Determinant Effects of Political and Economic Factors on Country Risk: An Evidence from the EU Countries

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ABSTRACT

The paper deals with an analysis of political and economic factors influencing the country risk. We examinate economical and political factors that are related to the country risk. We provide assessment based on country the economic and financial difficulties that countries face, as well as on the investment environments. At the beginning of the paper we provide the framework for understanding the nature of country risk, we discuss ideas of renowned authors from different perspectives in regard to political and economic variables that might affect country risk. The main contribution of this paper is an analysis consisting of testing the significance of selected political and economic factors on the risk of selected European countries based on an econometric model using panel regression. We conclude the GDP per capita, inflation, unemployment, gross government debt, current account balance, international investment position and political control index of corruption and the rule of law are the main factors influencing country risk in our analysis. Based on the regression analysis we select groups of countries with highest similarieties and analyse them in detail.

INTRODUCTION

In the recent century country risk analysis became a major topic within economics and finance. The topic itself includes detail description and analysis that countries face, what also includes description of business and investment ecosystem using of different risk indicators. From our perspective country risk belongs to the category of issues that are difficult to understand because of their fragmentation and complexity. Usually country risk or general financial instability was a fact that be left in the hands of the International Monetary Fund or other international institutions or agencies. The phenomena of globalisation has already change this perspective and even more often banks, corporations and investors have enough information on the problem. Country

risk involves wide combination of macroeconomic policy, style of governance, some structural and institutional parameters.

There is no doubt that country risk is an important subject of study in research. But not only from the scientific perspective. Much more from the practical perspective of banks, insurance companies, rating agencies, central banks and financial system regulators. The term itself is often used in different ways and has many facets. That is because of the different economic and political development of a specific country. From the perspective of the country as a sovereign unit, country risk is often defined as the probability that a country might fail to generate enough foreign exchanges in order to pay its obligation in the foreign currencies.

At the beginning of our discussion, we provide the framework for understanding the nature of economic and political factors as important subjects for country risk. We discuss ideas of renowned authors and their genesis within time frame from different perspectives. In the analytical part of the paper, we focus on testing selected political and economic factors on the risk of selected European countries based on an econometric model using panel regression.

1. LITERATURE REVIEW ON COUNTRY RISK

According to D. Meldrum (2000) these additional risks, called country risks, usually include risks arising from different economic structures, policies, socio-political institutions, geographies and currencies of individual countries. Nath (2008) discuss that the increase in the flow of capital to developing countries has led to an increase in the risk exposure of creditors and investors. A. Damodaran (2013) extends this perspective with distinguishing the fact, that investors in developing countries expect to be rewarded with higher returns, but they are clearly exposed to the political and economic turmoil that often characterizes these markets or market landscape. V. Eleswarapu and K. Venkataraman (2006) examined the effect of political stability on the cost of liquidity for stocks listed on the New York Stock Exchange in 2002. They came to the conclusion that trading costs are higher for stocks of countries with higher political risk.

It is more than a decade since the Global Financial Crisis swept through financial market across the world. Many authors tend to say that in the short run, the major risk is political. However, he extended that policital risks translate into financial risks. A. Shostya (2019) explores the effects of the Global Financial Crisis in period 2007-2009 on the countries of former Soviet bloc. Based on the regression analysis idicates that former Soviet bloc countries with more favorable initial condidtions prior to the crisis and a shorter duration of the past socialist regime are more like to exhibit resilency during the global downturn.

Komidou et al. (2008) precisely listed different commonly used country risk indicators and statistical techniques in use for country risk analysis. I. Warnes and P. Warnes (2014) tested whether the country risk is a significant factor in several CAPM based models of expected equity returns in selected countries. As disscussed by T. Duarte-Silva (2018) a good consideration is whether the value of an asset should or should not be affected by the country risk. The portfolio theory and its differsification is used as an example that all risk are diversificable in some level, specifically if the case and assets' risk is diversificable. But as mentioned by some other authors like C. Erb, C. Harvey and T. Viskanta (1996) the counterpoint is that investors are not sufficient diversified accross countries, even it may be difficult to diversify away country risk because it tends to be highly correlated across countries. The expansion of business across national borders also requires the identification, assessment and analysis of the overall risk to which the economic subjects are exposed. Country risk analysis is the first step in the international portfolio building process. B. Asiri (2014) discuses that country risk is the result of political and economic factors, so it is very important to identify these factors.

Further Kosmidou at al. (2008) provide a detailed analysis of specific statistical approaches in use for country risk analysis, as well as variables affecting country risk. In general country risk is

largely influenced by political factors. But as discussed by R. Hoskisson et al. (2000), in a business context, country risk has a negative impact on the performance of a company due to unexpected changes in significant variables. They relate to any potential or actual change in the political system, civil or external warfare. They are related to certain events, such as expropriation, devaluation, but also include any democratic development that may distort foreign trade. Such incidents have a wide range of negative impacts on businesses, ranging from loss of opportunity on the one hand to overall hedging of business assets on the other. At the empirical level, there is a long history of studies on individual risk factors as mentiond by J. Leitner et al. (2015).

Political risk measures the effects of political stability on attracting foreign companies, the level of democracy on losses in international businesses and the effects of bureaucracy on attracting international business activities. Authors, J. Leitner and H. Meissner (2016) perceive political risk as a result of government interference in business operations. K. Miller (1992) argues that social insecurity may be a precursor to political insecurity. The risk of ruling policy covers any unexpected harmful measures for foreign companies taken by local authorities. These include expropriation respectively nationalization, breach of contract, foreign exchange controls, trade restrictions or trade agreements that might favour some foreign competitors over others. The literature suggests that country risk has a direct impact on costs, borrowing and borrowing, as it reflects the likelihood of non-payment of the country's claims.

M. Teixeira et al. (2008) discuss the country risk is a measure linked to the likelihood of a country's failure and is caused by events that may at least to some extent be under government control but are certainly not under the control of a private enterprise or individual. In quantitative terms, country risk is represented by the difference in return between risky and non-risky assets, which in turn depends on general liquidity conditions in international markets and the behaviour of international investors, the degree of risk aversion and the risks attributed to them by individual assets. J. Cosset et al. (1992) defined the country's risk as the probability that a country would not be able to generate enough foreign exchange to pay its debt to foreign creditors. They stressed the need to define country risk in a broader context that more perfectly represents the multidimensional nature of country risk. According to M. Bouchet et al. (2003) country risk may be triggered by a number of country-specific factors or events. In fact, three types of events can cause country risk, namely political events, economic factors and social factors. Country risk is the revelation of the loss of cross-border credit as a result of events that are more or less under government control. According to M. Teixeira et al. (2008) basically, country risk has two components: domestic and external. Domestic risk refers to specific country risk determinants that are related to economic bases, such as the fiscal and balance of payments situation, stocks of international reserves, real economic growth rates and inflation rates. External risk, on the other hand, encompasses all global factors, which in particular include the risk-free interest rate, the contagious effects of the financial crisis and the international risk aversion of investors.

Country risk refers to investing in a country where the risk is dependent on changes in macroeconomic and business environments. Also, increasing globalization has substantially increased investor exposure to events-related risks in different countries. This implies that international investment requires greater attention to risk analysis and risk hedging. The authors, S. Aboura and J. Chevallier (2015) have devoted themselves to this very issue. Their motivation was to propose an empirical methodology to create a cross-volatility index that would reflect the main sources of risk for the selected country. This approach, based on the DCC model, requires the inclusion of all sources of risk arising from the country's financial markets. The authors decided to apply the model to the US economy by creating an aggregate volatility index composed of implied volatility indices that characterize the capital market, the foreign exchange market, the fixed income market and the commodity market.

The analysis consisted of incorporating each source of risk arising from the financial markets for the country and involved two steps. The first step was to analyse the main components that isolate the main components from a given series so that these components correspond to each

other. In a second step, the authors considered a multidimensional DCC model to explore the main links between the individual components of the index. The model was applied to the US economy by creating a volatility index composed of an implied volatility index that characterizes the stock market, foreign exchange market, fixed income market and commodity market. It turned out that up to 75% of the aggregate value came from the commodity market, with an average cross-volatility index of around 22%. This new methodology is attractive to risk managers as it provides each investor with a unique volatility index to hedge against any country risk.

A. Castellanos et al. (2004) dealt with country risk and, in their paper, tried to determine whether countries with similar characteristics could be classified into homogeneous groups depending on variables considered to be most relevant in the perception of country risk. They also wanted to determine, by means of discriminatory analysis, whether the effects of variables relevant to discrimination between groups were the same or different. They used cluster analysis to integrate countries into homogeneous groups, involving 149 countries and the Euromoney-site's variables affecting country risk. The outcome of the analysis clearly confirmed the existence of four groups to which homogeneous groups of countries within each group were linked, and also showed statistically significant differences between groups. Interesting point of view from perspective of economic freedom brought L. Mura et al. (2017). They consider the level of the economic freedom in the country may have a significant influence on the economic security and the economic security of residents.

Political risk, as part of country risk, is commonly considered to be one of the main drivers of emerging stock markets. Earlier assumptions about the impact of political risk on returns on the stock markets were mainly unofficial, as it is difficult to quantify political risk. The authors, D. İkizlerli and N. Ülkü (2010), in their scientific paper, analysed the impact of political risk on trading with foreign partners on the newly established and respected markets emerging stock market using quantified values of political risk using the VAR method. Another contribution of this document was to provide an analysis of the impact of political risk on the trade of foreigners in different sectors, as different sectors have different sensitivity to political risk.

Based on the analysis, they found that most of the changes in policy risks were valued within the current month, while the response to innovation was slower. The response of individual foreign investors to changes in political risk in the various industrial portfolios differs, in particular, from the sensitivity of industry to market factors. They perceive positively changes in policy risks in sectors such as that are sensitive to market factors. Foreign partners show uncompromising trading due to changes in political risk in the food and beverage sector. Given that returns in the food and beverage sector are positively related to political risk, the results of the analysis indicated that foreign investors are not following the crowd or pursuing a feedback strategy. The authors compared the reaction of domestic and foreign investors, finding that domestic investors are trading in the opposite direction with shocks in the area of political risks, in areas that are more sensitive to market risk. Simply said, domestic investors provide liquidity to foreign investors who trade on information. This suggests that there is a significant difference between foreign and domestic investors' response to political risk.

The difference is noticeably important in the tourism sector, where foreigners respond strongly to political risk, while domestic investors are largely concerned with it. O. Roggi et al. (2017) also dealt with country risk. The aim of their scientific paper was to propose new measures for effective exposure to companies operating in emerging markets. They proposed seven new approaches and a revised CAPM model for emerging markets. They tested historical exposure rates of companies in Latin American countries in emerging markets according to the Emerging Markets Latin America Index and the American multinationals listed in the Dow Jones Industrial Average.

2. OVERVIEW OF POLITICAL AND ECONOMIC FACTOR AFFECTING COUNTRY RISK

Political factors include *the quality of the country's institutional environment*. It is believed that a sound institutional environment and low political instability should attract investor interest. Investment returns may fall due to low institutional quality and political instability. Investors spend so-called. sunk costs of getting information and getting to know the country. Institutions reduce the country-related risk by providing relevant data. Without reliable institutions, there would be a considerable degree of uncertainty about economic exchange and the risk premium would be included in the drowned costs mentioned (Hayakawa et al., 2011). Formal procedures, regulations and laws are often unclear or even contradictory in an unstable institutional environment. At the same time, formal and informal rules do not support each other, but act against each other. uncertainty about which rules will be enforced (Leitner and Meissner, 2016). In an extremely weak institutional environment, multinationals may suspect that the government is unstable and that acceptable conditions are not created to make profitable investments. They can also adversely affect operating costs (Hayakawa et al., 2011). International companies are particularly prone to this form of uncertainty because they lack a critical view of their own unique parameters of the country's institutional environment (Leitner and Meissner, 2016).

Political stability is used to assess the government's ability to fulfill its declared agenda and the ability to remain in office. If the government is unable to comply with these primary principles, we are talking about political instability (Howell, 2013). A. Alesina et al. (1992) investigated political instability and economic growth. They say that economic growth and political stability are deeply interconnected. On the one hand, the uncertainty of a country linked to an unstable political environment can reduce investment and the speed of economic development. On the other hand, poor economic performance can lead to government failure and political unrest. These factors then significantly influence investors' decisions to enter the market in that country. Political instability can indirectly accelerate debt service problems through a decline in long-term capital flows and the consequent unwillingness of creditors to rethink maturing loans. In the long term, political instability can slow economic growth, contribute to inflation, decrease production and create a lack of foreign exchange from imbalances between import and export (Vij, 2005). T. Brewer and P. Rivoli (1990) argue that political instability can reduce a country's willingness to repay debt, and crosscutting political events often precede debt spread. Countries where there are often sharp changes in the political system show a higher level of risk from the perspective of investors. For example, if an enterprise from one country exports goods to a foreign state and that state chooses a new government to apply protectionist tariffs, it will have a negative impact on the exporting enterprise.

Another factor in the systemic uncertainty that international businesses face is *corruption* in money (Leitner and Meissner, 2016). Corruption poses a threat to foreign investment for several reasons. First of all, it disrupts the economic and financial environment, further reducing the efficiency of government and business by allowing people to take on positions of power primarily through sponsorship and not on the basis of real ability. Last but not at least, it introduces instability into the political process. The most common form of corruption that we encounter in business is financial corruption in the form of special payment and bribery requirements related to import and export licenses, exchange controls, tax assessments or police protection. Such a form of corruption can lead to the withdrawal or retention of investments or make it difficult to effectively conduct foreign trade (Howell, 2013). Politically important personalities distribute licenses, contracts and public projects to their own business networks. As a result, political elites are gaining increasing wealth. They often control decisive shares of the national economy. Corruption can take the form of systemic corruption, which means that members of the ruling elite use their authority to maintain their position and wealth by systematically claiming bribes. By doing so, independent undertakings are significantly detrimental. Systematic favoritism poses a great risk for international businesses, as some markets are freely accessible at first sight. Undertakings tied to the ruling elite are favored, while independent companies have difficulties in gaining access to such net-

works. In such an environment, international companies are confronted with the requirements for entry commissions and payments that are necessary to satisfy the unjustified claims of tax authorities, security services or customs. As a result, corruption has become an integrated part of the public system and is therefore systemic (Leitner and Meissner, 2016). In countries where corruption becomes exaggerated, it can lead to the fall or overthrow of the government, or, in the worst case, violations of law and order, rendering the country unfounded. Corruption poses a great risk to foreign trade, as it can lead to popular dissatisfaction, unrealistic and inefficient controls of the state economy and support the development of the black market (Howell, 2013). Institutional ambiguities, systematic favoritism and corruption are political factors of the country's risk faced by international enterprises in many countries of the world. Even if they occur individually, they are interconnected. Those political risks are rooted in the country's social and political order, as they are based on repetitive patterns (Leitner and Meissner, 2016).

An important aspect in assessing a country's risk is also *the quality of the bureaucracy* in the country, which tends to minimize policy revisions as governments change. It is optimal for foreign investors if the bureaucracy in the country has its strength and expertise to manage without drastic changes in policy or the interruption of government services. In low-risk countries, bureaucracy is independent of political pressure and has a training mechanism in place (Hayakawa et al., 2011). Countries lacking the dampening effect of strong bureaucracy are scored low because government change is shocking in terms of policy formulation and day-to-day administrative functions. Excessive bureaucracy or lengthy delays in obtaining permits can significantly increase production costs of foreign firms. It follows that the lack of quality of bureaucracy has negative and dissuasive effects on foreign investors and creditors.

From the perspective of country risk, the level of *internal conflict* in the country is very important. The internal conflict involves political violence in the country and its current or potential influence on the government. According to L. Howell (2013) a country can be considered safe if there is no armed or civilian government and the government does not touch arbitrary violence, directly or indirectly, against its own population. On the other hand, the non-ideal country in terms of risk to investors and creditors is one in which wars, terrorism and political violence persist .

In addition to internal conflicts, *external conflicts* may also occur in the country. The external conflicting measure is to assess the existing government's risk from foreign pressure, which can take two forms, non-violent external pressure and violent external pressure. Examples of non-violent external pressure include diplomatic pressure, various trade restrictions, territorial disputes and sanctions. These pressures are more acceptable to investors as opposed to violent external pressures, which may be cross-border conflicts with the global war. These violent pressures can have irreparable consequences for the country in the form of a slowdown in economic growth and a decline in competitiveness. Thus, external conflicts can adversely affect foreign trade in many ways, from operation constraints to trade and investment sanctions, distortions in the allocation of economic resources, a violent change in the structure of society (Howell, 2013).

The involvement of troops or *army in politics* leads to increased democratic accountability. This hard power also has other significant benefits. For example, the military may engage in government because of a real internal or external threat created. However, the involvement of the military in government leads to a disruption of government policy in the sense that the defense budget would be increased at the expense of other budgetary means. In some countries, the threat of military takeover may force an elected government to change policy or cause it to be replaced by another government more suited to the will of the military. A military takeover or a threat of takeover may also pose a high risk if this indicates that the government is unable to function effectively. In the event of a change in government, we have mentioned above what risks may arise (Howell, 2013). However, a larger military regime poses a greater risk. In the short term, the military regime can provide new stability for the country, thereby reducing business risks. On the contrary, in the longer term, however, the risk will certainly increase, partly because the governance system becomes corrupt and the continuation of such a government is likely to create armed opposition.

Overall, lower risks indicate a higher level of military participation in politics and a higher level of political risk as mentioned by Hayakawa et al. (2011). *Law and order* form one component, but its two elements are considered separately. The law expresses the strength and impartiality of the legal system, while order is an assessment of compliance with the law. Usually, the law is associated with the judicial system of the analyzed country. In the case of foreign trade disputes, it is important that the lawsuit be prompt, in order to avoid lengthy hearings and to be impartial to the parties involved. If these conditions are met, the country is assessed on the basis of this political factor as a less risky country. As mentioned in L. Howell (2013), conversely, if a country is characterized by a high level of crime, widespread illegal strikes and if the law is normally ignored without effective sanctions, we consider it a risky country.

According to L. Howell (2013) when examining a country's risk, it is also important to analyze the country's ethnic distribution or so called *ethic tension*. The task of this component is to assess the level of tension within a country attributable to racial, national or linguistic divisions. We divide countries where conflicting groups are intolerant and are not interested in compromise, at which time there is racial and national tensions that negatively affect the country's risk assessment. On the other hand, those countries that show minimal ethnic tensions, although differences still exist, are classified in the higher rated group. *Democratic accountability* expresses the extent to which the government reacts to its people. The less it responds, the more likely it is that the government will fall in a democratic society, but perhaps also violently in a non-democratic one. The country's *investment profile* also provides a great source of information about the country's risk. Foreign investors take into account the country's investment profile when deciding on the implementation of their investment plans. Thus, the expected viability of the contract and the rate of return are assessed. The ability of the country to repay its liabilities and the number of late payments is also examined. Countries with high levels of investment and the lowest number of late payments are considered low risk countries.

Hayakawa et al. (2011) further discuss that with regard to political factors, it is important to mention the influence of local competitors and partners, who, for better access to the political process, can persuade the government to favor them at the expense of foreign investors and thus reduce the competitiveness of multinationals. Thus, we can conclude that political risk may have an adverse effect on foreign trade and thus on country risk in many ways. Undoubtedly, countries with high financial risks are more likely to face a severe financial crisis. As a result of a change in the country's financial indicators, the financial situation may change. Therefore, when analyzing a country's risk, it is very important to monitor the economic factors of the country in which the investor wants to do business.

Gross domestic product per capita (GDP) per capita is a measure of the economic degree of social and economic development. It reflects the level of prosperity in the medium to long term. Compared to other indicators such as inflation and unemployment rates, GDP per capita remains significantly more stable over time (Fuchs, 2008). In terms of globalization, prosperous countries rely on investor confidence because of their relatively high reliance on funding through international capital markets. If a highly developed industrialized country fails to meet its financial obligations, it incurs higher economic costs than countries with lower economic performance. Economic policies therefore tend to face the risk of avoiding defaults in any case. According to B. Asiri (2014) a government in a developed country has a larger tax base from which to draw funds in the event of an impending crisis. M. Teixeira et al. (2008) see the *Gross Domestic Product Growth* as very important variable and as a synthesis of general economic conditions in the country. It has less information than GDP per capita. Higher economic growth is linked to a better relationship between government debt and GDP, which means less risk for the country concerned. The rapid growth rate points to the prevailing rapid economic activity, but does not necessarily mean sustained higher prosperity. The World Bank uses *Gross national income* (GNI) per capita to classify countries for analytical purposes and to determine eligibility for credit. This variable measures the level of land development. According to M. Vij (2005), poorer countries may have less flexibility to reduce con-

sumption than richer countries. GNI is positively linked to the country's creditworthiness rating. This implies that countries with low gross national income per capita will generally be less creditworthy. The authors M. Vij (2005) and B. Asiri (2014) looked at the variable *gross capital formation*, which consists of expenditures on increases in fixed assets of the economy and net changes in inventories. It is calculated as the ratio of gross domestic investment to gross domestic product, and is also known as propensity to invest. Gross capital formation captures the country's prospects for future growth and is positively related to its risk rating.

H. Min (1998) and Teixeira et al. (2008) consider *inflation rate* serves as a reference for the quality of the country's economic policy. They also argue that without a stable economy and the right prices, there is an increase in the economic risk of reducing productivity and investment. Simply put, the higher the inflation rate, the higher the level of uncertainty about the economic environment of the country, and thus the perception of the risk of economic operators is higher. In addition, given the central function of money as a means of exchanging and storing value, the counterproductive effect of higher inflation seems to be undeniable. According to M. Fuchs (2008), if there is a lack of employment in the country, macroeconomic costs in the form of lost economic performance and higher social security expenditure are undoubtedly incurred. For structural reasons, a certain level of deep unemployment is possible, which is necessary. However, as discussed in S. Toma et al. (2011), after exceeding the 15% unemployment rate, the country is considered high risk and unstable. *The exchange rate* expresses the domestic currency in foreign currency. Exchange rates have a significant impact on international trade. Exchange rate risk is associated with unexpected and unfavorable exchange rate fluctuations. An unexpected change in the exchange rate regime may be to change the fixed exchange rate to floating. Unexpected exchange rate changes are dangerous for investors. Investors are able to eliminate exchange rate risk for many currencies at an acceptable cost in the short term through a variety of hedging mechanisms and term arrangements. However, currency security becomes impractical during the life of the business. There is an increase in exchange rate risk if it cannot be naturally hedged, ie by reconciling income and costs in the same currency.

Teixeira et al. (2008) thought that a sustainable *fiscal budget* is often seen as an important indicator of the creditworthiness of the economy. The amount of resources a country can generate is directly related to the perception of economic factors about the country's solvency. The larger the fiscal surplus, the better the conditions in the country to maintain or even reduce the general government debt-to-GDP ratio, thereby reducing the likelihood of default.

Public debt as a percentage of GDP is often used as an indicator of the accumulated country's fiscal performance. According to Teixeira et al. (2008) greater indebtedness usually causes major difficulties for the public sector to repay debt services, leading to a risk of default. *The ratio of total external debt to exports* measures the country's debt burden compared to the main source of foreign exchange. Total external debt represents the amount owed to non-residents payable in foreign currency. Experts, M. Vij (2005), Teixeira et al. (2008) and Asiri (2014) agree that a country with a high external debt-to-export ratio is more vulnerable to foreign exchange crises and is more likely to default if this ratio assumes values between 200% and 250%. This variable is therefore negatively linked to the country's credit rating, as the external debt-to-export ratio is expected to lead to lower creditworthiness. The volume of *international reserves is* directly related to the country's international liquidity. Provisions provide short-term protection against fluctuations in foreign income. As defined by Teixeira et al. (2008) international liquidity measures a country's ability to meet its current account deficit without having to repeat restrictive adjustment measures. Based on the findings of M. Vij (2005), the higher the reserves available to cover respectively. debt repayment, the lower the likelihood of default and greater country flexibility in the event of economic shocks. Permanent *current account deficits* mean poor international competitiveness, as imports of foreign goods and services cannot be offset by exports. According to M. Fuchs (2008) the main risk potential of the current account deficit is that a loss of confidence can lead to a sudden outflow of capital and subsequent currency depreciation.

B. Asiri (2014) explains in his paper that the current account deficit is non-linearly dependent on the probability of default. This is because the current account deficit is generally equal to the amount of funding required. Consequently, countries with large current account deficits are less credible. Conversely, one way to reduce country risk is to increase the current account surplus, as it increases the country's liquidity and reduces the likelihood of default. M. Fuchs (2008) considers the International Investment Position (MIP) as the variable that reflects the difference between external financial assets and external financial liabilities. He also calls it as *net foreign liabilities*. It is considered a long-term capital buffer of the economy. It affects capital transactions recorded in balance of payments statistics, the impact of wealth from foreign exchange rates and securities prices, depreciation and other accounting measures. Given that the MIP is a much more stable measure than the financial account balance, it can be considered a longer-term structural indicator. The increase in net foreign liabilities causes a loss of investor confidence and adverse effects on the country's wealth. M. Vij (2005) agrees that countries with high *export growth rates* are more likely to repay their debts. As exports are the main source of foreign exchange earnings for most countries, countries with high export growth rates have better creditworthiness. The export growth rate is therefore positively correlated with the country's creditworthiness rating.

3. METHODOLOGY AND DATA

The main aim of the paper is to find similar EU countries from the perspective of risk and changes within them. At the beginning, we specify and test the significance of individual political and economic factors on the country's risk using an econometric model. We analyse all EU countries, specifically Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Netherlands, Ireland, Lithuania, Latvia, Luxembourg, Hungary, Malta, Germany, Poland, Portugal, Austria, Romania, Slovakia, Slovenia, United Kingdom, Spain, Sweden and Italy. We use individual political and economic indicators for the period 2005 to 2017 with annual frequency, using datasets of the World Bank, the International Monetary Fund, OECD, WITS, Eurostat and The Global Economy.

We use longitudinal or panel data for twenty-eight EU countries and seventeen annual periods. The appropriate approach applied for the data structure is panel regression. That enables us to determine and select significant political and economic variables we will use for further specification of similarities among EU countries. The analysis will be based on an econometric model with the explanatory variables in the models being the same at the beginning, only the explained variable, the country's risk expressed by rating will be changed. In the first model (model M) Moody's rating as the country risk dependent variable is used. In the second (model SP) S&P is used and as the last initial model Fitch rating is used (model F). Due to the presence of multicolinearity in the model, we had to reduce initial explanatory variables that were strongly correlated with each other. The general model that we want to estimate takes the following form:

$$CR_{it}=\text{\ss}_0+\text{\ss}_1 GDPpc_{it}+\text{\ss}_2 GFCF_{it}+\text{\ss}_3 CPI_{it}+\text{\ss}_4 UNEMPL_{it}+\text{\ss}_5 Debt_{it}+\text{\ss}_6 CuA_{it}+\text{\ss}_7 IIP_{it}+\text{\ss}_8 Ex_{it}+\text{\ss}_9 PSI_{it}+\text{\ss}_{10} COC_{it}+\text{\ss}_{11} IFI_{it}+\text{\ss}_{12} RLI_{it}+\mu_{it}.$$

where *CR* stands for country risk expressed as a rating based on the ratings of the major rating agencies, specifically we selected Moody's because of higher coefficient of determination in compare to Standard & Poor's or Fitch used as dependend variables. We have transformed the rating scale into numerical expression, assigning 20 to the best rating (highest quality) and 1 to the worst rating (very high probability of failure). There is a negative correlation between rating and country risk in the sense that when a country's risk decreases in the analysed country, it leads to a rating increase. This is important to avoid misinterpretations.

The explanatory variables used in our model: gross domestic product per capita expressed in dollars (*GDPpc)*; growth of gross domestic product, year-on-year change in percentage (*GDP)*; gross capital formation, year-on-year change in percentage (*GFCF*); consumer price index on annual ba-

sis and expressed in percentage (*CPI*); unemployment rate as percentage of total workforce (*UN-EMPL)*; gross government debt expressed as percentage of GDP (*Debt*); international reserves (including gold) expressed in dollars (*IntR*); balance of payments current account expressed as percentage of GDP (*CuA*); international investment position expressed as percentage of GDP (*IIP*); *EX* export growth rate expressed on year-on-year basis in percentage (*EX*); political stability index (*PSI*); government efficiency index (*GEI*); corruption control index (*COC*); index of investment freedom (*IFI*); war risk index (*WR*); rule of law index (*RLI*); business freedom index (*BFI*); and random component.
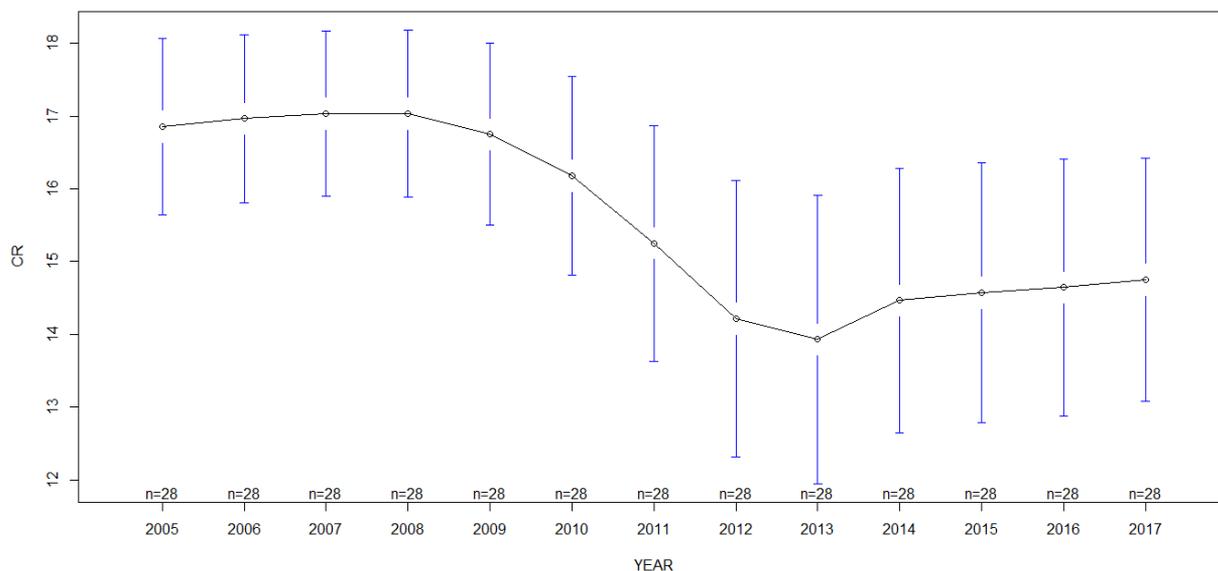
Figure 1. Heterogenity of the particular countries in different time periods of years 2005-2017.

Source: elaborated using R program.
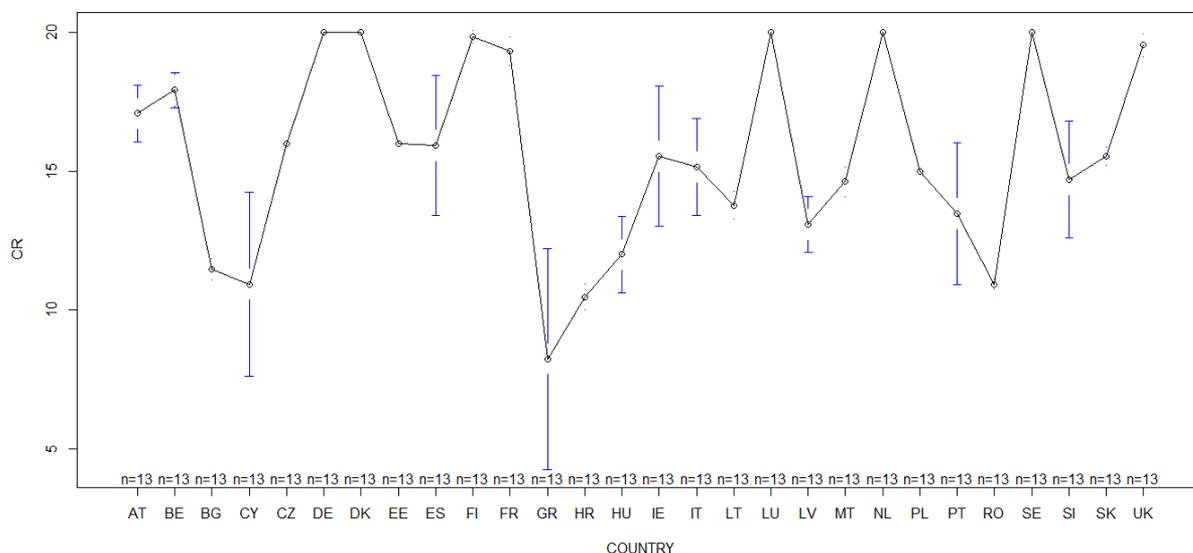
Figure 2. Heterogenity of the particular time values across countries.

Legend: AT- Austria, BE- Belgium, BG- Bulgaria, CY- Cyprus, CZ- Czech Republic, DE- Germany, DK- Denmark, EE- Estonia, ES- Spain, FI- Finland, FR- France, GR- Greece, HR- Croatia, HU- Hungary, IE- Ireland, IT- Italy, LT-

Lithuania, LU- Luxembourg, LV- Latvia, MT- Malta, NL- Netherlands, PL- Poland, PT- Portugal, RO- Romania, SE- Sweden, SI- Slovenia, SK- Slovakia, UK- United Kingdom.

Source: elaborated using R program.

At the beginning, we thought that individual effects would be present in the models due to the diversity of the economic and political specificities of the EU countries. Based on the LM-test and the F-test, we can conclude that the assumption was correct and the models actually show individual effects. Using these tests we also detected the presence of time effects. As time and individual effects show significant significance in the model, double effects have also been shown to be statistically significant. We then considered both individual and time effects. Disregarding the individual and temporal effects would lead to a distortion of the regression coefficients because a large part of the variability would be affected in the random component and thereby lose the white noise properties. In the next step we tested cross-sectional dependence in models. From the results of the Pesaran cross-sectional CD test, it is clear that in each model the p-value is less than the significance level $\alpha = 0.05$, therefore we reject the null hypothesis and accept the alternative hypothesis that residues between individual entities are not correlated.

Table 1. Diagnostic tests of the models

Tests	model M		model SP		model F	
	Test statistics	p-value	Test statistics	p-value	Test statistics	p-value
Chow test for poolability						
	1,369	0,020	3,079	0,003	5,161	< 0,001
Individuals effects						
F-test	28,301	<0,001	26,975	<0,001	21,579	<0,001
LM- test	21,861	<0,001	24,969	<0,001	20,895	<0,001
Time effects						
F-test	4,170	<0,001	3,881	<0,001	4,080	<0,001
LM-test	2,788	0,003	1,915	0,029	2,187	0,014
Double effects						
F-test	22,978	<0,001	21,632	<0,001	17,759	<0,001
LM-test	17,429	<0,001	19,01	<0,001	16,322	<0,001
Pesaran's test of cross sectional independence						
	8,216	<0,001	9,679	<0,001	10,331	<0,001
Ran-order correlation - Breusch- Godfrey/Wooldridge test						
	155,5	<0,001	113,15	<0,001	70,872	<0,001
Stationarity - Maddala-Wu Unit Root test						
	27,077	<0,001	23,301	<0,001	29,881	<0,001
Autocorrelation - Durbin-Watson test						
	0,849	<0,001	1,035	<0,001	1,3921	<0,001
Heteroscedasticity - Breusch-Pagan test						
	66,872	<0,001	41,238	<0,001	102,45	<0,001

Source: calculated in R program.

Based on the results of the Breusch-Godfrey / Wooldridge Higher Order Correlation Test, we can conclude that even this assumption is a violation in every model considered. According to the Durbin-Watson test, we also confirmed that there is a series first order correlation in the models, ie the time series are correlated with each other. In the last step we tested the assumption of stationarity and heteroscedasticity in each model, but the results show that these assumptions were not fulfilled either.In all three variants of the model, all assumptions put on the panel data model were violated. One way to eliminate model deficiencies is to apply the robust Allerano variation-

variation matrix used in the fixed effect model as discussed in Croissant and Millo (2008). We are working with cross-sectional data for EU countries (see Figure 2) extended with their changes over time, as we see in Figure 1. When using panel data, we can generally consider two types of models, namely the fixed effect model and the random effect model. We applied the Hausman test and decided which model suited our conditions. The Hausman test results showed that the p-values in each considered model are less than the established significance level α = 0.05, thus rejecting the null hypothesis and accepting an alternative hypothesis claiming that it is preferable to use the fixed effect model.In all three variants of the model, all assumptions put on the panel data models, so we eliminated model deficiencies by applying the robust Allerano variation-variation matrix used in the fixed effect model.

Table 1. Significance of explanatory variables in analysed models

	model M		model SP		model F	
	Est. ß	p-value	Est. ß	p-value	Est. ß	p-value
GDPpc	2,881e^{-05}	0,039 *	1,871 e^{-05}	0,166	3,182e^{-05}	0,106
GFCF	7,967e^{-03}	0,144	0,011	0,259	1,946e^{-05}	0,998
CPI	-0,140	0,020 *	-0,174	0,008 **	-0,158	0,001 **
UNEMPL	-0,102	0,011 *	-0,144	0,004 **	-0,125	0,030 *
DEBT	-0,079	<0,001 ***	-0,077	<0,001 ***	-0,106	<0,001 ***
CuA	0,041	0,078 .	0,043	0,240	0,067	0,048 *
IIP	0,013	0,010 **	0,009	0,183	0,009	0,193
EX	-8,834e^{-03}	0,198	-2,948e^{-03}	0,603	2,645 e^{-04}	0,967
PSI	0,150	0,785	-0,223	0,638	-0,389	0,513
COC	-0,575	0,043 *	-0,381	0,689	-1,235	0,326
IFI	0,011	0,322	-5,464e^{-03}	0,734	0,026	0,194
RLI	4,347	<0,001 ***	4,043	<0,001 ***	5,051	<0,001 ***
R^2	0,762		0,718		0,689	
R^2 adj.	0,734		0,685		0,652	
Countries = 28, Time periods = 13, Observations = 364						

Significance level: 0 '***' 0,001 '**' 0,01 '*' 0,05 '.' 0,1 ' ' 1
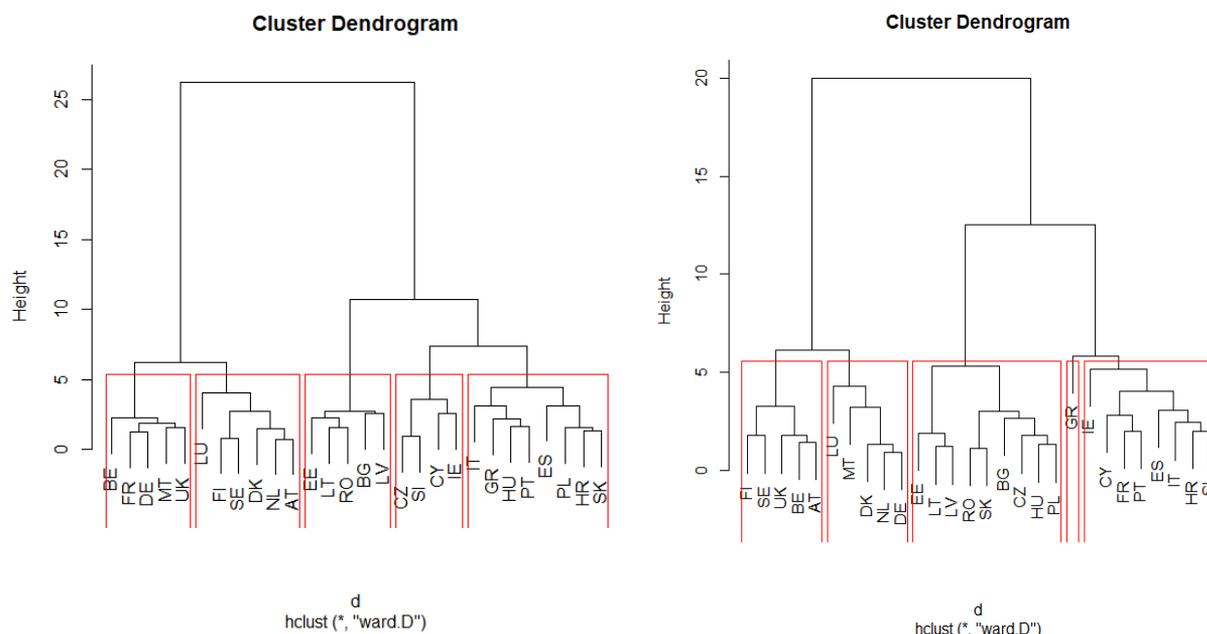
Source: calculated in R program.

Among the three models as the most appropriate for assessing country risk follows the first model (model. M) with the desired pointer credit rating by Moody's evaluation, by which we can explain about 78% of the total variability of the indicator. The other two models are able to explain the smaller percentage of the total variability of the indicator. They also show a smaller number of statistically significant variables compared to the first model. For this reason, only the first model (model M) is considered for the next analysis.

According to our investigation, the GDP per capita, inflation, unemployment, gross government debt, current account balance, international investment position and political control index of corruption and the rule of law are the main factors influencing country risk. The factors are these that will form the basis of the following part of the analysis. Our aim is to classify all the twenty and eight countries of the European Union into homogeneous groups with a certain degree of country risk, based on important political and economic factors. We also aim to compare the change over time, and we have chosen to use all of the variables mentioned for 2008 and 2017 for this purpose. Simply, we want to find out how the classification of the EU countries into individual risk groups has changed over the selected time period. We also want to map in which countries currently we have the best prerequisites to realize investment plans. To identify the position of the EU countries, we used the clustering, also called as cluster analysis. In the paper we apply the hierarchical agglomerative method. In this method, the entities are in their own separate cluster. Two

closest eventually the most similar clusters are then combined. This process is repeated until all subjects or objects are in one of the clusters. Finally, the optimal number of clusters is selected from all cluster solutions. From the hierarchical agglomerative method, we used Ward method. In this method, all possible cluster pairs are combined and the sum of the square distances in each cluster is calculated. Subsequently, the combination that gives the lowest sum of squares is selected. This method tends to produce clusters of approximately the same size. Ward method is one of the most widely used and popular methods for using cluster analysis. We use dendrogram to visualize the results.

4. RESULTS AND DISCUSSION

The significant political and economic variables used by us as inputs are defined in different units of measurement, e.g. GDP per capita is expressed in dollars, while unemployment and others are defined as a year-on-year percentage change. Therefore, we first standardized these variables to eliminate their impact. If we did not standardize the variables, they would be reflected in our analysis with varying importance, and this would result in an overall distortion of the results. Subsequently, we used a hierarchical clustering method, namely the Ward method, to determine the number of clusters with respect to the country and country risk for 2008 and 2017. Using R programming, we created 5 clusters, or so called 5 homogeneous risk groups based on significant economic and political variables for 2008 as well as for 2017. Clusters are shown in the following output from the R program (Figure 3). In addition, in the description of the figure, there are individual clusters with the assigned EU countries. The dendrograms show that there were changes in individual homogenous risk groups between the monitored period, e.g. from the V4 countries in 2008 Hungary, Slovakia, Poland belonged to cluster number 3, while the Czech Republic to cluster number 4. However, in 2017, all V4 countries are in cluster 2. However, in order to draw conclusions from the analysis in the next section we take a closer look at the characteristics of each cluster.

Figure 3. Cluster dendrogram for year 2008 (left) and 2017 (right).

Source: own calculation in R environment.

After the integration of EU countries into individual homogeneous groups in terms of country risk (see Figure 3), we calculated the average, minimum and maximum values of significant economic and political indicators. Base on them we did a breakdown of the clusters and the corresponding average values of these clusters for 2008, when the financial crisis occurred. Using Ward method for clustering we specify five groups of countries in the specific clusters. Belonging of a country to the specific group is following Cluster 1 = Belgium, France, Malta, Germany, United Kingdom; Cluster 2 = Bulgaria, Estonia, Greece, Lithuania, Latvia, Romania; Cluster 3 = Croatia, Hungary, Poland, Portugal, Slovakia, Italy, Spain; Cluster 4 = Cyprus, Czech Republic, Ireland, Slovenia; Cluster 5 = Denmark, Finland, Netherlands, Luxembourg, Austria, Sweden

Cluster 1 has low level of landscape risk. For this cluster is a specific high level of GDP per capita ($ 41630.84). This cluster is characterized by the second lowest level of inflation at 3.54%. This group of countries is characterized by a relatively high unemployment rate and the current account deficit is negative, but only to a small extent compared to clusters no. 2, 3, 4. Of all the clusters, this cluster shows a positive international investment position, ie foreign financial assets outweigh the liabilities and countries belonging to this cluster act as net lenders to foreign countries. In terms of the Corruption Perceptions Index, countries show a low level of corruption and a high level of rule of law. Cluster 2 has the highest level of country risk. Countries belonging to the cluster have the lowest GDP per capita, also the highest inflation, and the highest deficit of the current account. From the perspective of the political factors, they dispose with the highest level of corruption. In addition, the lowest level of development of the justice system is specific for this cluster. From the analysed countries, this cluster includes countries with the highest level of investor failure. Cluster 3 might be evaluated as a cluster with a medium level of country risk. As countries testify to a high level of corruption, the rule of law index also points to the underdeveloped legal system of countries. Indicators of public debt and international investment position point to a high level of indebtedness of the country. There is also a current account deficit in countries belonging to this cluster. Countries belonging to cluster 4 show the country's medium level of risk. Economic as well as political indicators get moderate or better to say average values among analysed countries. Cluster 5 groups together countries with moderately low country risk. GDP per capita is at the highest level of all clusters, as well as low inflation and unemployment. As regards the indebtedness of countries, they show a very small percentage of indebtedness of total GDP, and have surplus of the balance of payments account. Corruption in the country is minimal and the legal system of countries is relatively high.

Subsequently, we specified EU countries into individual homogeneous groups with a certain degree of country risk for 2017: Cluster = Belgium, Finland, Austria, United Kingdom, Sweden; Cluster 2 = Bulgaria, Czech Republic, Estonia, Lithuania, Latvia, Hungary, Poland, Romania, Slovakia; Cluster 3 = Croatia, Cyprus, France, Ireland, Portugal, Slovenia, Spain, Italy; Cluster 4 = Denmark, Netherlands, Luxembourg, Malta, Germany; Cluster No.5 = Greece.

Cluster 1 has moderate country risk level. This cluster brings together countries that have the second highest GDP per capita. As for the inflation rate, as in other clusters, it is close to 2%. That is because the EU countries have to meet the ECB's inflation target. These countries are characterized by a current account surplus; countries in international trade act as net lenders and show low levels of corruption. Countries in the cluster 2 have medium level of country risk. This cluster contains countries with relatively stable values of economic and political variables. Cluster 3 disposes with the medium level of country risk. Countries belonging to this cluster have relatively low GDP per capita, inflation above 2%, and relatively high indebtedness. They act as net debtors in international trade. On the contrary, they show a current account surplus. Based on political indicators, these countries also have shortcomings, particularly in the area of corruption. Cluster 4 is the one with the lowest level of country risk. From the point of view of investment intentions, these countries fulfil all conditions. They have the highest GDP per capita, low inflation and unemployment rates. They have the highest balance of payments surplus and financial assets outweigh the liabilities. In terms of the political environment, they are also attractive to investors, mainly due to the

high level of corruption control and the effective functioning of the rule of law. At the end cluster 5 has high level of landscape risk. This cluster is the opposite of cluster 4, namely the highest unemployment of all clusters, the highest level of public debt. As the only cluster has a current account deficit, financial assets also highly outweigh the liabilities; it means that the countries are net debtors. The political background of the countries is unsatisfactory due to the high corruption and low level of development of the legal regime.

Based on the average values, we estimated the corresponding level of country risk in each cluster for 2008 and 2017. We see that only Greece (see left part of the Figure 4) currently belongs to the country with the highest level of country risk. In the theoretical part, we mentioned that Greece, when joining the Eurozone, published misleading information regarding compliance with the Maastricht criteria, namely the size of the reported sovereign debt. At present, the country still has a high level of indebtedness, therefore, based on the analysis carried out, investors should consider carrying out their investment activity in that country.

Based on our analysis regarding the V4 countries, Slovakia, Poland and Hungary in 2008 belonged to a cluster with a medium level of risk, while the Czech Republic belonged to a cluster with medium level of country risk. Currently, all V4 countries belong to a mid-range burst with countries such as Romania, Bulgaria and the Baltic States. It can be stated that relatively optimal conditions for investment intentions are created in these areas. However, in addition to political and economic factors, it is necessary to examine the investment market in the country and to map the competitiveness of the business.

CONCLUSION

The paper provides a detailed literature review of country risk, its definition and its specific aspects. Based on panel data regression we analyse and test the significance of selected political and economic factors. The results suggest that the GDP per capita, inflation, unemployment, gross government debt, current account balance, international investment position and political control index of corruption and the rule of law are the main factors influencing country risk in our analysis. Using the clustering, we define groups of the similar EU countries from the perspective of risk and changes within them in the period of one decade. Based on cluster analysis, we have included EU countries into five homogeneous groups with appropriate country risk levels for 2008 and 2017, using significant variables identified by regression analysis of panel data. Our goal was to identify change over time and identify which countries are optimal for carrying out risk-safe investment plans. Based on results we can conclude that it is best for investors and creditors to place their capital or start their business in countries like Malta, Germany, Luxembourg, the Netherlands and Denmark. These countries showed the best economic and political conditions in all EU countries. If investors start their business in these countries, they can expect profitable and profitable investments. The Baltic States, the V4 countries, together with Bulgaria and Romania, represent a medium level of country risk. Thus, if investors decide to place their capital in these countries, they should carry out additional market and competitiveness research in the country so that they can make a rational decision whether or not to enter the market. Conversely, the country of Greece, which is based on our analysis identified as the most risky area for carrying out investment plans, investors and creditors should be very cautious and not enter the country's market because of the high probability of default and unpredictable situation in the country.

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