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THE RELEVANCE OF MULTI-RATING IN THE WORLD MARKET

by

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THE RELEVANCE OF MULTI-RATING IN THE WORLD MARKET

Abstract

The credit rating market is characterized by low competition and a potential conflict of interest, due to the system of remuneration of the rating services, which impairs the reliability of the judgement delivered. Multiple credit rating means further costs for companies, because of the fees paid to more than one rating agency, but it does bring significant benefits in terms of the dissemination, on the market, of judgements concerning the companies.

This paper examines the relationship between the number of rating announcements concerning a company and the performance of the securities issued by that company, besides the effects of discordant ratings assigned to a company by different rating agencies (so-called “split rating”), and presents a detailed study of multiple credit rating and of the advantages determined by the placement of issued securities at higher prices, in connection with the new ratings assigned by different agencies. An analysis of split-rating completes this overview of the issue, highlighting how the weight carried by the different rating agencies can affect market reactions.

1. Introduction

Investors in the financial markets do not have access to the same sets of information (Ramakrishnan and Thakor, 1984), and large-scale differences among participants trading on the same market (i.e. horizontal information asymmetry) may negatively affect capital flows (Stiglitz and Weiss, 1981). From the beginning credit rating has represented a solution to the problem, making available to all investors the same set of information (Partnoy, 1999): the judgement delivered by a rating agency, qualitatively summarizes the information available on the market and the confidential information in the rating class (Cowan, 1991).

The recent financial failures of several very prominent companies have had negative repercussions on the credibility of the major rating agencies. Criticism of the agencies' behaviour focuses primarily on their effective independence from the companies they rate: agencies, in fact, are deemed to have a propensity to up-rate rather than down-rate (Larrimore, 2003), so their judgements cannot be considered a trustworthy measure of the real value of the rated securities.

This lack of trust by the market could determine an increase in the costs incurred by companies in collecting capital resources: a possible solution to this problem is multiple credit rating. The decision to hire more than one rating agency, in fact, can greatly diminish the likelihood of collusion between the rater and the ratee, and a concordant evaluation by different agencies could enhance the significance of the rating assignment (Ellis, 1997).

This paper examines multiple rating, assessing the pros and cons for companies and the different impact it can have, depending on the nature of the rating agencies involved. The analysis is completed by a study of the impact of the different ratings by different agencies to the same company (split-rating), and the effects this may have on the securities issued by that company: in particular, it explores whether the characteristics of the one or more rating agencies concerned play a role in the market's reaction to changes in rating.

Paragraph two focuses on the theories relating to the pros and cons of the decision to undergo multiple rating, in order to avoid the problems related to the establishment of an unhealthy relationship between the rating agency and the rated company. In connection with this issue, the paper examines the scientific debate relating to the optimum number of rating agencies to be called in for evaluation purposes, and analyses the theories that explain the different impact multiple rating can have based on the characteristics of the single agencies.

Last but not least, paragraph three explores the current structure of the credit rating market, highlighting the level of international competition and the weight the single agencies have in the domestic markets, providing an overview of the present importance and future prospects of multiple rating.

2. Theories about multi-rating

Theoretically rating agencies offers an objective evaluation of firms and aim to define prudential evaluations for the risk of reputation losses. (De Laurentis 2001) Empirical evidence demonstrates that the relationship between a securities issuer and a rating agency entails the frequent exchange of information and - in the medium-to-long term - the interests of the two parties may converge, leading the agency to favour its client by assigning a particularly favourable rating. (Butler and Rodgers 2003)

Many studies have shown how the larger the number of agencies involved in the credit rating process, the more independent and reliable that process will appear to the market; and if the ratings assigned by the different agencies ultimately agree, this may generate - in the long run - positive effects on the price of the issued securities. (Irvine, 2002)

Moreover, multiple rating could also represent a means for achieving the following goals:

- obtaining financing at lower interest rates, thus creating the conditions for charging intermediaries less, in terms of asset requirements (Hill, 2003), in the event supervisory

authorities provide that these requirements may be estimated in accordance with the borrower's rating;¹

- giving out positive signals to the market, by requesting other agencies to assign a rating, in order to provide a full picture of the issuer's financial potential and, consequently, to place the issued securities at better prices. (Millon and Thakor, 1985)

Multi-rating has significant advantages, especially if the new rating is better than the previous ratings (Sorensen, 1979): therefore, if all the rating agencies have an equal reputation, companies will prefer to hire the services of those which, as a rule, assign more favourable ratings (so-called "rating shopping"). (Linciano, 2004)

The fact that positive effects only ensue as a result of the announcement of a good rating by a rating agency tends to encourage issuing companies to hire those that disclose the results of the rating assignment process only with the companies' consent: in this case, the rating can be assimilated to an option exercised by the company, with the decision to divulge its rating only if this translates into favourable effects for the company. (Jewell and Livingston, 1999)

2.1 The objectives pursued by companies

The evaluation of the securities issued by a company depends on all the available information, and investors, faced with multiple ratings by different agencies, need to find the way to combine this information with the signals given out by the market. Multiple rating may

¹ The revision of the Basel Accord examines the issue of multiple credit rating and sets forth the modalities for determining asset requirements, with respect to the standard approach based on the external rating of borrowers. Basel Committee on Banking Supervision (2004), *International convergence of capital measurement and capital standards: a revised framework*, par. 96-98.

have different effects on the performance of the securities issued by a single issuer, based on the market reactions in a multiple rating context: the reactions, in fact, may be grounded on, (i) the worst available rating, (ii) the best available rating, or (iii) the average value of the assigned ratings. (Cantor, Packer and Cole, 1997) In the first and second cases, only one rating is taken into account, for simplification purposes (namely, the worst in the former, the best in the latter), while the choice of the third case implies the further problem of defining the weight to be given to the single ratings assigned by the different agencies, based on the characteristics and reputation of each.

From the company's point of view, the decision to call in more than one rater poses the problem of defining the optimum number of ratings, based on the costs incurred under and the benefits entailed by the different solutions.

The rating assignment process, in fact, obviously entails a cost for the company - the rating agency fees - and the decision to increase the number of agencies called in ultimately translates into higher costs. The issuing company, therefore, needs (i) to assess the incremental advantage inherent in the choice to hire more than one rating agency, and (ii) to compare the expected (possible) gain from placing its securities at higher prices, with the certain costs represented by the fees payable to the new rating agency(ies).(Backer and Mansi, 2001)

The larger the number of available ratings is, the lower will be the impact of the further evaluations made by other rating agencies. (Thompson e Vaz, 1990) Market surveys, in fact, show that while many companies have used multiple rating to inform the market of their financial potential, very few companies hire the services of more than three agencies at any one time. (Ellis, 1997)

The relationship between the number of existing ratings and the impact of a new rating may be explained in the light of the usefulness these ratings have for investors. The existence of a number of ratings gives investors a fuller picture for making their investment decisions, and may diminish the perceived investment risk. The down side for investors, however, is that the larger the number of ratings available, the higher will be the data processing costs. The final gist of the matter is that, when assessing a company, investors will favourably consider the possibility of comparing different ratings provided by different agencies but, if the number of ratings increases, they will inevitably end up by making a selection: the advantages of multiple credit rating are highest with a limited number of ratings, and tend to diminish the more ratings there are.

2.2 Empirical surveys in literature

Empirical surveys have investigated the effects of changes in ratings by different agencies and of the ratings assigned by new agencies. Multiple rating may affect the performance of securities, with respect to both the stock capital (shares) and the debt capital (bonds), and its effect varies according to the characteristics of the market in question (liquidity, frequency of negotiations, and types of market participants). (Gonzelez, Haas, Johannes, Persson, Toledo, Violi, Wieland and Zins, 2004)

The studies conducted on securities issuing have taken account of the impact of the changes in the issuer's rating, or of the changes in the rating of a single bond issue, on trading in the primary and secondary markets. The assessment of the impact of the new rating, therefore, examines whether there is an anomalous performance of bond prices in the run up to the issuing

date, or the reviewing of the rating, while the other conditions are unchanged (degree of subordination, accessory clauses, duration and amount of the coupons).(Kose, Ravid and Reisel, 2003)

The primary market analyses are based on the assumption that the spread between the bond yield and the return on riskless securities depends on the likelihood of default, and on the expected loss from the bond investment. (Collin–Dufresne, Goldstein and Martin, 2001) New rating announcements provide the market with previously unavailable information, and the placement price of the new securities is affected by how the market interprets this new information.

The different methods used by rating agencies for assessing companies may determine different ratings for the same company (so-called “split rating”). This is generally considered by the bond market as an investment risk factor (Gabbi and Sironi, 2002) and, consequently, could translate into higher placement costs for new bonds. (Santos, 2003)

The impossibility to analyze continuous historical series has introduced the need to broaden the investigation and take account of bond trading on the secondary market too. The study of the relationship between secondary market performance and rating assignment/reviewing highlights a different reaction by the bonds to up-rating and down-rating, also with reference to the industry sector of the rated company. The empirical evidence, however, is heavily influenced by the low efficiency of the market, which determines a diminished, or sluggish, reaction to the newly available information. (Katz , 1974)

In consideration of the shortcomings of the bond market, a number of studies have focused on the market of stocks issued by rated companies, analysing the impact of new or revised rating announcements on stock performance. (Hand, Holthausen and Leftwich, 1992) Analysing the

impact of up-rating and down-rating of companies or bonds on stock quotations, it has been found that, in the medium-to-long term, there are positive (negative) effects in connection with the up-rating (down-rating) by a certain agency. (Dichev and Piotroski, 2001) Investigations carried out in the stock market have shown that a revised or new rating by an agency - in a multiple rating context - may differ according to the notoriety, nationality and expertise of the agency itself, for example. (Norden and Weber, 2003)

2.3 Multiple rating and the characteristics of the rating agencies

The value of the service supplied by rating agencies is based on their reputation, and a different reputation determines a different degree of importance of the rating assigned on the investors' decisions. (Mann, 1999)

The analysis of the ratings assigned by agencies shows that investors react differently to the available information on a company, based on the characteristics of the agency announcing them. The principal differences among rating agencies consist in the reactivity of the rating to the new information and to the different capacity of the models employed to assess the credit risk of companies operating in certain industry sectors or countries.

Small differences of assessment may simply be due to the different sets of information used for rating purposes, besides the different requirements imposed on the company in order to ensure its ongoing inclusion in a certain rating class. Based on the analysed data and adopted criteria it is possible that the evaluations made by a certain agency are more or less reactive to the changes occurring in the company's characteristics. (Tabakis and Vinci, 2002)

The different reactivity of the assessment is obvious, above all, when one examines the rating classes that discriminate between investment grade and non-investment grade securities: it is possible, in fact, to distinguish between agencies assigning ratings sensitive to any new information on a company, from those that proceed to up-rate or down-rate a company only in the face of very significant changes. (Johnson, 2003)

Moreover, there can be significant differences in the rating assignment by the same agency if, in the period concerned, there are substantial changes in the assessment criteria used to identify the class in which to rate the company. (Blume, Lim and Mackinlay, 1998) The market assessment of a rating announced by an agency, therefore, may change in time, according to the changes perceived in the evaluation criteria employed.

The characteristics of the industry sector and/or of the country where the company is based can affect the credit riskiness of the company, (Ammer and Parker, 2000) and the agencies' capacity to accurately assess it. (Grier and Katz, 1976) The rating's capacity to accurately determine the risk profiles of an investment in companies operating in a certain industry sector or country partially depends on the broadness of the benchmark sample on which the rating model is calibrated (Ang and Patel, 1975) the bigger the number of companies belonging to a certain sector and/or country assessed by the agency, the greater the capacity of the model employed by the agency to accurately identify the risk profiles of the investment in securities issued by companies with the same characteristics. (Ederington, Yavitz and Roberts, 1986) Differences in the calibration of the analysis models cause agencies to assign systematically different ratings: some agencies, in fact, tend to overestimate the riskiness of certain types of companies, while others may underestimate it. (Cantor and Packer, 1995) Irrespective of the problems related to the possibility of conducting assessments based on more or less broad samples of customer

companies, there is empirical evidence of the fact that locally-based companies are assessed according to more favourable criteria by certain rating agencies, especially the smaller ones (*home country bias*). (Beattie and Searle, 1992)

Moreover, it has been found that split ratings for the same company has different effects on different industry sectors. This type of split rating is typical primarily of those companies that post intangible assets in their financial statements whose evaluation is greatly influenced by the analysis criteria. (Morgan, 1997)

Split-rating can be interpreted differently by the market, according to the relative weight given by the market participants concerned to the discordant announcements: the higher the value given by the market to the discordant announcement, the greater and prompter the reaction to the split-rating assignment.

3. Prospects for the future

It can be reasonably expected that the lesser the certainty of the objectivity of the rating service, the greater the spread of multiple rating. Currently, there is no quality certification for rating agencies² and the objectivity of rating announcements can be guaranteed solely by the agencies' desire to maintain their reputation intact: trust by the market, in fact, is a decisive factor for any rating agency's future capacity to sell its services on the market. (Kuhner, 2001)

Historical development and the future prospects relating to the level of competition on the credit rating market, seem to outline positive scenarios for the spread of this instrument.

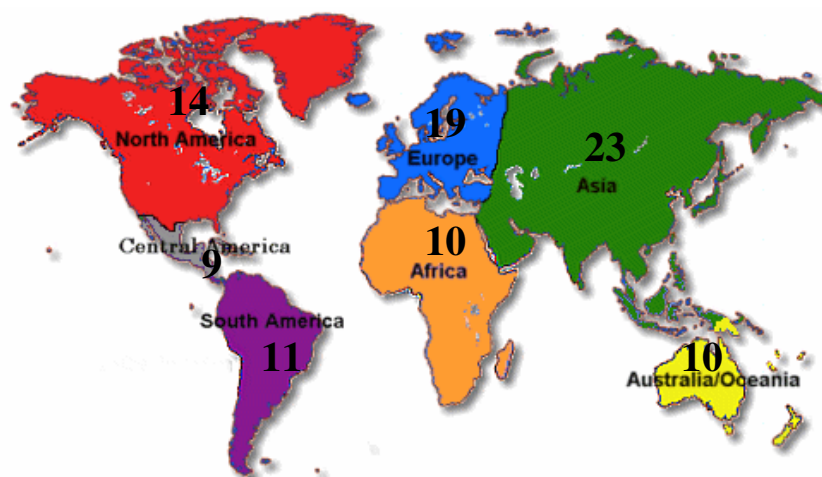
² The only form of certification available on the credit rating market is the recognition by the supervisory authority of a certain market. This authorization, however, is not a binding factor, with respect to the supply of services on the market.

The characteristics of the service supplied and the possibility of effectively exploiting the economies of scale (Williamson, 1969), in fact, constitute the premises for the creation of an oligopoly (Ferri, 2001), with entry barriers represented by the costs needed to acquire the necessary reputation to operate. (Partnoy, 2001)

The current market situation may be summarized in the following diagram (graph 1), which shows the number of rating agencies in the different markets broken down by geographical area.

Graph 1

The distribution of rating agencies worldwide



Source: data supplied by the agencies and processed by the author

The analysis of the world market highlights a low concentration of agencies, ranging between a minimum of 9 and a maximum of 23 per continent: the number of agencies on each market, therefore, is not sufficient in itself to conclude that the markets are competitive and, if one adopts more stringent geographical criteria, the number of potential competitors in each market drops even more,³ especially in developing countries. (Ferri, Liu and Majnoni, 2001) The geographical areas featuring the highest number of agencies, moreover, are characterized by an absolute

³ For more details on the operating fields of the single agencies, see Table A1 in the Appendix.

predominance of small agencies, in some cases belonging to the public sector, delivering spontaneous rating services: the rating market, therefore, is the reserve of a limited number of private agencies.

The small number of rating agencies on the market (less than 50) can be justified in the light of the strategies adopted by the agencies to compete on the market. Agencies, in fact, have no incentives to compete, with regard to the stringency of the assessment criteria or the fees applied (Mukhopadhyay, 2002): in the former case, the adopted policies would determine a loss of the trust by the market in the medium-to-long term; while in the latter case, the decision to cut proceeds would have a negative effect on profits, because the rating process costs are substantially fixed costs. Therefore, rating agencies tend to pursue a “tolerable” competition, such as not to reduce their profits and not to risk impairing their reputation by introducing less stringent rating practices (White, 1981).

Another market profile capable of affecting the reliability of the rating service consists of the mergers and acquisitions concerning many agencies, especially towards the end of the 1990s (table 1).

Table 1

Recent mergers and acquisitions in the credit rating market

Date of operation	Surviving company	Absorbed company	Type of operation
1990	S&P	ADEF	Acquisition
1990	S&P	Insurance Solvency International	Acquisition
1991	Fitch	Euronotation France	Acquisition
1995	Fitch	Broda, Dominguez	Acquisition
1997	Fitch	IBCA	Merger
1998	JBRI	Nippon Investor Service	Merger
1999	Moody's	Value Clasificadora de Riesgo	Acquisition
1999	Moody's	Clasificadora de Riesgo Humphreys Lim.	Acquisition
1999	Moody's	Dagong Global Credit Rating	Acquisition
1999	Moody's	Ratto-Humphreys Clasificadora de Riesgo	Acquisition
1999	Moody's	Risk Analysis Clasificadora de Riesgo	Acquisition
2000	Fitch	Duff & Phelps	Merger
2000	Fitch	Center European Rating agency	Acquisition
2000	Moody's	Humphreys Clasificadora de Riesgo	Acquisition
2000	S&P	Canadian Rating Agency	Acquisition
2001	Moody's	CRA Rating Agency	Acquisition
2001	Moody's	Korea Investor Service	Acquisition
2002	Fitch	Italrating	Acquisition
2002	Moody's	ICRA	Acquisition
2003	Moody's	Interfax Rating Agency	Acquisition
2004	Fitch	Clasificadora de Riesgo	Acquisition

Source: data supplied by the agencies and processed by the author

The higher concentration and limited number of agencies amplifies the problems posed by limited competition in the industry, and the future prospects of the markets do not help to outline a different scenario. The Basel Committee, in fact, seems to define an even less competitive segment of potential rating service suppliers for financial intermediaries. The last version of the accord envisages that, in order for the ratings assigned by the agencies to be applied for

regulatory purposes - to determine the capital requirements according to the standard approach - the following requirements must be met:⁴

- objectivity of the assessment methods;
- independence from economic and political pressures;
- international access to the data and transparency of the information provided;
- sufficient resources to ensure service quality;
- credibility of the service and internal procedures capable of preventing the improper use of the information.

The stringent application of the criteria proposed by the Basel Committee, therefore, would prevent several agencies from continuing to operate and supply their services to the intermediaries. The rating market thus seems set to increased concentration, which could further reduce the number of competitors.

The prospects for the future seem to outline an increasingly oligopolistic market and the lack of competition could encourage the supply of services leading to a scarcely objective assessment of companies. Given the low level of competition on the credit rating market, investors might consider the rating to be influenced by the relationship established between the agency and the company concerned, and consequently take little notice of it for information purposes (Galik, 2002). To date, no statistics have been gathered relating to the number of companies rated by the agencies, but the analyses contained in the available literature show that in Anglo-Saxon

⁴ Basel Committee on Banking Supervision (2004), *International convergence of capital measurement and capital standards: a revised framework*, par. 91.

countries it is a consolidated practice to hire the services of more than one rating agency, with a view to supporting the placement of corporate bonds, and this practice has become a useful tool for fostering investments in the bonds by institutional investors (Smith and Walter, 2001). The greater detail that characterizes the analyses conducted by these stakeholders on the investment opportunities, in fact, leads to an improved response to the availability of a number of ratings by different agencies, which might not be adequately taken into account by individual investors.

4. Conclusions

The rating market is characterized by a lack of essential conditions for assuring competition and the objectivity of the ratings assigned is ensured solely by the reputation of the rating agencies. The need to maintain one's current reputation is the sole deterrent against an opportunistic behaviour on many financial markets (Diamond 1989); but on the credit rating market, in order to further reduce the problems descending from the impossibility of an *ex ante* assessment of the quality of the services supplies, alternative solutions may be found, such as multiple credit rating.

Multiple rating means higher costs for companies, which are required to pay the fees of more than one agency. Such a decision may be justified only if the indirect return on this investment - translating into the possibility of placing one's securities on the market at higher prices - is sufficiently high. The empirical surveys presented in the literature on the subject highlight the possibility of making profits through by this means, but there are numerous difficulties in quantifying the overall impact on securities issued by a company, in connection with a new rating announcement by a different agency. (Mattarocci, 2005)

The impact of split-rating varies according to the characteristics of the rating agency and, in particular, the more influential the agency, the higher the securities-trading impact of the different rating announcement. The effect of changes in rating is also influenced by the nationality and industry sector of the company concerned: ratings by domestic agencies are more highly considered by investors, and a greater expertise in a certain sector is highly appreciated by the market, which thus takes its judgement into greater account.

The evolution of the rating market, and its future prospects, seems to outline a number of scenarios in which the choice by companies to call in more than one rating agency might bring greater benefits and represent not only a possible alternative but, in some cases, become a necessity, in connection with the placement of its securities.

References

Ammer J. and Parker F. (2000), *How consistent are credit ratings? A geographic and sectoral analysis of default risk*, Board of Governors of the Federal Reserve System working paper.

Ang J.S. and Patel K.A. (1975), "Bond rating methods: comparison and validation", *Journal of Finance*, vol. 30, pp. 631-640.

Backer K.H. and Mansi S.A. (2001), *Assessing credit rating agencies by corporate bond issuers: the case of investment versus no-investment grade bonds*, American University Kogod School of Business working paper.

Basel Committee on Banking Supervision (2004), *International convergence of capital measurement and capital standards: a revised framework*

Beattie V. and Searle S. (1992), "Credit rating agencies: the relationship between rater agreement and issuer / rate characteristics", *Journal of International Securities Markets*, vol. 1, pp. 371-375.

Blume M.E., Lim F. and Mackinlay A.C. (1998), "The declining credit quality of U.S. corporate debt: myth or reality?", *Journal of Finance*, vol. 53, pp. 1389-1413.

Butler A.W. and Rodgers K.J. (2003), *Relationship rating: how do bond rating agencies process information*, EFA Annual Conference Paper No. 491, Glasgow 2003.

Cantor R. and Packer F. (1995), *Multiple ratings and credit standards: differences of opinion in the credit rating industry*, Federal Reserve Bank of New York, research paper n° 9527.

Cantor R., Packer F. and Cole K. (1997), "Split ratings and the pricing of credit risk", *Journal of Fixed Income*, vol. 7, pp. 72-82.

- Collin–Dufresne P., Goldstein R.S. and Martin J.S.** (2001), “The determinants of credit spread changes”, *Journal of Finance*, vol. 56, pp. 2177-2208.
- Cowan A.R.** (1991), “Inside information and debt rating changes”, *Journal of the Midwest Finance Association*, vol. 20, pp. 47-58.
- De Laurentis G.** (2001), *Rating interni e credit risk management*, Bancaria Editrice
- Diamond D.W.** (1989), “Reputation acquisition in debt market”, *Journal of Political Economy*, vol. 97, pp. 828-862.
- Dichev I.D. and Piotroski J.D.** (2001), “The long-run stock returns following bond rating changes”, *Journal of Finance*, vol. 56, pp. 173-203.
- Ederington L.H., Yavitz J.B. and Roberts B.E.** (1986), *The informational content of bond ratings*, NBER working paper.
- Ellis D.M.** (1997), *Different sides of the same story: investors’ and issuers’ views of rating agencies*, Babson College working paper.
- Ferri G.** (2001), “More analysts, better ratings: do rating agencies invest enough in less developed countries?”, *Journal of Applied Economics*, vol. 7, pp. 77-98.
- Ferri G., Liu L.G. and Majnoni G.** (2001), “The role of rating agency assessments in less developed countries: impact of the proposed Basel guidelines”, *Journal of Banking and Finance*, vol. 25, pp. 115-148.
- Gabbi G. and Sironi A.** (2002), *Which factors affect corporate bond pricing? Empirical evidence from Eurobonds primary market spreads*, Newfin working paper.
- Galil K.** (2002), *The quality of corporate credit rating: an empirical investigation*, Tel Aviv University working paper.

Gonzalez F., Haas F., Johannes R., Persson M., Toledo L., Violi R., Wieland M. and Zins C. (2004), *Market dynamics associated with credit ratings a literature review*, ECB occasional paper.

Grier P. and Katz S. (1976), “The differential effects of bond rating changes among industrial and public utility bonds by maturity”, *Journal of Business*, vol. 49, pp. 226-239.

Hand J.R., Holthausen R.W. and Leftwich R.W. (1992), “The effect of bond rating agency announcements on bond and stock prices”, *Journal of Finance*, vol. 47, pp. 733-752.

Hill C.A. (2003), *Regulating rating agencies*, Business, Economics and Regulatory Policy Georgetown University Law Centre working paper n° 452022.

Irvine P.J. (2002), *The incremental impact of analyst initiation coverage*, Goizueta Business School Emory University working paper.

Jewell J. and Livingston M. (1999), “A comparison of bond ratings from Moody’s, S&P and Fitch ICBA”, *Financial Markets, Institutions & Instruments*, vol. 8, pp. 1-45.

Johnson R. (2003), *An examination of rating agencies’ actions around the investment-grade boundary*, Federal Reserve of Kansas City working paper.

Katz S. (1974), “The price adjustment process of bonds to rating reclassifications: a test of bond market efficiency”, *Journal of Finance*, vol. 29, pp. 551-559.

Kose J., Ravid S.A. and Reisel N. (2003), *One is too little, two is too much – a look into the bond ratings black box*, Rutgers Business working paper.

Kuhner C. (2001), “Financial rating agencies: are they credible? Insight into the reporting incentives of rating agencies in times of enhanced systemic risk”, *Schmalenbach Business Review*, vol. 53, pp. 2-26.

- Larrymore N.L.** (2003), *Stock price reaction to bond ratings downgrades after 2001*, Midwest Finance Association working paper.
- Linciano N.** (2004), *L'impatto sui prezzi azionari delle revisioni dei giudizi delle agenzie di rating. Evidenza per il mercato italiano*, Quaderni di finanza Consob n° 57.
- Mann R.J.** (1999), "Verification institutions in financing transactions", *Georgetown Law Journal*, vol. 87, pp. 2225-2272.
- Mattarocci G.** (2005) *Il rapporto tra impresa e agenzia di rating: la soluzione del multi-rating*, NEWFIN working paper.
- Millon M.H. and Thakor A.V.** (1985), "Moral hazard and information sharing: a model of financial information gathering agencies", *Journal of Finance*, vol. 40 pp. 1403-1422.
- Morgan D.P.** (1997), *Judging the risk of banks: what makes banks opaque*, Federal Reserve Bank of New York research paper n° 9805.
- Mukhopadhyay B.** (2002), *Efficiency of competitive rating agencies*, paper presented at EFMA 2003 Helsinki Meeting.
- Norden L. and Weber M.** (2003), *Informational efficiency of credit default swap and stock markets: the impact of credit rating announcements*, Centre of Economic and Policy Research working paper.
- Partnoy F.** (1999), "The siskel and ebert of financial markets: two thumbs down for the credit rating agencies", *Washington University Law Quarterly*, vol. 77, pp. 619-715.
- Partnoy F.** (2001), *The paradox of credit ratings*, University of San Diego Law & Economic Research Paper n° 20.
- Ramakrishnan S.T.R. and Thakor V.A.** (1984), "Information reliability and a theory of financial intermediation", *Review of Economic Studies*, vol. 5, pp. 415-432.

Santos J.A.C. (2003), *Why firm access to the bond market differs over the business cycle: a theory and some evidence*, Federal Reserve Bank of New York working paper.

Smith R.C. and Walter I. (2001), *Rating agencies: is there an agency issue?*, World Bank working paper.

Sorensen E.H. (1979), "The impact of underwriting method and bidder competition upon corporate bond interest cost", *Journal of Finance*, vol. 34, pp. 863-870.

Stiglitz J.E. and Weiss A. (1981), "Credit rationing in markets with imperfect information", *American Economic Review*, vol. 71, pp. 393-410.

Tabakis E. and Vinci A. (2002), *Analysing and combining multiple credit assessments of financial institutions*, ECB working paper.

Thompson G.R. and Vaz P. (1990), "Dual bond ratings: A test of the certification function of rating agencies," *Financial Review*, vol. 8, pp. 457-471.

White H. (1981), "Where do markets come from?", *American Journal of Sociology*, vol. 87, pp. 517-547.

Williamson O.E. (1969), "Allocative efficiency and the limits of the antitrust", *American Economic Review*, vol. 59, pp. 105-118.

Table A1

Reference markets and countries examined by rating agencies

Rating agency	Principal markets	Rating agency	Principal markets
A.M. Best Co.	> 65 countries	JCR-VIS Credit Rating Co. Ltd	Pakistan
Australian Rating Agency	> 10 countries	Lace Financial Corp.	> 20 countries
Bonniers Kreditfackta I Norden AB	Sweden	Malaysian Rating Corporation Berhad	Malaysia
CA Ratings	South Africa	Mikuni & co.	Japan
Capital Intelligence	> 35 countries	Moody's Investors Service	> 70 countries
Companhia Portuguesa de Rating	> 10 countries	Neufeld Credit Information AB	Sweden
Credit Analysis & Research	India	Pakistan Credit Rating Agency	Pakistan
Credit Rating Information Services of India	India	Philippine Rating Services	Philippines
Credit Safe AB	Sweden	Rating Agency Malaysia Berhard	> 20 countries
Dominion Bond Rating Service	Canada	R@S rating Services AG	Germany
Dun & Bradstreet	> 230 countries	Shanghai Far East Credit Rating	Shangai
Edgan-Jones Rating Co.	> 50 countries	Standard & Poor's	> 70 countries
Equilibrium Clasificadora de Riesgo	Peru and San Salvador	SVEA Kredit-Information AB	Sweden
Euro-Ratings AG	Germany and Austria	SVEFO Svrevige AB	Sweden
Feller Schleyer Rating Clasificadora de Riesgo	South America	Taiwan Rating Corporation	Taiwan
Fitch IBCA	> 70 countries	Thai Information Service	Thailand
Focus Investment Rating Company	> 50 countries	Thomson Financial Bankwatch	> 85 countries
Global Credit Ratings	> 10 countries	Unternehmensratingagentur AG	Germany
Instantia Creditsystem AB International	Sweden	Upplysningscentralen AB	Sweden and Norway
Japan Credit Rating Agency	> 20 countries	Veribanc	United States
Japan Rating and Investment Information	> 35 countries	Weiss Rating Inc.	United States

Source: data supplied by the agencies and processed by the author