DO TARGET PRICES PREDICT RATING CHANGES?

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Abstract

Both rating agencies and stock analysts valuate publicly traded companies and communicate their opinions to investors. Empirical evidence indicates that stock prices react to both bond rating changes (at least downgrades) and changes in analysts' earning forecasts, suggesting that both pieces of information are valuable to investors.

While most academic research has been focused on studying the impact of rating actions on bond prices, stock returns or earning forecasts, surprisingly, the relationship between target prices and rating actions has remained essentially unexplored.

Our study contribute to the existing literature by providing an evidence, not yet explored, of any anticipation in target prices revision prior to a rating actions, in order to analyze the ability of equity analysts to predict the decisions of the main rating agencies. Moreover, our work is related to the empirical literature that investigates the optimism of analysts' recommendations and we provide evidence about the mean target price to current price ratio for the Italian market. Using a large and unique database, we find that TP/P ratio over the period 2000-2005 is 1,15, that is target prices are 15% higher than current stock prices.

The motivation of this research stems from the empirical evidences that 1) target prices are statements incorporating earnings forecasts, which have proven to be meaningfully correlated with rating actions[1],2) target prices revisions are released much more frequently than rating actions 3) downgrades (upgrades) associated with negative (positive) revision of the firm's prospective cash flows will negatively(positively) affect bondholders and, to a larger extent, equity holders who have secondary claims compared to debt.

On the basis of a set of hypotheses, we expect that downgrades can be anticipated by a reduction in target prices and that, in the case of upgrades, the anticipation effect should be more evident.

Changes in target prices prior to rating actions are estimated, controlling for the anticipations through watches and the sector of the rated firm.

Using a complete and unique data set of rating actions released by Moody's, Standard & Poor's and Fitch from 1st January 2000 to 31st December 2005, for the Italian listed firms and for an European sample, we find that positive rating events are anticipated by consistent increases of the target prices released in the four months before the rating action. The evidence is less clear for negative rating events, since significant reductions in target prices are observable only in a shorter window (three months). Our results reflect analysts' overly-optimistic behavior and the fact that they are less likely to reduce than to increase target prices over time.

Results also differ controlling by the sector. Looking at the Italian sample (composed mainly by financial firms) and at the European financial sub sample we find that: target prices reduction prior to a downgrade is highly evident in the financial sector while it is not clear at all for the non financial sector. According to Gropp and Richards (2001) and Schweitzer et al. (1992), we thus observe strong differences between the two groups of issuers (financial and

[1] Goh and Ederington, "*Bond rating agencies and stock analysts: who knows what when*", 1998.

industrial ones). We argue that the different regulatory regimes, which imply different degrees of transparency, could explain the asymmetric behavior of target prices.

We finally investigate whether the anticipation of a rating action by a watch list in the same direction, may influence our results. In this paper, we follow Hand et al. [1992] and use credit watches in two ways. First, we examine changes in target prices around credit watches, testing whether they contain relevant market information. Second, we use them as a means of distinguishing between contaminated and uncontaminated ratings changes. As in Hand et al. [1992] we argue that a ratings change that is preceded by a ratings watch in the same direction should be largely anticipated and, hence, should be associated with significant changes in target prices.

Comparing the average change in target price for contaminated versus uncontaminated rating actions, we find that contaminated downgrades show more pronounced reductions in target price over time while there is no significant difference for upgrades. This difference can be explained according to whether or not the watch list was released during the four months prior to the rating action, corresponding to our observation window. Since watch lists are usually released on average three months before the downgrade, they fall into our observation window, bringing with them a further reduction in target price.

Overall, the results suggest that target prices may perform a useful role in anticipating rating changes and confirm prior evidence that rating actions can be predicted from publicly available information, at least for financial sector.

The remainder of this work is organized as follows. Chapter 1 discusses the main informational content of ratings, rating criteria and procedures. Following that, in Chapter 2, we examine the main content of reports on Italian stocks, to find out the evaluation method used to get the final recommendation and the main differences between analysts' justifications for reports that disclose target prices versus those that do not. The different disclosure levels of target prices across stock recommendations suggest that analysts are more inclined to provide them when their recommendations are more favorable (i.e., Buy or Strong Buy) than they are when their recommendations are less favorable (i.e., Hold).

Finally, in Chapter 3, we investigate whether ratings actions can be predicted from publicly available information by examining any target price changes prior to the rating action, on the basis of a set of hypotheses to be tested. The research design and methodology are described in Chapter 3, along with the main conclusions of the empirical evidence.

The work closes with a summary and suggestions for future research.

Previous studies

Both bond rating agencies and stock analysts evaluate publicly traded companies and communicate their opinions to investors. But what is the relevance of rating agencies in today's capital markets? Assessments by the popular press diverge widely.

A large stream of literature has verified the informational content of bond rating, through the impact of rating changes on bond and stock prices. The hypothesis underlying the studies is the following: if rating has an innovative informational content compared to the publicly available information, rating changes should have a consistent impact on market prices. Conversely, if the rating is based mostly on public information and if the necessary updates are not enough timely, agencies' rating actions should not produce any effect on market prices.

Recent studies report that equity markets react negatively (positively) to news that a company's debt is being downgraded (upgraded) by Moody's or Standard and Poor's, indicating that rating actions have informational content with negative (positive) implications on earning forecast and stock performance.

The available empirical evidence is related mostly to the US. One of the first contributions was given by Weinstein (1977), who collected a sample of bond rating revisions released by Moody's in the period 1962-1964. He concentrates on the informational content of rating revisions by examining price changes in the interval before and after rating actions. He concludes that rating revisions do not have any effect on the prices of the related bonds. These results would confirm market efficiency in the semi-strong form.

The adaptive behaviour of rating agencies and subsequently the absence of any reactions to rating changes has been reported as well by some successive studies[2].

Hand et *al.* (1992) examine the daily excess bond and stock returns associated with rating agencies announcements. Their sample is composed of 250 additions to S&P's credit watch lists between 1981 and 1983, and 1100 actual rating changes announced by Moody's and S&P between 1977 and 1982. They distinguish between rating revisions preceded by *rumors* and press releases, and uncontaminated rating revisions. With regard to the sample of watch lists, the authors observe significant changes in stock prices only in case of possible downgrades, while bonds' yields seem to react significantly in the case of both downgrades and upgrades; the reaction is higher in the uncontaminated sub sample. With regard to the actual rating changes, only downward revisions seem to have an effect on both stocks and bonds; on the contrary, upward revisions produce effects only on bonds' yields.

Goh and Ederington (1993) find that revisions do have effects on both equity and debt. They examine the reaction of common stock returns to bond rating changes. While previous studies find a significant negative stock response to downgrades, indicating that these downgrades have informational content with negative implications, they argue that this reaction should not be expected for all downgrades. They argue that downgrades may have a different impact on stock prices depending on the reason which led to an increase in the firm's risk and, in particular, on whether such an increase corresponds to a wealth transfer from bondholders to stockholders. The authors actually find a significant negative market reaction only to downgrades due to a deterioration of firm's financial prospects (having negative implications for stockholders). They argue that it is unlikely that all downgrades are

[2] See Pinches and Singleton (1978) and Wakeman (1978).

a surprise since many follow news of an increase in the firm's riskiness. Second, and more important, while a surprise downgrade is clearly bad news for bondholders it is not necessarily bad news for stockholders. In particular, if the bonds are downgraded because the rating agencies foresee an increase in leverage that will transfer wealth from bondholders to stockholders, bond prices should fall but equity prices should rise.

Comparing the timing of the release of rating actions and equity researches, Goh and Ederington (1998) also found that Granger causality flows both ways: while most bond downgrades are preceded by declines in actual and forecasted earnings, both actual earnings and forecasts of future earnings tend to fall following downgrades. Although part of this post-downgrade forecast revision can be attributed to negative news, regarding actual earnings, most appears to be reaction to the downgrade itself. They also find little change in actual earnings following upgrades although analysts tend to increase their forecast of future earnings.

A stream of the literature investigates the impact of rating changes specifically for banks. Schweitzer et al. (1992) test the null hypothesis that rating actions matter less for banks than for corporate, the idea being that since banks are highly regulated entities the amount of information available to the market might be higher and hence the information content of rating actions might be lower. The alternative hypothesis (i.e. rating actions matter more for banks) is based on the idea that regulators might allow withholding of adverse information in view of the preservation of the stability of the banking system, therefore leading to more pronounced abnormal returns associated with unfavourable bank rating actions. In fact, the empirical evidence shows that downgrades lead to a stronger effect when involving banks, thus lending support to the second hypothesis.

Gropp and Richards (2001) assess the impact of rating changes performed by S&P, Moody's and Fitch between 1989 and 2000 on stock and bond prices for a sample of 32 European banks. They find little evidence of announcement effects on bond prices, while for stock prices strong effects are associated only with unanticipated rating changes; moreover, the underlying reason seems to matter for the sub sample of downgrades: the ones motivated by the worsening of the issuer's financial prospects results in a reduction in the prices, while the increase of issuer's leverage results in an increase in the prices. The analysis of abnormal returns in the two months before the announcements shows the absence of significant variations in the prices. The authors, however, conclude that rating revisions have an innovative informational content with respect to the news available to the public.

Linciano (2005) assesses the impact on stock prices of rating changes for a sample of 299 rating actions performed by the three agencies between 1991 and 2003 and involving Italian listed companies. Rating changes include both upgrades and downgrades, as well as positive and negative credit watches. Abnormal returns for stock prices are estimated, controlling for the anticipations through watches, press speculations or corporate disclosure, the sector of the rated firm, the reason which prompted the rating action.

Consistently with the previous empirical evidence, results show that weak negative abnormal returns are associated with downgrades in the event window [-1;+1]; as far as concerns upgrades, significant positive abnormal returns arise after the rating change (in the window [+2;+20]), thus signalling a delay in the market reaction to positive news.

Only rating changes preceded by watch lists or outlooks (1) show significant cumulated abnormal returns before the rating action (in the window [-20;-11]) and (2) show significant cumulated abnormal returns after the rating action (exception is made for the upgrades

signalled above). This result is not consistent with the conclusions of the US research, which always shows a stronger reaction of market prices to events not preceded by watch lists or outlooks.
Similarly, rating announcements related to information that has already been released (contaminated events) result in higher abnormal returns: this might provide evidence that the stock price reaction is mainly due to the contaminating information rather than to the rating action itself.
The sector of the rated entity seem to matter only for downgrades; however, due to different size of the sub samples (the sub sample of corporate issuers is smaller), this evidence may not be regarded as conclusive.
The implications of the empirical evidence on the information content of ratings is not unambiguous. In any case, some elements indicate that rating may have an innovative informational content, even though sometimes the revisions may not be timely. Among the reasons for such a delay, there is the widespread habit of agencies not worsening situations of temporary difficulties turning them in default.

While most academic research has been focused on studying the impact of rating actions on bond prices, stock returns or earning forecasts, only a few papers instead investigate if and how it is possible to predict rating actions.
Goh and Ederington (1998) found that downgrades are partially a response to information that analysts already have and have impounded in earnings forecasts[3]. In contrast, upgrades appear to be a response to information that analysts already have since the upgrades follow periods of upward earnings forecasts[4]. In short, the authors have proven earnings forecasts to be meaningfully correlated with rating actions.
Our work contributes to the debate by provide evidence of the movement of target prices prior the rating actions issued by the main three rating agencies (Moody's, Standard & Poors and Fitch) between 31/12/2000 and 31/12/2005[5].
Since target prices are self-contained statements incorporating stock recommendations and earning forecasts which have proven to be meaningfully correlated with rating actions[6], we expect significant relationship with rating actions.

[3] However, in the authors' opinion, analysts apparently view the downgrades as also having negative implications for the current year's earnings since they respond by revising their forecasts sharply downward after the downgrade.

[4] Nonetheless, upgrades are followed by upward revisions in the analysts' earnings forecast, although they are considerably smaller compared to the downward revisions following downgrades.

[5] Holthausen and Leftwich, "*The effect of bond rating agency announcement on bond and stock prices*", 1986.

[6] Goh and Ederington, "*Bond rating agencies and stock analysts: who knows what when*", 1998.

The Hypotheses to Be Tested

We believe that understanding analysts' target price forecasting power is relevant at least for two reasons.
First, target price's influence on stock market prices has been largely documented by several previous studies (Asquith et al. (2005), Barber et al. (2001), etc).
Secondly, target prices are a straightforward measure of the potential change in the value of the underlying security which can be valuable to investors and may have an influence on their investment strategies. Therefore, understanding what the influence of analysts is in predicting future rating actions should be valuable information to investors. Since the determinants of target prices are largely unexplored, leaving room for providing investors with additional hints on such price sensitive information, that can be used to improve pricing efficiency and investment arbitrage.

The hypotheses to be tested are the following:

Hypothesis 1: *since 1) target prices are statements incorporating earnings forecasts, which have proven to be meaningfully correlated with rating actions7,2) target prices revisions are released much more frequently than rating actions 3) downgrades (upgrades) associated with negative (positive) revision of the firm's prospective cash flows will negatively affect bondholders and, to a larger extent, equity holders who have secondary claims compared to debt - we expect that downgrades (upgrades) can be anticipated by a reduction (increase) in target prices and that, in the case of upgrades, the anticipation effect should be more evident. We thus expect that changes in target prices may anticipate rating changes.*

Hypothesis 1 refers to the monitoring period of three different windows before the date of each agency's rating actions included in the sample. According to the literature, rating actions include upgrades and downgrades, as well as positive and negative outlooks, controlling for any anticipations through watch lists.

Hypothesis 2: *relative optimism in target prices across stock recommendations can be observed in the Italian context so we expect a bias towards upgrades.*

Analysts' behaviour is clear in the light of their overly-optimistic behavior (their habit to overestimate (underestimate) increases (reductions) in the prices)8. We bring our readers' attention to the fact that (1) companies voluntarily release favorable information but are reluctant to release unfavorable information, and (2) rating agencies are more interested in detecting deterioration of creditworthiness than improvements. These considerations, together with the overly-optimistic behavior of sell-side analysts, could explain asymmetric behavior of target prices prior to upgrades or downgrades.

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[7] Goh and Ederington, "*Bond rating agencies and stock analysts: who knows what when*", 1998.

[8] Mark T. Bradshaw, "The *use of target prices to justify sell-side analysts' stock recommendations*", 2001.

Hypothesis 3: *change in target prices better predict announced changes, by additions to the watch list, than unanticipated ones. Rating announcements related to information that has already been released through a watch list (contaminated events) is expected to result in higher changes in target prices since such a credit event is typically a public signal, which can be reflected in stock price*[9].

In addition to outright changes in ratings, Hand et al. [1992] have stressed that it is also important to consider the information contained in the "credit watch list." Companies are added to the credit watch list, if the rating agency believes that a rating change is likely. This information is supplemented by the expected direction of the change, e.g. there may be "indicated upgrades", "indicated downgrades" or "developing." The credit watch would indicate "developing," if a ratings change of unknown direction is likely. In this paper, we follow Hand et al. [1992] and use credit watches in two ways. First, we examine changes in target prices around credit watches, testing whether they contain relevant market information.
Second, we use them as a means of distinguishing between anticipated and unanticipated ratings changes. As in Hand et al. [1992] we argue that a ratings change that is preceded by a ratings watch in the same direction should be largely anticipated and, hence, should be associated with significant changes in target prices.

Hypothesis 4: *different regulatory regimes (designed respectively for financial and non financial issuers), which imply different degrees of transparency, and the different evaluation methods adopted to evaluate financial and non financial firms, may influence target price behavior prior to a rating action.*

There are at least two U.S. studies, which investigate the question of whether ratings changes matter specifically for banks. As Schweitzer et al. [1992] argue, there are reasons to think that ratings changes might have a different impact on banks as highly regulated entities, as opposed to corporations. They note that the regulation of an industry may increase the amount of information available to the market. If so, the informational value of firm-specific events may be less for highly regulated firms. Indeed, Wansley and Dhillon [1989] and Plonchek et al. [1989] find that the announcement effect of new security issues is smaller for banks than for industrial firms, and Asquith and Mullins [1986] report similar findings for equity issues made by public utilities. On the other hand, Schweitzer et al. [1992] note that bank regulators may withhold adverse information in order to sustain investor confidence in a troubled bank and avoid bank runs and/or because the existence of a troubled bank may reflect badly upon the regulator's performance. If so, we should observe no significant movement in target prices associated with unfavorable bank debt rating changes prior to the rating action itself. On the other hand, if any adverse information is available in the rating period, we should observe higher, more pronounced negative changes in target prices than those for industrial firms.
Moreover, evaluation methods matter. According to previous studies10, market ratio methods are more frequently used to evaluate banks than the fundamental ones. It implies

[9] Boot, Milbourn, and Schmeits (2006), Holthausen, and Leftwich (1992). These authors show that a watch list entry with designation downgrade is accompanied by a negative stock market reaction.

[10] G.Bertinetti, E.Cavezzali, U.Rigoni, "The content of reports on Italian stocks. Do evaluation methods matter?", 2006.

that it is much easier to assess and thus, to adjust, target prices for a financial firm, if such information is available to the market.

Sample Selection, Methodology and Data

Our original database (Panel A) includes over 10,000 equity reports published from January 1st 2000 up to December 31st 2005, reporting target prices. We start our analysis selecting 10,769 reports published by 47 different analysts covering 98 companies listed on the Milan Stock Exchange and representing approximately 81.96% of the overall market capitalization. Data show that 'Financials' is the most represented industry with 29 companies and 3,323 reports; Cyclical industries are also well represented both in terms of companies and reports.

On this original database, one filter is applied: only rated firms were selected. The filter reduces the original sample of 76 firms (from 98 to 22), and of 7,598 equity reports (from 10,769 to 3,171).

The new data set (Panel B) includes 148 rating actions performed in the period 1st January 2000 - 31st December 2005 by Fitch, Moody's and S&P.

The sample was compiled by combining the information provided by the Bloomberg and DataStream databases with the information provided by the rating agencies' websites. The database includes 22 continuously rated and listed Italian companies representing approximately 36% of the overall stock market capitalization[11].

Year 2002 is the most representative in terms of issued rating actions (in particular downgrades). The rating changes by S&P (51%) exceed those performed by Moody's and Fitch (respectively 25% and 24%), in line with the penetration of rating agencies in the Italian market. Most of the rating actions involve financial institutions (57% banks and insurance companies against 43% concerning industrial firms) which represent the majority of the rated entities in the Italian context, consistently with our previous findings. The events consist of 13 upgrading and 36 downgrading. Among the downgrades, three rating actions shifted the rated entity from the investment grade to the speculative category. Finally, agencies changed ratings by two notches five times (four downgrades and one upgrades) and once by three notches (downgrade).We classified rating actions according to whether they were anticipated by the inclusion in the watch list in the same direction.

The trend of watch list alerts is highly correlated with downgrades, as watch list alerts represent reliable predictors of incoming/future downgrades. Overall, 23 events are classified as anticipated by a watch list, (55% of the downgrades and 23% of the upgrades) and 13 events are anticipated by an outlook (25% of the downgrades and 31% of the upgrades). In the analysis, the observations corresponding to an outlook removal are classified either as an upgrade or as a downgrade depending on whether the previous outlook is negative or positive.

Finally, we enlarge our Italian sample, adding 42 new firms, picked from the major European stock indexes to the Italian sample: London FTSE 100, CAC 40 and DAX, a total of 128 new rating actions performed by S&P between 2000 and 2005. Our final sample (Panel C: the European sample) includes 276 rating actions and 14,046 target prices issued by 75

[11] Average 2001-2005. We refer to all the companies listed on MTA, MTAX, MTA International and ME.

equity analysts. Enlarging the sample allowed us to reach a significant number of rating actions and moreover to observe a higher percentage of rating actions related to the industrial firms (56% vs 43% in Panel B).

Main results and conclusions

Most academic research and business press attention has been devoted to the relationship between rating actions and earning forecasts, or bond and stock returns, to the effect of analysts' recommendations on stock returns or trading volumes, and to the accuracy of stock recommendations and target prices. But the ability of target prices to predict future rating actions has, surprisingly, remained essentially unexplored.Conversely, our study contributes to the existing literature by providing an evidence of the predictive power of target prices prior a rating action. Moreover, our work is related to the empirical literature that investigates the optimism of analysts' recommendations and we provide evidence about the mean target price to current price ratio for the Italian market. Using a large and unique database, we find that TP/P ratio over the period 2000-2005 is 1,15, that is target prices are 15% higher than current stock prices.We also provided evidence that target prices changes contain information since most downgrades (upgrades) are preceded by declines (increase) in target prices.Consequently, it is an open question whether ratings or target prices bring more information to the market and which is timelier. The motivation of this research stems from the empirical regularity that target price revisions are released much more frequently than rating actions.

While there are more stock analysts than rating agencies and analysts focus specifically on the outlook for the firm's equity, which is more volatile than debt, we expected target prices include more update information about the risk profile of the company. Moreover, target price are self-contained statements incorporating stock recommendations and earning forecasts which have proven to be meaningfully correlated with rating actions.

Looking at the ACTP calculated in three different intervals before each rating action, we found that the sign of the parameters for such cases is, as we expected, negative for the downward revisions, and positive for upward ones. Positive rating events are anticipated by consistent increases in target prices in the previous four months while is less significant the predictive power of target prices, for the same interval, for negative rating events. The main reason is that companies voluntarily release favourable information but are reluctant to release unfavourable information. This considerations, together with the overly-optimistic behaviour of sell-side analysts, should explain why target prices should adjust more fully prior to upgrades than prior to downgrades. Results are opposite if we shorten the observation window: the evidence indicates that analysts are less likely to reduce than to increase their target price over time. Thus, when a negative event is to occur, they begin to cut their forecasts later than when increasing their forecasts in the presence of good news.Results also differ controlling by the sector. Looking at the Italian sample (composed mainly by financial firms) and at the European financial subsample we observe similar results: target prices reduction prior to a downgrade is highly evident in the financial sector while it is not clear at all for the non financial sector. According to Gropp and Richards (2001) and Schweitzer et al. (1992), we also observe strong bias between the two groups of issuers mainly due to the different regulatory regimes (designed respectively for financial and

non financial issuers), which imply different degrees of transparency, and possibly to the different evaluation methods adopted to evaluate financial and non financial firms.

We finally investigate whether the anticipation of a rating action by a watch list in the same direction, may influence our results. Comparing the average change in target price for contaminated versus uncontaminated rating actions, we found that contaminated downgrades show more pronounced reductions in target price over time while there is no significant difference for upgrades. This difference can be explained according to whether or not the watch list was released during the four months prior to the rating action, corresponding to our observation window. Since watch lists are usually released on average three months before the downgrade, they fall into our observation window, bringing with them a further reduction in target price.[12]

Our study thus provides direct evidence of an existing relationship between target prices and rating actions. The documented decline in target prices prior to downgrades illustrates that some rating changes are at least partially anticipated (Steiner and Heinke 2001; Wansley and Clauretie 1985).

Another way to look at the same phenomenon would have been to look at the trend of target price after the rating action: we leave this study for future research.

[12] We have already discussed the study of Goh and Ederington (1998) who report that analysts view the downgrades as having negative implications for the earnings forecasts since they react by revising them sharply downward after the downgrade; this conclusion should imply that, given the correlation between earning forecasts and target prices, analysts should also revise downward target prices after the downgrade.