^a	-6.2 ^a	-3.4 ^a	-4.7 ^a	1.8	2.2 ^a	-11.3 ^a	-4.5 ^a	-2.2 ^a
	07/1995-06/1996	1.5 ^a	-0.4	-0.3	0.8	-1.3 ^a	-1.4 ^a	2.3 ^a	0.5	0.4	0.9 ^a	-1.2 ^a	-1.0 ^a
1-	07/1996-06/1997	0.7	-0.2	-0.2	-2.2 ^a	-3.7 ^a	-3.5 ^a	0.3	-0.5	-0.5	-2.2 ^a	-3.5 ^a	-3.3 ^a
month	07/1997-06/1998	1.0 ^a	-0.5	-0.3	-1.6 ^a	-3.6 ^a	-3.5 ^a	0.6	-1.0 ^a	-0.9 ^a	-1.9 ^a	-4.1 ^a	-3.7 ^a
period	07/1998-06/1999	2.8 ^a	1.6 ^a	1.2 ^a	-3.2 ^a	-5.0 ^a	-4.9 ^a	0.5	0.0	-0.2	-2.4 ^a	-4.0 ^a	-4.1 ^a
before	07/1999-06/2000	0.6	-0.6	0.0	-2.9 ^a	-4.2 ^a	-3.4 ^a	1.2 ^a	0.3	0.4	-2.4 ^a	-4.0 ^a	-3.2 ^a
event	07/2000-06/2001	0.8	1.2	1.0	-7.3 ^a	-6.5 ^a	-4.9 ^a	-1.0	-0.6	0.4	-10.0 ^a	-8.6 ^a	-6.2 ^a
	07/2001-06/2002	-2.2 ^a	-0.5	-0.3	-7.0 ^a	-5.7 ^a	-4.8 ^a	-3.0 ^a	-1.1 ^a	-0.8	-8.4 ^a	-7.0 ^a	-5.8 ^a
	07/2002-06/2003	-1.4 ^a	0.7	0.7	-1.6 ^a	-1.8 ^a	-1.8 ^a	-1.0	0.2	0.0	-0.7	-1.1 ^a	-1.7 ^a
	07/1995-06/1996	2.5 ^a	2.1 ^a	2.0 ^a	-4.5 ^a	-4.8 ^a	-4.8 ^a	1.6 ^a	1.3 ^a	1.2 ^a	-2.4 ^a	-2.7 ^a	-2.8 ^a
	07/1996-06/1997	2.8 ^a	2.5 ^a	2.4 ^a	-6.8 ^a	-7.1 ^a	-7.1 ^a	2.0 ^a	1.8 ^a	1.7 ^a	-5.6 ^a	-5.8 ^a	-5.8 ^a
	07/1997-06/1998	3.1 ^a	2.9 ^a	2.9 ^a	-7.7 ^a	-7.8 ^a	-7.8 ^a	2.1 ^a	1.8 ^a	1.8 ^a	-6.0 ^a	-6.2 ^a	-6.1 ^a
event	07/1998-06/1999	6.5 ^a	6.2 ^a	5.9 ^a	-12.8 ^a	-12.8 ^a	-12.7 ^a	3.9 ^a	3.7 ^a	3.5 ^a	-10.2 ^a	-10.4 ^a	-10.5 ^a
return	07/1999-06/2000	5.5 ^a	5.2 ^a	5.0 ^a	-13.0 ^a	-13.0 ^a	-12.9 ^a	4.0 ^a	3.8 ^a	3.6 ^a	-12.1 ^a	-12.3 ^a	-12.1 ^a
	07/2000-06/2001	4.5 ^a	4.6 ^a	4.3 ^a	-13.7 ^a	-13.3 ^a	-13.0 ^a	3.7 ^a	3.5 ^a	3.2 ^a	-12.6 ^a	-12.2 ^a	-12.0 ^a
	07/2001-06/2002	3.9 ^a	4.0 ^a	3.8 ^a	-11.1 ^a	-10.8 ^a	-10.5 ^a	2.9 ^a	3.0 ^a	2.9 ^a	-9.9 ^a	-9.6 ^a	-9.2 ^a
	07/2002-06/2003	4.6 ^a	4.7 ^a	4.6 ^a	-7.7 ^a	-7.6 ^a	-7.9 ^a	3.1 ^a	3.3 ^a	3.2 ^a	-7.3 ^a	-7.2 ^a	-7.3 ^a
	07/1995-06/1996	4.8 ^a	2.8 ^a	2.7 ^a	-4.3 ^a	-6.1 ^a	-5.8 ^a	3.4 ^a	1.7 ^a	1.7 ^a	-2.2 ^a	-3.9 ^a	-3.9 ^a
1-	07/1996-06/1997	6.3 ^a	3.3 ^a	3.3 ^a	-5.2 ^a	-8.0 ^a	-7.6 ^a	5.9 ^a	2.9 ^a	3.2 ^a	-4.2 ^a	-7.2 ^a	-6.7 ^a
month	07/1997-06/1998	4.6 ^a	2.6 ^a	3.1 ^a	-7.9 ^a	-9.6 ^a	-9.2 ^a	3.8 ^a	1.8 ^a	2.4 ^a	-5.6 ^a	-7.4 ^a	-7.0 ^a
period	07/1998-06/1999	8.5 ^a	7.4 ^a	6.6 ^a	-11.0 ^a	-13.9 ^a	-13.6 ^a	6.0 ^a	5.0 ^a	4.6 ^a	-9.2 ^a	-11.1 ^a	-11.4 ^a
after	07/1999-06/2000	9.3 ^a	7.1 ^a	6.9 ^a	-13.5 ^a	-14.9 ^a	-14.2 ^a	7.6 ^a	6.2 ^a	5.8 ^a	-12.4 ^a	-14.3 ^a	-13.6 ^a
event	07/2000-06/2001	7.0 ^a	8.0 ^a	7.2 ^a	-15.3 ^a	-14.2 ^a	-12.6 ^a	3.6 ^a	4.6 ^a	4.5 ^a	-12.2 ^a	-11.7 ^a	-10.9 ^a
	07/2001-06/2002	4.4 ^a	5.4 ^a	5.6 ^a	-12.6 ^a	-11.2 ^a	-10.1 ^a	2.6 ^a	3.8 ^a	4.0 ^a	-13.1 ^a	-10.9 ^a	-9.7 ^a
	07/2002-06/2003	7.9 ^a	6.0 ^a	5.5 ^a	-4.3 ^a	-5.9 ^a	-7.5 ^a	5.8 ^a	5.0 ^a	4.3 ^a	-4.6 ^a	-6.0 ^a	-7.4 ^a
	07/1995-06/1996	11.4 ^a	2.4 ^a	2.4 ^a	-1.3	-10.6 ^a	-8.4 ^a	10.9 ^a	1.6	2.2 ^a	2.0 ^a	-7.3 ^a	-6.2 ^a
6-	07/1996-06/1997	20.4 ^a	4.3 ^a	4.0 ^a	2.0	-12.8 ^a	-11.2 ^a	23.1 ^a	7.2 ^a	7.9 ^a	5.7 ^a	-9.7 ^a	-8.4 ^a
month	07/1997-06/1998	3.7 ^a	-1.9	1.5	-12.6 ^a	-17.6 ^a	-14.5 ^a	4.0 ^a	-1.4	2.1 ^a	-9.7 ^a	-14.5 ^a	-11.0 ^a
period	07/1998-06/1999	23.4 ^a	13.1 ^a	12.4 ^a	-2.9	-15.7 ^a	-14.7 ^a	21.2 ^a	9.0 ^a	8.7 ^a	0.8	-11.2 ^a	-11.6 ^a
after	07/1999-06/2000	21.0 ^a	13.2 ^a	11.7 ^a	-10.6 ^a	-18.5 ^a	-14.1 ^a	19.3 ^a	12.4 ^a	11.8 ^a	-9.4 ^a	-18.5 ^a	-16.1 ^a
event	07/2000-06/2001	-0.1	9.5 ^a	9.9 ^a	-22.1 ^a	-15.1 ^a	-8.4 ^a	-4.7 ^a	4.4 ^a	7.3 ^a	-24.1 ^a	-17.4 ^a	-10.2 ^a
	07/2001-06/2002	-4.3 ^a	3.9 ^a	4.8 ^a	-20.0 ^a	-12.5 ^a	-9.9 ^a	-9.5 ^a	-0.6	1.5	-20.5 ^a	-12.2 ^a	-9.6 ^a
	07/2002-06/2003	22.7 ^a	10.8 ^a	6.9 ^a	9.1 ^a	-1.3	-6.7 ^a	21.7 ^a	9.3 ^a	3.5 ^a	11.8 ^a	0.1	-6.2 ^a

Table 7. Returns Around Recommendations Announcements

07/2001-

07/2002-

06/2002

06/2003

1.24 ≠

1.84 ≠

(5.74)

(8.13)

2.12

(8.06)

2.89

(8.71)

-1 30

(-3.45)

(-1.33)

 $-0.39 \neq 1.23$

-141

(-2.51)

(3.53)

-4.82 ≠ -3.37

(-11.63) (-7.90)

 $-3.44 \neq -1.42$

(-7.22) (-3.46)

This table presents present regression results from Equations (1) and (2). The dependent variable is the industry-adjusted three day buy-and-hold return centered at the recommendation announcement date. The independent variables are dummies identifying the newly issued recommendation, whether it is a move up towards a optimistic (strong buy or buy), a move up towards a neutral (hold), a reiteration of a optimistic rating, a move down towards a neutral (hold) or whether it is a pessimistic recommendation (underperform or sell). Panel B interacts these variables with dummies on whether the recommendation was issued by a non-big 10 or by a big 10 brokerage house. I include recommendations in a month for a given firm only if this firm had recommendations issued by at least one big 10 and one non-big 10 brokerage houses in that month, and I exclude recommendations associated with a change in ratings system. The dependent variable is winsorized at 99% before the regression is run. Measures of returns are in percentage terms. The tstatistics reported in parentheses are corrected for heteroskedasticity using White estimator. The symbol ' \neq ' indicates that adjacent coefficients are significantly different at 5%.

			Panel A: A	ggregated d	lata					
Period	Up to Optimistic	Up to Neutral	Optimistic Reiterated	Down to Neutral	Pessimistic				Adj R ²	# obs
07/1995- 06/1996	1.09 (8.51)	0.00 (0.00)	-1.50 (-5.94)	-3.96 (-20.27)	-2.07 (-5.48)				07.5	6,713
07/1996- 06/1997	1.42 (8.91)	-0.42 (-1.33)	-3.42 (-9.47)	-6.69 (-26.44)	-2.27 (-3.42)				12.2	6,289
07/1997- 06/1998	1.29 (8.83)	-0.60 (-1.95)	-3.77 (-11.60)	-6.79 (-29.38)	-4.80 (-7.03)				13.4	7,249
07/1998- 06/1999	2.65 (15.51)	-1.51 (-4.04)	-6.79 (-19.63)	-11.55 (-41.55)	-6.43 (-7.69)				18.5	10,639
07/1999- 06/2000	2.49 (13.83)	-1.84 (-3.81)	-7.50 (-17.45)	-12.81 (-37.97)	-6.63 (-6.62)				17.2	9,566
07/2000- 06/2001	1.43 (6.87)	-2.97 (-6.78)	-8.64 (-26.83)	-12.61 (-45.86)	-8.96 (-10.26)				21.1	11,262
07/2001- 06/2002	1.59 (9.54)	-1.34 (-4.26)	-4.12 (-13.84)	-9.38 (-39.33)	-10.15 (-17.41)				16.1	11,212
07/2002- 06/2003	2.17 (11.61)	0.29 (1.26)	-2.28 (-7.32)	-7.25 (-33.69)	-5.27 (-19.25)				12.1	12,277
	Pan	el B: Effec	ts from big	10 and nor	n-big 10 bro	kerage hou	ses			
Period	Up to Optimistic (Non-Big 10)	Up to Optimistic (Big 10)	Up to Neutral (Non-Big 10)	Up to Neutral (Big 10)	Optimistic Reiterated (Non-Big 10)	Optimistic Reiterated (Big 10)	Down to Neutral (Non-Big 10) Down to Neutral (Big 10)	Pessimistic (Non Big10) Pessimistic (Big10)	Adj R ²	# obs
07/1995- 06/1996	0.86 7 (5.06)	± 1.39 (7.18)	-0.10 (-0.31)	0.17 (0.42)	-2.04 (-5.32)	-1.09 (-3.28)	$-3.23 \neq -5.26$ (-13.25) (-16.22)	$-1.47 \neq -5.11$ (-3.58) (-5.50)	08.1	6,713
07/1996- 06/1997	1.17 7 (5.43)	± 1.71 (7.27)	-0.25 (-0.59)	-0.67 (-1.35)	-3.40 (-7.53)	-3.46 (-5.75)	$-6.29 \neq -7.23$ (-18.82) (-18.68)	-1.93 -3.70 (-2.63) (-2.42)	12.3	6,289
07/1997- 06/1998	0.97 7 (4.93)	± 1.69 (7.72)	-0.24 (-0.61)	-1.19 (-2.38)	-3.84 (-9.11)	-3.67 (-7.20)	$-6.21 \neq -7.74$ (-21.20) (-20.64)	-4.54 -5.58 (-5.77) (-4.07)	13.6	7,249
07/1998- 06/1999	2.22 ₹ (9.59)	± 3.16 (12.51)	-1.73 (-3.43)	-1.24 (-2.23)	-6.42 (-14.79)	-7.45 (-13.01)	$-10.81 \neq -12.89$ (-31.22) (-27.70)	-6.43 -6.41 (-7.02) (-3.15)	18.7	10,639
07/1999- 06/2000	1.99 7 (8.34)	± 3.17 (11.52)	-1.65 (-2.79)	-2.22 (-2.66)	-6.53 (-11.46)	≠ -8.78 (-13.43)	-12.62 -13.10 (-29.13) (-24.41)	-6.92 -1.26 (-6.74) (-0.29)	17.4	9,566
07/2000- 06/2001	1.10 7 (3.97)	± 1.84 (5.89)	-3.16	-2.63	-8.45 (-19.57)	-8.87 (-18.39)	-12.40 -12.92 (-34.45) (-30.33)	$-7.63 \neq -17.69$ (-8.15) (-7.36)	21.2	11,262

-9.48

(-13.29)

-5.72

-11 51

(-11.39)

-4.78

16.2

12.3

11,212

12,277

 $-8.77 \neq -10.12$

(-27.09) (-28.69)

-7.70

(-25.76) (-21.83) (-15.18) (-12.00)

-6.99

Table 8. Returns After Recommendations Announcements

This table presents present regression results from explaining returns after recommendations using Equations (1) and (2). The dependent variable is the industry-adjusted 6-month buy-and-hold return starting 1 day before the recommendation announcement date. The independent variables are defined in the previous table. I include recommendations in a month for a given firm only if this firm had recommendations issued by at least one big 10 and one non-big 10 brokerage houses in that month, and I exclude recommendations associated with a change in ratings system. The dependent variable is winsorized at 99% before the regression is run. Measures of returns are in percentage terms. The t-statistics reported in parentheses are corrected for heteroskedasticity using White estimator. The symbol ' \neq ' indicates that adjacent coefficients are significantly different at 5%.

			Panel A: A	ggregated d	lata							
Period	Up to Optimistic	Up to Neutral	Optimistic Reiterated	Down to Neutral	Pessimistic						Adj R ²	# obs
07/1995-	1.55	-2.80	-4.33	-6.73	-9.97						02.3	6,599
07/1996- 06/1997	(3.11) 3.92 (7.45)	(-2.89) -1.82 (-1.72)	(-4.58) -4.63 (-3.85)	(-8.73) -9.53 (-11.18)	(-0.04) -8.25 (-3.65)						03.3	6,138
07/1997- 06/1998	1.18 (2.39)	-1.07 (-1.02)	-5.02 (-4.57)	-12.61 (-15.82)	-5.20 (-2.19)						03.8	7,022
07/1998- 06/1999	9.13 (11.51)	1.97 (1.13)	-6.02 (-3.72)	-12.90 (-9.79)	-5.57 (-1.41)						02.3	10,354
07/1999- 06/2000	5.65 (6.71)	-2.70 (-1.19)	-6.35 (-3.16)	-15.67 (-9.62)	-7.40 (-1.56)						01.6	9,272
07/2000- 06/2001	0.67 (1.28)	-1.42 (-1.28)	-8.52 (-10.45)	-9.75 (-13.70)	-4.54 (-1.98)						02.7	10,872
07/2001- 06/2002	0.11 (0.24)	-3.65 (-4.46)	-5.17 (-6.67)	-9.53 (-15.11)	-7.93 (-5.07)						02.8	10,938
07/2002- 06/2003	2.58 (4.08)	0.56 (0.73)	-3.40 (-3.23)	-7.58 (-10.37)	-1.47 (-1.57)						01.1	12,136
	Pan	el B: Effec	ts from big	10 and nor	i-big 10 bro	kerage hou	ses					
Period	Up to Optimistic (Non-Big 10)	Up to Neutral (Big 10)	Up to Neutral (Non-Big 10)	Up to Optimistic (Big 10)	Optimistic Reiterated (Non-Big 10)	Optimistic Reiterated (Big 10)	Down to Neutral (Non-Big 10)	Down to Neutral (Big 10)	Pessimistic (Non Big10)	Pessimistic (Big10)	Adj R ²	# obs
07/1995- 06/1996	1.59 (2.38)	-2.59 (-1.61)	-2.91 (-2.38)	1.38 (1.81)	-1.30 (-0.63)	1.63 (0.85)	-5.82 (-6.02)	-8.34 (-6.46)	-9.28 (-5.63)	-13.59 (-3.61)	02.1	6,180
07/1996- 06/1997	4.20 (5.88)	-1.89 (-1.15)	-1.76 (-1.27)	3.58 (4.59)	-1.42 (-0.64)	1.16 (0.35)	-8.44 (-7.50)	-11.01 (-8.39)	-6.81 (-2.74)	-15.29 (-2.78)	03.2	5,779
07/1997- 06/1998	1.32 (1.99)	0.70 (0.41)	-2.14 (-1.62)	1.00 (1.37)	-2.81 (-1.27)	-0.11 (-0.04)	-11.45 (-11.37)	-14.53 (-11.23)	-2.65 (-0.96)	-12.63 (-2.70)	03.9	6,565
07/1998- 06/1999	9.71 (9.10)	0.44 (0.17)	3.23 (1.38)	8.44 (7.26)	1.95 (0.61)	-5.09 (-1.08)	-11.65 (-7.15)	-15.14 (-6.93)	-8.64 (-2.00)	9.44 (0.99)	02.4	9,503
07/1999- 06/2000	4.95 (4.38)	-2.04 (-0.51)	-3.02 (-1.07)	6.59 (5.07)	4.17 (1.13)	5.95 (1.34)	-16.85 (-7.95)	-13.86 (-5.28)	-6.05 (-1.22)	-30.57 (-1.49)	01.5	8,785
07/2000- 06/2001	-0.08 (-0.11)	-0.34 (-0.18)	-2.06 (-1.47)	1.62 (2.04)	-4.70 (-2.66)	-1.40 (-0.57)	-11.00 = (-11.82)	≠ -7.97 (-7.18)	-2.08 7 (-0.84)	<i>±</i> -20.02(-3.22)	02.1	9,507
07/2001- 06/2002	-0.74 ; (-1.32)	≠ -2.90 (-1.98)	-3.99 (-4.04)	1.36 (1.99)	-2.44 (-1.66)	2.00 (1.43)	-9.26 (-10.85)	-9.84 (-10.50)	-9.40 (-4.90)	-5.02 (-1.85)	02.6	10,271
07/2002- 06/2003	2.14 (2.79)	2.22 (1.87)	-0.62 (-0.62)	3.54 (3.13)	-2.75 (-1.35)	-1.66 (-1.14)	-7.37 (-7.97)	-7.92 (-6.60)	-1.51 (-1.17)	-1.42 (-1.04)	01.0	11,856

Table 9. Panel Data Logistic Regressions Relating Optimism and the Presence of Underwriting Relationships

This table presents results of conditional (fixed effects) logit regressions of the characteristic of a new recommendation. The dependent variable is a dummy set to one whenever the new recommendation is optimistic (strong buy or buy). *Ret6Bef* is the industry-adjusted 6-month buy-and-hold return over the period [-122,-2] where the recommendation announcement date is taken as day 0. *UWR* is a dummy set to 1 if the brokerage house issuing the recommendation participated in an equity offering for the firm in the last 24 months before the recommendation announcement date. The type of underwriting participation varies with the models: in Models I and II, UWR equals 1 if the brokerage house was a lead or co-lead underwriter; in Model III, UWR equals 1 if the brokerage house was a co-manager; and in Model IV, UWR equals 1 if the brokerage house was a syndicate member in the equity offering. *Pre* and *Pos* identify whether the recommendation is issued before or after Sep 2002. Only recommendations from big 10 brokerage houses are included, , and I exclude recommendations associated with a change in ratings system. The sample period is from 07/2000 through 06/2003. The t-statistics are shown below each coefficient estimate.

Mode	11	Mode	l II	Model	III	Model	IV
	UW Lead Und	R= erwriter		UWR Co-Man	t= lager	UWR Syndicate M	₹= Member
Coeff	Odds Ratio	Coeff	Odds Ratio	Coeff	Odds Ratio	Coeff	Odds Ratio
0.359 (4.05)	1.433	0.388 (4.34)	1.474	0.354 (4.88)	1.425	0.405 (5.82)	1.499
		0.741 (12.44)	2.098	0.743 (12.44)	2.102	0.744 (12.44)	2.103
-1.549 (-41.33)	0.212	-1.515 (-40.15)	0.220	-1.501 (-38.99)	0.222	-1.485 (-38.39)	0.227
0.050 (0.39)	1.051	0.085 (0.51)	1.088	0.040 (0.36)	1.041	-0.020 (-0.19)	0.980
		0.411 (4.39)	1.507	0.417 (4.45)	1.517	0.416 (4.44)	1.516
23,891		23,891		23,891		23,891	
9.16%		10.01%		10.04%		10.09%	
	<u>Coeff</u> 0.359 (4.05) -1.549 (-41.33) 0.050 (0.39) 23,891 9.16%	Model I UWI Lead Und Odds Coeff Ratio 0.359 1.433 (4.05) 1.433 -1.549 0.212 (-41.33) 0.050 0.050 1.051 (0.39) 23,891 9.16% 1.051	$\begin{tabular}{ c c c c c c c } \hline Model I & Model \\ \hline UWR = & \\ \hline Lead Underwriter & \\ \hline Odds & \\ \hline Odds & \\ \hline Coeff & Ratio & Coeff & \\ \hline 0.359 & 1.433 & 0.388 & \\ (4.05) & & (4.34) & \\ & & 0.741 & \\ & & (12.44) & \\ -1.549 & 0.212 & -1.515 & \\ (-41.33) & & (-40.15) & \\ 0.050 & 1.051 & 0.085 & \\ (0.39) & & (0.51) & \\ & & 0.411 & \\ & & (4.39) & \\ \hline 23,891 & 23,891 & \\ 9.16\% & & 10.01\% & \\ \hline \end{tabular}$	$\begin{tabular}{ c c c c c c c } \hline Model I & UWR = & & & & & & & & & & & & & & & & & & $	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$

Table 10. Returns and the Presence of Underwriting Relationships

This table presents present regression results from explaining returns after recommendations. The dependent variable in Panel A is the industry-adjusted three day buy-and-hold return centered at the recommendation announcement date, and in Panel B is the industry-adjusted 6-month buy-and-hold return starting 1 day before the recommendation announcement date. The independent variables are dummies identifying the newly issued recommendation: whether it is a move up towards a optimistic (strong buy or buy), a move up towards a neutral (hold), a reiteration of a optimistic rating, a move down towards a neutral (hold), whether it is a pessimistic recommendation (underperform or sell), plus all these dummies interacted with a dummy equals to 1 whenever the brokerage house issuing the recommendation announcement date. Only recommendations from big 10 brokerage houses are included, and I exclude recommendations associated with a change in ratings system. Result of a test of difference of coefficients, at 5% level, is shown below each pair of coefficients. The sample period is from 07/2000 through 06/2003; period before the regulations comprises data up to September 2002, and the period after the regulations comprises data after, and including, September 2002. The dependent variable is winsorized at 99% before the regression is run. Measures of returns are in percentage terms. The t-statistics reported in parentheses are corrected for heteroskedasticity using White estimator.

Par	nel A: D	ependent	variable	is maus	try-adjus	ted 5-day	y return a	around re	commen	idation		
	UĮ	o to	Up	to	Optin	nistic	Dov	vn to	D			
	Opti	nistic	Net	<u>itrai</u>	Reite	rated	Inel	Itrai	Pessi	mistic		
	riter	- riter	riter	- riter	riter	- riter	riter	- riter	riter	- riter		
	derw	non derw	derw	non derw	derw	non derw	derw	non derw	derw	non derw		
Period	By	By	By	By	By	By	By	By	By	By	R^2	# obs
Before the	1.29	2.64	-7.24	-0.76	-7.72	-4.22	-15.6	-9.02	-11.5	-10.8	19.2	16,679
regulations	(2.3)	(18.1)	(-4.1)	(-2.7)	(-10.3)	(-18.5)	(-21.6)	(-45.2)	(-19.2)	(-4.0)		
Different (p<.05)?	Y	es	Y	es	Y	es	Y	es	Ν	lo		
After the	2.42	2.35	0.24	1.07	-1.54	-0.55	-7.13	-5.25	-3.42	-6.06	11.3	6,974
regulations	(3.0)	(9.9)	(0.2)	(4.7)	(-1.5)	(-1.6)	(-8.7)	(-18.4)	(-12.6)	(-4.8)		
Different (p<.05)?	Ν	lo	N	lo	N	lo	N	lo	Y	es		
Par	nel B: D	ependent	variable	is indus	try-adjus	ted 6-mo	nth retur	n after re	ecommer	ndation		
Par	nel B: De Up	ependent o to	variable Up	is indus	try-adjus Optir	ted 6-mo	nth retur Dov	n after re vn to	ecommer	ndation		
Par	nel B: De Ul Optin	ependent o to <u>mistic</u>	variable Ur <u>Neu</u>	is indus to <u>itral</u>	try-adjus Optir <u>Reite</u>	ted 6-mo nistic <u>trated</u>	nth retur Dov <u>Net</u>	n after re vn to <u>ıtral</u>	ecommer <u>Pessi</u>	ndation mistic		
Par	uel B: Do UI <u>Optin</u>	ependent o to <u>mistic</u>	variable Ur <u>Neu</u>	is indus to <u>itral</u>	try-adjus Optir <u>Reite</u>	ted 6-mo nistic <u>grated</u>	nth retur Dov <u>Net</u>	n after re vn to <u>utral</u>	ecommer Pessi	ndation mistic		
Par	uel B: Do UI <u>Optin</u> Lan	ependent o to <u>mistic</u>	variable Ur <u>Net</u>	is indus to <u>utral</u>	try-adjust Optir <u>Reite</u>	nistic rated -uor	nth retur Dov <u>Net</u>	n after re vn to <u>itral</u>	Pessi	mistic -uol		
Par Period	By DI DI DI DI DI DI DI DI DI DI DI DI DI	By non-non with the base of to mistic number writer with the base of the base	By By underwriter underwriter	By non- oto ittal underwriter	By By By By By By By By By By By By By B	By non- mistic rated nuderwriter	By noderwriter Wei	By non- noderwriter underwriter	By underwriter Bessi	By non- mistic underwriter	R ²	# obs
Par Period Before the	uel B: Du Ul <u>Optin</u> B <u>B</u> -1.31	b to mistic -underwriter -underwriter 3.68	Variable Ur Net Br A B A B -12.2	is indus to to tral nuqerwriter 0.0	try-adjust Optir Reite Ma Ag -15.2	ted 6-mo nistic erated -uou A B -2.6	nth retur Dov <u>Net</u> A B A A B -25.4	n after re vn to <u>utral</u> -underwriter -0.4	Pessi A M Pessi A B -9.27	mistic Binderwriter -underwriter -17.9	R ² 02.6	# obs 16,222
Par Period Before the regulations	UI Optin A M M M M M M M M M M M M M M M M M M	understein unders	Variable Ur Net San -12.2 (-2.5)	is indus to to <u>ttral</u> By non- underwriter 0.0 (-0.1)	try-adjust Optin <u>Reite</u> <u>A</u> -15.2 (-7.5)	ted 6-mo nistic rated -uou Ag -2.6 (-4.2)	nth retur Dov <u>Net</u> and <u>A</u> -25.4 (-12.6)	n after re vn to <u>ttral</u> Sa uou- Ma -6.4 (-11.7)	Pessi Pessi Ma -9.27 (-5.5)	mistic 	R ² 02.6	# obs 16,222
Period Period Before the regulations Different (p<.05)?	Ul Optin A -1.31 (-0.9)	ependent o to <u>mistic</u> -uou X _B 3.68 (9.3)	Variable UF Net A A B -12.2 (-2.5) Y	is indus to to tral -uou Ag 0.0 (-0.1) es	try-adjust Optir <u>Reite</u> <u>A</u> -15.2 (-7.5) Y	ted 6-mo nistic rated -uou Ag -2.6 (4.2) es	hth retur Dov Net SB -25.4 (-12.6) Y	n after re vn to <u>ttral</u> -uou Ag -6.4 (-11.7) es	Pessi B M -9.27 (-5.5)	mistic -uou Ag -17.9 (-2.4)	R ² 02.6	# obs 16,222
Period Period Before the regulations Different (p<.05)? After the	UI Optin Optin A -1.31 (-0.9) Y -1.58	ependent to to -uou kg (9.3) 1.00	Variable UF Net -12.2 (-2.5) Y -6.03	is indus to to trail -uou Mg 0.0 (-0.1) es 0.25	Coptin Reite Manual Coptin Reite Manual Coptin Reite Manual Coptin Reite Coptin Reite Coptin Coptin Reite Coptin Coptin Reite Coptin Reite Coptin Reite Coptin Reite Coptin Copti	rated 6-mo nistic rated -uou Ag -2.6 (-4.2) es -1.66	nth retur Dov <u>Net</u> <u>iajuna</u> <u>agent</u> -25.4 (-12.6) Y -14.3	n after re vn to <u>ttral</u> -uou Âg -6.4 (-11.7) es -8.7	Pessi Lapuration Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Magnetic Pessi Pessi Magnetic Pessi Magneti	ndation mistic -uou Ag -17.9 (-2.4) -12.3	R ² 02.6 01.6	# obs 16,222 6,843
Period Period Before the regulations Different (p<.05)? After the regulations	UI Optim A -1.31 (-0.9) Y -1.58 (-0.6)	university of the second secon	Variable Ur Neu -12.2 (-2.5) Y -6.03 (-1.5)	is indus to to tral -uou Agn 0.0 (-0.1) es 0.25 (0.3)	try-adjust Optir <u>Reite</u> → <u>anum</u> -15.2 (-7.5) Y -2.56 (-0.7)	rated 6-mo nistic rated -uou Ag -2.6 (-4.2) es -1.66 (-1.4)	nth retur Dow <u>Net</u> -25.4 (-12.6) <u>Y</u> -14.3 (-5.0)	n after re vn to <u>itral</u> -uou Ma -6.4 (-11.7) es -8.7 (-8.7)	Pessi Pessi	ndation mistic -uou Ag -17.9 (-2.4) No -12.3 (-2.7)	R ² 02.6 01.6	# obs 16,222 6,843

Figure 1. Monthly Consensus of Outstanding Recommendations for Big 10 and non-Big 10 Brokerage Houses

These figures present the monthly distribution of consensus of outstanding recommendations from big 10 and non-big 10 brokerage houses regarding US common stocks. At the end of each month, I average for each stock the outstanding recommendations (according to the convention: 1=sell, 2=underperform, 3=hold, 4=buy and 5=strong buy) from each group of brokerage houses (either big 10 or non-big 10). I define the consensus recommendation according to the resulting average (using convention: 0<=average<=1.8 is sell, 1.8<average<=2.8 is underperform, 2.8<average<=3.8 is hold, 3.8<average <=4.8 is buy and average>4.8 is strong buy). Figure (a) plots the monthly distribution of the consensus recommendation for the group of big 10 brokerage houses, and (b) for the group of non-big 10 brokerage houses. Results reported for the period Jan 1998 thru Dec 2003.



(a) Monthly consensus recommendations for big 10 brokerage houses

(b) Monthly consensus recommendations for non-big 10 brokerage houses



Figure 2. Monthly Consensus of Outstanding Recommendations for Big 10 and non-Big 10 Brokerage Houses (using 3-tier Ratings System)

These figures present the monthly distribution of consensus of outstanding recommendations from big 10 and non-big 10 brokerage houses regarding US common stocks. At the end of each month, I average for each stock the outstanding recommendations (according to the convention: 2=sell or underperform, 3=hold, 4=buy or strong buy) from each group of brokerage houses (either big 10 or non-big 10). I define the consensus recommendation according to the resulting average (using convention: 0<average<=2.8 is pessimistic, 2.8<average<=3.8 is neutral, 3.8<average is optimistic). Figure (a) plots the monthly distribution of the consensus recommendation for the group of big 10 brokerage houses, and (b) for the group of non-big 10 brokerage houses. Results reported for the period Jan 1998 thru Dec 2003.



(a) Monthly consensus recommendations for big 10 brokerage houses

(b) Monthly consensus recommendations for non-big 10 brokerage houses



Figure 3. Monthly Distribution of New Recommendations for Big 10 and non-Big 10 Brokerage Houses

These figures present the monthly distribution of new recommendations from big 10 and non-big 10 brokerage houses regarding US common stocks. In each month, I average for each stock the newly issued recommendations (according to the convention: 1=sell, 2=underperform, 3=hold, 4=buy and 5=strong buy) from each group of brokerage houses (either big 10 or non-big 10). I define the new recommendation grade according to the resulting average (using the convention: 0<=average<=1.8 is sell, 1.8<average<=2.8 is underperform, 2.8<average<=3.8 is hold, 3.8<average <=4.8 is buy, average>4.8 is strong buy). Figure (a) plots the monthly distribution of the new recommendation grade for the group of big 10 brokerage houses, and (b) for the group of non-big 10 brokerage houses. Results reported for the period Jan 1998 thru Dec 2003.



(a) Monthly distribution of new recommendations for big 10 brokerage houses

(b) Monthly distribution of new recommendations for non-big 10 brokerage houses



Figure 4. Monthly Distribution of New Recommendations for Big 10 and non-Big 10 Brokerage Houses (using 3-tier Ratings System)

These figures present the monthly distribution of new recommendations from big 10 and non-big 10 brokerage houses regarding US common stocks. In each month, I average for each stock the newly issued recommendations according to the convention: 2=sell or underperform, 3=hold, 4=buy or strong buy) from each group of brokerage houses (either big 10 or non-big 10). I define the new recommendation grade according to the resulting average (using convention: 0<average<=2.8 is pessimistic, 2.8<average<=3.8 is neutral, 3.8<average is optimistic). Figure (a) plots the monthly distribution of the new recommendation grade for the group of big 10 brokerage houses. Results reported for the period Jan 1998 thru Dec 2003.



(a) Monthly distribution of new recommendations for big 10 brokerage houses

(b) Monthly distribution of new recommendations for non-big 10 brokerage houses

