CORE Metadata, citation and similar papers at core.ac.uk

Alen Host, PhD
Assistant Professor
Faculty of Economics Rijeka
E-mail: ahost@efri.hr

Igor Cvečić, MS
Assistant
Faculty of Economics Rijeka
E-mail: igor.cvecic@efri.hr

Vinko Zaninović, BS
Assistant
Faculty of Economics Rijeka
E-mail: vinko.zaninovic@efri.hr

CREDIT RATING AGENCIES AND THEIR IMPACT ON SPREADING THE FINANCIAL CRISIS ON THE EUROZONE

UDK / UDC: 336.774.3:338.124.2
JEL klasifikacija / JEL classification: G01, G11, G20, F40
Pregledni rad / Review
Primljeno / Received: 30. ožujka 2012. / March 30, 2012
Prihvaćeno za tisak / Accepted for publishing: 27. studenog 2012. / November 27, 2012

Abstract

Credit rating agencies are an important part of the globalized financial system and thus influence the global economy. Their role is to assess the level of credit worthiness of debt issuers for potential investors in private and public sector. Yet, after every financial crisis and/or defaults of particular companies and sovereigns, the credit rating agencies become the focal point of criticism by economists, politicians, media, etc. The reason for this lies in the inability of the credit rating agencies to do the job they are supposed to do i.e. risk signaling. This paper builds on that assessment, while focusing on three biggest credit rating agencies – Standard & Poor's, Moody's Investors Service and Fitch Ratings and their influences on spreading the financial crisis on the Eurozone.

Keywords: rating agencies, financial crisis, Eurozone, PIIGS

1. INTRODUCTION

From their foundation in the middle of the nineteenth century (Henry Varnum Poor in 1860), Credit rating agencies (CRAs) have become an important factor in the financial markets. Published ratings of individual companies and sovereign states have far reaching consequences, taking into account the globalized economic relations between national economies at macro level and the relationship of the financial sector to real sector at the micro level. Namely, CRAs with their assessment of credit capabilities (risk) of borrowers or issuers of securities should have the role of informing potential investors. In line with signaled information from CRAs the investors would optimize their portfolio according to individual risk preferences on the basis of objective and independent assessment of debt repayment capacity of issuers.

However, the events in the 1990s (Asian, Russian and Latin crises) and the Global crisis that began in 2007, indicate that CRAs, both at the micro level (the case of Enron from 2001 and the case of Lehman Brothers from 2007, both USA companies), and at the macro level (the case of Greece in the EU, 2010) are not realistic and do not provide a reliable medium-term prognosis about risk investment trends, what should be their primary purpose, taking into account that the aim of investors is to secure their investments in the long term (up to the time of repayment of funds by the debtor). CRAs themselves interpret ratings as indicators of the future state of relative level of risk that the borrower will be able to repay its debt on time and in full. Of course, the estimated level of risk is reflected in the cost of borrowing with a credit rating downgrade negatively correlated with movements in interest rates.

2. CREDIT RATING MARKET

In 1999, there were over 150 credit rating agencies, which were reduced to 73, in 2009 (Pavkovic and Vedris, 2011). According to the reports of the European Commission, the three leading agencies, Standard & Poor's, Moody's Investors and Fitch Ratings hold over 94% market share of credit ratings by revenues. The credit rating agencies market in the USA, where, in 2003, only these three agencies had work permits approved by the NRSRO (National Recognized Statistical Ratings Organization)[1], the percentage is 97% (S&P with 42%, Moody's 37% and Fitch Ratings at 18%). This is a highly concentrated market due to the economy of scale as the costs of gathering and analyzing data represent a potential barrier to market competition. These three agencies operate globally in all economic sectors, whereas others specialize in particular sectors (e.g. DBRS, Kroll Bond Rating Agency etc.).

[1] In 1975, when the NRSRO was established by SEC, only these three agencies had the right to assign credit ratings; starting with 2011, 10 CRAs have been approved by NRSRO

Table 1

Basic indicators for the three biggest CRAs

Rating agency	Ownership	Employees	Number of issued sovereign states ratings (2011)
S&P	McGraw-Hill	>6,300	>120
Moody's	Dun & Bradstreet	>4,300	>105
Fitch Rating	FIMALAC and Hearst Corporation	>2,000	>105

Source: Official Fitch's, S&P and Moody's web pages; Gaillard, 2012:10

The ownership of these companies is not clear cut and thus the overlapping of ownership should be particularly emphasized. As an example, the Vanguard Group is the second largest shareholder in both McGraw-Hill and Dun & Bradstreet (Table 1), and both companies have a common list of shareholders (publicly available): BlackRock Advisors Fund, Capital World Investors and State Street Global Advisors. Given that these large investors are themselves owners of the credit rating agency, casts doubt on their impartiality and open doubts about the possibility of market manipulation through privileged information.

2.1. CRA's purpose and function

The main function of rating agencies is to reduce the asymmetry in available information in regards to capital markets among the investors and the issuers of securities. The reduction of asymmetry is done through the publication of credit risk ratings, whereat the information that the investor seeks is published publicly. This implies that a relatively limited number of credit ratings is of use to a large and increasing number of investors, which opens possibilities for the *free rider* issue (using information on credit rating free of charge) and *herd effect* (a market signal, in this case the credit rating directs the movement of the entire market). In doing so it is necessary to distinguish between the asymmetry in financial markets in developed countries and those in developing countries, i.e. the availability of information on the movement of relevant macroeconomic and microeconomic variables for individual countries or companies.

In case of developed countries, credit agencies have access to publicly available information, meaning that the assessment of credit ratings is issued with delay (ex post). This implies that credit agencies should not affect the movement in interest rates or credit default swap prices (CDS, which measure credit risk of sovereigns and companies) on financial

markets. In the second case, it is assumed that the rating agencies are able to generate data unavailable to the market. Such possibility is greater in developing countries and generally in countries with a low level of public finance transparency, in which the mere publication of ratings could have a significant impact on the price of borrowing.

2.2. CRA's costs

Besides the credibility issue in terms of the quantitative data on the macroeconomic performances of sovereign states assessed by CRAs and especially if we consider the events during and after 2007, it is possible to highlight the problem of the non-transparency of fees charged by the rating agencies[2]. Namely, as the CRAs are seen as the intermediators between investors and issuers, it is logical that they are biased to the issuer since it is the issuer of securities that covers the fees for the credit risk assessment (which had been paid by the investors up to 1975). This change from *user pays* to *issuer pays* is considered another important moment, which contributed to reduced credibility in rating agencies). Furthermore, the information on the amounts charged for individual contracts is not publicly disclosed, i.e. the published information only provides the minimum and maximum fees for various issuers (types) of securities. The amount of to be charged as compensation fees depends on the length of the contract with the agency.

For example, S&P has published its price framework in terms of calculated fees:

1. Companies in the industrial and financial sector pay up to 0.05% of total value of published securities (USD 80.000 being the minimal value);
2. Public finances, depending on the sector, amount, structure and complexity of transactions rate from USD 7,500 to 350,000 and for transactions exceeding USD 500 million, the fee is determined ad hoc;
3. Sovereign states pay from USD 45,000 up to 200,000;
4. Structured finances like ABS (asset backed security) or CDO (collateralized debt obligation) – can be charged a maximum of 0.12% of total value;

[2] service fees charge for credit rating is of recent date; it is considered that the bankrupcy of the U.S. railroad company Penn in 1970 was a turning point after which the rating agencies started charging fees for offered services; Cantor and Packer, 1994

5. For complex transactions issuers pay higher fees which are not publicly disclosed.

2.3. Analytical reconsideration of credit rating

There are three types of rating elements (S&P, Moody's and Fitch):

1. Outlook, which represents medium-term forecasts (up to 2 years), and can be positive (indicating a possibility of raising the rating in the next two years), stable (small possibility of a rating change) or negative (possibility of lower rating in the next two years);
2. Credit watch (CW), is focused short-term and is carried out upon changes in certain macroeconomic variables that serve as the base for calculating the credit rating (sometimes within two working days of the change). Moreover, during the CW procedure (which is statistically usually negative) the company or sovereign has no credit outlook. It is necessary to mention that the launch of CW does not automatically carry a change in rating. The CW, in average, lasts about 70 days, upon which, if needed, the CRA publishes the new rating (Hill and Faff, 2010);
3. The mere change in rating (Table 2 gives a list of credit ratings categories)

Table 2

Rating categories by Standard & Poor's, Moody's and Fitch

S&P		Moody's		Fitch		Meaning
Long term grade	Short term	Long term grade	Short term	Long term grade	Short term	
Investment grade						
AAA	A1+	Aaa		AAA	F1+	Highest rating
AA+ AA AA-	A1	Aa1 Aa2 Aa3	P1	AA+ AA AA-	F1	High rating
A+ A A-	A2	A1 A2 A3	P2	A+ A A-	F2	High capabilities of debt repayment
BBB+ BBB BBB-	A3	Baa1 Baa2 Baa3	P3	BBB+ BBB BBB-	F3	Sufficient capabilities of debt repayment
Speculative grade						
BB+ BB BB-	B	Ba1 Ba2 Ba3		BB+ BB BB-	B	Speculative, credit risk rises
B+ B B-		B1 B2 B3	Second-class	B+ B B-		Highly speculative, low possibilities of protection
CCC+, CCC, CCC-, CC, C	C	Caa, Ca,		CCC, CC, C	C	High risk of default
D	D	C		RD/D	RD/D	Default

Source: Modified by the authors according to information provided by S&P, Moody's and Fitch's

The mere process of rating is done in five steps (Kruck, 2011:26): (1) it begins with the security issuer's application (2) followed by data collection that is, in part, publicly available or otherwise collected through communication with the issuer, (3) after which the collected data undergoes quantitative and qualitative analyzes in accordance with the rating agency's specific methods taking into account the specific features of individual countries, the global environment, the type, timing and the value of securities; upon theses analyses, (4) the agency's committee in charge of credit rating, and composed of senior analysts, votes on the credit rating grade, after which, the issuer can comment on its rating and is given the possibility to furnish new information that may be relevant to the final published rating and finally, (5) once the rating is being published, the agency continues to follow on the issuer and if needed decides to raise or lower its credit rating.

3. ANALYSIS OF THE RESULTS OF PREVIOUS RESEARCH ON SOVEREIGN RATINGS

Rating agencies have sporadically cited, within the reports on rating criteria, several economic, social and political factors that influence the final rating, which implies that decisions on the assessment of credit risk is not made solely on the basis of objective data used to calculate the sovereign credit rating (Cantor and Packer, 1996). Moody's (2006) states that when calculating risk and credit ratings of countries they use quantitative indicators grouped as follows:

1. Indicators of economic structure and performance of economic policy, such as nominal GDP, GDP per capita, real GDP, inflation, unemployment, economic openness, etc.;
2. Indicators of the state in public finances, such as the ratio of income and expenditure of general government revenue to GDP, the total general government debt, the ratio of interest payments on general government debt to total general government revenues, etc.;
3. Indicators of state in balance of payments and total level of indebtedness to foreign creditors (the level of total external debt), such as nominal and real exchange rate, the movement of relative prices, current account balance, the ratio of short-term to total external debt, etc.;
4. Indicators of monetary developments, the foreign exposure and liquidity, such as movement of the M2 monetary aggregate on annual basis, the percentage change in the level of domestic credit, liquidity ratio (measured as liabilities to banks in the domestic market and total assets in the same bank), the level of dollarization, etc.

As the sources of these indicators Moody's cites statistical indicators provided by the IMF, OECD, World Bank, Eurostat and Bank for International

Settlements (BIS). In calculating individual variables, the Agency reserves the right that the values of these variables are calculated by its own analysts based on the data from national sources. In view of its years long monitoring of these groups of indicators the Agency projects the medium-term level of credit risk. Moody's (2006)defines its sovereign risk analysis as "an interdisciplinary activity in which the quantitative skill of the analysts must be combined with sensitivity to historical, political and cultural factors that do not easily lend themselves to qualification."

In econometric analyses, the most common objective (macroeconomic) variables (Cantor & Packer, 1996) used to prove the existence of subjective criteria, as well as the approximations of their impacts on the overall assessment of credit risk within individual agencies include the following: GDP per capita, annual GDP growth, inflation rate, external debt, balance of current account deficit, budget deficit, the country's development level (IMF), the history of default. In addition to these, Ferri, Liu and Stiglitz (1999) introduced a variable that draws relations between the current account balance and the general government short-term borrowing with foreign exchange reserves. Their research concludes that during the Asian crisis, the rating agencies had underestimated the risks of some countries (Thailand, Indonesia, South Korea) prior to the crisis, and in the midst of a crisis overestimated the credit risk which created additional difficulties and lengthened the process of recovery for the mentioned national economies. The same could be concluded in the case of Russian and Latin economic crises.

Hill and Faff (2010) conducted a study on the sample of 101 countries and the credit ratings by the three leading CRAs for the period 1990-2006. The research results were as follows:

1. S&P is the most active agency in the times of crisis and operates as the primary informant in the financial markets when compared to others;
2. There is an asymmetry in the responses to negative and positive events in the market, in which the lowering of the rating induce double the reaction in relation to the raising of the rating (observing market indexes in the financial market);
3. S&P is the rating setter in relation to other agencies for countries that are classified as underdeveloped according to IMF's classification, while Moody's hold advantage in rating developed economies.

Generally speaking, on the basis of the results of existing research it is possible to conclude the following:

1. There are considerable differences between the credit ratings among the major rating agencies (the S & P and Moody's, Iyengar, 2010);
2. The final decision on the rating of individual countries contains significant proportion of the subjective assessment of risk by individual

agencies. For example, econometric analysis of macroeconomic variables after the Asian crisis suggests overestimated ratings of Indonesia, South Korea, Malaysia and Thailand before the crisis (up to 1997) and underestimated rating after the crisis (after mid-1997). This corroborates the thesis that is often emphasized; that the rating agencies follow financial market trends (which brings into question the functionality of the agency) and contribute to the inflow of speculative capital in times of expansion, and outflow in times of recession and crisis, therefore, they act as financial market destabilizers;

3. These agencies are more likely to lower ratings due to an increase in the yield difference between the benchmark bond index (Galliard, 2009; a conducted research in which the JP Morgan Emerging Market Bond Index was used as the base) and the yields on government bonds, than to increase them due to decrease in yield differences.

Table 3

Credit rating grades by Moody's for Indonesia, South Korea and Thailand before, during and after the Asian crisis, 1997-2003

State	Dates of ratings publication	Rating
Indonesia	03/14/1997	Baa3
	07/02/1997 (official devaluation of Thai Baht)	
	12/21/1997	Ba1
	01/09/1998	B2
	03/20/1998	B3
	09/2003	B2
South Korea	12/31/1993	A1
	07/02/1997 (official devaluation of Thai Baht)	
	11/27/1997	A3
	12/10/1997	Baa2
	12/21/1997	Ba1
	02/12/1999	Baa3
	12/16/1999	Baa2
Thailand	12/31/1993	A2
	04/08/1997	A3
	07/02/1997 (official devaluation of Thai Baht)	
	08/01/1997	Baa1
	11/27/1997	Baa3
	12/21/1997	Ba1
	06/22/2000	Baa3

Source: Taken and adjusted from Langohr and Langohr, 2008:358-359

From the data presented in Table 3 it is obvious that the CRAs failed in their role as market risk "lighthouses" in the case of the Asian crisis and that the decisions to lower credit ratings were brought ex post (in the case of Thailand, the first devaluation was recorded in July, while the S&P did not lower the ratings before September). The errors in the case of the Asian crisis was also admitted by the mere agencies, which were justifying themselves saying that this crisis was marked by completely different features then the previous ones, because the problems of the private sector spilled over into the public sector (the "error" was repeated in 2007, when the private companies in financial sector went bankrupt, creating thus structural problems in the financial and later on in the real sector in USA, which were then spread to the EU and the rest of the world).

4. CREDIT RATING AGENCIES AND THE EU

Since 2009, the focal point of the financial crisis moved from USA into the European Union. The Eurozone was, and still is, the most vulnerable area as it is composed of countries whose economies have different resistance levels towards recession and the general decline in economic activity. Specifically, during the stability period of the global economy from the late 1990s until 2007, some Eurozone countries led the expansionary fiscal policy (with the inexistence of their own monetary policy, fiscal policy became the most important tool in guiding economic policy of the state). For example, the public debt of Greece, rose from 103.7% to 129.3% of GDP since 2001 to 2009, with an average budget deficit of 7.3% of GDP during the same period (according to The Pact of Stability and Growth, SGP, from 1997, the budget deficit must not exceed 3% of GDP and public debt must not exceed 60% of GDP annually, and if the mentioned value exceed these numbers, there ought to be a long-term tendency of reducing it values towards reference value). In the same period, the public debts of Portugal, Italy and Ireland recorded growth (51.2% to 83%, 108.2% to 115.5%, and 35.2% to 65.2% respectively) with a budget deficit of approximately 4.5 %, 3.4% and 1.6% in Ireland (where in 2009 the deficit amounted to 14.2% of GDP). At the same time, insufficient economic growth that had been for years pressured by a growing public debt (see Aizenman, Kletzer, and Pinto, 2007 about the relationship between economic growth and public debt) and due to rising unemployment (see Annex), which generally directly affects the reduction of tax revenues and increases expenses due to the increase in social benefits, hampered the possibility of debt repayment of government debt securities issued in the period of expansion, when the yields on securities were lower and when due to the lack of perception of risk liquidity was sufficient to cover all individual state issues.

From 2001 to 2011, the CRAs played a dual role in the European Union. Up to 2009, their credit risk ratings (e.g. Fitch rated Spain with AAA in the period 2003 to May 2010, although Spain has had problems with high unemployment and weak economic growth for many years; according to The Economist, in 2012 the Spanish economic growth will be negative and will amount to c.a. 0.8%) did not signal the creation of a new epicenter of financial crisis in Greece and the rest of the EU, i.e. in rating individual countries they did not take into account that despite structural economic differences, the economies of EU member states, and especially the Eurozone states, are strongly economically linked (as it is especially shown in the financial sphere and the case of Greece, where Greek debt creditors are mostly hard core EU countries and the Eurosystem;

http://www.zerohedge.com/article/barclays-releases-updated-report-top-40-greek-debt-holders) and that, by using the law of communicating vessels analogy, the crisis from one country will spill over to the rest of the Eurozone. After 2009, the CRAs reduced the ratings of those countries affected by the financial crisis disregarding the EU policy, particularly the European Council and European Central Bank efforts and activities (EC negotiations with creditors and the ECB purchase of Greek government bonds) that were aimed towards preventing the spreading of the crisis and thereby the preservation of the Eurozone and all its 17 states.

4.1. The Case of Greece

Until 2009, in their reports and published ratings, the CRAs did not take into account the state of Greek public finances, although in 2004 Greece admitted that the published data on the structure and condition of the public debt had not been realistic, namely that the data had been fabricated for the purpose of entering the euro area (S&P lowered the rating of A + to A, raising the question whether lowering the rating for one notch is a reasonable decision). This was justified by the positive perception of the market (according to Moody's, which in 2007 changed the Greece's outlook to positive). According to government data, since 2005 to 2010 Greece paid Moody's USD 330,000-540,000 and similar amounts were paid to the other two agencies as well.

The indications of the Greek financial problems became apparent in January 2009, when S&P lowered their rating from A to A -. Further lowering by the S&P and Fitch followed in late 2009 (Greece at that time took USD 67 billion of loan, more than double then in 2008, at, of course, higher interest rates). The climax of the unrealistic CRAs decisions was for surly reached in June 2010, when Moody's lowered the Greece rating for four levels (from A3 to Ba1), classifying state bonds into the junk (garbage) category, just after the European Council decision to backup Greece through an aid package in the value of USD 147 billion (one week prior to S&P

lowering of ratings; Fitch did not respond prior January 2011). In June 2011, the same scenario, after the second aid plan to help Greece Moody's lowered its rating to Caa1.

Based on the Greek case, the conclusion that imposes itself (with empirical analysis confirmed) is that the rating agencies act pro-cyclical, and that in delicate moments they act opportunistic and unpredictable, thus worsening the situation on financial markets, indirectly reducing market liquidity and raising interest rates on government bonds.

4.2. Reaction of the European Union to the Credit Ratings Agencies' Policies

The EU Regulations no. 1060/2009 and 513/2011, seek to harmonize the rules related to credit rating agencies. These Regulations stipulate that economic entities in the EU may use the services only provided by those rating agencies that are registered with the European Markets and Securities Authority (ESMA). This provision has been weakened by two things: it allows the acceptance of ratings from agencies operating in a third country if they comply with the Regulation and allows for the use of credit ratings of entities that have not been evaluated as of systemic importance to financial markets of one or more Member states. As of 2012 there are 29 registered rating agencies (http://www.esma.europa.eu/page/List-registered-and-certified-CRAs#).

The Regulations are aimed at improving the quality of credit ratings by determining the general principles in terms of the methodology used to determine the ratings, avoiding conflicts of interest through a series of organizational and operational requirements, increasing transparency of credit agencies (registered in the EU) and the publishing of rating methodologies. Upon the proposal, (1) the rating agencies will have to rotate, that is, one company will be assessed by several rating agencies over a longer period of time, (2) rating agencies will have to take responsibility for the assigned rating, (3) the regulator (ESMA) will be able to interfere in the way of supervising agency operations through the imposition of standardized rating scale, definitions and methodologies, and (4) will prohibit the assigning of ratings to those agencies in which individual shareholders hold more than 10% of ownership and who are, at the same time, members of administrative and management bodies in companies under evaluation. Agencies are also required to submit annual reports to ESMA. Sanctions are stipulated in the form of prohibiting activities if the agency does not comply with the provisions stipulated by the Regulations.

In 2012, within the context of realization of the provisions specified by the Regulations, ESMA aims to (ESMA, 2011:3):

1. Introduce and implement uniform rules on EU financial markets, initiated by the EU institutions in response to the financial crisis;
2. Fully implement its oversight of rating agencies in the EU;
3. Coordinate, monitor and analyze financial markets, and develop and coordinate relationships between the relevant national and supranational EU bodies;
4. Achieve active cooperation at global level, between the rating agencies of third countries for the purposes of harmonizing the regulation of CRAs' activities.

5. ANALYSIS OF CREDIT RATINGS OF PIIGS COUNTRIES

Due to the fact that the leading rating agencies, in the case of EU countries, have placed too much weight on the subjective assessments of risk in which they have underestimated the macroeconomic indicators, especially after 2007 and the beginning of the financial crisis in the USA, this paper continues by presenting the results of the econometric analysis with purpose of connecting credit ratings to selected macroeconomic variables. Namely, under the conditions of globalized economic relations and especially bearing in mind the economic importance of trade relations between the U.S. and the EU (more than 30% of world trade in goods and services 40%; http://eurunion.org/eu/Table/EU- -US Relations /), it was logical to expect that the crisis to spill over European countries. Forecasts were fulfilled in 2008 and 2009, during which the Southeast European countries were particularly affected, as well as those countries within the euro area which were marked by chronic political and economic instability - the PIIGS countries. Taking into account the primary objective of credit rating agencies, it was expected that the increased risks of certain countries will be expressed quantitatively through the reduced credit ratings prior to, and not after, entering recession (decrease in the rate of economic growth for two consecutive quarters).

The unofficial acronym PIIGS stands for Portugal, Italy, Ireland, Greece and Spain, countries that, from the 1990s onwards (Ireland joined the group during the financial crises which started in 2007) have had troubles keeping a stable economic (fiscal, and monetary policy until the accession to the EMU) policy. The aim of the econometric analysis of the macroeconomic variables of these countries is to prove whether there is a causal connection between the movement of certain macroeconomic variables and the change of the credit ratings of selected countries (that is,

whether the selected macroeconomic variables can explain the movement of the country's credit rating).

The results of the multiple linear regression[3] in which the credit rating is a dependent variable are presented in continuation. For the purposes of regression analysis, the linear conversion of characters into numerical rating label values was performed (see Table 2, the optimal score, the AAA rating is indicated by number 25, AA +, 24 and analogous to D, 1). In order to test the potential effect of how certain macroeconomic variables[4] influence the movement of credit ratings, four independent variables were selected: the movement of real gross domestic product per year (in %, compared to the previous year), unemployment (in %, annual average) state budget deficit relative to GDP (in %) and the movement of public debt (in %). What follows is brief explanation of the reasons for the selection of individual independent variables.

The growth of real GDP is a key indicator of a country's economic situation. The optimal growth of the parameter (different for each country and conditioned by other macroeconomic indicators such as unemployment and external indebtedness) denotes the capacity of the economy to employ a growing workforce, thus decreasing the unemployment rate and indicates the growth of the living standard.

The unemployment rate is an indicator of the level of utilization of human resources; if the unemployment rate is higher than the natural rate of unemployment there is a tendency of leading an expansionary fiscal and monetary policy (in the case of the euro area, the monetary policy is conducted exclusively by the ECB). Furthermore, if the unemployment rate shows a relatively high growth (see Annex, Table 10, for example, an increase in the unemployment rate in Ireland and Spain between 2007 and 2008 of approximately 27%), due to the influence of the growing mass of unemployed, the pressure on governments of these countries will increase, particularly in terms of the requirement for increased spending for the unemployed and for stimulating investment cycles, which, due to the reduction of foreign direct investment as a result of the global economic crisis, results in increased state budget, i.e. increased budget deficit.

Public debt of general government, as a state of accumulated public sector indebtedness, results from the previous conduction of fiscal policy and indicates the particular country's preference/aversion to borrowing. High levels of public debt (in the case of the Eurozone, over 60% of GDP), and the tendency of rapid growth of the same, should present a negative signal to rating agencies, particularly in the case of the global economic

[3] for calculation was used program SPSS Statistics 20

[4] all data was taken from: http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

crisis. For the PIIGS countries, in addition to high public debt, there is also a characteristic dependence on foreign borrowing (86% of Irish, 95% Greek, 95% Spanish and 105% of Portuguese public debt is owed to foreign creditors; Sinn, 2012).

The budget deficit, defined as an exceed of expenditures over revenues in a budget period, represents a need for short-term government borrowing (or the sale of national assets) and indicates further accumulation of public debt, increasing the likelihood of eventual refinancing, which in times of contraction of national economy and economies in surrounding, makes it harder to timely repay debt.

The data were taken for the 2001 to 2010 period, in which the last published rating for a particular year by Fitch Ratings[5] was taken as the value of credit rating and the value of previous years was taken, if there was no change in the rating in a particular year. It is normal to assume that the rate of real GDP growth will have a positive sign, whereas other independent variables are expected to have a negative one.

Table 4

Greece

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.776	1.750		17.011	.000
	GDP growth	.056	.077	.133	.727	.500
	Unemployment	-.287	.086	-.275	-3.352	.020
	Deficit	-.006	.055	-.015	-.113	.914
	Public debt	-.069	.016	-,741	-4.356	.007

a. Dependent Variable: Rating

The results of the regression analysis (F value 57.294, adjusted coefficient of determination is 0.962, value of Durbin Watson test is 1.939 which indicates no autocorrelation, coefficient correlations indicate no multicollinearity and the heteroskedasticity is not present – graphical method) for Greece indicate that only two independent variables (unemployment and public debt) are significant in explaining the dependent variable. The parameter with a variable deficit of -0.006 indicates that the deficit does not significantly affect the rating change, which, if we consider

[5] ratings taken from: http://www.fitch.com

the statistical data from 2001 to 2010, indicates that according to the Fitch agency standards, the long-term deficit at an average of over 7.6% of GDP from 2001 to 2010, in addition to the average unemployment rate of 9.8% is not a sufficient reason for the lower rating from grade A (high stability of payment, see Table 2). In addition, Greece's entry into the Eurozone in 2001 was accompanied with the problems concerning budget data (in 2004 Greece revised budget deficit from 1.7 to 4.6% of GDP); yet, since 2004 to 2009, the credit rating remained unchanged. A partial justification for the Agency's decision can be found in the fact that the expectations of financial markets in terms of public finances were positive for several reasons - Greece is a member of the Eurozone, which assumes a gradual convergence in the economic area towards developed EU countries - the countries of the solid core (this assumption turned out to be wrong - the two-speed Europe); and the assumption of the necessity of implementing structural reforms due to Greece's commitments towards the EU (which applies starting from 2010)(Gaillard, 2012).

Table 5

Ireland

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.589	.720		41.120	.000
	Public debt	-.040	.021	-.380	-1.923	.112
	Unemployment	-.526	.083	-.800	-6.340	.001
	Deficit	.023	.040	.107	.571	.593
	GDP growth	-.222	.025	-.425	-8.881	.000

a. Dependent Variable: Rating

In the case of Ireland (F value of 338.470, adjusted coefficient of determination amounts to 0.993, value of Durbin Watson test is 2. which indicates no autocorrelation, coefficient correlations indicate no multicollinearity and the heteroskedasticity is not present – graphical method)) the variables of unemployment and GDP growth show to be statistically significant variables, in which the coefficient sign is not in line with expectations. The reason for the unexpected sign lie in the relatively high rates of growth of the Irish economy in the period 2001 to 2007 during which Ireland was assigned the AAA grade by the Fitch agency. In 2008 Ireland's economy fell into recession (real GDP declined for 3%), but it continued to have the AAA rating with stable outlook until March 2009. Thus, failure to recognize structural problems in the Irish economy led to the inability of a reliable assessment of the dependent variable.

For Portugal, Spain and Italy (respectively Tables 11, 12 and 13 in the Annex), no independent variable was statistically significant. This may be explained by the alarmingly insufficient basing of the Fitch Rating agency on quantitative indicators. Namely, in terms of Portugal, whose economy was characterized, from 2005, by a high current account deficit in the balance of payments (up to 2010, on average higher than 10% according to Eurostat sources) and in addition to Annex information, it is evident that the movement of selected macroeconomic variables is not consistent with the Fitch's AA rating, which is only two ratings lower than the optimal long-term risk rating.

The public debt of Italy, since the introduction of Euro has been among the highest in the European Union and, since 2001, it is above 100% of GDP; the budget deficit in the same period (up to 2010) was over 3%, while the rate of economic growth, expressed by the real GDP growth rate, was 0.41%). These data indicate the potential instability of the country in case of a large-scale economic crisis. However, up to mid 2011, the Fitch Agency held the Italian outlook stable despite the negative economic as well as political events in the country (political and economic problems particularly emerged by the end of 2011).

Spain, as a country with chronic unemployment (from 2001, unemployment was higher than 10%) and an unstable fiscal policy, was assigned the AAA rating from 2003 to 2010, which meant that the risk of credit default for Spain was identical to that of Germany, economically the most developed among EU countries and one of the most important world economies.

6. CONCLUSION

The controversy of rating agencies is confirmed by this research. The main task of rating agencies to predict the debtors' ability to repay public and private debt in due time in the past 20 years has not been fulfilled. The Asian, Russian and Latin crisis, as well as the crisis that began in 2007, were not anticipated by the rating agencies. This brings into question the functionality of their existence, since numerous econometric analyses revealed serious deficiencies in the foundations of individual states credit ratings. The reason for this crucial deficiency of rating agencies most probably lies in the over-weighting of subjective factors when awarding credit rating. In addition, rating agencies are typically late with the lowering of ratings and they ignore numerous macroeconomic signals. The moment they decide to lower ratings, they act as an element of panic, instead of acting as an element of calming the market through the prediction of economic movements.

In all cases, rating agencies disclaim any responsibility for the damages caused to the state or the investors. For all these reasons, the optimal solution can be in the founding of public agencies that would assess credit ratings and that would be financially and organizationally independent of the investors and/or issuers of securities, and/or in the publishing of a comprehensive and unique methodology for awarding credit ratings. However, the lucrativeness of this business activity as well as the ownership-interest interrelation with private investors ensures that the rating agencies will continue to be for a long time the *market makers*. Furthermore, this will enable their owners to keep in their hands a powerful instrument of market manipulation and a very likely privileged access to information. Moreover, what is especially dangerous is that most likely, despite all EU efforts, the agencies will continue to operate under the same rules and with no consequences to their own credibility and their own income.

The current economic crisis has just strengthened the need for an effective supervision and oversight of global financial markets. Rating agencies are just an element of the system that will, without effective supervision and without legal responsibility certainly create the conditions for a crisis of similar intensity in the near future.

REFERENCES

Aizenman, J., Kletzer, K., Pinto, B. (2005), "Sargent-Wallace meets Krugman-Flood-Garber, or: Why Sovereign Debt Swaps Do Not Avert Macroeconomic Crises", *The Economic Journal,* no. 115, pp. 343-367

Aizenman, J., Kletzer, K., Pinto, B. (2007), "Economic Growth with Constraint on Tax Revenues and Public Debt", University of California, Santa Cruz

Cantor, R., Packer, F. (1994), "The credit rating industry", *Quarterly Review*, Vol. 19, no. 2, pp. 1-26

Cantor, R., Packer, F. (1996), "Determinants and impact of sovereign credit ratings", *Economic Policy Review*, Vol. 2, no. 2, pp. 1-17

European Securities and Markets Authority (2011), 2012 Work Programme

Ferri, G., Liu, L. G., Stiglitz, J. E. (1999), "The Procyclical Role of Rating Agencies: Evidence from East Asian Crisis", *Economic Notes byBanca Monte dei Paschi di sienata SpA*, Vol. 28, no. 3, pp. 335-356

Fitch Ratings, Complete Sovereign Rating History (Updated 6th January 2012)

Gaillard, N. (2009), "Fitch, Moody's and S&P's Sovereign Ratings and EMBI Global Spreads: Lessons from 1993-2007, *International Research Journal of Finance and Economics,* no. 2

Gaillard, N. (2012), *A Century of Sovereign Ratings,* Springer, New York

Hill, P., Faff, R. (2010), "The Market Impact of Relative Agency Activity in the Sovereign Ratings Market", *Journal of Business Finance & Accounting*, Vol. 20, no. 9 & 10, pp. 1309-1347

1) http://eurunion.org/eu/Table/EU-US-Relations/ (28.02.2012.)

2) http://www.bloomberg.com/news/2011-12-16/france-s-aaa-outlook-cut-as-fitch-reviews-ratings-of-italy-spain-belgium.html (16.12. 2011.)

http://www.bloomberg.com/news/2011-12-16/france-s-aaa-outlook-cut-as-fitch-reviews-ratings-of-italy-spain-belgium.html (16.12. 2011.)

http://business.financialpost.com/2011/11/15/sp-moodys-boosting-rating-fees-faster-than-inflation/ (16.12. 2011.)

http://www.fitch.com (05.02. 2012.)

http://query.nytimes.com/gst/fullpage.html?res=9A0CEED61130F933A05752C1A9679D8B63&ref=juliecreswell&pagewanted=3

http://www.zerohedge.com/article/barclays-releases-updated-report-top-40-greek-debt-holders (05.02. 2012.)

Iyengar, S. (2010), "Are Sovereign Credit Ratings Objective and Transparent?", *IUP Journal of Financial Economics*, Vol. 8, br. 3, pp. 7-22

Kruck, A. (2011), *Private Ratings, Public Regulations: Credit Rating Agencies and Global Financial Governance*, Palgrave Macmillan, Chippenham and Eastbourne

Langohr, H., Langohr, P. (2008), *The rating agencies and their credit ratings: What They Are, How They Work, And Why They Are Relevant*, Wiley Finance series, John Wiley & Sons Ltd., Chichester

Moody's Statistical Handbook: Country Credit, Moody's Investors Service, November 2006

Pavković, A., Vedriš, D. (2011), "Redefiniranje uloge agencija za kreditni rejting u suvremenom financijskom sustavu", *Ekonomski misao i praksa*, br. 1, str. 225-250

The Economist, 7th January 2012

Sinn, H. W. (2012), "European End Game", The International Economy. Available at: http://www.international-economy. com/TIE_W12 _Sinn.pdf

Veron, N., Wolff, G. B. (2011), "Rating Agencies and Sovereign Credit Risk Assessment", requested by the European Parliament's Committee on Economic and Monetary Affairs. Available at: http://www.europarl .europa.eu/activities/committees/studies.do?language=EN

ANNEX

Table 6

Growth of real GDP 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Greece	4.2	3.4	5.9	4.4	2.3	5.5	3	-0.2	-3.3	-3.5
Ireland	4.8	5.9	4.2	4.5	5.3	5.3	5.2	-3	-7	-0.4
Spain	3.7	2.7	3.1	3.3	3.6	4.1	3.5	0.9	-3.7	-0.1
Italy	1.9	0.5	0	1.7	0.9	2.2	1.7	-1.2	-5.1	1.5
Portugal	2	0.8	-0.9	1.6	0.8	1.4	2.4	0	-2.9	1.4

Source: Eurostat, 2012

Table 7

Rate of unemployment 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Greece	3.9	4.5	4.6	4.5	4.4	4.5	4.6	6.3	11.9	13.7
Ireland	10.7	10.3	9.7	10.5	9.9	8.9	8.3	7.7	9.5	12.6
Spain	10.3	11.1	11.1	10.6	9.2	8.5	8.3	11.3	18.0	20.1
Italy	9.1	8.6	8.4	8.0	7.7	6.8	6.1	6.7	7.8	8.4
Portugal	4.6	5.7	7.1	7.5	8.6	8.6	8.9	8.5	10.6	12.0

Source: Eurostat, 2012

Table 8

Budget deficit 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Greece	0.9	-0.4	0.4	1.4	1.7	2.9	0.1	-7.3	-14.2	-31.3
Ireland	-4.5	-4.8	-5.6	-7.5	-5.2	-5.7	-6.5	-9.8	-15.8	-10.6
Spain	-0.5	-0.2	-0.3	-0.1	1.3	2.4	1.9	-4.5	-11.2	-9.3
Italy	-3.1	-3.1	-3.6	-3.5	-4.4	-3.4	-1.6	-2.7	-5.4	-4.6
Portugal	-4.3	-2.9	-3.0	-3.4	-5.9	-4.1	-3.1	-3.6	-10.1	-9.8

Source: Eurostat, 2012

Table 9

Public deficit 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Greece	35.2	31.9	30.7	29.4	27.2	24.7	24.8	44.2	65.2	92.5
Ireland	103.7	101.7	97.4	98.6	100.0	106.1	107.4	113.0	129.3	144.9
Spain	55.6	52.6	48.8	46.3	43.1	39.6	36.2	40.1	53.8	61.0
Italy	108.2	105.1	103.9	103.4	105.4	106.1	103.1	105.8	115.5	118.4
Portugal	51.2	53.8	55.9	57.6	62.8	63.9	68.3	71.6	83.0	93.3

Source: Eurostat, 2012

Table 10

Linear conversion of Fitch agency's credit rating grades 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Greece	25.0	25.0	25.0	25.0	25.0	25.0	25	25.0	22.0	18.0
Ireland	20.0	20.0	21.0	20.0	20.0	20.0	20	20.0	18.0	16.0
Spain	24.0	24.0	25.0	25.0	25.0	25.0	25	25.0	25.0	24.0
Italy	22.0	23.0	23.0	23.0	23.0	22.0	22	22.0	22.0	22.0
Portugal	23.0	23.0	23.0	23.0	23.0	23.0	23	23.0	23.0	21.0

Source: Eurostat, 2012

Table 11

Portugal

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.287	1.090		23.189	.000
	Public debt	-.043	.041	-.919	-1.053	.341
	Unemployment	.110	.215	.375	.510	.632
	Deficit	.079	.108	.345	.738	.494
	GDP growth	-.193	.109	-.481	-1.778	.136

a. Dependent Variable: Rating

Table 12

Spain

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	27.364	.980		27.936	.000
	Public debt	-.057	.026	-.953	-2.188	.080
	Unemployment	.045	.128	.373	.355	.737
	Deficit	.070	.161	.688	.436	.681
	GDP growth	-.152	.202	-.769	-.755	.484

a. Dependent Variable: Rating

Table 13

Italy

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	30.071	4.514		6.662	.001
	Public debt	-.087	.046	-.868	-1.914	.114
	Unemployment	.164	.189	.297	.872	.423
	Deficit	-.158	.172	-.440	-.917	.401
	GDP growth	.044	.091	.183	.482	.650

a. Dependent Variable: Rating

Dr. sc. Alen Host
Docent
Ekonomski fakultet u Rijeci
E-mail: ahost@efri.hr

Mr. sc. Igor Cvečić,
Asistent
Ekonomski fakultet u Rijeci
E-mail: igor.cvecic@efri.hr

Vinko Zaninović, dipl. oec.
Asistent
Ekonomski fakultet u Rijeci
E-mail: vinko.zaninovic@efri.hr

AGENCIJE ZA KREDITNI REJTING I NJIHOV UTJECAJ NA ŠIRENJE FINANCIJSKE KRIZE U EUROZONI

Sažetak

Agencije za kreditni rejting su važni dio globaliziranog financijskog sustava, te stoga i utječu na globalnu ekonomiju. Njihova uloga je procijeniti razinu boniteta emitenta duga za potencijalne investitore u privatnom i javnom sektoru. Ipak, nakon svake financijske krize i/ili neispunjenja ugovornih obveza određenih tvrtki i suverenih država, agencije za kreditni rejting postaju žarište kritike ekonomista, političara, medija, i td. Razlog tomu leži u nesposobnosti agencija za kreditni rejting da obavljaju svoj posao, a to je upozoravanje na rizike. Ovaj rad se temelji na toj ocjeni, s naglaskom na tri najveće agencije za kreditni rejting – Standard & Poor's, Moody's Investors Service and Fitch Ratings, i njihovim utjecajem na širenje financijske krize u Eurozoni.

Ključne riječi: agencije za kreditni rejting, financijska kriza, Eurozona, PIIGS

JEL klasifikacija: G01, G11, G20, F40