Journal of Business and Economics, ISSN 2155-7950, USA
May 2014, Volume 5, No. 5, pp. 597-606
DOI: 10.15341/jbe(2155-7950)/05.05.2014/001

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Analysis of the European Financial Crisis

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Abstract: The goal of this research is to examine the validity of the European Monetary Union Maastricht Convergence criteria under the current economic and monetary conditions of the European Union. By using the case study of the four European Monetary Union member economies which are currently experiencing severe monetary struggles—Greece, Italy, Spain, and Portugal—the Maastricht Convergence Admission criteria to the EMU are re-evaluated. Would Greece, Italy, Spain, and Portugal be accepted to the European Monetary Union under their current economic conditions? Are there weaknesses to the European Monetary Union Admission criteria that need to be revisited and revised? Based on the findings of the current research, policy recommendations are derived.

Key words: international trade; factor movements; international finance
JEL codes: F2, F3

1. Introduction

The origins of the European Union were created in 1957 in form of the Treaty of Rome, which lead to the European Economic Community (EEC) (Afxentiou, 2000). The EEC focused on the increase of economic cooperation of the six original members Belgium, Germany, France, Italy, Luxembourg, and the Netherlands. Over the years, the EEC has developed into a community of 27 countries and in 1993, the EEC changed its name into today's name, the European Union.

More than an economic community, the desire arose to form a community in the monetary system as well. This was to be accomplished by a common currency, the Euro. Eleven members of the European Union, among them Spain, Italy, and Portugal, decided to adopt the new currency in the Treaty of Maastricht in February 1992 (Afxentiou, 2000). During the conference in Maastricht, guidelines were set to allow the common currency adoption, referred to as the Maastricht Convergence (MC) criteria.

The goal of this research is to examine the validity of the European Monetary Union (EMU) Maastricht Convergence (MC) criteria under the current economic and monetary conditions of the European Union (EU). By using the case study of the four EMU member economies which are currently experiencing severe monetary struggles—Greece, Italy, Spain, and Portugal—the MC Admission criteria to the EMU shall be re-evaluated. The current study attempts to answer the following questions: "Would Greece, Italy, Spain, and Portugal be accepted to

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the EMU under their current economic conditions?" and "Are there weaknesses to the EMU Admission criteria that need to be revisited and revised?" Based on the findings of the current research, policy recommendations are derived.

2. Background on Maastricht Convergence Admission Criteria

The Euro was officially launched in 1999 in the eleven original countries, and Greece also joined the EMU in 2001. Initially, the Euro was only used in transactions while the physical currency, meaning banknotes and coins, were introduced on January 1, 2002 (European Commission, 2012). Today, there are 17 countries that are members of the EMU, with Latvia and Lithuania scheduled to join the Euro zone by 2014 and 2015, respectively.

There are five Maastricht Convergence criteria, which have been applied, used for EMU membership. These admission criteria are the following:

(1) ***Price Stability***—the country's inflation rate shall be no more than 1.5 percentage points above the rates of the three best performing member states.

(2) ***Durability of Convergence*** is referred to as the long-term interest rate and shall not be more than 2% above the rate of the three best performing member states in terms of price stability.

(3) ***Sound Public Finances*** is measured as the government deficit rate as a percentage of the country's Gross Domestic Product (GDP). No country candidate member to the EMU should have government deficit greater than 3 percent of its GDP.

(4) ***Sustainable Public Finances*** is measured as a percentage of the government debt relative to the GDP. Government debt shall not exceed 60 percent of a nation's GDP.

(5) ***Stability of Exchange Rate***—the exchange rate of the country that wants to join the Euro shall not be devaluated or revaluated within two years before entering the EMU.

Unfortunately, economic crises, bankruptcy of countries, and extreme state deficits happened in the last several years. Greece's economic, fiscal, and monetary crises started speculations about Italy, Portugal, and Spain's economic, fiscal, and monetary conditions as well. The current economic conditions of the four countries lead to the fluctuations of the Euro and threaten its stability and reliability.

3. Methodology

In order to provide an evaluation of the EMU MC Admission criteria with respect to the selected four countries: Greece, Spain, Italy, and Portugal, the current study utilizes macroeconomic data provided by the European Union. In addition, in order to test the validity of the existing EMU MC Criteria, these criteria have been modified and compared.

The four selected economies (Greece, Spain, Italy, and Portugal) were among the first group of countries that adopted the Euro as their currency during the 1999-2001 time period. By analyzing the EMU MC Admission criteria under the current economic conditions, one might be able to understand the strengths and/or weaknesses of the criteria used to allow a country to adopt the Euro as its national currency.

The objectives of this research are defined as follows:

(1) Analyze and re-evaluate four MC criteria used to admit countries to the EMU by developing three different EMU admission scenarios;

(2) Test the current Greece, Italy, Spain, and Portugal's EMU membership based on the newly developed EMU admission scenarios.

In order to examine weather Greece, Italy, Portugal, and Spain would be able to join the EMU under their current economic and monetary conditions, two different scenarios were constructed. If we assume that the four countries were not currently members of the EMU and if we evaluate them under different MC criteria, the question is will they be able to join the EMU? The evaluation of MC criteria is based on economic conditions of the remaining seven original EMU economies—Austria, Belgium, Germany, France, Finland, Luxembourg, and the Netherlands—"*the Group of 7*"—(the original eleven member countries minus the four examined countries–Greece, Italy, Portugal, and Spain).

Recall that there are five EMU MC Admission criteria: countries' inflation rates, their long-term investment rates, government deficit given as a percentage of the particular nation's GDP, gross debt, also shown as a percentage of the nation's GDP, and the exchange rate stability. Due to the common currency already in place, the last EMU MC Admission Criteria—the exchange rate stability—cannot be evaluated. Since Greece, Italy, Portugal, and Spain are officially members of the EMU, and are already using Euro as their currency, an evaluation of the stability of the exchange rate criteria is not possible. The remaining four criteria will be examined, whereas only the criteria concerning price stability and long-term investment need to be evaluated relative to other countries. In the following three scenarios the countries' gross debts and government deficits criteria do not need to be compared to other members of the EMU.

The selected four countries' ability to join EMU will be evaluated based on their current economic conditions and the hypothetical scenarios developed to test their admission eligibility. The fulfillment of the EMU MC criteria in the following hypothetical scenarios will be based on the official government reports from 2012 (Eurostat, 2013). The focus will be on the countries' inflation rates, their long-term investment rates, government deficit given as a percentage of the particular nation's GDP, and gross debt, also shown as a percentage of the nation's GDP. The two hypothetical scenarios developed by the current study are the following:

3.1 Scenario I

The first scenario evaluates Greece, Italy, Portugal, and Spain's admission eligibility in comparison to the top three "*Group of 7*" countries with the ***lowest rate of inflation***. The three "*Group of 7*" countries with the highest price stability were Belgium, with an inflation rate of 2.6%, Germany with 2.1%, and France with 2.2% inflation rate. The average inflation rate of the three "*Group of 7*" countries with the ***lowest rate of inflation*** is 2.3%. According to Scenario I, the examined country will pass this hypothetical criterion, if the country's inflation rate is not higher than 1.5% of the average rate of inflation. In other words, a country's inflation rate should not exceed 3.8%.

Likewise, the long-term interest rates were averaged across the three nations leading in price stability. Then, the examined country's long-term investment rate was compared to the average long-term interest rate. In 2012, the interest rate on the long-term investment bonds in Belgium was 3.0%, in Germany it was 1.5%, and France's was 2.54%. The average long-term interest rate for the top "*Group of 7*" with the ***lowest rate of inflation*** was 2.35%. According to the existing EMU MC Admission Criteria, a country will pass this admission criterion if the examined country's long-term investment rate is not larger than 2.0% of that average, meaning it should not exceed 4.35%.

3.2 Scenario II

The second scenario considers the three "*Group of 7*" countries with the ***highest inflation rate***. The three "*Group of 7*" countries with the *highest inflation rate* were Luxembourg with inflation rate of 2.9%, the Netherlands with 2.8%, and Austria, with inflation rate of 2.6%. The average rate of inflation for Scenario II was 2.77%. Just like in Scenario I, the examined country's price stability should not be larger than 1.5% of the average ***high inflation rate***, meaning no higher than 4.27%.

The average long-term investment rate of the three "*Group of 7*" countries with the ***highest inflation rate*** was calculated to be 2.04%. The individual interest on long-term investments in Luxembourg was 1.82%, 1.93% in the Netherlands, and 2.37% in Austria. According to Scenario II, in order for an examining country to pass this criterion, its long-term interest rates should not exceed 4.04% (2.04% average + 2.0% maximum allowed ceiling).

4. Findings

The above obtained inflation and long-term investment rates were used to test the validity of Greece, Italy, Portugal, and Spain's membership to the EMU. Each of the four countries was evaluated based on the four EMU MC Admission criteria and the two different scenarios presented earlier. The findings of this research should give an insight on potential strengths, flaws, or (in) effectiveness of the existing EMC MC Admission criteria.

4.1 Findings for Greece

Based on the first EMU MC Admission criteria—price stability—Greece's inflation rate of 1.0% will grant this country a membership into the EMU in both scenarios. Compared to the maximum allowed inflation rate of 3.8% from Scenario I and 4.27% from Scenario II, Greece would pass the first EMU MC Admission criterion.

Unfortunately, even though Greece passed the test of price stability in both scenarios, it did not pass the long-term investment criterion in any of the scenarios. The 22.50% interest rate on government bonds, compared to the maximum allowed long-term investment rate of 4.35% from Scenario I, crates a difference of 18.15%. The maximum allowed long-term investment rate of Scenario II was 4.04%. The difference between the Greece's long-term investment rates and the two maximum allowed long-term investment rates was 18.46% in Scenario II.

In addition to the two mentioned criteria, the examination of the remaining two criteria that need no comparison to other countries, namely the country's gross debt and government deficit, showed that Greece can fulfill neither criterion. Greece's gross debt in 2012 was 156.9% of its GDP. That makes a 96.9 percentage point difference to the actual maximum of 60% that are needed to be accepted to the Euro. Also, the country's government deficit was 10.0% of its GDP in 2012, which, by 7.0 percentage points, would not be enough the meet the minimum requirement of 3% deficit of GDP allowed by the EMU MC Admission criteria.

Table 1 Greece's EMU Eligibility under the Three Hypothetical Scenarios

EMU MC Acceptance Criteria	Scenario I	Scenario II
Price Stability	YES	YES
Long-Term Investment	NO	NO
Gross Debt	NO	NO
Government Deficit	NO	NO

According to Table 1 and the 2012 data, Greece's current economic performance does not fulfill three out of four hypothetical EMU MC Admission Criteria.

4.2 Findings for Italy

In 2011 Italy's inflation rate was 3.3%, which means that, just like in case of Greece, Italy passes the criterion concerning inflation in all two scenarios. Scenario I, with the maximum allowed inflation rate of 3.8%, would make Italy pass the criterion by a difference of 0.5 percentage points. Similarly, the maximum allowed inflation rate of 4.27% from Scenario II would be passed by 0.97 percentage points.

Based on data from 2012, Italy would not pass the long-term investment Admission Criteria in either scenario. Italy's interest on long-term investment government bonds is 5.49%. Compared to the average of 4.35% from Scenario I, Italy would not pass this criterion by 1.14 percentage points. Similarly, in Scenario II, Italy would not pass the long-term investment Admission Criteria by 1.45%.

The two criteria, which require no comparison to other countries can only be partly fulfilled by Italy. Italy's gross debt in 2012 was 127.0% of the nation's GDP. Thus, Italy is 67. Percentage points over the maximum allowed 60% gross debt compared to GDP and would fail to meet this requirement. However, this nation held the quotient of government deficit divided by GDP smaller than 3.0%. Over 2012, Italy's government deficit was 3.0% of the nation's GDP, which means the maximum allowed difference of 3.0% were exactly met.

Table 2 Italy's EMU Eligibility under the Three Hypothetical Scenarios

EMU MC Acceptance Criteria	Scenario I	Scenario II
Price Stability	YES	YES
Long-Term Investment	NO	NO
Gross Debt	NO	NO
Government Deficit	YES	YES

After examining Italy's economic performance, one can conclude that Italy (just like Greece) cannot fulfill two out of four hypothetical EMU MC Admission Criteria.

4.3 Findings for Portugal

When measuring the price stability admission criterion, Portugal's inflation of 2.8% would pass both scenarios. The maximum allowed inflation rate of 3.8% from Scenario I would make Portugal pass the criterion by a difference of 1.00 percentage points. Similarly, Scenario II with the maximum inflation rate of 4.27% rate would make Portugal eligible to join the EMU based on this criterion.

With respect to the second hypothetical EMU Admission Criteria—long-term investment rates—Portugal would not be able to pass requirement in any of the scenarios. Portugal's interest rate of 10.55% would exceed the maximum allowed long-term interest rates for Scenario I by 6.20 percentage points, and for Scenario II by 6.51 percentage points.

Portugal's gross debt as a percentage of nation's GDP over in 2012 was 123.6%, making the country exceed the maximum value of 60.0% by 63.6 percentage points. Furthermore, Portugal's government deficit over the same time span was 6.4% of the nation's GDP, which made Portugal surpass the maximum allowed value of 3.0% by 3.4 percentage points.

Table 3 Portugal's EMU Eligibility under the Three Hypothetical Scenarios

EMU MC Acceptance Criteria	Scenario I	Scenario II
Price Stability	YES	YES
Long-Term Investment	NO	NO
Gross Debt	NO	NO
Government Deficit	NO	NO

By examining Portugal's 2012 economic data, one can conclude that Portugal—just like Greece—could not meet three out of four hypothetical EMU Admission Criteria.

4.4 Findings for Spain

Table 4 Spain's EMU Eligibility under the Three Hypothetical Scenarios

EMU MC Acceptance Criteria	Scenario I	Scenario II
Price Stability	YES	YES
Long-Term Investment	NO	NO
Gross Debt	NO	NO
Government Deficit	NO	NO

Spain's inflation rate of 2.4% would be sufficient for this country to pass the price stability requirement under both scenarios. Based on the 2012 data, Spain's inflation rate is 1.4 percentage points, and 1.87 percentage points below the maximum allowed level of inflation.

In 2012 Spain's interest on long-term government bonds was 5.85%. This would disqualify Spain from passing the two hypothetical scenarios. Spain would miss meeting Scenario I's criterion by 1.50 percentage points and Scenario II by 1.81 percentage points.

Out of all four examined countries, Spain came closest to meeting the criterion concerning the country's gross debt. However, Spain did not pass this criterion, but it showed the smallest difference between the maximum allowed debts of 60.0% and its gross debt of 84.2% of the nation's GDP. Spain also exceeded 3.0% of maximum allowed government deficit/GDP ratio. Throughout 2012, Spain shows a government deficit of 10.6%, which exceeds the maximum allowed value by 7.6 percentage points.

After analyzing Spain's data, the country showed a very similar long-term investment performance like Italy. Like every other examined country, Spain passed the criterion on price stability in every scenario but would not fulfill three out of four hypothetical EMU admission criteria.

5. Interpretation of Results

As the results show, neither country would fulfill all the nominal convergence criteria and, thus, entry to the Euro zone would be hindered for these countries if they were to apply for the Euro currently. The question remains if there is a flaw in the convergence criteria that needs to be adjusted so the countries that are to join the Euro zone do not threaten the currency in case of crises.

Pointing a finger at a specific criterion does not lead to a valid conclusion about the validity of the criteria. In general, all five criteria seem to make sense and appear reasonable as far as it pertains to a condition to enter the Euro zone. There are further issues to consider when discussing the MC Admission criteria with respect to the current situation.

First, we have to look at the countries' financial conditions before and at the time of entering the EMU. Indeed, it is surprising to see the four countries' financial performance before entering the EMU. As Figure 1 clearly shows, three out of the four examined countries showed a gross debt higher than the maximum allowed 60 percent of GDP at their respective acceptance to the EMU, with Portugal being the only exception. While Spain's gross debt was only 2.4 percentage points over the allowed 60 percent, was declining and until 2007 proved to be steadily declining, Spain's acceptance based on that criterion could be understood. However, Italy's gross debt at the start of the Euro was 113.1 percent of its GDP, making it exceed the maximum of 60 percent by 53.1 percentage points. Similarly, Greece's gross debt was 103.7 in 2001, the year of the country's entry to the EMU, and thus was also significantly over the limit. Based on the nominal criterion with respect to a country's gross debt, the countries should not have been admitted to join the Euro zone. Furthermore, the criterion concerning budget deficit is alarming for several countries, as Figure 2 shows. The data only contains values from 2001 onward, so a declarative statement about the conditions at the entry to the EMU can only be made for Greece. However, it is alarming that the severity of the budget deficits of the four examined countries was graver than the rest of the original EMU members during the financial crisis in 2008. These arguments gain even more credibility in comparison with Lavrac's analysis (2004), where the four examined countries were not able to fulfill any of the four mentioned criteria five years before their respective entry to the Euro zone.

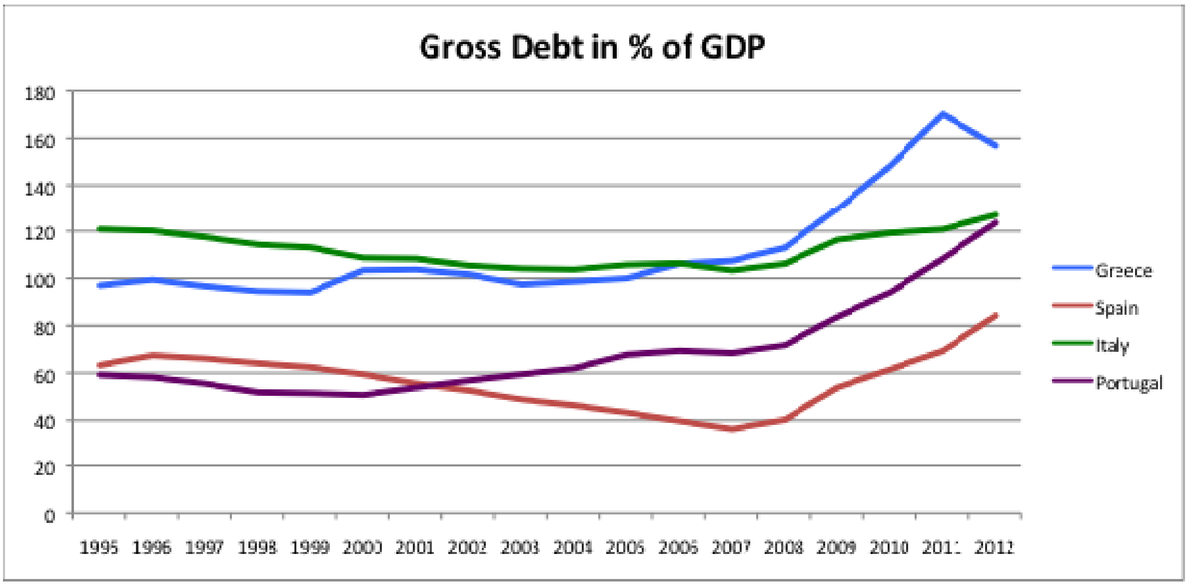

Figure 1 Gross Debt in Percent of GDP
Source: Eurostat

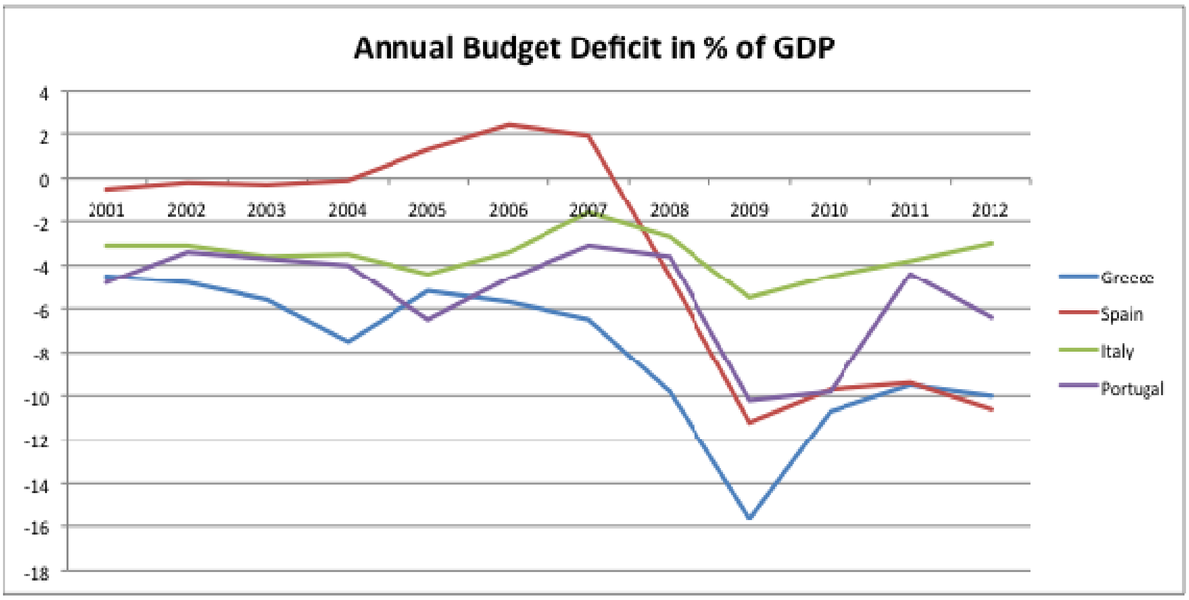

Figure 2 Annual Budget Deficit in Percent of GDP
Source: Eurostat

Another issue that makes it hard to analyze flaws in the Maastricht Criteria is the variety of crises concerning the countries. Italy was facing a debt crisis long before entering the EMU due to structural and political mistakes (Benedikter, 2012). Still, Italy still remains the third largest economy in the EMU and the eighth largest globally in 2011 with a GDP of about $2.2 trillion, Italy's financial structure is different than the structure of the other examined countries.

Greece, as well as Italy, was highly in debt when entering the EMU. At first detained to enter, then admitted in 2001, Greece, as well as other poor countries in the European Union, including Spain and Portugal, received help in form of development and infrastructure to make the countries able to enter the Euro (Kahrs, 2002). A factor for Greece's perceived struggle was revealed in late 2009, when Greek finance minister Papakonstantinou explained that the financial deficit of Greece had been misstated, from 3.6 percent of GDP to 12.8 percent, and later 13.6 percent of GDP (Akram, Ali, Noreen & Karamat, 2011). These indications showed that Greece has been struggling more than expected by the other nations and that forged reports occurred. In both of these cases, Italy and Greece, it was not a mistake in the criteria, but more was it the mistake of accepting the countries knowing they could not fulfill the criteria.

In case of Spain and Portugal, the two countries were closest to fulfilling the criteria on deficit and debt at the time of their entry to the EMU; Spain even fulfilled the deficit criterion, while Portugal fulfilled the debt criterion. In both cases, the financial crisis could not be foreseen by the analysis of numbers at their entry. However, both countries suffer from the global influence of the world financial crisis, which resulted in a dramatic increase in debt from Portugal's perspective, as well as a rapid incline of unemployment in Spain. It would not be recommendable to blame the EMU MC Criteria in all their cases. Similarly, it appears that the criteria are also not to blame in case of Italy and Greece, but rather the decisions that were made when accepting the countries to the EMU.

The question now arises why certain countries were even admitted to the Euro zone. Different explanations are made for that, however, Kahrs made an interesting observation in 2002, stating that before entry to the Euro only Luxemburg could fulfill all the Maastricht criteria for admission to the Euro. Either through forging accounts, or simply by being accepted because a majority also cannot fulfill the criteria, the decision-making and the purpose of the criteria can be seriously questioned. If in the end a desperate vision of a common currency prevails over the rules that were set to organize the EMU, it is questionable that the Maastricht criteria will be strictly enforced in the future to accept the remaining European Union countries without opt out—Great Britain and Denmark—to the EMU.

Latvia and Lithuania would be the next in Line to join the Euro. The countries have been in part of the European Exchange Rare Mechanism II for more than two years. Latvia fulfills all the criteria except the long-term investment rate criterion as of 2012, while Lithuania does not fulfill long-term investment and government deficit criteria.

Fulfillment of the criteria is the important factor in providing a form of security for the currency. Also, the EMU has to make sure that the same rules apply to all members and potential future members, without exception. This is necessary because although a Stability and Growth Pact exists, it cannot control countries economies, as it could be seen throughout the time before the financial crisis in 2007. About one third of the Euro zone members violated the Stability and Growth Pact (Darvas, 2012). As Kahrs explained (2002), penalties will be imposed if countries cannot maintain the deficit and gross debt criterion unless they have a severe recession to record. However, financial penalties will not solve a financial crisis, if not only affect the situation for the worse. Thus, a strict enforcement of the EMU MC Admission Criteria before the entry to the EMU is necessary, since otherwise crises could get out of control. The criteria also appear to be the only resort in regards to control since there has not been a crisis-resolution mechanism, which in turn led the EMU members in surprise about the financial crisis and no concrete plan on how to face the crisis (Darvas, 2012).

The case analysis showed that the EMU MC Admission Criteria are sound. Due to a lack of enforcing the criteria with many countries in the EMU, debt-laden countries could initially join the EMU, which in the longer run affected the EMU, and also the stability and credibility of the Euro as a currency. Since the criteria do not have any effect on the already admitted countries, it is of importance to strongly insist on fulfilling the criteria without approximation to avoid further danger to the currency. Thus, the criteria need not be altered, but they need to be enforced. A union in Europe with a common currency is a strong vision and has many positive reasons to be advocated. However, a union of culturally and economically very different countries needs a set of rules that is constant and applies to all members, upon which everyone can rely. The rules to be part of the European Monetary Union in this case are the Maastricht Convergence Admission Criteria.

6. Conclusion

As the monetary situation of the Euro-currency continues to dominate the headlines, the questions about the validity of the EMU MC Admission Criteria continue to arise. Any economic and monetary fluctuations that occur in Europe have an effect on the rest of the world, especially on the economies of other developed nations such as the United States. By conducting research on this topic, the current study could potentially increase the knowledge and awareness of the importance of the EMU MC Admission criteria and the problems one can face if those criteria are not evaluated properly. The two hypothetical scenarios, which tested the EMU admission criteria showed consistent results of counties' inability to satisfy two, if not three out of four conditions. The only criteria that the examined countries were able to satisfy were the price stability one. While the solutions to European monetary problems are being discussed in the news, universities, and in public, no scholarly article conveying the relationship between the current monetary and economic crisis and the EMU MC Admission criteria exist. Clearly, there is need for additional research on this topic. By doing this research, the current study attempts to analyze a topic equally important for European as well as global economy.

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