

Quaderni di finanza

# The impact of financial analyst reports on small caps prices in Italy

*C. Guagliano, N. Linciano, C. Magistro Contento*



**CONSOB**  
COMMISSIONE NAZIONALE  
PER LE SOCIETÀ E LA BORSA

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# L'impatto degli studi degli analisti finanziari sui prezzi delle *small caps* in Italia

C. Guagliano\*, N. Linciano\*, C. Magistro Contento\*\*

## Sintesi del lavoro

Il lavoro analizza la reazione del mercato alla pubblicazione di 1.167 studi elaborati da 26 analisti e riguardanti 37 società *small cap* ammesse a quotazione sul Mercato Telematico Azionario gestito da Borsa Italiana, tra il 2003 e il 2011. Il 58% del totale degli studi include un giudizio *buy*, il 26% *hold* e l'11% *sell* (il residuale 5% di studi non contiene alcun giudizio). L'obiettivo è verificare se tali studi hanno un contenuto informativo innovativo per il mercato, tema questo particolarmente rilevante per le società *small cap* caratterizzate da maggiori asimmetrie informative.

La metodologia utilizzata è quella standard di tipo *event study*, che consente di stimare gli extra-rendimenti (*abnormal returns*) registrati in corrispondenza della pubblicazione dello studio e per ogni giornata compresa in una finestra temporale predeterminata, nonché gli extra-rendimenti cumulati corrispondenti a diverse finestre temporali precedenti e successive alla pubblicazione. Se gli studi hanno un contenuto innovativo per il mercato allora si devono registrare *abnormal returns* nel giorno della pubblicazione significativamente diversi da zero. Qualora gli extra-rendimenti fossero statisticamente ed economicamente significativi nelle finestre temporali precedenti la data di pubblicazione, si avrebbe evidenza di una *disclosure* selettiva dello studio prima della pubblicazione.

L'impatto sui corsi delle azioni è stato calcolato sull'intero campione, per ogni categoria di giudizio (*buy, hold, sell*). Al fine di avere risultati più robusti, l'esercizio empirico è stato ripetuto eliminando dal campione le società per le quali la pubblicazione dello studio era stata preceduta nelle due settimane antecedenti la divulgazione di notizie riguardanti le stesse società potenzialmente in grado di influenzare i corsi azionari (di seguito, *contaminating news*). L'analisi è stata riproposta sul sotto-campione che include solo l'inizio di copertura di una *small cap* da parte di un broker (di seguito, *initiation of coverage*). Infine, la stessa metodologia è stata applicata al sotto-campione che include solo le revisioni di giudizio, allo scopo di verificare se in questi casi la reazione del mercato è stata significativamente differente.

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I risultati ottenuti mostrano che gli studi degli analisti finanziari relativi alle *small caps* portano nuova informazione al mercato e che l'impatto è differente a seconda del campione considerato. Per l'intero campione, gli extra-rendimenti cumulati nei tre giorni che includono la data di pubblicazione dello studio sono statisticamente significativi solo in caso di giudizio *buy* e *hold* (rispettivamente, +0,98% e -0,83%). Tuttavia, dopo avere escluso gli studi pubblicati contemporaneamente ad altre notizie relative alla società resta significativo solo l'impatto dei giudizi *buy* (+1,13%). I giudizi *sell*, invece, non hanno un impatto sui corsi azionari statisticamente significativo, anche depurando dalle *contaminating news*. Una possibile spiegazione di questa evidenza è che il 93% di tali giudizi è contenuto in studi pubblicati dopo il 2008 in relazione a società i cui prezzi in media, tra il 2008 e il 2011, sono diminuiti del 55% e che, al momento del giudizio, avevano già iniziato la fase decrescente. Pertanto è verosimile ritenere che in quel periodo i giudizi *sell* non abbiano avuto una valenza informativa per il mercato.

Per quanto riguarda le *initiation of coverage*, sia i giudizi *buy* (+1,5%) sia i giudizi *hold* (-2,04%) apportano nuova informazione al mercato. I giudizi *sell*, invece, essendo solo 8, non consentono di ottenere stime significative.

Nel caso del campione relativo alle revisioni di giudizio, in presenza di un miglioramento della valutazione (da *hold* a *buy*, da *sell* a *buy* e da *sell* a *hold*) l'impatto sui prezzi è risultato positivo e statisticamente significativo (+2,19%). Invece, le revisioni peggiorative delle valutazioni (da *buy* a *hold*, da *buy* a *sell*, da *hold* a *sell*) non hanno un impatto statisticamente diverso da zero.

L'analisi relativa ai giorni precedenti la pubblicazione degli studi mostra che gli extra-rendimenti cumulati non sono statisticamente significativi, ossia che non ci sono chiare evidenze di *information leakage*.

In conclusione, il lavoro dimostra che gli studi relativi alle *small caps* hanno un valore informativo per il mercato. Tale evidenza empirica sottolinea la rilevanza del contributo della cosiddetta informazione derivata, e in particolare degli studi degli analisti finanziari, al fine di limitare le asimmetrie informative che caratterizzano soprattutto le società di dimensioni più limitate. Tali risultati dimostrano inoltre l'importanza di un'adeguata copertura da parte degli analisti finanziari delle *small caps*, per le quali il problema delle asimmetrie informative è particolarmente rilevante, al fine di incentivare lo sviluppo delle IPO di tali società.

# The impact of financial analyst reports on small caps prices in Italy

*C. Guagliano\**, *N. Linciano\**, *C. Magistro Contento\*\**

## Abstract

This paper examines abnormal stock returns around the publication of 1,167 reports issued by 26 brokerage firms on 37 small caps admitted to listing on the Italian stock market from 2003 to 2011. The focus is on small caps going public because, for such firms, information asymmetries may be severe and, therefore, analyst reports should be particularly valuable to the market. Several hypotheses are tested. First of all, the market impact is computed for the whole sample and for each recommendation category (buy, hold and sell). The exercise is repeated by controlling for the presence of contemporaneous news, by taking into account only the initiations of coverage and by selecting only the changes in recommendations. The results obtained through a standard event study methodology show that analyst reports on small caps are informative for the market, although the price impact differs across the samples considered. For the whole sample of reports, the cumulative abnormal returns estimated over a three-day event window around the publication date are statistically significant for buy and hold recommendations only (+0.98% and - 0.83% respectively); however after eliminating contaminating events only buys are significant (+1.13%). In addition the buy recommendations included in the initiation of coverage sample turn out to convey information to the market (+1,50%); the highest price impact, however, is estimated for the upgrades included in the revisions of recommendation sample (+2.19%). The second result of the paper is that information leakage is not widespread, given that abnormal returns are almost never significant before the report date. Therefore, on average, the timing of the market reaction to financial research dissemination does not signal tipping or selective disclosure.

JEL Classification: G14, G24, G28, G29.

Keywords: financial analyst recommendation, initiation of coverage, market efficiency, event study, insider trading regulation.

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## Introduction

Financial analyst reports have long been documented to be informative for the market: as shown by the majority of the empirical studies, they record significant abnormal returns around the date of publication.<sup>1</sup> In fact, financial analysts are recognized as being knowledgeable about the firms and industries they follow and as such they are among the most important information intermediaries.

The information conveyed by analyst reports should be particularly valuable for small caps and, among them, for newly listed firms given that they are characterised by a high degree of information asymmetries.

Moreover, to securities regulators the market impact of analyst recommendations and its timing are relevant also because a significant market reaction prior to the dissemination date may signal information leakage, which in turn may result from a breach of the ban (if any) on selective disclosure and from a breach of the legislation on insider trading. As more extensively recalled in Section 2, in the European Union the Market Abuse Directive states that the content of an investment recommendation developed from publicly available data is not inside information, and, therefore, any transaction carried out on the basis of analyst reports does not constitute insider dealing. This implies that brokers can disseminate research reports to their clients (who can legitimately trade on the basis of the reports themselves) but cannot undertake selective disclosure nor tip the coming publication of the research recommendations.<sup>2</sup> These provisions on one hand preserve the role of the research industry, on the other hand aim at ensuring the diffusion of all potentially price-sensitive information.

This paper assesses the market impact of the reports issued for 37 small caps admitted to listing on the Italian stock market from 2003 to 2011 in order to check both the informative value of the analyst reports for small firms and whether there is evidence of information leakage. Overall the analysts recommendations examined amount to 1167. Several hypotheses were tested. First of all, the market impact was computed for the initiations of coverage which are interesting for many reasons: they are potentially very informative (given that the companies they refer to are characterised by a high degree of information asymmetries); they are less likely than other recommendations to be clustered around contemporaneous events which may drive abnormal price movements (hence the detection of abnormal price movements is driven only by the initiations themselves). The exercise was repeated for: the whole sample; the subsample excluding contemporaneous news; the changes in recommendations; the subsamples drawn by taking into account the degree of coverage

1 In this paper, publication and distribution (to a large number of persons) of financial analyst reports are used as synonyms. Indeed, for market abuse purpose a recommendation can no longer be considered as inside information after its release to an important number of clients of the broker through data dissemination system (including e-mail messages and faxes) or a web site.

2 This issue has long been acknowledged by European regulators. See CESR Advice on Level 2, Implementing Measures for the proposed Market Abuse Directive, December 2002; also Second set of CESR guidance and information on the common operation of the Market Abuse Directive, July 2007.

as proxied by the number of the analysts and the number of reports per company. Finally, analyst reports were sorted by the date of publication, being the cut-off date the year 2008 – which is the year when Consob fined the tipping and the trading on the basis of the coming publication of the recommendation – in order to check whether any change in the market impact around the publication date can be detected following the enforcement action.

According to the results obtained through a standard event study methodology, the upgrades included in the revisions of recommendation sample revisions show the highest estimated excess return over a three-day event window around the publication date (+2.19%). Also the buy recommendations included in the initiation of coverage sample turn out to convey information to the market, although the magnitude of their estimated market impact is lower (+1,50%). The estimated excess return for the whole sample of the recommendations is reduced (+0.98% for the buy and – 0.83% for the hold); after excluding the publication of the reports preceded by the release of concurrent company news, the result obtained show that the market impact is still significant for the buy (+1.13%) but lose significance for the hold.

Although a straight comparison with the previous empirical evidence available for the Italian case is not possible, the results obtained in this paper add to the existing literature by comparing the market impact across different subsamples and by showing that overall analyst reports on small caps are valuable to the market not only when they entail a recommendation change (to our knowledge the only aspect investigated so far), but also when they carry a confirmation.

The paper is organised as follows. Section 2 provides both an overview of the regulatory framework on the publication of analyst research reports and the enforcement action undertaken by Consob. Section 3 contains a brief survey of the previous literature. Section 4 describes the data and illustrates the empirical findings resulting from the event study analysis of the abnormal returns surrounding the report date of the analysts' recommendations. Section 5 concludes.

## 1 Financial analyst reports and insider trading: the regulatory framework

Recital 31 of Directive 2003/6 EC states that *“research and estimates developed from publicly available data should not be regarded as inside information and, therefore, any transaction carried out on the basis of such research or estimates should not be deemed in itself to constitute insider dealing within the meaning of this Directive”*.

However, while the content of an investment recommendation (as described in recital 31) will not be viewed as inside information, from a legal point of view, the knowledge of third parties about the forthcoming publication of an analyst report (and the expected increase/decrease in prices occurring when the report is made public) could constitute inside information.

According to Article 1(1) of Directive 2003/6 EC *"Inside information shall mean information of a precise nature which has not been made public, relating, directly or indirectly, to one or more issuers of financial instruments or to one or more financial instruments and which, if it were made public, would be likely to have a significant effect on the prices of those financial instruments or on the price of related derivative financial instruments."*

The definition of inside information, in order to determine the scope of the insider dealing prohibition, refers to some qualitative and potentially abstract concepts like information of precise nature, not made public, which is considered as having an impact on market prices. Some of these concepts (precise nature of information and information which, if it were made public, would be likely to have a significant impact on price) have been further clarified by the EU Commission in the 'level 2' measures to assist market participants and regulators (Directive 2003/124/EC<sup>3</sup>). Moreover, CESR (now ESMA – European Securities Markets Authority)<sup>4</sup> has developed useful guidance seeking convergence in the application of these concepts by its members, providing instructive examples and indicators on how these concepts could be understood and applied.

The *"Second Set of CESR Guidance and Information on the Common Operation of the Market Abuse Directive"*<sup>5</sup> clarifies the concepts of 'information of a precise nature'; 'making information public'; 'information likely to have a significant price effect'; furthermore, it provides a non-exhaustive list of types of events or information which may constitute inside information.

In particular, the coming publication of a research report is one of the examples of inside information set forth by CESR as information that indirectly regards the issuer (paragraph 1.16 of the Second Set of CESR Guidance and Information on the Common Operation of the Market Abuse Directive – July 2007). This example was also contained in a document produced by the CESR in 2002 (December 2002 CESR's Advice on Level 2 Implementing Measures for the Proposed Market Abuse Directive, paragraph 36)<sup>6</sup>. Nor does the fact that the event is included on the list of CESR Guidance means that it automatically will be inside information: it is the specific circumstance of each case which needs to be considered.

3 According to Article 1(1) of Directive 2003/124 EC  
([http://ec.europa.eu/internal\\_market/securities/abuse/index\\_en.htm](http://ec.europa.eu/internal_market/securities/abuse/index_en.htm))

*"1. For the purposes of applying point 1 of Article 1 of Directive 2003/6/EC, information shall be deemed to be of a precise nature if it indicates a set of circumstances which exists or may reasonably be expected to come into existence or an event which has occurred or may reasonably be expected to do so and if it is specific enough to enable a conclusion to be drawn as to the possible effect of that set of circumstances or event on the prices of financial instruments or related derivative financial instruments.*

*2. For the purposes of applying point 1 of Article 1 of Directive 2003/6/EC, 'information which, if it were made public, would be likely to have a significant effect on the prices of financial instruments or related derivative financial instruments' shall mean information a reasonable investor would be likely to use as part of the basis of his investment decisions".*

4 From 1<sup>st</sup> January 2011 CESR is ESMA.

5 [http://www.esma.europa.eu/system/files/06\\_562b.pdf](http://www.esma.europa.eu/system/files/06_562b.pdf)

6 [http://www.esma.europa.eu/system/files/02\\_089d.pdf](http://www.esma.europa.eu/system/files/02_089d.pdf)

According to Article 1(7) of Directive 2003/125/EC, the broker has the obligation to release its recommendation to all its clients of a same category at the same time, through “distribution channels” defined as “...a channel through which information is, or is likely to become, publicly available. ‘Likely to become publicly available information’ shall mean information to which a large number of persons have access”. The date when the recommendation is made available through any of the channels above mentioned or distributed for the first time to any of the groups of persons mentioned above is the date that must be indicated within the recommendation as the date when it was first released for publication as provided for in Article 4 (1)e) of Directive 2003/125/EC.<sup>7</sup>

## 2 Literature review

The academic literature on the informative content of financial analyst research reports is mainly focused on the US markets. It generally employs standard event study methodology in order to check whether abnormal returns arise around the event date (i.e. the date when analyst reports are distributed and/or published). The questions investigated include the information content of analysts' short and long term earnings forecasts as well as the incremental information provided by initiations of coverage and recommendation revisions. These questions are addressed by taking into account the type of recommendations, which are usually based on a three-point standard scale (i.e., buy, hold/neutral and sell)<sup>8</sup>, and sometimes by analysts' characteristics such as size and reputation.

The evidence on the information content of analyst reports is mixed. The majority of the papers find positive (negative) abnormal returns for new buy (sell) recommendations, while a number of studies challenge this view.<sup>9</sup>

Among the papers showing significant price reactions, Womack (1996) focuses on a comprehensive set of recommendation changes issued in the 1989-1991 time period by the fourteen major US brokerage firms and finds that the initial return at the time of the recommendations is large, even though few recommendations coincide with new public news (in a three-day event-period window size-adjusted prices increase, on average, by 3.0 percent for buy recommendations and drop by 4.7 percent for sell recommendations). There is also a significant post-recommendation stock price drift in the direction forecast by the analysts. For buy recommendations, the mean post-event drift is considerable (+2,4%) but short-lived, whereas for sell recommendations, the drift is larger (-9,1%) and extends for six months.

7 According to Consob Regulation 11971/1999 Art. 69-novies, “Issuers of financial instruments, licensed parties and legal entities in a controlling relationship with them, which publish written recommendations, provide Consob with a copy at the same time as starting distribution”. Furthermore, until 20<sup>th</sup> January 2012 research reports had to be available to the general public within 60 days after publication.

8 Sometimes the scale ranges from strong buy to sell, or includes softer recommendations as reduce (between hold and sell) or add (between hold and buy).

9 For a comprehensive review of the literature from 1992 to 2007 see Ramnath et al. (2008).

Brav and Lehavy (2003), using a large database of US analysts' target prices issued over the period 1997-1999, examine short-term market reactions to target price revisions and long-term co-movement of target and stock prices. In the short term, standard event study analysis shows that target prices contain valuable information: in fact, the market reaction over the period beginning two days prior and ending two days subsequent to the firm's target price announcement is significant. In the long term, cointegration analysis points out that, on average, one year-ahead target prices are 28 percent higher than current market prices and that the dynamics driving the two sets of prices to convergence on the long-term relation relies primarily on subsequent corrections done by analysts.

Green (2006), focusing on short-term effect, finds evidence that early access to stock recommendations provides brokerage firm clients with incremental investment value. During the 1999-2002 sample period, market participants with early access to analyst reports with a recommendation change were able to capture an average two-day return of 1.02% by purchasing following upgrades and returns of 1.50% by selling short following downgrades. The author estimates annualised returns of over 30% when a calendar-based strategy is implemented, i.e. when trades based on analyst recommendation changes are carried out and positions are maintained for two days.

Asquith et al. (2005) contribute to the literature by investigating the impact of the motivations and the valuation method underlying the recommendations. They show that, besides the changes in the recommendations and target prices, the strength of the written arguments supporting the analyst's opinion matters<sup>10</sup> and that *ceteris paribus* the market reaction is significantly larger for small firms and for firms covered by fewer analysts. On the other hand the valuation method employed by analysts seems to be irrelevant; these results are robust with respect to the contemporaneous release of potentially price sensitive information. Over a 12-month period price targets turn out to be accurate (i.e. to equal stock prices) 54% of the times.

A few studies go against the view that recommendations are an important channel by which analysts assimilate information into stock prices. Loh e Stulz (2010) depart from the standard event study approach, by computing stock-level abnormal returns rather than averaging returns across a large number of announcements, and find that only 12% of recommendation changes issued by US brokers from 1994 to 2006 affect returns. About 25% of analysts never had any influential recommendation change. Influential recommendations are more likely to come from a subset of skilled analysts; a deeper probit analysis shows that they are positively associated with analysts' opinions going away from the consensus and analysts already having an influential recommendation in the past. Also Altinkilic et al. (2009 e 2010), by using intraday returns rather than daily returns, point out that recommendation revisions are associated with economically insignificant mean price reactions and often piggyback on recent news, events, long-term momentum, and short-run contrarian

10 The strength of arguments is computed by aggregating the number of positive remarks (e.g., revenues are expected to increase) less the number of negative remarks (e.g., revenues are expected to decrease).

return predictors, typically downgrading after bad news and upgrading after good news. Almost 80% of the revisions are in response to corporate events, which frequently release firm-specific information about earnings and investments a few hours before revisions are announced.

Another strand of the literature investigates whether the abnormal returns following initiations of coverage are greater than abnormal returns following recommendations by analysts who already covers the stock<sup>11</sup>. Irvine (2003) compares the price reaction to analysts' initial recommendations with the price reaction to recommendations made by analysts who already cover the firm. The market responds more positively to analysts' initiations than to other recommendations. The incremental price impact of an initiation is 1.02% greater than the reaction to a recommendation by an analyst who already cover the stock. The market interprets analyst initiation as a positive signal, as proved by the evidence that liquidity improves subsequent to the initiation of coverage. Positive recommendations, buy and strong buy, produce a significantly more positive incremental price reaction than negative, hold and sell, initial recommendations.

Irvine et al. (2007) investigate the trading behaviour of institutional investors immediately prior to the release of analysts' initial buy and strong buy recommendations. They find abnormally high trading volume and abnormally large buying imbalance beginning five days before initial recommendations are publicly released. Furthermore abnormal buying is positively related to initiation characteristics associated with greater abnormal price responses, including some that would require knowledge of the content of the report – such as the identity of the analyst and brokerage firm, and whether the recommendation is a strong buy. They confirm that institutions buying prior to the recommendation release earn positive abnormal trading profits. Taken together, their results suggest that some institutional traders receive tips regarding the content of forthcoming analyst reports. To the extent that brokerage firm clients who benefit from these tips are more likely to direct business to the initiating brokerage firm, tipping provides economic profits to the brokerage firm that can help defray the cost of analyst information gathering.

Derrien e Kecskés (2011) explore the case of a decrease in analyst coverage. The authors hypothesize that a decrease in analyst coverage increases information asymmetry and thus increases the cost of capital; as a result, firms decrease investment and financing. They find that firms that lose an analyst decrease investment and financing by 2.35% and 2.62% of total assets, respectively. These results are significantly stronger when the decrease in analyst coverage is more costly – for smaller firms, for firms with less analyst coverage, and for firms that lose a more influential analyst – as well as for firms that are more financially constrained.

11 Generally speaking, there are three main reasons why equity analysts initiate coverage: the analyst believes that he can generate trading in the stock and is able to offer a convincing story about why a stock's fundamental value and current price differ; the corporate finance department asks for coverage of a particular stock; the analyst has discovered that his important clients have significant holdings in a company and therefore initiates to cover it in order to support them.

As far as we know, there are few studies investigating the Italian case (Table A.1 summarizes the main characteristics and findings of such studies). A Consob regulation allows to identify with precision the date which might legitimately record significant movements in price levels (if any) following the publication of an analyst report. Indeed, as already recalled, a regulation enacting Testo Unico della Finanza (Tuf) provides that analysts recommendations on listed firms must be sent to Consob (the Italian securities regulator) no later than the day they are disseminated to customers, which is the date indicated within the report.

Belcredi, Bozzi e Rigamonti (2003) 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). They find an excess return of + 2.52% for upgrades, -2.63% for downgrades, over a three-day event window around the report date. Abnormal returns are already present prior to the event date. 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.

Cervellati et al. (2008) consider reports issued from the 1<sup>st</sup> of January 1998 till the 31<sup>st</sup> of December 2003 on all the companies listed in the Italian Stock Exchange and analyse only the impact of recommendations revisions<sup>12</sup>. They find average abnormal returns of 0.67% for upgrades and -0.74% for downgrades at the report date. In a three days event window centred around the report date, cumulative abnormal return are estimated to be equal to -1.64% for the downgrades and to 1.38% for the upgrades. As expected, they find no significant market impact when the report is freely and public available on Borsa Italiana website.

Cavezzali et al. (2011) focus on the publication of reports containing a change of recommendation or in the target price. The results show that the market reaction is negative in case of downgrade, while it is positive following an upgrade, both for the changes of recommendations or target price. The reaction is greater in magnitude for downgrades (-0.85%) than for upgrades (0.65%). Furthermore, when both the recommendation and the target price are revised, the market reaction is more intense in case of double upgrade or double downgrade; if the recommendation change goes in the opposite direction of the target price change, the information contained in the change in recommendation prevails.

### 3 The empirical evidence for the Italian market

#### 3.1 The hypotheses

The hypothesis we test is whether the publication of a research report by a financial analyst is associated with abnormal returns. If analyst reports do not convey

12 The authors indicate two reasons to analyse recommendation changes instead of the recommendation itself. First, an efficient market should react to new information, and not to reiteration of past information. Second, recommendations are subject to "calendar clustering" since they are often issued in response to the publication of periodical financial reports from the companies, or after important announcements.

any information, then no portfolio adjustment should take place following the distribution of the reports to the brokers' customers (report date). Hence stock returns should not vary in a statistically significant manner with respect to normal values. On the contrary, if analysts' activity is informative and the market is efficient, abnormal returns should be observed at the report date.

Moreover, significant variations in returns observed before the report date may signal different phenomena. If we assume that brokers complied with the obligation of the transmission of the report to Consob on the same day they distributed the report to their clients, abnormal patterns in returns may be due either to information leakage potentially violating insider trading ban or to the release of corporate price sensitive information prior to the publication of the report.

In line with the previous literature and the regulatory framework recalled above, the information content of analyst reports was investigated by taking into account the following key factors.

- The recommendation category: analyst recommendations may produce a differential impact on asset prices according to whether they are buy, sell or hold; also reports issuing no recommendation, classified as "No rate", were included in order to test whether the uncertainty of the rating has informational content for the market.
- The presence of contaminating news in the 10 days before the publication of the report: any contemporaneous or preceding release of information concerning earnings, dividend changes, changes in business expectations, equity issues, debt issues, major management changes, credit rating changes, etc. might reduce the announcement effect of analyst recommendations.
- The changes in recommendations: as shown by the empirical literature, revisions may be more informative than levels. Moreover, on methodological grounds, focusing on changes may be more appropriate when reports tend to cluster in a small period of time since they follow the release of corporate information. In such a situation different analysts may recommend the same stock and, possibly, reiterate previous opinions; this in turn may lead to overestimate the true stock price reaction if the various reports concerning the same stock are regarded as independent events. As Belcredi et al. (2003) point out, dealing with changes in recommendations rather than levels allows to skip this bias.
- The initiation of coverage: they may have a greater impact on stock prices than other recommendations.
- The date of the report: in order to check whether differences in the stock price reactions to analyst recommendation can be detected after the enforcement action carried out by Consob in 2008, we drew two sub-samples depending on whether reports were issued before or after 2008.
- The degree of coverage: *ceteris paribus*, the information conveyed by the recommendations might be less valuable as the analysts' coverage, proxied by the number of reports and/or the number of brokers per company, rises. In fact in-



formation asymmetries are in principle less severe for highly covered firms and, therefore, for such firms the price reaction to the publication of the reports might be less important.

### 3.2 The data

Our analysis is based on 1,167 reports issued by 26 brokerage firms on 37 small caps admitted to listing on the Italian Stock Market from the 1<sup>st</sup> of January 2003 to the 31<sup>st</sup> of December 2011 (Table A.2).<sup>13</sup> This is a sub-sample of the recommendations issued on all Italian listed companies and transmitted to Consob the day they were disseminated to clients, in compliance with Consob rules.<sup>14</sup> As at the end of 2011 the companies included in our sample represent about 30 percent of the FTSE Italia small cap index; with respect to the index composition, "Consumer goods", "Industrials" and "Health care" are over-represented, contrary to "Financials" which are substantially under-represented (Table A.3).<sup>15</sup> Data on daily stock prices were obtained by Datastream.

As mentioned above, we focus on the small firms that went public since we expect that for such firms, suffering a high degree of information asymmetry, analysts' reports are particularly valuable.

The reports in the sample were sorted out by the recommendation category expressed along the standard 3-point scale "Buy", "Sell" and "Hold".<sup>16</sup> Also the reports issuing no recommendation, classified as "No rate", were included in order to test whether the uncertainty of the rating has informational content for the market. Moreover, we controlled for contemporaneous news by checking on the electronic Network Information System of Borsa Italiana in order to disentangle the market impact driven by the publication of the report from any other effect due to financial reports or to other important announcements from the companies. As a result, three sub-samples were drawn from the whole sample by selecting, respectively, only the reports whose publication was not accompanied by contemporaneous firm-specific announcements in the 10 days before the report date (concerning other research reports or business results), only initiations of coverage and only recommendation changes classified into upgrades and downgrades. To our knowledge, this is the first paper on the Italian case controlling for concurring events.

13 In particular, one company was admitted to listing in 2002, 2 companies in 2004, 5 in 2005, 9 in 2006, 16 in 2007, 3 in 2008 and one in 2010.

14 Overall the reports issued in the time interval considered are 1,378. However we discarded the reports regarding the same company and distributed on the same day when they had different recommendations, since they would not have been tractable with the event study. On the other hand, concurrent reports are regarded as a single event when they include the same recommendation.

15 The breakdown by sector of the small caps included in the sample shows that the most represented sectors are consumer goods, with 10 companies, and industrials, with 12 firms. Consumer good and industrials are also the most represented sectors in the Ftse Small Cap index.

16 Following Consob database, "strong buy" and "add" are considered as "buy" recommendations, while "reduce" are classified as "sell" recommendations.

Table 1 reports the breakdown of the reports by the 4 recommendation categories across the whole sample and the subsamples defined as above.

**Table 1 – Reports by recommendation category across different samples**  
(percentage values in parenthesis)

	Buy	Hold	Sell	Not rated	Total	<i>of which before 2008</i>
Whole sample	677 (58.0)	304 (26.0)	129 (11.1)	57 (4.9)	1167	577
No contemporaneous events	307 (53.6)	160 (27.9)	40 (7.0)	66 (11.5)	573	280
Initiation of coverage	101 (68.7)	25 (17.0)	8 (5.4)	13 (8.9)	147	119
	Upgrade		Downgrade			
Revisions of recommendations	87 (42.0)		120 (58.0)		207	35

Recommendation levels are predominantly optimistic: for the whole sample buy recommendations are 58%, while sell recommendations are about 11%. This distribution is similar to that observed for the sub-sample excluding other contemporaneous announcements, while it differs from that of the "Initiations of coverage" sample which exhibits a higher percentage of buy (about 69 percent). The predominance of buy recommendations on the newly listed firms explains why the whole sample, which by construction is dominated by the initiation coverage reports till 2006, records around two thirds of buy till 2006 (Table 2). From then on, the weight of buy relative to sell recommendations is also driven by market conditions: the number of Sell recommendations peaked in 2009, while the number of buy recommendations rose in the following years. Indeed, the Italian market peaked in the first half of 2007 and decreased consistently until the beginning of 2009, when it partially recovered to worsen again in the second half of 2011. Market conditions explain also the total number of research reports per year: they have steadily increased between 2003 and 2008, significantly decreased in 2009, steadied in 2010 and again considerably decreased in 2011.

**Table 2 – Reports by year and recommendation category**  
(percentage values by year in parenthesis)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Buy	8 (100)	9 (82)	26 (72)	42 (78)	119 (66.5)	167 (57.8)	87 (41.4)	115 (54.3)	104 (61.9)	677 (58.0)
Hold		2 (18)	10 (28)	9 (16.7)	39 (21.8)	81 (28.0)	71 (33.8)	63 (29.7)	29 (17.3)	304 (26.1)
Not Rated				3 (5.6)	12 (6.7)	8 (2.8)	8 (3.8)	14 (6.6)	12 (7.1)	57 (4.9)
Sell					9 (5.0)	33 (11.4)	44 (21.0)	20 (9.4)	23 (13.7)	129 (11.0)
<i>Total</i>	<i>8</i>	<i>11</i>	<i>36</i>	<i>54</i>	<i>179</i>	<i>289</i>	<i>210</i>	<i>212</i>	<i>168</i>	<i>1,167</i>

As for the recommendation revisions, the frequency of the downgrades is higher than that of the upgrades. This is consistent with the phenomenon known as the "optimism bias" of financial analysts (O'Brien, 1998; Cervellati et al., 2008), claiming that analysts tend to be excessively optimistic in their initial forecasts before gradually revising their recommendations. Revisions took place especially after 2008, which is probably explained by the higher market volatility driven by the international financial crisis. Table 3 shows the matrix of recommendation changes.

**Table 3 – Matrix of recommendation revisions**  
(percentage values in parenthesis)

Current rating	Previous rating			Total
	Buy	Hold	Sell	
Buy	491	53	17	561
Hold	74	181	17	272
Sell	23	23	72	118
<i>Total</i>	<i>588</i>	<i>257</i>	<i>106</i>	<i>951</i>

As for the analyst coverage, the average number of brokers per company is 3.5; however, about 20% of the companies are covered only by one broker (Table 4 and Table A.4). The average number of research reports per company is about 36; however, the distribution is not homogeneous: 7 companies have less than 10 reports, while 2 have more than 100. On average, initiations of coverage occur more than one year after the admission to listing (Table A.5).

**Table 4 – Coverage by analysts**

	Number of brokers per company	Number of reports per company	Number of days between admission to listing and initiations
Mean	3.5	36	468
Median	3	23	325
Min	1	3	40
Max	10	166	1906
Standard deviation	2.4	36.5	437

### 3.3 The methodology

We applied standard event study methodology to compute abnormal returns associated with the publication of analyst reports. The abnormal return of the  $i^{\text{th}}$  stock,  $AR_{it}$ , is obtained by subtracting the normal or expected return in the absence of the event,  $E(R_{it})$ , from the actual return in the event period,  $R_{it}$ :

$$AR_{it} = R_{it} - E(R_{it}) \quad (1)$$

To estimate the expected returns in equation (1), we run a market model using the window [-260, -21] as the estimation period<sup>17</sup>, according to the following specification:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad \text{where } t = -260, \dots, -21 \quad (2)$$

where  $\alpha$  is a constant term for the  $i^{\text{th}}$  stock,  $\beta_i$  is the market beta of the  $i^{\text{th}}$  stock,  $R_{it}$  is the log return of the stock  $i$  at time  $t$ ,  $R_{mt}$  is the log return of the market portfolio  $m$  at time  $t$  and  $\varepsilon_{it}$  is the error term.<sup>18</sup>

The estimated parameters are then matched with the actual returns in the event period. As event period we chose the windows [-10, -6], [-5, 2], [-1, +1], [+2, +5], [+6, +10]. The event date (i.e. day 0) was set equal to the date when research reports had been distributed to customers and sent to Consob.

The *Abnormal Return (AR)* in the different event windows are calculated from actual returns during the event period and the estimated coefficients from the estimation period:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_M \quad (3)$$

After averaging the  $AR_{it}$  across events in order to get the *Average Abnormal Returns (AAR<sub>ij</sub>)*, *Cumulative Abnormal Returns (CAR)* for the window  $[t, T]$  are defined according to the expression:

$$CAR_i(t, T) = \sum_{j=t}^T AAR_{ij}$$

Following the previous literature, cross sectional  $t$ -statistic and Boehmer et al. (1991)  $t$ -statistic were computed; in the result tables the proportion of positive abnormal returns is also shown.

### 3.4 The evidence on abnormal returns

First of all, we analysed the reaction to the publication of the reports for the whole sample (Table A6).

At  $t=0$ , abnormal returns are significantly different from zero only for the buy and the hold recommendations (+0.55% and -0.54% respectively), while the sell recommendations turn out to have no market impact. The negative impact of the hold may be due to the high level of uncertainty affecting financial markets in the period 2008-2011, in which the majority of observations are concentrated.

17 The estimation period goes from 1 year to 1 month before the event (260 trading days is about 1 year; 20 trading days is about 1 month).

18 In the following, the general market index will be considered. The estimation was run also by using the small cap market index; the results obtained are qualitatively equal to those reported in the paper (available on request to the authors).

The Sell recommendations do not seem to be informative for the market, given that their impact never turn out to be statistically significant. This might be due both to the relatively low frequency of the sell and to their publication along time. As shown in Table 2, these recommendations are 129, equivalent to 11% of the whole sample; moreover, only 9 were issued before 2007 while the remaining 120 are distributed in the four-year interval 2008-2011. During this period, the 18 companies receiving a sell experienced a decline in their market prices equal on average to 55%; the inspection of the data shows that the analyst reports were distributed when such decline was already marked and this probably explains why they were not regarded as conveying new information.

Before the report date, an anticipation effect emerges only for the buy sub-sample with an abnormal return in  $t=-1$  equal to 0.37%. The post-event period shows significant abnormal returns for all recommendations with the exception of the buy one, but only in a few days.

The results obtained for the whole sample of the analyst reports holds also for the sub-sample denominated "No contemporaneous events", that is the sub-sample excluding the reports issued in the 10 days period following the release of firm-specific news. In particular, the abnormal returns are statistically significant only for the buy and hold recommendations (Table A7). However, as expected, they are higher being equal to 0.71% (versus 0.55%) for the buy reports and -0.65% (versus -0.54%) for the hold recommendations. For the buy recommendations we find statistically significant abnormal returns also some days before and the day after the publication of the reports. As for the whole sample, the sell recommendations are never significant.

The evidence obtained so far suggests first of all that the stock price reaction to the analysts' reports is quite weak, provided that it can be detected only for the buy and the hold sub-samples. Second, information leakage does not seem to be widespread, given that abnormal returns are almost never significant before the report date.

These results may also suggest that the samples considered so far include both reports conveying new valuable information and reports based on information already incorporated into the stock prices. In order to control for this limitation, we restricted the event study to the reports with a revision of the previous recommendation.

Table A8 shows that, in case of the sub-sample including only the revisions of recommendations, at the report date the abnormal returns for the upgrades and the downgrades are equal respectively to 0.85% to -0,89% and are both statistically significant.<sup>19</sup> Therefore, recommendation revisions are more informative than mere levels. This result is in line with the previous research concerning the US markets

19 To estimate the impact of revisions of recommendation, we computed recommendation changes as the current minus the prior recommendation released by the same analyst. By construction, the recommendation change ranges between -2 and +2. We excluded observations where there is no prior recommendation or where the recommendation is not explicit.

(Womack, 1996, Loh and Stulz, 2011), as well as with the evidence available for the Italian case: Cervellati et al. (2008) find mean abnormal returns equal to about 1% for the upgrades and to -0,92% for the downgrades; Belcredi et al. (2003) estimate 0.90% and -1.29%.

Table A9 shows that for the "initiation of coverage" sub-sample, statistically significant abnormal returns at the event date are equal to 0.93% for the buy recommendations and to -2.04% for the Hold ones. For the buy sub-sample we find statistically significant abnormal returns also some days before and the day after the publication of the report.

Figure 1 and Figure 2 plot the average abnormal returns for buy and hold recommendations in the whole sample, initiation of coverage and no contemporaneous events samples. Figure 3 plots the average abnormal returns for the revisions of recommendation sample.

**Figure 1 – Average abnormal returns for buy recommendations**



**Figure 2 – Average abnormal returns for hold recommendations**

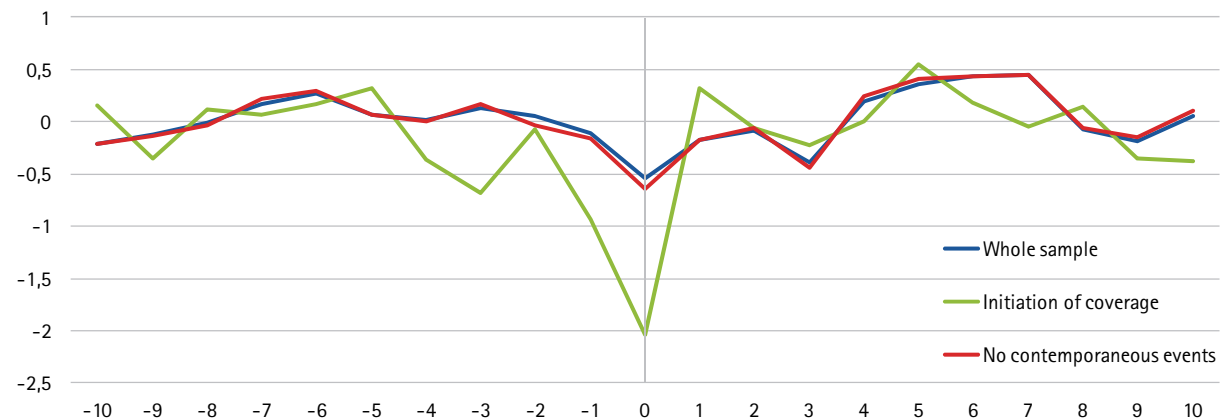
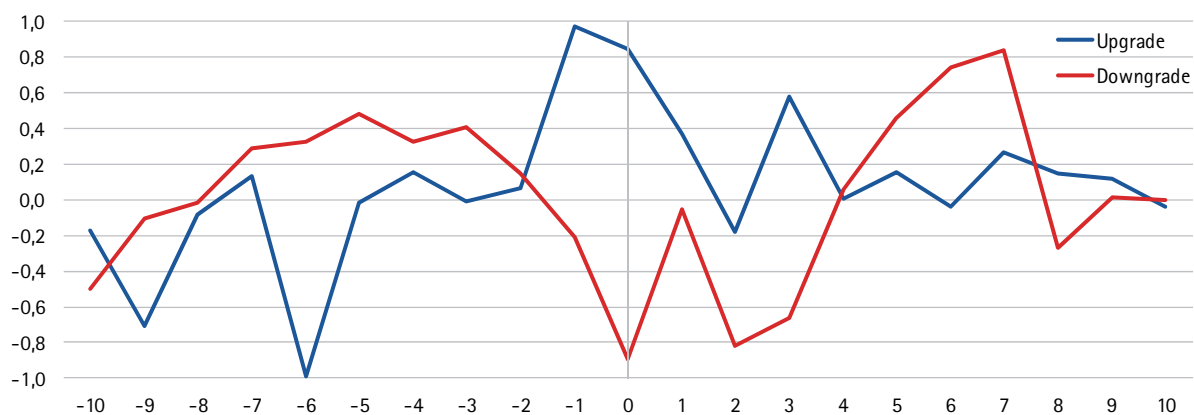


Figure 3 – Average abnormal returns for upgrades and downgrades



Finally, we also computed the average abnormal returns for other subsamples drawn according to the degree of analysts coverage, that is on the number of analysts following a company and on the number of reports issued during the time period considered. However, the results obtained (available on request to the authors) do not differ substantially by the ones presented in the paper.

### 3.5 The evidence on cumulative abnormal returns

Further insights may be drawn from the analysis of the cumulative abnormal returns (CARs), which allow to capture the global effect of the publication of the analyst reports on given event windows by aggregating daily average abnormal returns. We chose five event windows: [-10, -6], [-5, -2], [-1, +1], [+2, +5] and [+6,+10].

When the event study is performed on the whole sample, we find that the CAR in the event window centred on the report date [-1,+1] is statistically significant and of the expected sign for both buy and hold recommendations, while no significant cumulative abnormal return is found for Sell recommendations and for reports without rating (Table A.10). Moreover, buy recommendations exhibit a negative and statistically significant CAR in the pre-announcement window [-10,-6]. However this is probably due to the release of corporate price sensitive information, as confirmed by the fact that such CAR is no longer significant when computed for the sub-sample excluding contemporaneous events (i.e. the observations corresponding to the release of firm-specific news up to 10 days before the publication of the analyst reports; see Table A.11.). For such sub-sample, cumulative abnormal returns are significant only for buy recommendations in the window [-1,+1].

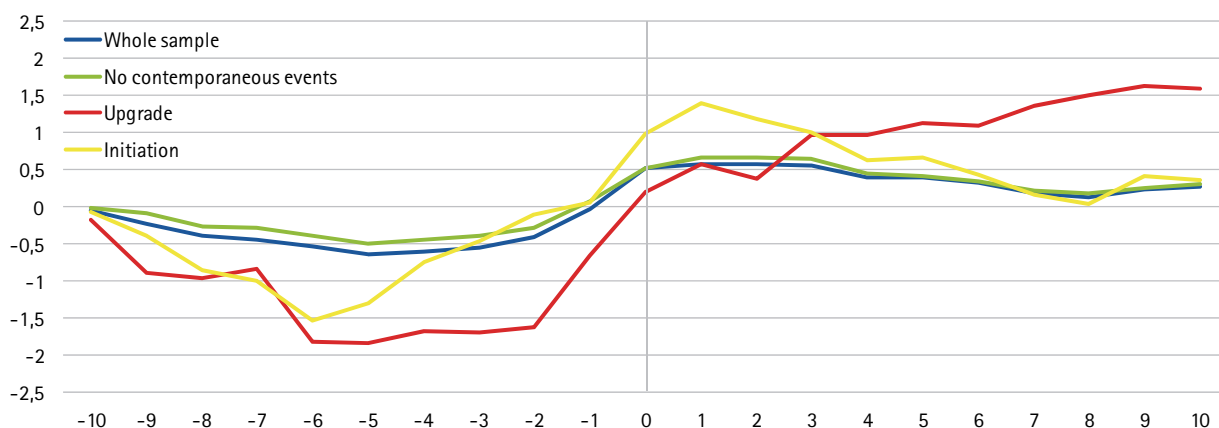
As for the impact of buy recommendations, the CARs are statistically and economically significant only for the upgrades in the pre-announcement window [-10, -6] and in the event centred window [-1, +1]. However the estimated CAR for the pre-announcement window has the wrong sign and, as in the case of the CAR esti-

mated for the whole sample, this might be due to the release of other firm-specific information (Table A.12.).

For the initiation of coverage, CARs are significant only for the buy recommendations, which account for about 71% of the reports in the sample (Table A.13). Cumulative abnormal returns are relevant both in the event window centred on the report date and in the pre-announcement window  $[-5, -2]$ . This latter result may signal a leakage of information.

Figure 4 shows the cumulative abnormal returns following a positive recommendation or a positive revision (respectively a buy or an upgrade) in all the samples. The highest CAR is estimated for the initiation of coverage sample but it is short-lived, contrary to the case of recommendation revisions exhibiting an impact which is lower in magnitude but long-lasting.

Figure 4 – Stock price reaction to analysts' studies: cumulative average abnormal returns



Finally, we inspect whether after the investigation carried out by Consob in 2008 we can detect different stock price reactions to analyst recommendations. Therefore, we split each of the 4 samples considered so far into two sub-samples (including respectively pre-2008 and post-2008 observations, regardless of the recommendation categories), and re-estimated the CARs for such sub-samples with respect to the windows defined above. Then we checked through an equality of variance test whether the CARs computed for the pre-2008 samples differ significantly from those computed for the post-2008 samples. Results are shown in Table 9.

As expected, CARs before and after 2008 are not significantly different for the event window centred on the report date. In the event window before the report date  $[-5, -2]$ , instead, we find that, for all samples except one, CARs are positive and significant before 2008, but turn not statistically different from zero after 2008. Moreover, for the whole sample and for the "initiation of coverage sample", the t test across the two subsamples is also significant, thus rejecting the null hypothesis of equality of CARs across these groups.



**Table 5 – Cumulative abnormal returns before and after 2008**

**WHOLE SAMPLE**

	N	(-10, -6) CAR	(-5, -2) CAR	(-1,+1) CAR	(2,5) CAR	(6,10) CAR
overall results	1167	-0.36 **(-1.99)	0.22 (1.02)	0.36* (1.78)	-0.17 (0.92)	0.18 (0.88)
before 2008	577	-0.51** (-2.13)	0.65* (1.93)	0.47 (1.55)	-0.55** (-2.37)	-0.34 (-1.44)
after 2008	590	-0.22 (-0.80)	-0.19 (-0.65)	0.26 (0.94)	0.20 (0.72)	0.70* (2.08)
<b>Equality of variances test</b>						
Pooled		-0.80 (0.42)	1.89* (0.06)	0.51 (0.61)	-2.06** (0.04)	-2.52 (0.01)
Satterthwaite		-0.80 (0.42)	1.89*(0.06)	0.61 (0.61)	-2.06** (0.04)	-2.53 (0.01)

**"INITIATION OF COVERAGE" SAMPLE**

	N	(-10, -6) CAR	(-5, -2) CAR	(-1,+1) CAR	(2,5) CAR	(6,10) CAR
overall results	147	-1.0* (-1.91)	0.78* (1.72)	0.59 (1.34)	-0.45 (-1.11)	-0.34 (-0.78)
before 2008	119	-0.94 (-1.47)	1.21** (2.36)	0.45 (0.96)	-0.56 (-1.26)	-0.19 (-0.39)
after 2008	28	-1.30** (-2.34)	-1.03 (-1.14)	1.17 (1.03)	0.05 (0.05)	-0.95 (-1.14)
<b>Equality of variances test</b>						
Pooled		0.26 (0.79)	1.96* (0.05)	-0.64 (0.52)	-0.59 (0.55)	0.68 (0.50)
Satterthwaite		0.42 (0.68)	2.15**(0.04)	-0.58 (0.56)	-0.59 (0.56)	0.77 (0.44)

**"NO CONTEMPORANEOUS EVENTS" SAMPLE**

	N	(-10, -6) CAR	(-5, -2) CAR	(-1,+1) CAR	(2,5) CAR	(6,10) CAR
overall results	573	-0.36 (-1.31)	-0.01 (-0.04)	0.45* (1.87)	-0.13 (-0.51)	1.25 (0.21)
before 2008	280	-0.87 (-2.50)	0.49 (1.01)	0.49 (1.55)	-0.55 (-1.61)	-0.37 (-0.94)
after 2008	293	0.12 (0.27)	-0.49 (-1.41)	0.42 (1.14)	0.28 (0.75)	1.24** (2.06)
<b>Equality of variances test</b>						
Pooled		-1.78* (0.07)	1.65*(0.09)	0.14 (0.89)	-1.65* (0.10)	-2.21**(0.03)
Satterthwaite		-1.79* (0.07)	1.64 (0.10)	0.14 (0.89)	-1.65* (0.10)	-2.24 (0.03)

**"RECOMMENDATION REVISIONS" SAMPLE**

	N	(-10, -6) CAR	(-5, -2) CAR	(-1,+1) CAR	(2,5) CAR	(6,10) CAR
overall results	207	-0.35*(-1.84)	0.12 (0.58)	0.37 (1.79)	-0.14 (-0.72)	0.17 (0.82)
before 2008	35	-0.52** (-2.12)	0.45 (1.55)	0.57 (1.86)	-0.51** (-2.17)	-0.30 (-1.22)
after 2008	172	-0.17 (-0.61)	-0.21 (-0.69)	0.17 (0.62)	0.24 (0.82)	0.65 (1.88)
<b>Equality of variances test</b>						
Pooled		-0.92 (0.36)	1.57 (0.12)	0.97 (0.33)	-2.0**(0.04)	-2.24** (0.03)
Satterthwaite		0.92 (0.36)	1.57 (0.12)	0.97 (0.33)	-2.0** (0.04)	-2.24 (0.03)

Statistical significance: \*=10%; \*\*=5%; \*\*\*=1%.

## 4 Conclusions

This paper shows that the analyst reports concerning a sample of Italian small caps are valuable to the market, although the price impact differs depending on whether such reports confirm or change recommendations or initiate coverage.

In detail, for the sub-sample including only the revisions of recommendations at the report date the abnormal returns are equal to 0.85% for the upgrades and to -0.89% for the downgrades and are both statistically significant. Therefore, recommendation revisions are more informative than mere levels. This result is in line with the previous research concerning the US markets (Womack, 1996, Loh and Stulz, 2011), as well as with the evidence available for the Italian case: Cervellati et al. (2008) find mean abnormal returns equal to about 1% for the upgrades and to -0.92% for the downgrades; Belcredi et al. (2003) estimate 0.90% and -1.29%. The abnormal returns for upgrade and downgrade recommendations in the event day are statistically significant and of the expected sign. For the "initiation of coverage" sub-sample, statistically significant abnormal returns at the event date are equal to 0.93% for the buy recommendations and to -2.04% for the hold ones. For the buy sub-sample we find statistically significant abnormal returns also some days before and the day after the publication of the report.

The second result of the paper is that information leakage does not seem to be widespread, given that abnormal returns are almost never significant before the report date. The analysis of cumulative abnormal returns shows that the highest market impact following the publication of a research report is estimated for the initiation of coverage sample but it is short-lived, contrary to the case of recommendations revisions exhibiting an impact which is lower in magnitude but lasting. Moreover, only in the case of initiations of coverage, the impact on prices occurs also a few days before the publication of the reports. This evidence corroborates the view positing that the forthcoming publication of an analyst report (and the expected impact on prices arising when a research report is made public) could constitute inside information.

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Table A.1 – Previous empirical studies on the Italian market

	Number of reports	Sample	Period	Methodology	Main results
Belcredi et al (2003)	4,990	recommendation revisions	September 1999–March 2002	event study	Negative impact of downgrade higher than positive impact of upgrade; abnormal returns also some days before the report date.
Cervellati e al (2008)	14,633	recommendation revisions	September 1999–July 2005	event study	Negative impact of downgrade higher than positive impact of upgrade; abnormal returns also some days before the report date.
Cavezzali et al (2011)	2,811	changes of recommendation and target prices	September 1999–April 2009	event study and linear regression analysis	Negative impact of downgrade higher than positive impact of upgrade.

Table A.2 – Research reports by recommendation category and broker<sup>1</sup>

Issuer	Buy	Hold	Not Rated	Sell	Total
Abaxbank SpA	50	4	1		55
Aletti & C Banca di Investimento Mobiliare SpA	10	7	4	3	24
Banca Akros SpA	29	11	1		41
Banca Finnat Euramerica	1	1		1	3
Banca Imi S.p.A.	95	70	4	5	174
Banca Leonardo SpA	33	11		39	83
Banca Profilo	3				3
Berenberg Bank	8	3		7	18
Cassa Lombarda SpA	3	3		2	8
Centrobanca	18	9	3	4	34
Centrosim SpA	19	9	8	1	37
Citigroup Global Markets Limited	2	16		4	22
Credit Agricole Indosuez Chevreux Italia Sim SpA	3				3
Euromobiliare Sim SpA	51	36	6	5	98
GOLDMAN SACHS INTERNATIONAL		1			1
Integrae Sim	29				29
Intermonte Sim SpA	151	47	1	8	207
J.P. Morgan Securities	2	2			4
Kepler Equities Italia SA	19	1		8	28
Mediobanca SpA	49	16	1	6	72
Merrill Lynch International	25	13	4	22	64
Morgan Stanley & Co International Ltd	7		1		8
Santander Private Banking SpA				1	1
Twice Sim SpA	9	2		2	13
UBS	8	5			13
Unicredit Banca Mobiliare SpA	30	25		11	66
Websim	23	12	23		58
<b>Total</b>	<b>677</b>	<b>304</b>	<b>57</b>	<b>129</b>	<b>1,167</b>

<sup>1</sup> Two brokers are considered together when they contemporaneously issue a report regarding a particular company with the same recommendation.

**Table A.3 – Distribution of companies by sector**

Sectors	Companies	Sample sectoral distribution with respect to the Ftse Small Cap index composition (reported in brackets) (percentage values)
Consumer Services	Il Sole 24 Ore Damiani	5.4 (13.1)
Consumer Goods	Aeffe Antichi Pellettieri B&C Speakers Caleffi Cobra Landi Renzo Piquadro Poltrona Frau Rcf Group Rosss	27.0 (22.9)
Financials	Apulia Prontoprestito Conafi Prestito Tamburi Inv.Partner	8.1 (15.6)
Industrials	Biancamano Bolzoni D'amico Intl.Ship. Fiera Milano Kerself Monti Ascensori Panaria Group Pramac Rdb Sat Servizi Italia Tesmec	32.4 (22.9)
Healthcare	Arkimedica Molmed Pierrel	8.1 (2.5)
Technology	Dmt Ei Towers Eems Italia Eurotech Screen Service	10.8 (12.3)
Utilities	Ergycapital Ternienergia	5.4 (5.7)
Oil & Gas	Gas Plus	2.7 (0.8)

**Table A.4 – Number of brokers per company**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	<i>Average</i>
Aeffe					4	5	3	3	3	4
Antichi Pellettieri				5	10	9	7	2		9
Apulia Prontoprestito				3	1					2
Arkimedica					2	1	1	1		1
B&C Speakers					1	1	1	1	1	1
Biancamano					1	4	5	4	5	4
Bolzoni				4	5	4	2	1	1	3
Caleffi						4				4
Cobra							3	2	2	2
Conafi Prestito <sup>1</sup>					2	7	3	2	1	4
Damiani						7				7
D'Amico					3	2	2	1	1	2
Dmt					2	3	5	3	3	4
Eems					5	4	4	3	4	4
Ergy Capital			5	9	9	10	7	6	6	8
Eurotech				9						9
Fiera di Milano <sup>1</sup>				3	5	3	1	1	2	3
Gas Plus							3	3		3
Il Sole 24 Ore				1	4	2	3	2	3	3
Kerself	3	4	3	1	4	4	3	2	2	3
Landi Renzo						4				4
Molmed					3	2	1	2	1	2
Monti Ascensori					2	7	5	3	5	5
Panaria Group					1	2	2	2	1	2
Pierrel						9	9	11	12	10
Piquadro						1	1	1	1	1
Poltrona Frau					1	1	1	1	1	1
Pramac		3	3	5	6	4	4	1	2	4
Rcf					3	2	1	1	1	2
Rdb						3	5	3	2	4
Rosss				2	6	6	4	3	2	5
Sat					2	3				3
Screen Service					1	1		2	1	1
Servizi Italia					1	1	1	1	1	1
Tamburi						2	2			2
Ternienergia					1	1	1	2		1
Tesmec									2	2

<sup>1</sup> Fiera di Milano SpA was admitted to listing on the 19th of November 2002; however, the first research report was released in 2003.

**Table A.5 – Number of research reports per company**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Aeffe					6	16	6	3	5	36
Antichi Pellettieri				6	18	16	8	1		49
Apulia Prontoprestito				4	3					7
Arkimedica					5	7	4	3		19
B&C Speakers					1	3	2	4	3	13
Biancamano					1	13	12	12	14	52
Bolzoni				7	11	9	6	3	4	41
Caleffi							8	5	6	19
Cobra					6	10	8	3	1	27
Conafi Prestito'					9	3	3	4	2	21
Damiani					2	12	9	6	5	34
D'Amico					8	13	9	7	4	41
Dmt			10	12	21	26	23	13	14	119
Eems				7	12	12	6	9	4	50
Ergy Capital							1	6		7
Eurotech				1	12	6	7	6	6	38
Fiera di Milano	8	10	9	1	5	11	6	5	7	61
Gas Plus					4	4	1	3	1	13
Il Sole 24 Ore						16	13	9	8	46
Kerself					6	10	7	8	1	32
Landi Renzo						23	16	42	23	104
Molmed						1	2	1	1	5
Monti Ascensori					1	4	3	2	2	12
Panaria Group		1	17	12	13	16	9	6	9	83
Pierrel					7	4	3	2	1	17
Piquadro						9	10	6	3	28
Poltrona Frau				1	15	15	7	5	10	53
Pramac					3	11				14
Rcf					3	5		3	2	13
Rdb					3	4	4	5	2	18
Rosss						2	3			5
Sat					2	1	2	3		8
Screen Service					1	2	2	5	3	13
Servizi Italia					1	4	5	10	19	39
Tamburi				3						3
Ternienergia						1	5	12	5	23
Tesmec									3	3
<i>Total</i>	<i>8</i>	<i>11</i>	<i>36</i>	<i>54</i>	<i>179</i>	<i>289</i>	<i>210</i>	<i>212</i>	<i>168</i>	<i>1167</i>



Table A.6 – Average abnormal returns computed for the whole sample

days	Buy			Hold			Not rated			Sell		
	Ar%	t	sign	Ar%	t	sign	Ar%	t	sign	Ar%	t	sign
-10	-0,05	-0,69		-0,21	-1,18		0,2	0,66		-0,31	-1,52	
-9	-0,17	-1,9	*	-0,12	-0,68		-0,61	-2	**	0,21	0,86	
-8	-0,17	-1,78	*	-0,003	-0,02		-0,31	-1,7	*	-0,29	-1,16	
-7	-0,05	-0,56		0,17	0,99		0,24	0,67		0,18	0,68	
-6	-0,09	-0,94		0,27	1,64	*	-0,15	-0,53		-0,21	-0,98	
-5	-0,11	-1,13		0,07	0,38		0,45	1,03		-0,31	-1,29	
-4	0,04	0,35		0,02	0,08		0,46	0,86		-0,11	-0,37	
-3	0,06	0,64		0,13	0,55		0,74	1,13		-0,08	-0,25	
-2	0,14	1,47		0,05	0,26		0,57	1,08		0,26	0,64	
-1	0,37	3,14	***	-0,11	-0,53		-0,65	-1,22		0,32	0,74	
0	0,55	4,56	***	-0,54	-2,79	***	1,08	1,41		-0,3	-0,64	
1	0,06	0,5		-0,18	-0,92		-0,25	-0,68		-0,02	-0,07	
2	0,002	0,02		-0,09	-0,48		-0,47	-1,62		-0,49	-1,55	
3	-0,02	-0,22		-0,39	-2,06	**	-0,5	-1,74	*	0,58	1,94	*
4	-0,16	-1,63		0,19	0,93		0,51	1,22		-0,19	-0,83	
5	-0,01	-0,16		0,36	1,61		-0,33	-1,07		-0,18	-0,78	
6	-0,07	-0,78		0,44	2,22	**	0,2	0,27		-0,04	-0,14	
7	-0,14	-1,57		0,45	2,2	**	0,9	1,23		0,06	0,23	
8	-0,05	-0,63		-0,07	-0,4		-0,76	-1,96	**	0,23	1	
9	0,1	1,01		-0,19	-1,35		0,004	0,01		0,001	0	
10	0,05	0,51		0,05	0,3		0,001	0		0,21	0,91	

Statistical significance: \* = 10%; \*\* = 5%; \*\*\* = 1%.

Table A.7 – Average abnormal returns computed for the “No contemporaneous events” sub-sample

days	Buy			Hold			Not rated			Sell		
	AAR	tAAR	sign	AAR	tAAR	sign	AAR	tAAR	sign	AAR	tAAR	sign
-10	0,07	0,64		0,14	0,48		0,04	0,10		-0,27	-1,05	
-9	-0,22	-1,58		-0,34	-1,23		-0,36	-0,90		0,11	0,32	
-8	-0,07	-0,43		0,00	0,02		-0,15	-0,66		-0,20	-0,54	
-7	-0,08	-0,50		-0,02	-0,10		0,11	0,25		-0,04	-0,12	
-6	-0,20	-1,41		0,33	1,75	*	-0,51	-1,38		-0,25	-0,81	
-5	-0,24	-1,73	*	0,11	0,47		0,56	0,97		-0,44	-1,27	
-4	-0,11	-0,82		-0,03	-0,14		0,34	0,46		-0,28	-0,91	
-3	-0,03	-0,19		0,32	1,29		0,84	0,93		0,07	0,21	
-2	0,01	0,05		-0,10	-0,44		0,72	1,04		0,03	0,08	
-1	0,21	1,52		-0,20	-0,83		-0,77	-1,07		0,20	0,53	
0	0,71	4,47	***	-0,65	-2,41	**	1,46	1,36		-0,28	-0,64	
1	0,22	1,50		0,12	0,42		-0,11	-0,27		0,15	0,42	
2	0,03	0,20		-0,05	-0,17		-0,48	-1,51		-0,17	-0,61	
3	0,04	0,22		-0,49	-1,89	*	-0,57	-1,59		-0,09	-0,34	
4	-0,05	-0,32		0,06	0,29		0,71	1,22		-0,13	-0,51	
5	0,12	0,84		0,22	0,84		-0,61	-1,55		-0,13	-0,38	
6	-0,05	-0,40		0,63	2,18	**	0,53	0,50		0,39	0,94	
7	-0,11	-0,87		0,69	2,05	**	1,26	1,25		-0,05	-0,14	
8	-0,06	-0,39		0,10	0,39		-0,95	-2,06	**	-0,03	-0,08	
9	0,07	0,47		-0,10	-0,49		-0,14	-0,27		0,07	0,21	
10	-0,02	-0,10		0,14	0,46		0,43	0,95		0,13	0,36	

Statistical significance: \* = 10%; \*\* = 5%; \*\*\* = 1%.

**Table A.8 – Average abnormal returns computed for the "Revisions of recommendation" sub-sample**

Day	Upgrade			Downgrade		
	AAR	tAAR	sign	AAR	tAAR	sign
-10	-0.17	-0.66		-0.50	-1.89	*
-9	-0.71	-1.96	**	-0.10	-0.32	
-8	-0.08	-0.21		-0.02	-0.06	
-7	0.13	0.49		0.29	1.05	
-6	-0.99	-2.86	**	0.32	0.98	
-5	-0.01	-0.04		0.48	1.40	
-4	0.15	0.44		0.33	0.88	
-3	-0.01	-0.02		0.41	0.95	
-2	0.06	0.22		0.15	0.30	
-1	0.98	1.90	*	-0.21	-0.48	
0	0.85	2.25	**	-0.89	-1.73	*
1	0.37	1.34		-0.05	-0.12	
2	-0.18	-0.63		-0.82	-2.12	**
3	0.58	1.91	*	-0.66	-1.92	*
4	0.00	0.01		0.06	0.16	
5	0.16	0.58		0.46	0.95	
6	-0.04	-0.13		0.74	1.68	*
7	0.27	0.77		0.84	1.84	*
8	0.15	0.59		-0.27	-0.76	
9	0.12	0.49		0.01	0.04	
10	-0.04	-0.13		0.00	-0.01	

Statistical significance: \*=10%; \*\*=5%; \*\*\*=1%.

Table A.9 – Average abnormal returns computed for the "Initiation of coverage" sub-sample

relday	Buy			Hold			Not rated			Sell		
	AAR	tAAR	sign	AAR	tAAR	sign	AAR	tAAR	sign	AAR	tAAR	sign
-10	-0,06	-0,31		0,15	0,25		0,28	0,74		0,32	0,52	
-9	-0,32	-1,15		-0,35	-0,61		-0,26	-0,31		0,41	0,93	
-8	-0,46	-1,50		0,12	0,24		-0,01	-0,04		0,22	0,53	
-7	-0,15	-0,71		0,07	0,13		0,62	1,64	*	-0,74	-1,27	
-6	-0,54	-1,89	*	0,17	0,38		-0,55	-1,53		0,00	0,01	
-5	0,25	1,09		0,32	0,38		-0,06	-0,15		-0,29	-0,51	
-4	0,55	2,62	**	-0,37	-0,53		0,04	0,12		-0,11	-0,26	
-3	0,27	1,32		-0,68	-1,40		0,02	0,05		-0,16	-0,21	
-2	0,36	1,31		-0,07	-0,15		0,04	0,10		-0,68	-0,61	
-1	0,17	0,75		-0,94	-1,58		-0,50	-1,03		-0,10	-0,35	
0	0,93	2,86	***	-2,04	-2,24	**	1,21	1,06		-0,98	-1,15	
1	0,41	1,69	*	0,32	0,44		0,06	0,10		-0,04	-0,09	
2	-0,21	-1,15		-0,06	-0,18		-0,25	-0,38		0,42	0,41	
3	-0,18	-0,96		-0,22	-0,56		-0,63	-1,14		1,36	2,09	**
4	-0,37	-1,48		0,00	0,01		0,72	0,69		-0,45	-0,87	
5	0,03	0,11		0,55	1,33		-0,65	-1,86	*	0,21	0,40	
6	-0,22	-1,01		0,19	0,35		-0,27	-0,96		-0,10	-0,27	
7	-0,28	-1,41		-0,05	-0,08		0,53	1,18		-0,21	-0,37	
8	-0,13	-0,55		0,15	0,34		-0,08	-0,23		0,33	0,62	
9	0,38	1,95	*	-0,35	-0,80		-0,25	-0,65		-0,42	-0,94	
10	-0,05	-0,28		-0,37	-0,56		0,06	0,12		-0,72	-1,07	

Statistical significance: \*=10%; \*\*=5%; \*\*\*=1%.

**Table A.10 – Cumulative abnormal returns computed for the whole sample<sup>1</sup>**

Window	Buy	Hold	Sell	Not rated
[-10, -6]	-0.54**	0.10	-0.41	-0.62
	(-2.31, -2.89)	(0.25, -0.23)	(-0.81, -0.87)	(-1.17, -1.94)
	(0.44)	(0.51)	(0.48)	(0.39)
[-5, -2]	0.13	0.26	-0.24	2.23
	(0.60, 0.33)	(0.55, 0.21)	(-0.27, -0.08)	(1.17, 1.10)
	(0.51)	(0.49)	(0.40)	(0.50)
[-1, +1]	0.98***	-0.83*	-0.002	0.18
	(4.27, 4.44)	(-2.12, -1.77)	(-0.002, -0.02)	(0.17, -0.13)
	(0.55)	(0.49)	(0.44)	(0.49)
[+2, +5]	-0.20	0.06	-0.28	-0.79
	(-0.93, -1.27)	(0.14, -0.10)	(-0.51, -0.82)	(-1.10, -1.37)
	(0.46)	(0.47)	(0.46)	(0.35)
[+6, +10]	-0.11	0.69	0.46	0.35
	(-0.50, -1.37)	(1.31, 0.70)	(0.75, 0.72)	(0.34, -0.38)
	(0.49)	(0.45)	(0.51)	(0.42)
<i>N</i>	<i>677</i>	<i>304</i>	<i>129</i>	<i>57</i>

<sup>1</sup>Percentage values. In parenthesis, cross-sectional t-statistics, Bohemer et al. (1991) t-statistic and percentage of positive abnormal returns. Statistical significance: \*=10%; \*\*=5%; \*\*\*=1%.

**Table A.11 – Cumulative abnormal returns computed for the “No contemporaneous events” sample<sup>1</sup>**

Window	Buy	Hold	Sell	Not rated
[-10, -6]	-0.48	0.11	-0.66	-0.87
	(-1.25, -1.85)	(0.19, -0.30)	(-1.06, -1.13)	(-1.37, -1.75)
	(0.42)	(0.54)	(0.45)	(0.45)
[-5, -2]	-0.36	0.29	-0.61	2.46
	(-1.24, -0.99)	(0.57, 0.95)	(-0.78, -1.03)	(0.92, 0.91)
	(0.46)	(0.51)	(0.40)	(0.50)
[-1, +1]	1.13***	-0.72	0.06	0.57
	(4.55, 4.53)	(-1.37, -0.63)	(0.07, -0.15)	(0.43, 0.25)
	(0.59)	(0.47)	(0.36)	(0.52)
[+2, +5]	0.13	-0.26	-0.52	-0.94
	(0.36, 0.16)	(-0.51, -0.68)	(-1.09, -1.14)	(-0.98, -1.55)
	(0.49)	(0.50)	(0.41)	(0.27)
[+6, +10]	-0.17	1.46	0.51	1.13
	(-0.42, -1.15)	(1.64, 1.07)	(0.47, 0.54)	(0.82, 0.56)
	(0.48)	(0.47)	(0.50)	(0.44)
<i>N</i>	<i>307</i>	<i>160</i>	<i>66</i>	<i>40</i>

<sup>1</sup>Percentage values. In parenthesis, cross-sectional t-statistics, Bohemer et al. (1991) t-statistic and percentage of positive abnormal returns. Statistical significance: \*=10%; \*\*=5%; \*\*\*=1%.

**Table A.12 – Cumulative abnormal returns computed for the "Recommendation revisions" sub-sample<sup>1</sup>**

Window	Upgrade	Downgrade
[-10, -6]	-1.82**	-0.01
	(-2.24, -2.13)	(-0.01, -0.41)
	(0.37)	(0.57)
[-5, -2]	0.20	1.36
	(0.29, -0.38)	(1.12, 0.66)
	(0.59)	(0.45)
[-1, +1]	2.19***	-1.15
	(3.38, 3.30)	(-1.13, -1.02)
	(0.66)	(0.42)
[+2, +5]	0.56	-0.96
	(0.97, -0.07)	(-1.23, -1.28)
	(0.48)	(0.47)
[+6, +10]	0.47	1.32
	(0.64, 0.30)	(1.15, 0.43)
	(0.54)	(0.46)
<i>N</i>	87	120

<sup>1</sup>Percentage values. In parenthesis, cross-sectional t-statistics, Bohemer et al. (1991) t-statistic and percentage of positive abnormal returns. Statistical significance: \*=10%; \*\*=5%; \*\*\*=1%.

**Table A.13 – Cumulative abnormal returns computed for the "Initiation of coverage" sub-sample<sup>1</sup>**

Window	Buy	Hold	Sell	Not rated
[-10, -6]	-1.53	0.16	0.21	0.08
	(-2.28, -1.94)	(0.12, -0.22)	(0.16, 0.55)	(0.09, -0.87)
	(0.36)	(0.52)	(0.50)	(0.38)
[-5, -2]	1.43**	-0.79	-1.25	0.03
	(2.55, 2.76)	(-0.69, 0.14)	(-0.55, -0.28)	(0.05, 0.18)
	(0.60)	(0.40)	(0.75)	(0.54)
[-1, +1]	1.50***	-2.65	-1.12	0.77
	(3.64, 3.86)	(-1.65, -1.29)	(-0.93, -1.32)	(0.51, 0.18)
	(0.60)	(0.44)	(0.71)	(0.46)
[+2, +5]	-0.73	0.27	1.53	-0.81
	(-1.44, -0.79)	(0.36, 0.007)	(0.96, 0.62)	(-0.59, -1.09)
	(0.39)	(0.52)	(0.75)	(0.31)
[+6, +10]	-0.29	-0.44	-1.12	-0.02
	(-0.57, -0.20)	(-0.31, 0.12)	(-1.40, -0.95)	(-0.03, -0.12)
	(0.46)	(0.48)	(0.25)	(0.38)
<i>N</i>	101	25	8	13

<sup>1</sup>Percentage values. In parenthesis, cross-sectional t-statistics, Bohemer et al. (1991) t-statistic and percentage of positive abnormal returns. Statistical significance: \*=10%; \*\*=5%; \*\*\*=1%.

## Recenti pubblicazioni

- 73** – gennaio 2013  
**Quaderni di finanza** The impact of financial analyst reports on small caps prices in Italy  
*C. Guagliano, N. Linciano, C. Magistro Contento*
- 72** – dicembre 2012  
**Quaderni di finanza** Financial contagion during Lehman default and sovereign debt crisis.  
An empirical analysis on Euro area bond and equity markets  
*M. Gentile, L. Giordano*
- 5** – dicembre 2012  
**Discussion papers** Il *trading* ad alta frequenza. Caratteristiche, effetti e questioni di *policy*  
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