

The impact of research reports on stock prices in Italy

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Abstract: Italy is a pioneer case in the regulation on financial research: a dissemination regime aimed at granting a) equal access to research reports by all clients, and b) free delayed public access to reports, has been implemented since 1998. The effective enforcement of the provision on public access to research reports, via publication on the Stock Exchange website, caused lively protests by domestic securities houses. We analyze the impact on stock prices of changes in analyst recommendations, both on the report date (when reports are distributed to clients) and on the public access date (when they become publicly available). We benefit of a unique database, consisting of more than 5,000 research reports available on the Italian Stock Exchange website. We document an excess return of +2.52% for upgrades, -2.63% for downgrades, both statistically significant, over a three-day event window around the report date. Abnormal returns are already present *prior* to the event day. This circumstance is surprising, given the dissemination regime prescribed by Italian regulation. Post-event abnormal returns are seemingly differentiated according to the type of recommendation: Upgrades show a significant +2.60% CAR over a 14 day-period, though daily abnormal returns are small and not significant; Downgrades show no significant abnormal return. Abnormal returns around the public access date are small and not significant, indicating that the information conveyed by reports has already been incorporated into prices. The analysis of trading volumes substantially confirm the preceding results. Our data reveal that no reaction is induced by the publication of reports. Research reports seem to convey information to the market but such information is incorporated in stock prices around the event day, that is when brokerage firms' customers - that pay for research - receive it.

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1. Introduction

After Jensen-Meckling (1976), financial analysts are mainly interpreted as delegated monitors, producing information about listed companies for investors, thereby reducing agency costs of equity capital. However, using an agent to monitor another agent may imply further agency costs. Until recently, awareness of this problem was confined to academic financial literature. After the recent wave of financial scandals, however, financial analysts have come under closer scrutiny. Market watchdogs and legislators in a number of countries are considering whether to tighten existing disclosure rules and to release conflicts-of-interest guidelines.

The literature on financial analysts has followed several lines of research. A first group of papers (Bhushan 1989, O'Brien-Bhushan 1991, Brennan-Hughes 1991, Chung 2000) investigates the determinants of analyst behavior (e.g. the decision to follow/drop a particular stock). The main drivers of analysts' attention to a particular stock seem to be the demand by (mostly institutional) investors and the development of investment banking activities.

A related line of research investigates the "value" of research to investors, measured in terms of either forecast accuracy or trading profits from a strategy based on analyst recommendations. The accuracy of analysts' forecasts is positively related to their reputation and experience (Stickel 1992) and to the size of the investment house. Accuracy is negatively related to the number of firms and industries followed by the analyst (Clement 1999, Brown 2000)¹ and the presence of close ties with the company object of the report (Dechow-Hutton-Sloan 2000). Accuracy seems to be persistent, i.e. past accuracy predicts future accuracy.

The release of information by analysts generates a significant stock market reaction; this is consistent with reports conveying new information to investors. The reaction is strong for reports distributed only to securities houses' customers (which presumably embody more accurate or timely information², Stickel 1995, Womack 1996), less pronounced for recommendations intentionally prepared for the financial press (e.g. the *WSJ Dartboard* column, Barber-Loeffler 1993), and weak for "second-hand" news reported in the columns *Heard on the Street* in the *WSJ* (Lloyd Davies-Canes 1978, Beneish 1991, Bauman-Datta-Iskandar-Datta 1995), *Inside Wall Street* in *Business Week* (Palmon-Sun-Tang 1994, Mathur-Waheed 1995), and *market highlights* in *USA Today* (Walker-Hatfield 1996).

¹ There is scarce evidence about the accuracy of analysts on the Italian market: a pioneering study by Pinardi (1995) found, however, large forecast errors.

² These studies are generally based either on commercial databases, collecting and selling reports at a substantial cost, such as I/B/E/S (Chung 2000), First Call (Womack 1996) and Zacks (Stickel 1995, Barber et al.2001a), or the recommendations of a restricted number of analysts (as in the *Value Line* literature - Holloway 1981, Copeland-Mayers 1982 - or in Bjerring-Lakonishok-Vermaelen 1983).

The reaction is rapid³, permanent and not quickly mean-reverting. Excess returns are not confined to the announcement date and the surrounding days, but show a significant long-term drift (Stickel 1995, Womack 1996, Michaely-Womack 1999). A strategy based on publicly available information would then allow investors to “beat the market” and is a still unsolved puzzle for the Efficient Capital Markets Hypothesis in the semi-strong form⁴: trading profits seemed substantial, at least until recently (Barber *et al.* 2001a and b).

Of course, it is difficult to ascertain the direction of causality: accuracy could be the result of a “loudspeaker” role of analysts and brokerage houses, and maybe of an excessive recourse to “earnings guidance” practices by both analysts and corporate executives (Fuller-Jensen 2002). Consequently, accepting too easily the traditional story about the value of analysts’ recommendations could imply substantial risks⁵.

We analyze the market price reaction of stocks listed on the Italian Stock Exchange to changes in analysts’ recommendations. We add to the existing literature (above all, Stickel (1995) and Womack (1996)) in many respects. First, we make use of a unique database, consisting of data on more than 5,000 research reports available on the Italian Stock Exchange website.

Second, Italy is an interesting case because of the peculiar features of its rules on the *production* and *dissemination* of financial research, in place since 1998. The Italian rules, developed by the Consob (the Italian Stock Exchange Commission) prescribe: a) *equal access* to research for *all clients* of a securities house, and b) *free delayed public access* to research reports. The Italian rules allow us to define with precision two event dates: a) the day the report is disseminated to clients and sent to the Consob and the Italian Stock Exchange, and b) the day the report is made available to the general public.

The date sub a) is available in the databases used in the previous literature. However, it is often remarked that earlier dissemination of information is possible, and therefore there is uncertainty in the event date determination, with possibly weaker results. In Italy, earlier dissemination would imply a substantial violation of the Consob rules. Therefore, on one hand, there should be no uncertainty about the event date; on

³ Kim-Lin-Slovin (1997), using intra-day data, find that most of the reaction takes place within 15 minutes from the information release.

⁴ To test whether the anomaly was dependent upon a rough definition of risk-adjusted returns, recent literature makes use of different model specifications of such returns. However, the drift has proved to be robust to a number of alternative definitions (see Womack 1996; Barber *et al.* 2001a).

⁵ Barber *et al.* (2001a) and (2001b) provide measures of accuracy (and of trading profits) which change dramatically after the pricking of the high-tech bubble. In the words of Barber *et al.* (2001b): “After a string of years in which security analysts top stock picks significantly outperformed their pans, year 2000 was a disaster. During that year the stocks *least* favorably recommended by analysts earned an annualized market-adjusted return of 48.66 percent while the stocks *most* highly recommended *fell* 31.22 percent, a return difference of almost 80 percentage points”.

the other, we are able to indirectly test compliance with the Consob rules, through an analysis of the timing of the market reaction.

The date sub b) is not generally available. The Italian system is, to our knowledge, the only one to impose free public dissemination of research reports. Therefore, we can directly test the reaction to this public dissemination.

The peculiar features of Italian regulation allow us to draw inferences about the timing of information dissemination and of the market reaction, about the effectiveness of the Consob rules and, finally, about the role of financial research in the Italian market. Our results have implications for the regulation of financial research, and especially for the public dissemination of reports.

The paper is organized as follows. Section 2 discusses existing regulation of security research from a comparative viewpoint. Section 3 presents the Italian Stock Exchange database and gives some descriptive statistics about the research industry in Italy. Sections 4 and 5 present the results of the event study on the dissemination of research reports, with a particular focus on *changes* in analyst recommendations. Section 6 provides some preliminary conclusions and an agenda for future research.

2. The regulation of research production and dissemination

Research production and dissemination is receiving increased attention after the recent wave of financial scandals: thin Chinese walls between investment banking and research departments in financial conglomerates, close ties between analysts and companies recommended, and events of malpractice have emerged in a number of cases reported in the financial press⁶, including Enron (Bratton 2002, Gordon 2002), and Merrill Lynch.

Securities analysts' activity has traditionally been outside the scope of regulation in most countries: self-regulation principles by associations of investment professionals were largely prevalent until recently. A prominent example of this approach is represented by the Standards of Professional Conduct issued by institutions such as the SIA (2001) and the AIMR (2002). AIMR Standards IV and V set rules concerning interactions of members with clients and prospects (e.g. fiduciary duties, fair dealing⁷,

⁶ See, for example: "Lawmakers Rip Analysts for Enron Ratings", WSJ Europe 1-3 March 2002, "Analysts' claim skepticism leads companies to lash back", WSJ Europe 20 March 2002; "Wall Street Cop Takes Charge", WSJ Europe 26-28 April 2002, "Wall Street Pacts Link Pay With Deal Money", WSJ Europe 6 May 2002.

⁷ See, for a recent case in which an analyst was accused (by the management of the covered firm) to leak the contents of a report to select investors before the report was published and released to all customers: "Company Bites Analyst Back After Criticism", WSJ Europe 25 November 2002. According to the reporters: "This is a serious accusation. Both the U.S. SEC and the NASD ban analysts from leaking to favored investors the contents of a report before its general release. Such leaks run counter to fair-and-equitable trading principles".

preservation of confidentiality), construction and presentation of research reports (e.g. reasonable basis and representation, independence and objectivity) and general behavior of members (e.g. disclosure of conflicts to clients and prospects, prohibition to use material nonpublic information).

The current trend seems, however, towards extending the scope of regulation: in the U.S., Section 501 of the Sarbanes-Oxley Act requires the SEC to adopt rules “reasonably designed to address conflicts of interest” (possibly covering Chinese walls between research and investment banking departments, black-out periods around IPO’s, and disclosure requirements applying to research reports and public appearances). In Germany, financial regulators are examining issues such as analysts’ compensation and their ties with the IPO business; in other countries, such as the U.K., France and Japan, market watchdogs have either tightened existing conflicts-of-interest guidelines or are considering to introduce new ones⁸.

The regulation of research is also on the agenda of the EU policy-makers. The Committee of European Securities Regulators (CESR, formerly Forum of European Securities Exchange Commission – FESCO) suggested (FESCO 2001, CESR 2002) the introduction – on a EU basis – of principles such as fair presentation of research reports, disclosure of conflicts of interest (including investment banking activities and personal positions of analysts in the securities of the issuer), and restrictions on investment firms from trading and advising clients ahead of analyst research to be issued to the market. The EU has included some provisions on research in the Directive proposal on insider dealing and market manipulation (market abuse).

Italy has been a pioneering case in this respect. Article 114 of the “Draghi Reform Act”, requiring prompt disclosure of all potentially price-sensitive information, delegated the Consob in 1998 to design an appropriate disclosure system for research reports. In 1999 art.69 of Consob Regulation no. 11971 prescribed that research reports on listed firms must be sent to the Consob and deposited with the Italian Stock Exchange *no later than the day they are disseminated*; the Stock Exchange makes them available to the general public *within a specified term*⁹.

The Consob rule is a compromise between two conflicting objectives: ensuring the diffusion of all potentially price-sensitive information and preserving the role of the research industry, which is considered a useful instrument to enhance the efficiency of

⁸ See FSA (2002); see also “European Policies for Analysts differ”, WSJ Europe 16 July 2001, “Dutch Analysts’ Leash Shortens”, WSJ Europe 24 July 2001, “Around the World, Regulators Move to Plug Loopholes”, WSJ Europe 22 May 2002.

⁹ Additional rules have been introduced over time: for example, a requirement that the reports “contain a graphically highlighted warning that the person disseminating them may have a specific interest in the issuer, the financial instruments or the transactions analyzed and specify the reasons for and the extent of such interests”. Consob also recommended the adoption of standards of best practice (Communication no. 1029755). However, such communications have no prescriptive power, concerning disclosure of conflicts of interests, reasonable basis, independence of analysts, fair dealing and transparency on the timing and the distribution channels of the reports.

financial markets. The compromise is reflected in: a) the delay of public diffusion of reports addressed to clients and b) the way they are made available to the public.

The term for filing the reports with the Stock Exchange, originally 15 calendar days after dissemination to customers, was shortened to 10 days in April 2001. Originally, a paper version was deposited, but over time a number of firms started to file also .pdf documents. In August 2001, the Italian Stock Exchange published both newly filed reports and the “historical” database (dating back up to September 1999) on its website. Italian securities houses complained that the publication: a) unduly damaged their own clients, who would not be able to reallocate their portfolio before the reports became publicly available; b) put them at a disadvantage toward foreign competitors, and c) ultimately favored regulatory arbitrage¹⁰. After some months they substantially ceased sending .pdf files, effectively restoring the status quo of a purely paper archive (see Table 1).

Insert table 1 about here

In July 2002 the disclosure delay has been brought to 60 days. Intermediaries may choose one of two alternative ways to comply with the filing obligation: they may deposit, in .pdf format, either the report, or an announcement indicating author, subject, date and the company website from which the report can be downloaded at no cost. The Stock Exchange makes any document it receives available on its website¹¹.

One might wonder if free public access to research reports is a legitimate objective for regulation. The Consob rule states two general principles:

- a) *there is a “correct” time and way to release research information.* Reports should be distributed to *all* clients (and only to them) according to a principle of *fair dealing*: investment firms and brokers should avoid advising only a restricted list of clients or disseminating material information in a selective way. Having the date of dissemination printed on the report allows each client to monitor the timing of disclosure, albeit to a limited extent;
- b) *there is a “correct” way to disclose reports to the public,* i.e. through a channel granting fair and centralized access to information. Indeed, anecdotal evidence shows leakage of information and, sometimes, details of “confidential” reports published in the press. Since these may be followed by

¹⁰ Italian regulation applies only to “authorized” intermediaries, i.e. domestic investment firms and brokers and local branches of foreign firms. No obligation applies to foreign investment firms, even though they do produce and distribute (both in Italy and abroad) research reports on companies listed on the Italian Stock Exchange.

¹¹ The new rule restored the inflow of reports and announcements to the Stock Exchange (which currently includes some 14,300 documents). According to the new regulation, Consob may require intermediaries to publish a comment and/or to immediately disclose a report, should the following conditions be jointly true: a) there are rumours about a report issued by an intermediary subject to the filing obligation and: b) a material variation takes place in the market price and/or the exchange volume of the securities.

material changes in the price and/or the trading volume of financial instruments, a regulatory intervention aimed at re-establishing conditions of informational symmetry seems at first sight legitimate.

While this may justify centralized disclosure, it would hardly be a sufficient reason to *mandate* public disclosure, *unless* a leakage of information has taken place. A possible rationale for mandatory disclosure refers to the *fair disclosure* principle, in place in Italy ever since 1991: material information must be disseminated promptly and in a not selective manner. Briefings with analysts may take place, provided no material information is disclosed: only “soft information”, *i.e.* non-material non-public information may be disclosed¹². It is, however, difficult to trace a clear line between “soft” and “inside” information. In addition, enforcing fair disclosure in practice is extremely difficult. Imposing free delayed public access to the reports may be a way to limit, to some extent, the exploitation of “soft” information by analysts and their clients.

Regulatory arbitrage may be a real problem – as recognized by the President of the Consob Mr. Spaventa (2002). However, it should not be taken at face value. The value of information depends crucially on its *timing*: a client who buys research, presumably does so in order to reallocate her portfolio on the basis of the new information she receives. She won’t care (and may even be happy) if the information she bought is made available to the public, once she has had enough time to rearrange her portfolio: this should not take more than some days, even for large institutional investors. A way to investigate whether the complaints by Italian intermediaries are well-founded is to look at the timing of any reaction of market prices (and trading volumes) to reports: should the reaction take place *within* the time limit prescribed by regulation, it would be hard to see any damage for the clients of Italian intermediaries. We will consider this issue in section 5.

3. Database description and sample selection

Our analysis is based on all research reports issued during the period September 1999-March 2002 and available on the website of the Italian Stock Exchange. The database included 5,077 reports issued by 56 intermediaries on 237 companies. They reduced to 4,990 after we deleted 77 “clone reports”, issued on the same day by different securities firms belonging to the same group. Data on daily stock prices and trading volumes were obtained by Datastream.

¹² Italian regulation substantially follows the so-called “mosaic theory” recognized by the U.S. Courts and the SEC: financial analysts may use significant conclusions derived from the analysis of public and nonmaterial non-public information as the basis for investment recommendations and decisions, even if those conclusions would have been material inside information, had they been communicated directly to the analyst by a company.

Since we refer to the *original* recommendations issued by the securities houses¹³, particular caution was required in their classification. Most analysts use a three-point standard scale (*i.e.*, “buy”, “hold” and “sell”), though maybe with a slightly different terminology (*e.g.*, “neutral” or “market perform” is used instead of “hold”). Others use an expanded scale: sometimes a four-point scale ranging from “strong buy” to sell (“strong sell” is virtually never used), or even a six-point scale with “softer” recommendations like “reduce” (between “hold” and “sell”) or “add” (between “hold” and “buy”). Unfortunately, not every firm explicitly declares the rating system it follows and the precise meaning of a recommendation. So some degree of subjectivity was needed when interpreting the assigned ratings. We identified eight possible recommendations ranging from “strong buy” to “sell” and codified each recommendation with a number as shown in Table 2.

Insert Table 2 about here

The recommendations, re-expressed along the standard 3-point scale, are reported in Table 3. They are not essentially different from those reported in the literature both in the U.S. (Stickel 1995, Womack 1996, Barber *et al.* 2001a and b) and in Italy (Fabrizio 2000, whose results for years 1998 and 1999 are also reported in Table 2¹⁴). “Buy” ratings are clearly prevalent, accounting for 57% of the sample, “hold” ratings are issued in 31% of the reports, “sell” ratings are relatively rare, accounting for 9% of the reports.

Insert table 3 about here

Differences across years may be associated with changing market conditions. The Italian stock market peaked in March 2000 and decreased dramatically afterwards, therefore, the data in Fabrizio (2000) refer to a bull (or even a “bubble”) period, while our data mostly refer to a bear one. However, the differences in the percentage of “buy” and “sell” recommendations across the two databases are not large. This is in line with the results of the U.S. literature and might be due to a “loudspeaker” function of research reports (Michaely-Womack 1999). Securities analysts seem either to “overlook” firms with poor prospects or to use a dictionary of their own when issuing investment recommendations, where “hold” may actually mean “sell”.

Analyst coverage changes remarkably with firm size, as reported in Table 4. Companies included in the Mib30 index (the 30 largest firms by market capitalization)

¹³ This differs from what happens in the U.S. literature, which is based on the reclassification of these recommendations by a professional information provider (*e.g.*, I/B/E/S, First Call or Zacks).

¹⁴ The database in Fabrizio (2000) includes all the reports filed with the Consob in years 1998 and 1999.

are followed, on average, by 18 intermediaries and 32 analysts¹⁵. The average number of reports per company in the database is approximately 70.

Insert table 4 about here

The coverage for Midex companies (ranking 31st to 55th in terms of market capitalization), is smaller: they are followed, on average, by 13 intermediaries and 16 analysts. The average number of reports per company in the database is approximately 36. Much smaller is the coverage for firms not included in the two main indexes. The evidence suggests coverage is correlated with size: the relationship does not seem to be linear, but rather based on the inclusion of the stock in a particular index and is probably driven by the demand for information about firms included in the portfolios of institutional investors.

Data about research activity are reported in Table 5. The database includes reports issued by 56 intermediaries following, on average, 30 companies each. However, dispersion is high and the distribution is skewed (the median number of issuers per intermediary is 11): some intermediaries follow many issuers, while others filed only one or two reports. These data are most likely influenced by the particular construction of the Stock Exchange database, which does not guarantee coverage of foreign intermediaries.

Insert table 5 about here

The average number of analysts employed by each firm is 14. However, this data, too, shows large variability and skewness (the median value is 6). The average number of reports filed by each firm is 89 (the median value is 19, minimum and maximum values are 1 and 644). The “market for research” shows a significant degree of concentration, with 5 firms accounting for 40% of the reports (Table 6).

Insert table 6 about here

One last point concerns specific disclosure about conflicts of interest. Virtually all the reports include a disclaimer, stating in broad terms that the intermediary “may have a specific interest in the issuer or in the financial instruments or the transactions analyzed”¹⁶. However, the Consob recommendation to specify the *reasons* for any

¹⁵ A report may be prepared jointly by more than one analyst.

¹⁶ For example: “[The firm] and any of its clients may effect or have effected transactions for their own account on the securities mentioned in this report or any related investment prior to your receipt of it. [The firm] may provide investment banking services (including without limitation corporate finance services) for the issuers of the securities mentioned in this report and may from time to time participate or invest in commercial banking transactions (including without limitation loans) with the issuers of the

interest in the issuers to which the report relates, and the *extent* of such interests, is rarely followed. Table 7 shows that only 194 reports (issued by 25 different firms) include a specific warning: this amounts to only 3.9% of the reports in the database.

Insert table 7 about here

This is partly due to the fact that the Consob recommendation seemingly relates to any “interest” of the intermediary in the issuer. This interpretation makes it very difficult to follow the recommendation. In Italy, even small and medium firms often have multiple relationships with banks. Large, listed firms sometimes have relationships with dozens of banks. Securities firms are typically affiliated to banking groups, providing every sort of financial services. Consequently, the Consob recommendation, taken literally, would imply some firms declaring they have a specific interest in almost all the issuers they follow. A more practicable solution would be to specify in detail in the recommendation which banking transactions may be relevant in this regard.

The specific warnings were mainly related to the firm playing the role of global coordinator in a former securities issue (84 reports by 12 intermediaries), being a specialist on the high-tech *Nuovo mercato* segment (67 reports by 9 intermediaries) or issuing derivatives – *e.g.* covered warrants – on the securities of the issuer (28 reports by 7 intermediaries). 11 reports by 6 securities firms explicitly deny the existence of any relationship whatsoever with the issuer.

4. Changes in analyst recommendations

In the next section, following Womack (1996), we will examine the reaction to *changes* in analyst recommendations, defined in terms of our 8-point scale classification system (see Table 2). The reason for focusing only on ratings changes is substantially twofold: first, they are likely to be considered among the most prominent news by investors. Second, reports suffer from calendar clustering, partly because they tend to follow the publication of periodic financial statements or the announcement of important transactions. Reiterations of previous opinions are very frequent: therefore, it happens quite often that several reports are issued in a small period of time (sometimes even on the same day) by different securities houses. In such a situation, including all the reports in the sample (as in Stickel 1995) would imply counting the reports as if they

securities mentioned in this report. Accordingly, information may be available to [the firm] which is not reflected in this report. [The firm] may have positions in or options on the securities mentioned in this report or any related investments and may buy, sell or offer to buy or sell such securities or any related investments as principal or agent on the open market or otherwise”.

were independent events (which is probably false)¹⁷; on the other hand, it is difficult to find a reasonable way to select only the reports which are likely to be considered “relevant” by investors¹⁸. Changes in recommendations are substantially not affected by these problems.

To identify changes in analysts’ recommendations, we had to select the reports that provided both *previous* and *current* rating. To perform our analysis we also needed stock prices and trading volumes to be available on Datastream. Such information was available for 3,242 reports over 4,990 originally in the Stock Exchange database. The smaller dataset is described in Table 8, which shows the distribution of reports by year. Reports are classified by current investment recommendation according the standard three-point scale (i.e. buy, hold, sell). In Table 8 it may be easily checked that the distribution of reports does not significantly differ from that previously reported (in Table 3) for the whole database.

Insert Table 8 about here

Afterwards, we were able to compute a matrix of changes in analysts’ recommendations based on our 8-point scale codification system. The results are reported in Table 9.

Insert Table 9 about here

To detect stock price reactions to analyst recommendations, we classified reports into three sub-categories: “unchanged”, “upgrades” and “downgrades”. The distribution of reports for each category is shown in Table 10.

Insert Table 10 about here

Most reports (N = 2583) belong to the “unchanged” category, that includes all reports reiterating previous recommendations; this category includes all elements on the

¹⁷ As Womack (1996) p. 157 points out, abnormal returns are simple averages of returns around the report release. So if several analysts recommend the same stock simultaneously, one stock price movement can be counted more than once in the average, and this could result in an overstatement of the true stock price movement. This last problem seems to be of limited importance for our sample, at least for upgrades and downgrades, since a coincidence of upgrades/downgrades by more than one analyst over the same event window is relatively rare. This problem could, however, be potentially greater in the much larger “unchanged” sample.

¹⁸ For example, choosing the first report issued in the relevant period might imply overlooking reports issued by prominent analysts working for large, established securities houses; it might even sometimes lead to excluding a large number of reports (when they are very frequent, because the company is followed by many analysts). However, choosing the reports issued by large securities houses would hardly be a solution: no analyst reputation ranking exists in Italy, and many alternative specifications of mere size of the intermediary may be prospected, none of which is clearly preferable.

diagonal of the matrix in Table 9. Reports that confirm a previous “strong buy” or “buy” (ranging from category 4 to category 2) account for 60% of all “unchanged” reports, while another 34% reiterates a previous “hold” recommendation.

Upgrades (Panel B) are defined as all upward revisions of a previous recommendation: they include the reports in the lower triangular matrix of Table 9. 57% of all upward revisions are changes from “hold” to a “buy” category (i.e. from 5 to either 4, 3 or 2 in Table 2).

Downgrades (Panel C) are defined as all downward revisions of a previous recommendation: they include the reports in the upper triangular matrix in Table 9. 53% of all reports are downgrades from a “buy” category to “hold” (hence revisions move from either 2, 3, 4 to category 5), while downgrades from “hold” to a “sell” category (from 5 to either 6, 7 or 8) account for almost 20% of all downgrades.

5. Market reaction to changes in analysts’ recommendations

The following analysis is dedicated to market reactions induced by changes (Upgrade and Downgrade) in analyst recommendations. We performed two different event studies. The first assumes as event date the **report date**; under the Italian regulation, this corresponds, by definition, to the date the information is made available to brokerage firms’ clients. As we showed in section 2, the Italian regulation prescribes free delayed public access to the reports. The second event-study is centered on the day public access is granted to the reports (*i.e.* the **public access date**). Consequently we were able to analyze the market reaction both to the dissemination of the reports to clients and to the subsequent public dissemination of the same information. Around the report date, the reaction to the dissemination of reports depends on whether they convey new information to the market: if no additional information is conveyed, then no portfolio adjustment should follow the dissemination of the reports. As a consequence, both the returns and the trading volumes of the securities of the issuer to which the report refers should not vary significantly. On the contrary, if new information is conveyed by the report, and the market is informationally efficient, any abnormal returns and/or volumes should rapidly disappear after the report date.

If the market is informationally efficient, no significant reaction should take place around the public access date , since all the profit opportunities related to the new information conveyed by the reports should already have been absorbed by portfolio adjustments around the report date.

The event date is indicated as $t=0$. The event window comprises 31 days, centered on the event date: since we are interested in the short-term market reaction to the dissemination of reports, the post-event window is limited to 15 days; this term

allows us to analyze the market reaction around both the report and the public access date. The estimation window extends over the 125 days preceding the event window; a longer period would be inappropriate, because it would include the pre-quotations period (and a consequent unavailability of data) for many firms.

The return for firm i on day t has been computed as:

$$R_{it} = \ln\left(\frac{P_{it}}{P_{i(t-1)}}\right)$$

The **abnormal return** on stock i at time t (AR_{it}) has been computed as the excess daily return of the stock (R_{it}) minus the estimated normal return ($R_{\text{Norm } t}$) of the stock over the event window¹⁹. The Market Model is adopted to obtain the estimation of the normal stock daily return:

$$R_{\text{Norm } t} = \alpha_i + \beta_i R_{mt}$$

R_{mt} is market daily return, while α_i and β_i are the parameters of the Market Model computed over the estimation window. Abnormal returns are then averaged across the N reports in the sample:

$$AR_t = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

We test the statistical significance of abnormal returns AR_t through the Ordinary Cross-Sectional method (Boehmer et al. (1991)), for which the t -statistic is²⁰:

$$t = \frac{\frac{1}{N} \sum_{i=1}^N AR_{it}}{\sqrt{\frac{1}{N(N-1)} \sum_{i=1}^N \left(AR_{it} - \frac{\sum_{i=1}^N AR_{it}}{N} \right)^2}}$$

where N = number of reports.

To test for **abnormal trading volumes**, according to Harris and Gurel (1986), a volume ratio (VR_{it}) is computed, linking the firm-specific trading volume to that of the whole market:

¹⁹ We tested the hypothesis also through a Market Adjusted model, where the Abnormal Return (AR_{it}) is:

$$AR_{it} = R_{it} - R_{mt}$$

The conclusions are substantially in line with those of the Model presented in the text.

²⁰ Implicit with the use of this model is the assumption that the stock event-induced variance is equal to zero. In fact, as shown by Boehmer et al. (1991), under this assumption, the Ordinary Cross-Sectional method leads to acceptable probabilities of Type I (rejecting a true hypothesis) and Type II (accepting a false hypothesis) Error, even when compared with those resulting by the use of other methods (Traditional method, Standardized cross-sectional method, etc, as described in Boehmer et al. (1991)). On the contrary, if the assumption of stationarity in event-induced variance is violated, the Ordinary Cross-Sectional method turns out to be weak, due to high probabilities of Type II Error.

$$VR_{it} = \frac{\frac{V_{it}}{V_{mt}}}{\frac{V_i}{V_m}}$$

V_{it} and V_{mt} are trading volumes on day t in the event window of security i and total market daily volumes for Italy, and V_i and V_m are the average trading volumes of security i and market index over the 125 trading days preceding the event window.

The firm-specific volume ratios are then averaged over the N reports in the sample:

$$VR_t = \frac{1}{N} \sum_{i=1}^N VR_{it}$$

With no abnormal volumes, the average volume ratio (VR_t) equals to 1. The null hypothesis to be tested is then $H_0: VR_t = 1$. To test the statistical significance of results, the same methodology used for the abnormal returns is applied, and the t -statistic is computed as follows:

$$t = \frac{\frac{1}{N} \sum_{i=1}^N (VR_{it} - 1)}{\sqrt{\frac{1}{N(N-1)} \sum_{i=1}^N \left(VR_{it} - \frac{\sum_{i=1}^N VR_{it}}{N} \right)^2}}$$

The results of the event study centered on the **report date** are illustrated in the first section of the paragraph, while the second section is dedicated to the event study centered on the **public access date**. In each section we distinguish the results for Upgrades and Downgrades.

5.1 The reaction around the report date

We first analyzed the reaction to the dissemination of reports to brokerage firms' clients: to this end we performed an event-study centered on the report date. The sample size is 295 for Upgrades and 333 for Downgrades. Mean abnormal returns associated with the dissemination of analysts' recommendations are shown in Table 11. The stock price reaction for upgrades and downgrades is also plotted in Figure 1.

Insert table 11 about here

Insert figure 1 about here

We document a stock price reaction following revisions of analyst recommendation that is consistent in sign with expectations and statistically significant. The stock price reaction is concentrated around the event day. Upgrades (downgrades)

show a positive (negative) stock price reaction consistent with the expectation of analysts' ability to pick (drop) undervalued (overvalued) stocks.

Remarkably, statistically significant abnormal returns are already present *prior* to the event day. Both Upgrades and Downgrades show a significant abnormal return (+0.31% and -0.50%, respectively) in $t = -2$. The anticipated reaction is confirmed by the analysis of trading volumes around (and prior to) the event-day, particularly for Upgrades: as shown in Table 12, in $t = -1$, trading volumes are 76% (51%) higher than in the estimation period for Upgrades (Downgrades) (both significant at 1% level).

Insert table 12 about here

A similar anticipation effect emerged in Womack (1996). Abnormal returns prior to the event date may be consistent with two (not mutually exclusive) hypotheses. First, securities firms' clients might receive some information about the recommendation *before* the "official" date printed on the research report (when it is filed with the Consob). This practice seems to be widespread in the U.S.²¹, though it does not grant all customers are treated fairly. On the Italian market, however, it would hardly be in line with the Consob regulation on the dissemination of research reports. Second, the anticipated reaction might be due to important news coming to the market before the event date: examples of possible news are announcements concerning important transactions of the company (i.e. mergers, acquisitions, large asset sales, etc.) or the publication of financial statements. Further analysis is needed to discriminate between these hypotheses²².

The analysis of the post-event period ($+2 < t < +15$) shows no significant abnormal returns; on the opposite, data on trading volumes reveal that an intense activity of portfolio adjustments is induced by the dissemination of reports. This reaction seems to be differentiated according to the nature of the recommendation: while the volume reaction for Downgrades is substantially absent after $t = +1$, abnormal volumes related to Upgrades are always substantial and statistically significant over the entire post-event period.

Further insights are offered by Table 13, which shows cumulative abnormal returns (CARs). CARs are computed as the sum of average abnormal returns over some windows of interest (t_1-t_2):

$$CAR_{(t_1-t_2)} = \sum_{t=t_1}^{t_2} AR_t$$

²¹ See on this Stickel (1995) p. 26 or Michaely and Womack (1999) p. 659.

²² We have already checked that news on mergers or takeovers are extremely rare. We have also repeated the test excluding the reports issued in the period 13th to 25th September 2001 in order to avoid the possible effects of the terroristic attack on the twin towers, and obtained substantially identical results. We are presently controlling for earnings announcements made in the days immediately preceding the issue of the research report. We are going to include the results of these tests in the next draft of the paper.

Consistent with daily data, no significant abnormal return is registered prior to the report date ($-15 < t < -2$), while over the 3-day event window ranging from -1 to +1, we document a statistically significant stock price reaction of 2.52% for upgrades and -2.63% for downgrades (Panel A).

Insert Table 13 about here

The analysis over the post-event window ($+2 < t < +15$) confirms that the investors' reaction is concentrated around the report date for Downgrades (CARs not significantly different from zero). The analysis of CARs for Upgrades helps to explain the drift in abnormal volumes described above: in fact, abnormal volumes document a rather intense trading activity that results in a significant +2.60% CAR, even though daily abnormal returns over the same window are small and not significant. There seems to be new attention on the securities of upgraded issuers after the report date; the reaction for downgraded issuers disappears after $t+1$.

This asymmetry may be consistent with two (not mutually exclusive) hypotheses: a) the report may draw new attention on a previously neglected firm; restrictions on short-selling (limiting the ability to trade on downgrades) might then explain the asymmetry; b) rumors about the existence of a report with important news (and, of course, about its content) may progressively spread on the market. Small investors might then be induced to buy the issuer's securities, if the report brings positive news, even after a string of positive abnormal returns (though maybe they might be too late, because the information conveyed by the report has already been incorporated into prices); however, those investors might be reluctant to sell the issuer's securities after a string of negative abnormal returns, if the report brings negative news. According to this small investor psychology hypothesis, small uninformed investors might be more prone to "buy too high" than to "sell too low".

Of course, to discriminate between these two hypotheses, one would have to look at the identity of the investors who buy the securities in the post event-window: in the former case, buy orders could come from both institutional and small, individual investors; in the latter, the price movement should be driven by small, uninformed (and, of course, *late*) investors.

Another interesting issue is the possible relationship between size of the reaction and the type of recommendation. As stated before, our sample of upgrades (downgrades) includes all upward revisions from any lower (upper) category. However, a stronger positive price reaction may be expected for stocks added to a buy list, and a stronger negative impact for stocks added to a sell list. We then split our upgrade (downgrade) sample into two sub-groups. "Added to buy" stocks (Panel B) are defined as those stocks that move from a sell category to either a buy or a strong buy, or from a hold category to either a buy or a strong buy (see our categorization in Table 2). The

“Added to sell” list (Panel C) includes those stocks that are downgraded from strong buy, buy or hold to a sell rating.

Over the 3-day event window we document a significant price increase of 2.58% for the added-to-buy stocks and a decrease of 2.43% for stocks moved to the sell list. These results are in line with those reported in previous studies on the U.S. market. In Womack (1996) the price increase for buy recommendations is, on average and over a 3-day event window, 3.0%, while prices drop 4.7% for sell recommendations. Stickel (1995) finds returns of +1.16% for added-to-buy stocks and -1.28% for added-to-sell stocks over an 11-day event window.

Added-to-buy (added-to-sell) stocks show a greater price reaction (over the 3-day event window), than the rest of the sample, though the difference is statistically significant only for the latter. This is not surprising, since “sell” recommendations are comparatively rare (they indicate that the issuer is now in the lower tail of the distribution), and therefore an “added-to-sell” rating is likely to be interpreted by investors as a much stronger signal, than an “added-to-buy” (which merely indicates that the issuer is in the upper half of the distribution).

Like upgrades and downgrades, added-to-buy and added-to-sell stocks show a different post-event price pattern. Stocks that are either added to a buy list or for which a previous buy is reiterated show a significant positive excess return over the 14 trading days following the report release²³. On the contrary, stocks that are added to a sell list or for which a previous sell rating is confirmed do not show any post-recommendation drift.

5.2 The reaction around the public access date

The second event study aims at identifying the reaction of stock prices to the dissemination of reports to the general public. Since the Italian regulatory requirement refers to *calendar* days, we had to preliminarily identify the event date: this is the first day when investors *could trade* on the information in the reports²⁴. The sample is the same used in section 5.1. The event window we considered refers to $-3 < t < +3$, so that only the effects around the public access date are captured.

²³ Post-recommendation drift for added-to-buy stocks is consistent with the findings in Womack (1996) and Stickel (1995). Our evidence on stocks added to a sell list contrasts with evidence provided by Womack (1996) that shows a six-month post-event CAR of -9%. However the results for our sample are to be considered with caution. The post-recommendation drift would suggest that the market does not incorporate new information into stock prices in an efficient way. A profitable investment strategy would suggest to buy stocks that are added to a buy list. The asymmetry of results for added-to-sell stock is another puzzling issue that needs further investigation.

²⁴ Prior to the 18th of April 2001, the deposit with the Stock Exchange had to be made within 15 calendar days: therefore, 11 trading days usually were comprised between the day of reports and the day they are filed to the Stock Exchange. Afterwards, the period was shortened to 10 calendar days; this period usually corresponded to 8 trading days, except for reports issued on Friday (6 trading days) and on Thursday and Sunday (7 trading days). Further adjustments had to be made to account for holidays.

Table 14 shows that both abnormal returns and volumes around the public access date are small and not significant, thus indicating that the information eventually conveyed by the reports has already been incorporated into prices.

Insert Table 14 here

Our data would induce us to argue that at least one of the complaints by Italian intermediaries about the public release regime (namely, the claim their customers would not be able to reallocate their portfolio before the public access date) was not based on solid ground. Information conveyed through research reports is mostly incorporated in stock prices around the event day, that is when brokerage firms' customers - that pay for research - receive it. Even if further portfolio adjustments are registered after the date of reports, they start well before the day the reports are made public and are seemingly independent from this event. Indeed, one could even argue that there is a risk that the content of research reports leaks to the market in an "uncontrolled" way, and therefore there is space for a regulatory intervention aimed at re-establishing minimum conditions of informational symmetry.

6. Preliminary conclusions and agenda for future research

Our analysis of the stock price reaction associated with changes in analyst recommendations takes advantage of two distinctive features of Italian regulation: a) it allows a precise definition of the report issuing date: each report has to be filed with the Consob on the day it has been released. Hence the date of the report corresponds, by definition, to the date the information is made available to brokerage firms' clients. The dissemination to the general public can also be derived from this date; b) a unique database is available, consisting of more than 5,000 reports issued by domestic investment firms and brokers and local branches of foreign firms.

The release of investment recommendations is accompanied by significant abnormal returns around the event date. We document an excess return of +2.52% for upgrades, -2.63% for downgrades, both statistically significant, over a three-day event window. Such results are substantially in line with those reported in the U.S. literature.

Our data show (only for upgrades) a rather intense trading activity that results in a significant +2,60% *CAR*, even though daily abnormal returns over the same window are small in size and not significant. There seems to be new attention on the securities of upgraded issuers after the report date. This may be consistent with two (not mutually exclusive) hypotheses: a) the report may draw new attention on a previously neglected firm; and b) rumors about a report (and its content) may spread on the market. To discriminate between these two hypotheses, one would have to look at the identity of

the investors who buy the securities in the post event-window: in the former case, buy orders could come from both institutional and small, individual investors; in the latter, the price movement should be driven by small, uninformed (and, of course, *late*) investors.

We have also detected an *anticipated* reaction to reports release, which may be consistent with two – not mutually exclusive – explanations: a) the issuance of other price-sensitive information in the days immediately preceding the event date; b) a possible information leakage, which would not be in line with the rigid time schedule prescribed by the Italian regulation. Further analysis is needed (and is already under way) to discriminate between these hypotheses.

The effective enforcement of the provision on the dissemination of research reports, via publication on the Stock Exchange website, has caused lively protests by Italian securities houses, complaining that this rule put them at a competitive disadvantage against foreign firms and would unduly damage their clients, who could not reallocate their portfolio before the report becomes publicly available. Our data, however, show that no reaction is induced by the publication of reports; on the opposite, the informational content of research reports seems to be mostly incorporated in stock prices around the event day.

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Table 1		
Monthly distribution of reports in the Stock Exchange database		
Month	N. of reports	%
Jan-99	1	0.0%
Sept-99	8	0.2%
Oct-99	4	0.1%
Nov-99	22	0.4%
Dec-99	40	0.8%
Jan-00	95	1.9%
Feb-00	129	2.6%
Mar-00	158	3.2%
Apr-00	68	1.4%
May-00	218	4.4%
Jun-00	54	1.1%
Jul-00	86	1.7%
Aug-00	60	1.2%
Sept-00	218	4.4%
Oct-00	135	2.7%
Nov-00	205	4.1%
Dec-00	150	3.0%
Jan-01	227	4.5%
Feb-01	263	5.3%
Mar-01	386	7.7%
Apr-01	247	4.9%
May-01	359	7.2%
Jun-01	115	2.3%
Jul-01	219	4.4%
Aug-01	200	4.0%
Sept-01	534	10.7%
Oct-01	285	5.7%
Nov-01	243	4.9%
Dec-01	95	1.9%
Jan-02	56	1.1%
Feb-02	89	1.8%
Mar-02	22	0.4%
Total	4,990	100.0%

Table 2.		
Codification of ratings		
Main category	Finer category	Code
Strong buy = recommended list = selected list		1
Buy	buy	2
	outperform	3
	add/accumulate	4
Hold = neutral = market perform		5
Sell	underperform	6
	reduce	7
	sell	8

Table 3																
No. of Reports, by year and investment recommendation																
Recommendation	Consob database ^(a)						Italian Stock Exchange Database ^(b)									
	1998		1999		All		1999		2000		2001		2002		All	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Buy	1,351	59.1%	1,298	57.4%	2,649	58.2%	55	74.3%	990	62.9%	1,659	52.3%	120	71.9%	2,824	56.6%
Hold	583	25.5%	604	26.7%	1,187	26.1%	13	17.6%	408	25.9%	1,099	34.6%	37	22.2%	1,557	31.2%
Sell	126	5.5%	150	6.6%	276	6.1%	3	4.1%	119	7.6%	323	10.2%	6	3.6%	451	9.0%
Others ^(c)	227	9.9%	209	9.2%	436	9.6%	3	4.1%	57	3.6%	94	3.0%	4	2.4%	158	3.2%
All	2,287		2,261		4,548		74		1,574		3,175		167		4,990	
Notes:																
(a) Source: Fabrizio (2000)																
(b) Source: our elaborations on reports in the Stock Exchange database																
(c) Includes ratings as "important news" and n.a.																

Table 4						
Analyst coverage, by market segment						
Panel A						
No. of securities firms	All companies	Mib30	Midex	Numtel	Star	Others
Mean	7.1	18.3	12.6	5.9	5.6	3.8
Median	5	18	13	5	4	3
Min	1	11	4	1	1	1
Max	24	24	20	19	14	16
St.dev.	6.07	3.13	3.88	3.70	3.99	3.26
No. Of companies	237	30	25	40	34	108
Panel B						
No. of analysts	All companies	Mib30	Midex	Numtel	Star	Others
Mean	9.8	32.1	16.6	7.5	6.7	4.0
Median	5	31.5	16	6	5.5	3
Min	1	14	4	1	1	1
Max	61	61	30	24	23	17
St.dev.	10.89	10.12	6.61	5.67	5.12	3.88
Panel C						
No. of reports	All companies	Mib30	Midex	Numtel	Star	Others
Mean	21.1	72.1	36.5	14.7	14.7	7.7
Median	10	67.5	36	12	10.5	4
Min	1	30	5	2	1	1
Max	120	120	68	61	64	66
St.dev.	25.39	24.31	16.59	11.73	13.31	10.02

Notes: Mib30 and Midex include companies ranking 1st to 30th and 31st to 55th by market capitalization, respectively. Numtel stands for *Nuovo Mercato*, the high-tech market segment. Star is the Italian acronym for Stock Market Segment with High Requirements (*Segmento Titoli con Alti Requisiti*): it includes mid-cap companies operating in traditional industries, meeting specific requirements with respect to transparency, liquidity and corporate governance.

Table 5			
Production of research reports, by intermediary			
	No. of companies followed	No. of analysts who signed the reports	No. of reports issued
Mean	29.8	14.2	89.1
Median	11	6	19
Min	1	1	1
Max	133	80	644
St.dev.	35.08	18.32	132.81
No. of intermediaries	56	56	56

Table 6								
No. of intermediaries issuing research reports: concentration of market shares								
	Consob database ^(a)			Italian Stock Exchange Database ^(b)				
Recommendation	1998	1999	All	1999	2000	2001	2002	All
C1	14.4	13.9	13.4	43.2	21.4	9.4	15.0	12.9
C2	23.3	22.7	22.1	60.8	30.5	16.6	29.4	20.5
C3	30.4	28.2	28.5	71.6	39.5	22.5	43.2	27.5
C5	40.1	36.9	39.4	87.9	53.2	37.4	53.4	41.4
C10	59.6	54.7	61.6	100.0	71.2	66.2	71.3	66.3
No. of intermediaries issuing research reports	49	40	52	8	39	47	32	56
No. of reports	2,287	2,261	4,548	74	1,574	3,175	167	4,990

Notes:
(a) Source: Fabrizio (2000)
(b) Source: our elaborations on reports in the Stock Exchange database

Table 7		
Conflicts of interest. by intermediary		
	No. of intermediaries	No. of reports
Global coordinator	12	84
Specialist. market maker	9	67
Financial advisor	3	10
Issuer of covered warrants	1	5
Other ^(a)	7	28
All	25	194
No conflict of interest	6	11

^(a) Includes the following reasons: "has a contractual obligation to issue research reports on the company", "owner of a stake", "has a specific interest in the securities", "has one or more seats on the Board of directors", "has business relationships with the issuer", "is a specialist/joint global coordinator/issuer of covered warrants".

Table 8.
No. Of Reports, by year and investment recommendation (3-point scale)

<i>Current Rating</i>	<i>Reports for which both current and previous rating is available</i>									
	1999		2000		2001		2002		All	
	N	%	N	%	N	%	N	%	N	%
Buy	30	75.0%	651	66.1%	1,127	53.3%	72	69.2%	1,880	58.0%
Hold	8	20.0%	289	29.3%	798	37.8%	23	22.1%	1,118	34.5%
Sell	2	5.0%	45	4.6%	188	8.9%	9	8.7%	244	7.5%
All	40		985		2,113		104		3,242	

Table 9.
Matrix of changes in recommendations

previous rating	Current rating								Total
	1 strong buy	2 buy	3 outperform	4 add/accumu	5 hold	6 underperform	7 reduce	8 sell	
1 strong buy	43	8	3	0	2	0	0	0	56
2 buy	9	974	26	38	89	2	2	2	1142
3 outperform	2	27	343	0	54	8	0	0	434
4 add/accumulate	0	31	0	190	45	0	1	0	267
5 hold	1	72	60	42	881	34	20	15	1125
6 underperform	0	2	6	0	25	56	0	1	90
7 reduce	0	0	0	2	15	0	52	3	72
8 sell	0	1	0	0	7	1	3	44	56
total	55	1115	438	272	1118	101	78	65	3242

previous rating	Current rating								Total
	1strong buy	2 buy	3 outperform	4 add/accumu	5 hold	6 underperform	7 reduce	8 sell	
1 strong buy	1.3%	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	1.7%
2 buy	0.3%	30.0%	0.8%	1.2%	2.7%	0.1%	0.1%	0.1%	35.2%
3 outperform	0.1%	0.8%	10.6%	0.0%	1.7%	0.2%	0.0%	0.0%	13.4%
4 add/accumulate	0.0%	1.0%	0.0%	5.9%	1.4%	0.0%	0.0%	0.0%	8.2%
5 hold	0.0%	2.2%	1.9%	1.3%	27.2%	1.0%	0.6%	0.5%	34.7%
6 underperform	0.0%	0.1%	0.2%	0.0%	0.8%	1.7%	0.0%	0.0%	2.8%
7 reduce	0.0%	0.0%	0.0%	0.1%	0.5%	0.0%	1.6%	0.1%	2.2%
8 sell	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%	1.4%	1.7%
total	1.7%	34.4%	13.5%	8.4%	34.5%	3.1%	2.4%	2.0%	100.0%

Table 10.
Distribution of changes by type of revision

Panel A - Unchanged only	
N =	2,583
1 strong buy	1.7%
2 buy	37.7%
3 outperform	13.3%
4 add/accumulate	7.4%
5 hold	34.1%
6 underperform	2.2%
7 reduce	2.0%
8 sell	1.7%
total	100.0%
Panel B - Upgrades only	
N =	306
	<i>Current rating</i>
<i>Previous rating</i>	1 strong buy 2 buy 3 outp. 4 add/acc 5 hold 6 underp. 7 reduce 8 sell
1 strong buy	
2 buy	2.9%
3 outperform	0.7% 8.8%
4 add/accumulate	0.0% 10.1% 0.0%
5 hold	0.3% 23.5% 19.6% 13.7%
6 underperform	0.0% 0.7% 2.0% 0.0% 8.2%
7 reduce	0.0% 0.0% 0.0% 0.7% 4.9% 0.0%
8 sell	0.0% 0.3% 0.0% 0.0% 2.3% 0.3% 1.0%
Panel C - Downgrades only	
N =	353
	<i>Current rating</i>
<i>Previous rating</i>	1 strong buy 2 buy 3 outp. 4 add/acc 5 hold 6 underp. 7 reduce 8 sell
1 strong buy	
2 buy	2.3%
3 outperform	0.8%
4 add/accumulate	7.4%
5 hold	0.0%
6 underperform	10.8%
7 reduce	0.0%
8 sell	15.3%
	12.7%
	9.6%
	5.7%
	0.0%
	0.3%
	0.8%

Table 11.

**Mean abnormal returns associated with dissemination of analysts' recommendations
t=0 corresponds to the day of reports (availability to brokerage firms' clients)**

event day	Upgrade		Downgrade	
	N = <i>mean</i>	295 <i>t</i>	N = <i>mean</i>	333 <i>t</i>
-15	0.08%	0.587	0.08%	0.549
-14	0.13%	0.851	-0.01%	-0.103
-13	-0.13%	-0.947	0.00%	0.008
-12	0.14%	1.115	-0.09%	-0.874
-11	-0.32%	-2.580 ***	0.02%	0.138
-10	-0.22%	-1.671 *	0.24%	1.722 *
-9	0.02%	0.137	0.07%	0.580
-8	0.05%	0.361	-0.14%	-1.128
-7	-0.26%	-1.882 *	0.05%	0.366
-6	-0.17%	-1.030	-0.05%	-0.435
-5	0.05%	0.284	0.07%	0.479
-4	-0.11%	-0.693	-0.17%	-1.202
-3	-0.23%	-1.450	-0.05%	-0.349
-2	0.31%	1.836 *	-0.50%	-3.103 ***
-1	1.19%	5.624 ***	-0.75%	-3.962 ***
0	0.90%	5.191 ***	-1.29%	-6.602 ***
1	0.41%	2.762 ***	-0.65%	-3.532 ***
2	0.53%	3.152 ***	-0.31%	-2.265 **
3	0.30%	1.805 *	0.07%	0.513
4	0.06%	0.386	0.20%	1.497
5	0.06%	0.471	-0.01%	-0.066
6	-0.16%	-1.095	-0.01%	-0.071
7	0.16%	1.086	0.11%	0.819
8	0.33%	2.255 **	-0.14%	-1.011
9	0.16%	1.162	0.09%	0.693
10	0.13%	0.717	0.09%	0.690
11	0.05%	0.321	0.27%	2.042 **
12	0.09%	0.704	-0.28%	-2.156 **
13	0.25%	1.486	0.15%	1.044
14	0.58%	3.635 ***	0.02%	0.131
15	0.04%	0.336	-0.03%	-0.222

*** indicates statistical significance at 1% level, ** at 5% level, * at 10% level.

Table 12.

**Volume Ratios associated with dissemination of analysts' recommendations
t=0 corresponds to the day of reports (availability to brokerage firms' clients)**

event day	Upgrade		Downgrade	
	<i>mean</i>	<i>t</i>	<i>mean</i>	<i>t</i>
-15	1.079	1.052	1.112	1.290
-14	1.042	0.586	1.124	1.417
-13	1.114	1.208	1.023	0.349
-12	1.052	0.821	1.083	0.824
-11	0.971	-0.578	1.094	1.074
-10	0.970	-0.488	1.077	0.710
-9	0.960	-0.639	1.162	1.325
-8	0.969	-0.494	1.058	0.789
-7	1.023	0.271	0.939	-1.025
-6	1.248	1.619	1.021	0.391
-5	1.122	1.712 *	1.054	0.799
-4	1.158	1.791 *	1.082	1.075
-3	1.202	3.349 ***	1.225	1.605
-2	1.178	2.509 **	1.220	1.724 *
-1	1.765	3.951 ***	1.513	3.855 ***
0	1.645	4.508 ***	1.630	3.029 ***
1	1.434	4.728 ***	1.284	2.690 ***
2	1.412	3.997 ***	1.102	1.710 *
3	1.386	4.089 ***	1.120	1.898 *
4	1.480	4.490 ***	1.067	1.227
5	1.368	2.568 **	1.004	0.085
6	1.368	2.027 **	1.053	0.912
7	1.315	2.901 ***	0.996	-0.073
8	1.306	2.442 **	0.889	-2.896 ***
9	1.436	3.481 ***	0.914	-2.163 **
10	1.300	2.563 **	0.897	-2.236 **
11	1.329	2.131 **	0.955	-0.838
12	1.205	2.415 **	1.036	0.497
13	1.668	1.547	0.994	-0.096
14	1.622	2.279 **	0.959	-0.802
15	1.375	3.063 ***	0.989	-0.177

*** indicates statistical significance at 1% level, ** at 5% level, * at 10% level.

Table 13.**Cumulative abnormal returns (CARs) associated with dissemination of analysts' recommendations**

Panel A - Type of analysts' recommendation					
	Upgrades		Downgrades		
	N =	295	N =	333	
	CAR	T	CAR	t	
(-15. -2)	-0.51%	-0.8879	-0.45%	-0.8654	
(-1. +1)	2.52%	8.5150 ***	-2.63%	-7.5046 ***	
(+2. +15)	2.60%	4.5998 ***	0.15%	0.2982	
Panel B - Upgrades: Add to buy					
	Add to buy		all the rest		
	N =	178	N =	117	
	CAR	T	CAR	t	t on differences in mean
(-15. -2)	-0.82%	-1.1812	-0.04%	-0.04052	-0.642
(-1. +1)	2.58%	7.0670 ***	2.43%	4.85638 ***	0.240
(+2. +15)	3.80%	4.7586 ***	0.77%	1.07970	2.821 ***
Panel C - Downgrades: Add to sell					
	Add to sell		All the rest		
	N =	196	N =	137	
	CAR	T	CAR	t	t on differences in mean
(-15. -2)	-0.75%	-1.04430	-0.03%	-0.0398	-0.690
(-1. +1)	-3.36%	-7.08554 ***	-1.59%	-3.1492 ***	-2.555 **
(+2. +15)	-0.29%	-0.48797	0.78%	0.9181	-1.031

*** indicates statistical significance at 1% level. ** at 5% level. * at 10% level.

Table 14 Mean abnormal returns and volumes associated with publication of analysts' recommendations

Event day	Upgrade				Downgrade			
	Abnormal Returns		Volume Ratios		Abnormal Returns		Volume Ratios	
	mean	t	mean	t	mean	t	mean	t
-3	0.34%	2.525198 **	1.341421	2.981 ***	-0.10%	-0.796493	1.066825	1.253956
-2	-0.21%	-1.534981	1.460461	3.791 ***	-0.19%	-1.559807	1.190680	1.957257 *
-1	-0.03%	-0.222257	1.373646	3.043 ***	-0.04%	-0.258379	1.053016	0.946042
0	-0.09%	-0.629410	1.376126	2.366 **	0.20%	1.350929	1.077875	1.310107
1	0.00%	0.023927	1.345271	3.303 ***	-0.13%	-1.056997	1.106380	1.580619
2	0.13%	0.988355	1.251151	3.358 ***	0.02%	0.167562	0.980875	-0.354239
3	0.48%	2.440254 **	1.566266	3.680 ***	0.16%	1.304041	0.989965	-0.217213

*** indicates statistical significance at 1% level, ** at 5% level, * at 10% level.

Figure 1. Mean abnormal returns around the day of reports.

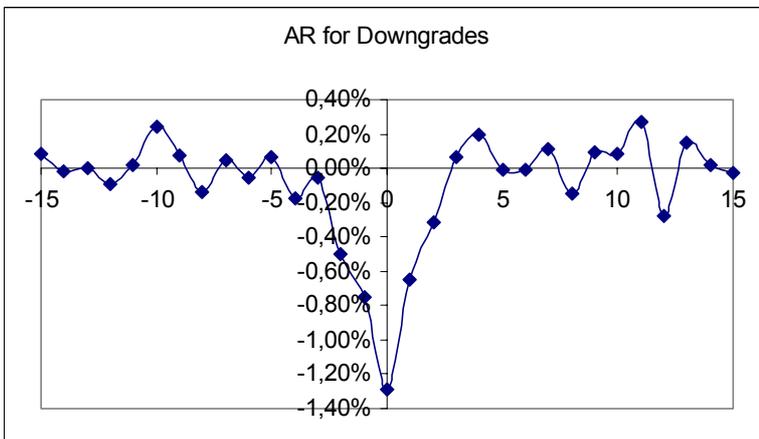
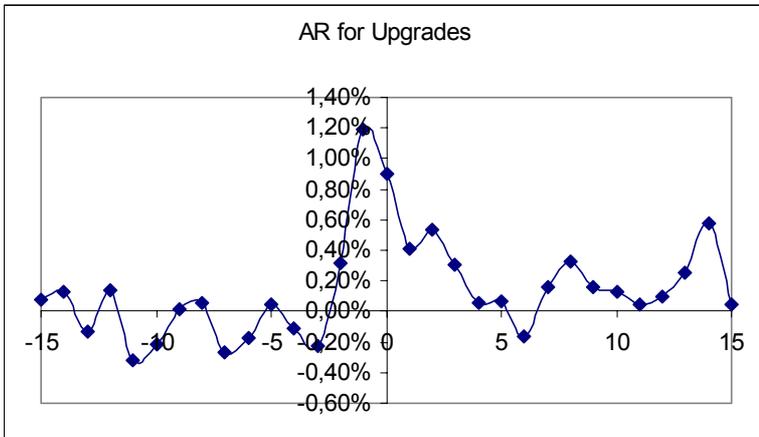


Figure 2. Mean Abnormal Volumes around the date of reports.

