

# “The necessity of stock markets information incorporation into the methodology of credit rating agencies”

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## The necessity of stock markets information incorporation into the methodology of credit rating agencies

### Abstract

The credit rating agencies in the sphere of international finance and the global economy in general perform an important information function. Nevertheless, their activity has been largely discredited recently due to the big number of internal and external factors. Without claiming to solve all the problems of credit rating agencies, this paper provides recommendations on improving the methodology of credit rating agencies based on the stock markets information.

**Keywords:** credit rating agency, credit rating, stock market, financial markets.

**JEL Classification:** G10, G14.

### Introduction

The current stage of human development can be called information society and information economy. Information has become not only one of the strategic resources of the economy next to capital, human and natural resources, but even exceeded these classic factors in importance.

With the globalization of the world economy, especially in the financial sector, the volume of information is rapidly increasing. It is becoming more difficult and sometimes impossible to handle it. At the same time the making of economic and investment decisions requires deep analysis of the situation.

Economic agents which have partially taken over the functions of information intermediaries are credit rating agencies (further referred to as rating agencies and RA). Rating agencies indirectly, through exposure ratings, give signals to one economic subject on the state of others.

Nevertheless, the activity of credit rating agencies has been largely discredited recently due to the big number of internal and external factors. Without claiming to solve all the problems of credit rating agencies, this paper provides recommendations on improving the methodology of credit rating agencies based on the stock markets information.

### 1. Credit rating agencies and information asymmetry reduction

In the developed countries credit ratings are the essential elements of the market infrastructure that provide investors with objective and independent information on the creditworthiness of borrowers.

In fact, credit rating is a measure that reflects the creditworthiness of the company, region or country, and reliability of securities. Such rating is calculated on the basis of past and current financial state of

ranking objects and based on assessments of their property and assumed debt [15].

Credit rating is an independent subjective quality assessment, which helps investors to determine the degree of credibility and to make an investment decision [16].

Credit rating agency's opinions on the creditworthiness of the rated object in general and/or relative to its particular debt or other financial instrument expressed in the form of ratings on a credit ratings scale [10].

Thus, *the main function of the rating agencies is to provide impartial and unbiased information* (at least it should be so). However, more than 100 years of history of the rating services, and the current state of the global financial system determine the presence of several additional arguments in favor of credit rating agencies:

1. Ratings serve as a valid reference to the market, providing vitally necessary information to investors.
2. Availability of rating increases the liquidity of certain financial instruments.
3. Availability of rating reduces price of the debt, because the absence of rating will lead to inclusion in the price of the debt such element as risk premium.
4. Rating enhances the image of the issuer and creates a positive reputation in the investment and in the banking world.
5. Ratings serve as a universal tool of risk assessment.
6. Ratings are made by professionals, who explains their high quality.
7. Companies do not need to keep staff of analysts to evaluate financial risks.
8. Ratings are independent estimates, that makes them objective.
9. Ratings are effective informational and promotional tools – by publishing them the object of rating can declare itself to the world.
10. Rating assignment indicates the transparency and openness of the rating object.

11. Rating process helps identify weaknesses in the object of rating and to correct them.
12. Large investment firms, forming investment portfolio, focus primarily on the rating of the issuer.
13. Investment in a particular company by investment funds, often depends on the rating of the investment object [2, 3, 5, 14, 15, 18, 19].

## 2. Main problems of the credit rating agencies nowadays

Despite the obvious need in credit rating agencies in the modern economic life, there exists a critical mass of problems associated with their activities, which raises the question of their right to exist (Table 1 and Table 2).

Table 1. Internal problems and shortcomings in the present existence of credit rating agencies [1, 3, 5, 13, 14, 18, 21, 31, 32, 33]

Problem or shortcoming	Characteristic
Low quality of ratings	RA gave high ratings to a very wide range of risk assets, including the infamous mortgage securities. It misled millions of investors who relied on their independent objective assessment. To the inadequacy of ratings point the bankruptcies of corporations with the highest or high ratings from RA (Enron, WorldCom, Parmalat, Lehman Brothers). After the global crisis Moody's recognized that they had given inflated ratings to some issuers. The differences between market returns and bond ratings of issuers have increased. It means big differences between the market measurement of reliability of debtors and rating agencies.
Sufficient costs on rating process	The cost of rating is 65000-70000 USD for the initial assessment and 35000-40000 USD – for annual updates.
Opacity	Methodology and characteristics of each RA's rating exposure are not disclosed.
Shortcomings in the business processes of the RA	Securities and Exchange Commission (SEC) revealed a number of "obvious failures" in the activity of RA. In particular, the inability of agencies in some cases: to follow methods and procedures of ratings calculations, timely and accurately publish adequate information, to create effective internal management structures of RA, to resolve conflicts of interest adequately. Besides RA often violated documentation procedure, as a result, some information on assigning ratings was not recorded.
Lack of professionals among the employees of RA	RA do not have enough professional staff – the workload on analysts has increased tenfold in recent years.
Absence of effective control mechanism on RA activity	Until recently, the activity of RA was not controlled by state structures neither in the U.S. nor in Europe. Only the events of the last global financial crisis and the role of RA in it forced the United States and Europe to pay more attention to the issues of control over the RA.
Ratings do not reflect all risks	Ratings are aimed to assess creditability of the borrowers, while their potential bankruptcy depends on a number of other factors.
Rating process is not quite objective	Despite the formal availability of prescribed methods of assigning ratings, there is much room for individual assessments by analysts of RA. This is possible because methods do not restrict the use of "other significant facts" in making decisions regarding the assignment of a rating.
Time lags	Ratings are assigned with delays (sometimes, months) and, consequently, do not match the current economic state of the rating object.
Lack of responsibility	RA usually takes no responsibility for their evaluation. Very rarely deceived investors can obtain compensation from the RA.
Conflict of interest	RAs get most of their income from the ratings objects. This, of course, leads to a conflict of interest. Top management of RA often interferes in the work of analysts and demands "correct" conclusions for "best customers". The common practice is when RA analysts participate in discussions about payments and discuss with clients their future ratings.
Methodological shortcomings	Techniques that were used to compile ratings to mortgage-backed securities did not work. There were no documented procedures for the evaluation of complicated financial instruments, including mortgage-backed securities – RMBS (subprime residential mortgage-backed securities), and secured debt obligations – CDO (collateralized debt obligations). There was no algorithm of evaluation too.

Table 2. External problems and shortcomings in the present existence of credit rating agencies [1, 3, 4, 11, 13, 17, 30]

Problem or shortcoming	Characteristic
RA may cause defaults	The assignment of low rating does not only make difficult the obtaining of financial resources from external sources to company or country, but also discourages the existing investors. At the country level, the decrease of ratings for Greece, Portugal, Spain and Italy contributed to the debt crisis in the EU.
Rating services market is highly monopolized	More than 90% of rating services in global market is concentrated in three companies – Moody's, Standard & Poor's and Fitch.
Ratings can be used as a tool of pressure on the clients by the RA	RA may use ratings as a tool of pressure on clients. Thus, when the German company Hannover Re has refused to cooperate with Moody's, analysts of this agency lowered ratings of Hannover Re. It did not change the opinion of Hannover Re managers. As a result securities of Hannover RE were lowered to the level of "unreliable". In several hours the company lost \$175 million of its market value.
Obligation to provide rating	It can take certain forms (for example, in Ukraine the rating is required for companies which have a state share in their capital; companies of strategic importance to the national economy and security; businesses that have a monopoly (dominating) position), and implicit form – pension and investment funds are may invest only in securities with relevant international ratings.
RA may act as an object of political pressure	There are well known examples of Canada and Australia. In these countries the downgrading of sovereign rating before the elections led to a change in the ruling political party. In 2003 ratings of some German companies were downgraded because of Germany's disagreement with the U.S. on the issue of Iraq war.

Table 2 (cont.). External problems and shortcomings in the present existence of credit rating agencies [1, 3, 4, 11, 13, 17, 30]

Problem or shortcoming	Characteristic
RA contribute to panic on stock markets	In August 2011 the credit rating agency Standard & Poor's downgraded the long-term credit rating of the U.S. That caused panic in the stock markets and, in fact, provoked the beginning of a new phase of the global crisis.
Double standards in the rating process	"The big three" have successfully applied double standards. For example, the high rate of public debt in several major western countries (e.g. in 2007 in Japan, public debt was 195,4% of GDP, in Italy – 104%) did not justify the downgrade of the ratings because these countries, according to analysts of the rating agencies, were too rich and developed. But even a small deterioration in macroeconomic indicators in other countries immediately leads to downgrades of their sovereign ratings.
RA as the catalyst of the current global crisis	The activities of the leading credit rating agencies in the U.S. contributed to the financial crisis. Part of this guilt was confirmed by the agencies, which admitted that "the grounds for granting a higher rating to thousands of mortgage securities were little".

### 3. Credit rating agencies: methodology analysis

Credit rating agencies work in different sectors of economic activity – from material production to financial institutions like banks, insurance companies and others. The main instrument of their work is credit rating.

The range of activities of the leading international credit rating agencies is rather wide as we see from the objects of ranking. The rating can be assigned not only to governments, regional or local government entities, but also to securities issued by them.

In general, the methodology of different agencies is very similar and consists of complex of financial and economic analysis of ranking objects plus a number of additional factors which may exert influence on creditability of the issuer. As regards sovereign rating, usually three groups of indicators are used for its determination:

- ◆ dynamics of economic growth;
- ◆ inflation, public finances and the current account;
- ◆ state and development of the banking sector.

General characteristics of the leading rating agencies and features of their methodology are presented in Table 3.

Table 3. General characteristics of the leading credit rating agencies [26, 28, 29]

Credit rating agency	Characteristic of the agency	Key criteria in the rating exposure
Moody's	Rating agency provides ratings and publishes conclusions on the creditworthiness of issuers and credit quality of issued securities. Assigns a rating of debt obligations of banks, corporations, insurance companies, funds, regional and local administrations, states and international organizations. Company conducts the analysis of the capital markets in more than 110 countries. Moody's also assigns ratings in some jurisdictions on a national scale (National Scale Ratings), which can not be used for comparison with the ratings assigned to other countries.	<ol style="list-style-type: none"> <li>1. Market share and position among competitors.</li> <li>2. Cost structure and effectiveness of capital use.</li> <li>3. Financial flexibility.</li> <li>4. Management quality.</li> <li>5. Strategic management.</li> </ol>
Standard and Poor's	Credit ratings are assigned to issuers (government, regional and local governments, corporations, financial institutions, insurance companies, funds, etc.) or debt obligations. Standard & Poor's assigns ratings on the international scale (for liabilities in national and foreign currency) and on a national scale, which is created specifically for each country.	<ol style="list-style-type: none"> <li>1. Business risk.</li> <li>2. Country risk.</li> <li>3. Production factors.</li> <li>4. Competitive position.</li> <li>5. Profitability.</li> <li>6. Financial risk.</li> <li>7. Management.</li> <li>8. Financial policy (adequacy of cash flows, capital structure, liquidity, etc.).</li> </ol>
Fitch	Agency provides independent analysis and is focused on future analytical studies on credit ratings. Fitch staff works in 50 offices worldwide and conducts analysis on the capital markets in more than 150 countries. Assigns international and local credit ratings to banks, non-bank financial institutions, insurance companies, issuers of the corporate sector, regional and local authorities, governments. Fitch also rates issues of debt instruments with fixed income and structured finance transactions.	<ol style="list-style-type: none"> <li>1. Situation in the industry and operational environment.</li> <li>2. Management strategy and corporate governance.</li> <li>3. Ownership structure and other factors.</li> <li>4. Country risks.</li> <li>5. Characteristics of company (financial indicators, cash flows, earnings, capital structure, financial flexibility, financial statements).</li> </ol>

Let us look at the rating procedure by using Moody's methodology.

The procedure of assigning a credit rating in Moody's can be divided into six phases: analysis, preliminary meeting, meeting with management, the rating decision, the rating publication, the rating monitoring.

In the process of analysis the agency examines the internal environment of the country in which the issuer operates. Analysts are primarily interested in economical, political and cultural environment.

In analyzing the economic environment the agency is interested in the general macroeconomic situation, investment opportunities in the country, in the state

of liquidity and debt. In studying the political environment the attention is paid to the level and quality of the reforms conducted in the country, the level of legislation and relations with other countries. As for the cultural environment, the primary attention is paid to the national features of business and mentality of the population.

Based on the received information, analysts are trying to determine the ability of the issuer to respond to changes in economic and political environment of the country. For this purpose the company's competitiveness, the quality of its operational and strategic management, financial flexibility and cost structure are analyzed.

At the same time, there is no clearly fixed standard set of indicators and factors that are required for analysis. The agency actively consults with the company concerning the usefulness of certain indicator and the need of certain calculations.

After the analysis preliminary meeting is carried out. During the meeting the management of the company is informed about the features of the rating procedure and information needs of the agency. If a principle agreement about further cooperation is reached, there is a working meeting with the company, during which a wide range of issues are discussed – from history and general information about the company, to the specific things like financial planning and investment policy.

As a result of this meeting, based on information obtained in the previous stages, and after careful consideration, the rating decision is made. Rating decision is taken by the rating committee in New York with the obligatory participation of foreign offices of Moody's.

Immediately after the decision is made, the agency reports to the company management about the rating level and gives its justification. Then Moody's publishes the rating using press releases which are sent to the world's leading information agencies and through its own publications. It should be noted that Moody's has its own page on the terminals of the leading information companies – Reuter, Dow Jones Telerate and Bloomberg [28].

One of the features of the rating process of the leading international rating agencies is the publishing of ratings before the issue of the analyzed debt instrument. This gives investors the possibility to use the opinion of the rating agencies in making investment decisions.

The final step of the rating procedure is rating monitoring, i.e. the agency is constantly analyzing data,

generated by the company or its environment, in order to keep the rating in adequate conditions.

#### **4. The necessity of incorporation of stock information into the methodology of rating agencies**

Every minute and even second stock markets give ratings to various components of the economic system – countries and businesses. This rating is the market price of stocks or, in case of bonds, yield of bonds.

Stock prices not only reflect the estimates made by the market for a particular financial instrument, but also directly affect the creditworthiness of potential borrower. The price fall of the corporation stocks reduces its potential for obtaining borrowed funds, which in turn reduces its solvency.

At the same time stock market information is not a mandatory element of methodology of the leading credit rating agencies and at the most can serve as a signal for further analysis. To prove this we have analyzed methodologies of different credit rating agencies in terms of necessity or at least desirability of taking into account stock market information in the process of preparation and review of ratings (Table 4).

According to the analysis of methodological approaches used by Moody's, information from stock markets does not refer to the priority criteria, and also is not mentioned among the other factors which are taken into account [28].

The only leading credit rating agency the methodology of which contains formal recognition of the impact of stock prices is Standard and Poor's.

Stock price is one of many factors which this credit rating agency may consider in determining the rating of the company. Nevertheless, stock price is not the main factor in determining the creditworthiness of companies. Stock prices are interesting for Standard and Poor's only from the point of view of the big falls in prices for the analysis of the reasons that caused them. If these reasons were not revealed, the dynamics of prices is ignored.

In addition, the methodology of Standard and Poor's indicates that an important factor is the volatility of market prices for a particular asset, so they analyze the historical values of volatility of stock exchange assets. Standard and Poor's methodology is the only one which recognizes the need of incorporation of information from stock markets in the form of prices and their dynamics. But the methodology of Standard and Poor's allows to ignore this information, because it belongs only to the optional criteria [29].

Table 4. Analysis of the methodologies of the leading credit rating agencies for the purpose of incorporation of market information into their rating process [26-29]

Credit rating agency	Key criteria in the rating process	The necessity of the market's information incorporation	Desirability of the market's information incorporation
Moody's	1. Market share and position among competitors. 2. Cost structure and effectiveness of capital use. 3. Financial flexibility. 4. Management quality. 5. Strategic management.	No	No
Standard and Poor's	1. Business risk. 2. Country risk. 3. Production factors. 4. Competitive position. 5. Profitability. 6. Financial risk. 7. Management. 8. Financial policy (adequacy of cash flows, capital structure, liquidity, etc.).	No	Yes
Fitch	1. Situation in the industry and operational environment. 2. Strategy management and corporate governance. 3. Ownership structure, maintenance and other important factors. 4. Country risks. 5. Characteristics of company (financial indicators, cash flows, earnings, capital structure, financial flexibility, financial statements).	No	No
Japan Rating and Investment	1. Characteristics of the industry. 2. Key factors in the market position and competitiveness. 3. Management and strategy: ◆ Analysis of income. ◆ Cash flow. ◆ Liquidity. 4. Safety.	No	No

To confirm our previous observations, we analyzed rating reports by Fitch on Russian companies "MTS" and "Severstal".

According to the rating report on MTS from September 23, 2010, the company was assigned a long-term rating AA (rus) (on the national scale) and BB + rating on the international scale [26].

The report contains no mention of the stock prices of MTS and their dynamics. Among the factors which may lead to a change in rating, the dynamics of stock prices was not present although in the past 2 years stocks lost more than 35% of the value (Table 7). The analysis of volatility in general shows that during the past two years, there were periods when stocks lost 80% of their value. Fluctuations in the last six months have the amplitude of almost 22%.

Table 5. Analysis of the dynamics and volatility of MTS stock prices [34]

	2 years	1 year	0.5 year
Maximum	384.3	276.98	276.98
Minimum	80.62	195	217
Volatility, %	<b>-79.02%</b>	<b>-29.60%</b>	<b>-21.65%</b>
Price as on September 23, 2010	248.5	248.5	248.5
Change, %	<b>-35.34%</b>	<b>-10.28%</b>	<b>-10.28%</b>

To ensure that the MTS case is no exception, we reviewed the report made by Fitch on one more Russian company – "Severstal".

"Severstal" received A+ (rus) rating on the national scale and BB- on the international scale. On May 19, 2011 the rating was raised from "B +" to "BB-" [26].

This company is very dependent on market conditions and market prices. In particular, the dynamics of metal prices directly affects the amount of revenue. At the same time no analysis of prices for metals, no analysis of stock prices of the issuer was done. There was not even a mention of these parameters and, consequently, their incorporation into the rating process.

The level of volatility of "Severstal" stocks and their prices (Table 8) shows no improvement in market valuations. Over the past two years there were periods when stocks lost almost 80% of their own value. Over the past six months, shares have lost more than 15%. On this background the improvement of the rating does not look quite logical.

Table 6. Analysis of the dynamics and volatility of "Severstal" share prices [34]

	2 years	1 year	0.5 year
Maximum	598.58	598.58	598.58
Minimum	140.1	294.36	446.2
Volatility, %	<b>-76.59%</b>	<b>-50.82%</b>	<b>-25.46%</b>
Price on September 23, 2010	507.5	507.5	507.5
Change, %	<b>-15.22%</b>	<b>-15.22%</b>	<b>-15.22%</b>

A similar pattern is typical for RA Japan Credit Rating Agency and Moody's.

We have analyzed the reports of Japan Credit Rating Agency on such companies as Bridgestone Corporation and Kawasaki Heavy Industries, Ltd. Reports on these corporations do not contain information about the situation with their stocks on the stock exchange. Also it is not mentioned that the stock prices are somehow taken into account in determining the rating.

At the same time, ignoring the information from stock markets can lead to errors in assessments and ratings and to misunderstanding of the general situation. The history of the credit rating agencies knew many examples of their incompetence. With the global financial crisis, the number of such failures has increased significantly.

In our opinion, the majority of stains on the reputation of credit rating agencies could have been avoided if they had taken into account the information from the financial markets.

To prove this we will analyze the largest mistakes of credit rating agencies – bankruptcies and defaults of such corporations as Enron, WorldCom and Lehman Brothers. We will not analyze in detail the causes and consequences of these failures, because it is not the aim of the study, we will only consider the actions of RA on the background of dynamics of stock prices of these corporations. We will compare the ratings given by the market with RA estimations and determine who are right in the end.

On December 2, 2001 Enron officially announced its bankruptcy. One of the largest energy companies in the world conducted unwise investment policies and machinations with reporting. Credit rating agencies until the last moment did not believe in the possibility of bankruptcy of this corporation, as evidenced by dynamic of Enron corporate rating updates (see Table 7). At the same time stock prices (Figure 1) of the corporation gave clear signals about the existing threats.

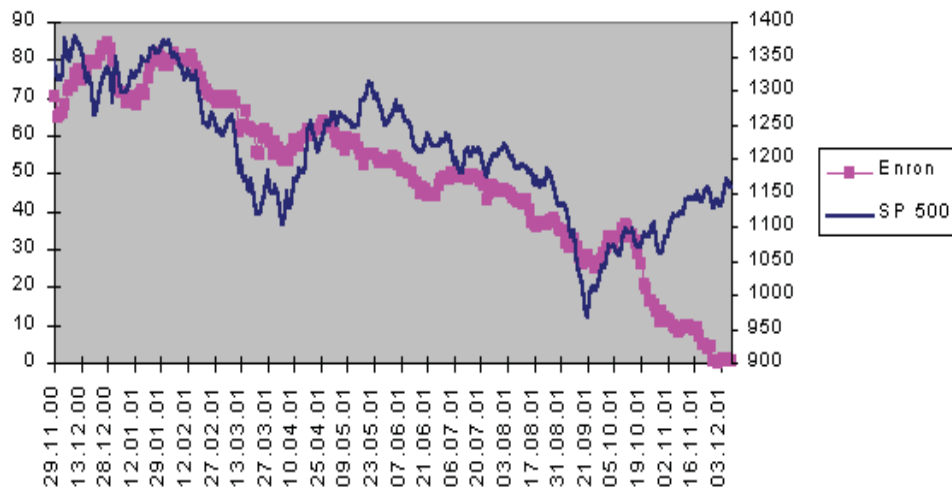


Fig. 1 Dynamics of Enron stock prices and S&P 500 [6]

Table 7. Enron stock price changes and actions of credit rating agencies [28, 29]

Date	Enron stock price changes	Reaction of credit rating agencies	Comments
27.03.01	-30%	No reaction.	No reaction.
21.06.01	-50%	No reaction.	No reaction.
16.10.01	-75%	1. Standard & Poor's confirmed Enron rating on the level BBB+ with stable outlook. 2. Moody's posted rating on review with possible downgrade.	S&P expressed confidence that the company's equity will be restored and the selling of non-core assets and the additional issue of shares will reduce debt and reduce costs. It was assumed that in case of falling stock prices investment will be financed mainly from Enron's own funds.
29.10.01	-80%	Moody's downgraded Enron rating to BAA2 with possible further downgrade.	Information is absent.
01.11.01	-85%	Standard & Poor's downgraded Enron rating to BBB.	S&P acknowledged that the company plans to restore their balance are insufficient primarily because of the reaction of the stock and debt markets. However, liquidity problems did not exist, because the sales on the energy market, including EnronOnline, remained stable.
09.11.01	-90%	1. Standard & Poor's downgraded Enron rating to BBB-. 2. Moody's downgraded Enron rating to BAA3.	Dynegy offered to buy Enron at a price of \$10.41 (capitalization in this case was 9.4 billion dollars).
28.11.01	-98%	Standard & Poor's downgraded Enron rating to B-.	Dynegy rejected the deal, Enron was excluded from the Standard & Poor's 500 index.
02.12.01	-100%	No reaction.	Bankruptcy.
03.12.01	-100%	Moody's downgraded Enron rating to CA.	Information is absent.

Apparently, the RA ignored stock markets estimations about the current status and prospects of Enron. 30% and 50% drops in capitalization of Enron had no affect on their assessments, while the methodology of Standard & Poor’s in fact provides, among other factors, the control over the prices of issuer’s shares, but obviously no such control was carried out or at least its results were ignored. The evidence of this was the confirmation of Enron rating by S&P on October, 16, 2001 at the same level (a half month before the bankruptcy, against a 75% fall of the stock price. The rating agency believed that the condition of the issuer had not worsened and in the nearest future would not be changing).

Only when the process totally got out of control, the financial conditions became extremely negative and the prospects became obvious to everyone, RA started to gradually downgrade their ratings. The key word to the last phrase is “gradually”. Ratings were downgraded only one degree, but not drastically, as required by the actual situation.

Another example of practical realization of the shortcomings of RA is the bankruptcy of WorldCom.

The analysis of the exchange markets information and actions of credit rating agencies in case of WorldCom is presented in Table. 8. The dynamics of WorldCom stock prices is presented on Figure 2.

Table 8. WorldCom stock price changes and actions of credit rating agencies [26,28]

Date	WorldCom stock price changes	Reaction of credit rating agencies	Comments
05.09.2000	-20%	Fitch confirmed rating “A” for WorldCom.	Took place on the background of the merger of WorldCom with intermedia.
03.11.2000	-20%	Moody’s confirmed the rating of WorldCom on the level “A3” with stable outlook.	Information is absent.
08.05.2001	-60%	Moody’s confirmed the rating of WorldCom on the level A3 with stable outlook.	Information is absent.
09.05.2001	-60%	Fitch graded WorldCom obligations on level “A-”.	Information is absent.
11.01.2002	-80%	Fitch downgraded WorldCom rating to BBB+.	Downgrade was explained by the expectations that the potential of WorldCom did not have the level of A-. However, Fitch believed that WorldCom had good market positions and that the problems of the corporation were caused by the current weak state of the economy.
07.02.2002	-80%	Moody’s gave the rating (A3) with the possibility of downgrade.	Possible downgrade caused by fears of RA of a smaller income of the corporation in 2002.
23.04.2002	-90%	Moody’s downgraded WorldCom rating from A3 to BAA2 with negative outlook.	Downgrade caused by the revision of income of the corporation for the year 2002, which was significantly lower of the expectations of RA. Simultaneously, Moody’s noted that they did not believe in liquidity problems of WorldCom in 2002.
09.05.2002	-95%	1. Moody’s downgraded WorldCom rating from Baa2 to Ba2 with negative outlook. 2. Fitch downgraded WorldCom rating to BB with negative outlook.	1. Downgrade caused by significant deterioration in operation activity of the company. The rating of BA2 level reflects Moody’s expectations of successful negotiations to extend the credit line of 2.65 billion dollars. 2. The negative prognosis was caused by the expectations of weak indicators of operational activity and uncertainty in the company’s ability to generate sufficient cash flows.
20.06.2002	-100%	1. Moody’s downgraded WorldCom rating from BA2 to B1. 2. Fitch downgraded WorldCom rating from BB to B with negative outlook.	1. The rating was explained by the failure of the company to pay interest on debt. RA closely observed the progress of SEC investigation of WorldCom. 2. The rating was explained by the company’s refusal to pay interest on debt.
26.06.2002	-100%	Moody’s downgraded WorldCom rating from B1 to Ca with negative outlook.	The rating was explained by the detection of fraud in the financial reporting of WorldCom corporation.
22.07.2002	- 100%	Fitch downgraded WorldCom rating to D.	Downgrade was caused by the initiation of bankruptcy procedure of WorldCom.

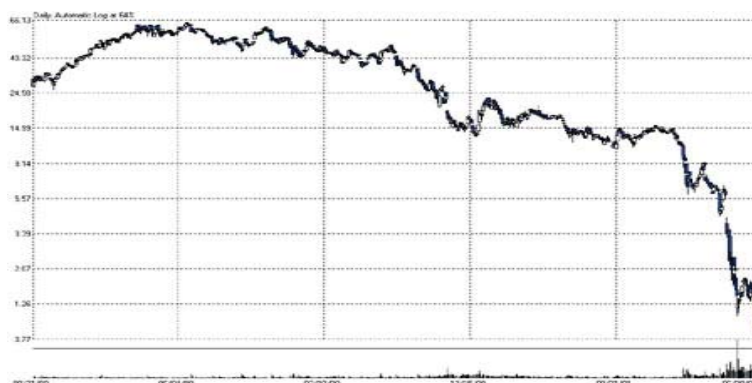


Fig. 2 Dynamics of WorldCom stock prices in 1998-2002 [7]



None of the ratings considered the dynamics of WorldCom stocks prices, despite the fact that they signaled problems inside the corporation long before the first RA downgrade or even review ratings.

The latest example is the bankruptcy of Lehman Brothers. This example is important because it shows that no lessons had been learned by RA and

no conclusions have been drawn from Enron and WorldCom bankruptcies.

The analysis of the stock market information and actions of credit rating agencies in the case of Lehman Brothers is presented in Table 9. Figure 3 shows the dynamics of Lehman Brothers stock prices.

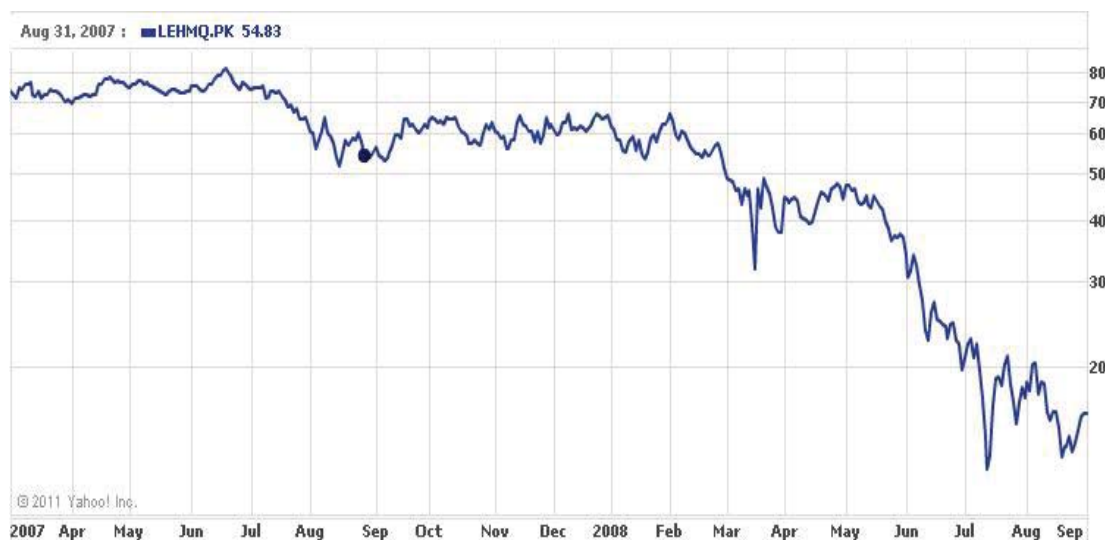


Fig. 3. The dynamics of Lehman Brothers stock prices 2007-2008 [20]

Table 9. The analysis of the stock market information and actions of rating agencies in the case of Lehman Brothers [26, 28]

Date	Lehman Brothers stock price changes	Reaction of credit rating agencies	Comments
17.03.2008	-30%	Moody's gave A1 level with stable outlook.	The rating was caused by the fact that Lehman behaved very well in conditions of instability and high volatility in financial markets.
01.04.2008	-50%	Fitch gave Lehman the rating of "AA-" with an outlook ranging from stable to negative.	The change of prognosis was caused by the increased pressure on companies' profits associated with the situation on the housing market. At the same time, Fitch plans to assign the rating of A+ to preferred shares of the company.
16.04.2008	-55%	Fitch gave the preferred shares of Lehman the level of A+.	Fitch believes that the issue of \$4 billion of preferred shares is fully covered by the capital of the company.
09.06.2008	-65%	1. Fitch downgraded Lehman rating from AA- to A+, with negative outlook. 2. Moody's changed Lehman rating outlook to negative.	Changes in the rating were connected to the publication of the corporation's financial performance. In the 2nd quarter of 2008 – it had a net loss amounting to 2.8 billion dollars. The negative outlook was caused by large quantities of high risk assets.
13.06.2008	-65%	Moody's gave Lehman A1 level with the further possibilities of a downgrade.	The rating was caused by the news about the resignation of the president and chief financial manager of the corporation. This news, in turn, was caused by the announcement of 2.8 billion dollars net losses in the second quarter of 2008.
17.06.2008	-75%	Moody's downgraded Lehman to A2 with negative prognosis.	The rating was explained by the expectations of further losses of the corporation.
09.09.2008	-90%	Fitch considered the possibility of downgrading Lehman rating (current rating A+).	The rating was caused by the impact of negative factors on the financial stability of the company and its' ability to generate capital.
10.09.2008	-90%	Moody's considered the possibility of downgrading Lehman A2 rating.	The rating was caused by the plan of Lehman debt restructuring and financial results in the Q3 2008, when losses amounted to 3.9 billion. The uncertainty in predictions is explained by the reduced financial flexibility of the corporation and the crisis of confidence, as evidenced by the fall in stocks to historic lows.
15.09.2008	-95%	1. Moody's downgraded Lehman to B3 with negative prognosis. 2. Fitch downgraded Lehman from A+ to D.	Lehman initiated bankruptcy procedure.
27.10.2008		Fitch withdrew Lehman Brothers rating.	Information is absent.
8.12.2008		Moody's downgraded Lehman to B3 with further withdrawal	Information is absent.

The situation with Lehman Brothers bankruptcy is very similar to other situations we studied in the article. It can be argued that no conclusions have been drawn by RA.

Despite the fact that information from financial markets gives clear signals about the state of corporations, credit rating agencies, using the absence of formal requirements to incorporate information from exchange markets during the rating procedure, in order not to lose good customers, give incorrect estimates, which sometimes lead to very serious consequences. If earlier these were the problems on the local level, nowadays they are becoming global problems with global consequences.

Counterarguments on the need of incorporation of information from exchange markets into the rating process include: speculative nature of modern exchange markets, the emergence of so-called “price bubbles” which do not reflect the real economic processes, but the mood of traders, the majority of whom have purely speculative interests [17].

Information from stock markets makes a serious impact on the creditworthiness of borrower, and, consequently, on their credit rating. This impact in particular includes:

1. Reputation sensitive business (“Confidence-sensitivity”). Some organizations such as banks, insurance, investment companies, are very dependent on the level of confidence both from customers and investors. Falling stock prices of such companies, of course, make negative influence on

their reputation, which, in turn, leads to a narrowing of their resource base and to the deterioration of operation activity.

2. Access to capital. One of the strategies to restore solvency is to increase capital by selling stocks (equity financing). If the stock price is high, the sale of stocks can be an effective instrument of capital acquisition. The issue of stocks in this case will bring significant growth of the capital. In the case of low stock prices this strategy will be ineffective and the amount of emission must be significantly increased. This will lead to erosion of already existing stocks, which in turn will lead to resistance from shareholders especially from minority ones.
3. Changes in stock prices as signals. Sharp and significant changes in stock prices may take place accidentally because of general market trend or local panic, but also may reflect significant events affecting the company. These events, in turn, may significantly affect the creditworthiness of the company.

Therefore, we believe that incorporation of information from stock markets into the rating process and its methodology will help to solve some problems of RA, which we have outlined, and to avoid defaults of the first class borrowers and to improve the adequacy of the ratings. We propose some methodological improvements based on stock market information.

The proposed actions of credit rating agencies based on the received stock information are listed in Table 10.

Table 10. Proposed actions of credit rating agencies based on the received stock information

Stock information	Proposed action of rating agencies
Analysis of stock prices dynamics during the last period*	
Stock prices during last period dropped by more than 20%	Analysis of the causes of the fall in stock prices is required. According to the analysis – if the reasons are serious – announcement about the possible revision of the rating.
Stock prices during last period dropped by more than 50%	Downgrade rating by one position with a negative outlook. Analysis of the causes of the fall in stock prices is required. If the factors are severe – possible downgrade by several positions.
Stock prices during last period dropped by more than 80%	Downgrade rating by several positions with a negative outlook. Analysis of the causes of the fall in stock prices is required. If the factors are severe – possible withdrawal of rating.
Stock prices during last period increased by more than 20%	Analysis of the causes of the rise in stock prices is required. According to the analysis – announcement of upgrade of the rating or leaving it unchanged.
Stock prices during last period increased by more than 50%	Analysis of the causes of rise in stock prices is required. According to the analysis, if there are no other contradicting factors – upgrade of the rating.
Analysis of volatility during the last period	
Volatility increased more than 50%	The analysis of the causes of price volatility in stocks is required. If there are negative factors – evaluation of their scale with possible downward rating or assigning negative outlook. If increasing volatility is associated with an increase in stock prices, the analysis of the causes of excessive demand with possible revision of the rating upward or providing a positive outlook. If causes are uncertain, further monitoring of market fluctuations and analyzing of their causes.
Volatility increased more than 100%	Analysis of the causes of price volatility in stocks is required. If there are negative factors – evaluation of their scale with possible downward rating or assigning negative outlook. If increase in volatility is associated with increase in stock prices, analysis of the causes of excessive demand with possible revision of the rating upward or providing a positive outlook. If causes are uncertain, further monitoring of market fluctuations and analyzing of their causes.

Table 10 (cont.). Proposed actions of credit rating agencies based on the received stock information

Stock information	Proposed action of rating agencies
Volatility increased more than 200%	<p>Analysis of the causes of price volatility in stocks is required.</p> <p>If there are negative factors – evaluation of their scale with necessary downgrade of the rating and assigning negative outlook.</p> <p>In case of increase in volatility associated with an increase in stock prices, analysis of the causes of excessive demand with upward rating and providing a positive outlook.</p> <p>If causes are uncertain, downgrading of rating in case of further negative price dynamics, further monitoring of market fluctuations and analyzing of their causes.</p>

Note: \*Under the “last period” we generally mean one year, however, depending on the purpose and features of the analysis, it can be half or a quarter of a year.

We propose to analyze the information in the following two ways – the analysis of the price dynamics (the relative growth or decline in stock prices during the last periods of control), and analysis of price volatility (the size of fluctuations of market assets), which actually describes the growing interest in certain shares. It can be a positive interest (great demand for shares of companies) and a negative one (in this case, volatility indicates the market uncertainty, the anticipated panic).

### Summary and conclusion

Summing up the results, we can say that credit rating agencies are important elements of the modern economic system, because they help to orientate oneself in the ocean of information. Recently, the activity of rating agencies has been largely discredited. This was caused by a number of internal and external reasons. We have offered recommendations on improving the methodology based on incorporation of the stock market information into the process of rating.

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