

Financial Security Assessment in the European Union Countries

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Abstract. Financial security of the country means the absence of threats to the financial system, ensuring the stability and development of the financial system and the ability to maintain the financial sovereignty of the state. The aim of the article is to evaluate financial security in EU countries. The aggregate financial security index (AFSI) is used to reach this goal. AFSI calculation is based on five sub-indexes: Human Development Index, Economic Globalisation Index, Financial Development Index, Index of Economic Freedom and Country Level Index of Financial Stress. The results show that Market-based EU countries have the highest financial security. The lowest financial security was set in Eastern European countries.

Keywords: *financial security, aggregate financial security index, EU countries, financial globalisation, financial sovereignty.*

Introduction

Relevance of the article

The financial security of the country creates favourable conditions for the development of the financial system and financial stability. Furthermore, financial security has impact on the country's attractiveness for investment and economic growth and promotes sustainable business development. Growing financial security helps prevent crisis and in crisis situations, it helps to manage threats to the financial system and restore lost stability. The financial crisis in 2007–2008 had a major impact on increased interest in financial security. The crisis brought a deep and long period of recession in the world economy. In order to avoid a similar situation in the future, it is important to have reliable methods that can identify changes in financial security. On the other hand, the coronavirus pandemic in 2020 created new assumptions for the country's financial security empirical research which led to the creation of an aggregated financial security index. The aggregate financial security index presented in this investigation integrates key aspects of financial security and provides an opportunity to assess the financial security of the country.

Level of problem investigation

The concept of a country's financial security is often used in a theoretical context. There are several works which discuss country's financial security concept, structure and indicators (Koval, 2013; Pochenchuk, 2014) and presenting empirical studies of financial security in separate country or region (Semjonova, 2014, 2016; Li & etc., 2014; Guryanova & etc., 2017, Reutov & etc., 2018). N. Semjonova (2016) investigated the Baltic States financial security and compared the results to the financial security of Sweden, Belgium, Italy, and the United Kingdom. The analysis of the literature shows a lack of integrated financial security studies in the EU countries.

Scientific problem.

What tools could be used to measure financial security in the European Union countries?

The object of the article – the financial security of the European Union countries.

The aim of the article – to evaluate financial security in EU countries.

Objectives of the article:

1. To analyse the theoretical aspects of the financial security of the country.
2. To create the aggregate financial security index.
3. To assess financial security in different groups of EU countries.

Methods of the article: analysis of scientific literature, statistical analysis, statistical modelling.

1. Theoretical background of country's financial security

A country's financial security is defined as the ability of the country to reduce and control systemic risks and threats that has an effect on a country's financial system stability and development. Financial security creates favourable conditions for economic growth in the long run. Furthermore, it can be described as an absence of threats to the financial system and the ability to protect the financial system and a country's financial sovereignty from potential shocks and vulnerabilities.

The issue of the relationship between financial sovereignty and financial security is widely discussed in the literature. According to Semjonova (2016), the main objectives of the country's financial security strategy is to maintain the country's financial independence. Financial sovereignty is emphasised as one of the most important pieces of evidence of financial security in many scientific works (Fujing, 2007; Li & etc., 2014; Liu, 2016). On the other hand, most authors agree that the financial sovereignty of the country takes on a new meaning in the context of the modern world and financial globalisation (Leiteritz, 2001; Obermeier, 2016).

Financial globalisation determines the integration of the country's financial system into the global financial system. It has a positive impact on the development of the country's financial system and includes the globalisation of financial markets, financial institutions and international capital flows. According to Bhanumurthy & Kumawat (2020), financial globalisation affects economic growth through promoting foreign direct investment, financial development and changes in government policies. Globalisation processes have a significant impact on the country's financial security (Adilova et al., 2015). Fujing (2007) noticed that financial security manifests as the ability of the financial system to function effectively to develop and to resist sudden changes in international capital demand and supply resulting from financial globalisation. The author emphasised the importance of market openness for the country's financial security.

The country's financial security is an important part of economic sustainability. Growing financial security shows that the country is able to maintain financial stability and responsible use of financial resources in the long run. This ensures a sustainable financial system for future generations. According to Ivanova et al. (2017), sustainable economic growth depends on the implementation of political tools which helps to maintain financial security. Those tools should be orientated towards reduction of inflation, budgetary imbalance, capital outflow, income inequality growth and creation of favourable conditions for sustainable business development. Onyshchuk & etc. (2020) emphasised the significance of financial system sustainability to a country's financial security. The main factors of financial sustainability are the efficiency of banking and non-banking financial institutions, which is supported by macroprudential tools. Macroprudential regulation helps to maintain the financial system stability and reduces systemic risk.

The analysis of the concept of financial security revealed that it is a broad concept that combines not only aspects of financial institutions, financial markets and the country's financial security and stability but also the factors that create the preconditions for long-term economic growth. According to Reznik & etc. (2020), financial security is an important part of economic security as well as national security it ensures the protection of the country's financial and economic interests. A review of the literature shows that the concept of the country's financial security has a solid theoretical background. However, the empirical research of this area is local and limited to the analysis of one or several countries. Shkolnyk & etc. (2020) noted that a country's financial security is affected by the individual characteristics of a country's financial system and financial management. These characteristics determine the development of the country's economy. The indicators are used to assess financial security, as well as the nature of the interaction between these indicators, depend on the country's individual characteristics.

2. The analysis of empirical research of financial security assessment

The analysis of the literature shows that the country's financial security researched at the theoretical level has recently become the object of empirical investigation. The financial crisis in 2007–2008 promoted empirical research on financial security in the financial globalisation context. Globalisation processes help to develop the country's financial system, promote economic growth and strengthen the country's financial security in stable conditions. However, financial globalisation can also be a source of economic crisis and have a negative impact on financial security if a country's financial system is not

properly prepared. Tkalenko (2013) investigated the importance of globalisation processes to Ukraine's financial security. The financial security assessment was based on an analysis of macroeconomic indicators. The results showed that the crisis in 2007–2008 had a negative impact on Ukraine's financial security for external factors that decreased the country's financial stability.

Semjonova (2014), investigating Latvia's financial security, also noticed the importance of external factors for the stability of the country's financial system. The author used macroeconomic indicators and expert opinion analysis to assess the country's financial security. In this way, the usual quantitative assessment of financial security was complemented by a qualitative analysis. The author noted that the opinions of professionals and academic expert groups differed in several cases. The expert opinions differed on the significance of the external government debt to the total debt ratio and the long-term interest rate of the government debt bonds for assessing the country's financial security. Semjonova (2016) measured the level of financial security in the Baltic States, the United Kingdom, Belgium, Italy and Sweden and compared the results to Fitch sovereign ratings. The results showed that the financial security ratio correlated to Fitch sovereign ratings. It was also found that the financial crisis in 2007–2008 had a negative impact on the financial security of the countries. Estonia had the highest financial security level in the Baltic States.

Li et al. (2014) found a similar relationship between crises and the country's financial security in China. The authors noticed that there are not many methods suitable for assessing the country's financial security. The researchers used an adapted matter–element model for the assessment of China's financial security level from 1998 to 2011. The results revealed that the country's financial security was high or medium during this period. In 1998, China had a very low financial security level due to the Asian financial crisis. The second-lowest financial security level was caused by the Global financial crisis in 2007.

Shkolnyk et al. (2020) analysed the factors which have an impact on the financial security of Ukraine and Poland. They used four groups of indicators to assess the countries financial security. The model combined four key groups of financial security indicators into a single system. There were involved the following factors: development of financial intermediaries; situation on the monetary market; situation on the stock markets; and state of public finances. The results showed that Poland had higher financial security than Ukraine. Corruption and business environment factors had the strongest impact on Poland's financial security, while business environment and market openness factors had an impact on Ukraine's financial security.

The analysis of empirical research shows that most investigations are limited to the financial security of one or several countries however lacks broader research in this area. Secondly, most authors used separate macroeconomic indicators (Tkalenko, 2013; Semjonova, 2014, 2016), banking sector indicators (Pochenchuk, 2014; Reutov et al. 2018), balance of payments data (Siemiątkowski, 2017) and financial markets indicators (Guryanova et al., 2017) to assess the level of financial security in the country. However, individual indicators do not reflect the country's ability to protect financial sovereignty and the impact of systemic risk on financial security. Increasing systemic risk increases the vulnerability of the country's financial system (Adrian, Covitz, & Liang, 2013) and financial instability (Adrian, Liang, 2016; Black et al., 2016). Therefore, the assessment of financial security should be based on a system of indicators that integrates various aspects of the country's financial security.

The country's financial security is the result of complex economic processes. There are three important aspects of the country's financial security assessment: firstly, the state of economic and financial institutions, secondly, the country's ability to maintain the stability and development of the financial system, and thirdly, the country's ability to maintain financial sovereignty and economic growth. In order to comprehensively assess the country's financial security, the valuation model should also include indicators that reflect the country's ability to create favourable conditions for long-term economic growth.

3. The assessment of the financial security in the European Union

Research methodics

Aim of the research – to evaluate financial security in EU countries.

Objectives of the research:

1. To propose the country's financial security assessment model.
2. To assess financial security in EU countries and analyse the specifics of financial security in different groups of EU countries.

Research methods. The country's financial security was assessed using the aggregate financial security index (AFSI). The index was calculated on the basis of five sub-indexes, thus combining more than one hundred quantitative and qualitative indicators. The source of data is shown in Table 1. AFSI was estimated as:

$$AFSI_i = w_1 * FDI_i + w_2 * 0,01 * EGD_i + w_3 * 0,01 * EFI_i + w_4 * HDI_i - CLIFS_i \quad (1)$$

Where FDI_i – Financial Development Index; EGD_i – Economic Globalization dimension; EFI_i – Economic Freedom Index; HDI_i – Human Development Index; $CLIFS_i$ – Country Level Index of Financial Stress.

The sub-index weights were calculated as follows:

$$w_j = \frac{x_{ji}}{\sum_{i=1}^n x_i} \quad (2)$$

Where w_j is the weight of the sub-index i ; x_{ij} is the number of components in the sub-index. In this context, the components are the aspects that are valued by the sub-index.

Table 1

Source of data

Index	Source
Human Development Index	The United Nations Development Programme
Economic Globalization dimension	KOF Swiss Economic Institute
Financial Development Index	The International Monetary Fund
Index of Economic Freedom	The Heritage Foundation
Country Level Index of Financial Stress	The European Central Bank

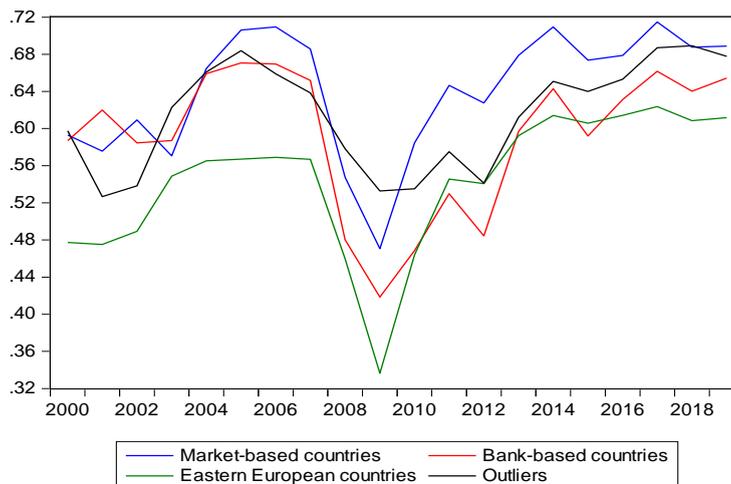
Source: created by the author

Survey sample. The financial security of 28 EU countries was assessed from 2000 to 2019.

The research data analysis and the discussion of the results

The EU countries were classified according to Kalara & Zhang (2018) classification based on their financing patterns. There were four groups of countries: market-based countries (Sweden, Belgium, Denmark, the United Kingdom, Finland, the Netherlands and France); bank-based countries (Spain, Italy, Austria, Germany, Portugal, Greece and Ireland); Eastern European countries (Lithuania, Latvia, Estonia, Bulgaria, Croatia, Czech Republic, Romania, Hungary, Poland, Slovakia and Slovenia); outliers (Luxembourg, Malta and Cyprus).

Figure 1 shows the dynamics of AFSI in EU country groups from 2000 to 2019. The market-based group had the highest AFSI value (0.689) in 2019. A similar value was found in the outliers group. Eastern European countries had the lowest AFSI value (0.611). The results showed that all EU country groups had similar average financial security level in 2019. The group of Eastern European countries had a stable level of financial security while other groups showed higher fluctuations in the period from 2014 to 2019.



Source: created by the author.

Fig. 1. Aggregate Financial Security Index in EU country groups

The dynamics of AFSI showed that the highest financial security was in market-based EU countries in the period from 2000 to 2019. The financial security of these countries returned more quickly to pre-crisis levels after the financial crisis in 2007–2008. The reason for the higher financial security is the better developed financial markets, openness to investment and higher net foreign direct investment in market-based countries. On the other hand, in these countries, the banking sector suffered less during the financial crisis. Lower financial security was found in bank-based countries. In these countries, financial security returned to pre-crisis levels a decade later. This is not an unexpected result, especially given that this group included Italy, Spain and Greece, which were heavily affected by the crisis.

High financial security was found in the outliers group. This group included only three EU countries that had a disproportionately large financial sector relative to country size. Due to the small number of countries in the group, the AFSI of one country may have a significant effect on the group average. The dynamics of the outliers AFSI showed that the crisis in 2007–2008 primarily affected Luxembourg's financial security. However, Luxembourg restored financial security within a year, while Cyprus and Malta took much longer. It is the reason why in 2009 AFSI of the outliers group showed greater results than other groups (Table 2).

The lowest financial security was found in Eastern European countries (Table 2). Despite Eastern European countries had the lowest AFSI in the EU in 2009, the financial security of these countries returned to pre-crisis levels four years later. These countries had less developed financial markets, which negatively affects the level of financial security. In Eastern European countries, foreign-capital banks were dominant, as a result, these countries did not incur significant costs to rescue the banking sector during the crisis and returned more quickly to pre-crisis levels.

Table 2

Average AFSI in 2000–2019

	Average AFSI in 2000–2019	Average AFSI in 2009	Average AFSI in 2019
Bank-based countries	0.591535	0.418401	0.654368
Market-based countries	0.641179	0.470546	0.688907
Eastern European countries	0.543775	0.336481	0.61178
Outliers	0.615008	0.532823	0.677887

Source: created by the author.

The results of the investigation showed that financial crises have a negative impact on the country's financial security. There was found that financial security significantly decreased in all groups of EU countries in 2009. The financial security decreased by 41% in market-based and Eastern European

countries, by 37% in bank-based countries and by 19% in the Outliers group. Previous studies have identified the negative impact of the financial crisis on the financial security of Ukraine (Tkalenko, 2013), China (Li & etc., 2014) and the Baltic States (Semjonova, 2016).

Conclusions

1. The country's financial security is a complex phenomenon combining factors that reflect the state of the country's finances and financial system. Factors such as favourable business conditions, economic growth and globalisation processes are very important for the country's financial security. They help to create and maintain financial security in the long run.
2. In crisis situations, the country's financial security depends not only on the country's available financial resources and ability to use alternative sources of financing. Furthermore, it depends on other factors that enable it to adapt quickly and effectively to a changing environment. For the country to maintain financial security, its economic system should function in such a way that it would create and realise a sufficient amount of output and ensure economic growth in the long run. Basic macroeconomic indicators are not sufficient to identify the existence of such conditions. Therefore, such indicators reflecting the degree of development in these areas as human capital, business environment, legal environment, economic openness, financial system and public finances should be integrated into the country's financial security assessment model. There were created AFSI which included all of these areas and it was used to investigate financial security in the EU countries.
3. The highest average AFSI was found in market-based EU countries in 2000–2019. The following factors had a positive impact on the financial security of market-based countries: developed financial system, openness to investment, higher net foreign direct. The lowest financial security was found in the Eastern European countries which had less favourable business conditions and less developed financial markets. It is one of the reasons why these countries have lower financial security than other groups of EU countries.

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