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Correlation of Monetization with Macroeconomic Development Indicators

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Abstract

The topic is relevant since the research into the relationship between the monetization level of the country's economy and other macroeconomic indicators is insufficient. The latter negatively affects the country's economy as it is hard to find effective methods and tools for its development. The article aims to examine the monetization level of the country's economy and its macroeconomic indicators, develop the model of their dependence, and evaluate it. Regression analysis is the leading method used in the study to build the multiple regression model. The latter helps to assess the extent to which macroeconomic indicators of economic development influence the monetization level of the country's economy. The geographical spectrum of the study comprises five countries, namely Germany, China, Turkey, Poland, and Ukraine. The built model accounts for the differences between economically developed and developing countries and the following macroeconomic indicators: Exchange Rates, Employment Rate, GDP per capita, Minimum Wage level, Customer Price Index, etc. Through the correlation between the country's economic saturation with liquid assets and other macroeconomic indicators, the model allows finding methods and tools to improve the country's economic development.

Keywords: economic and mathematical modeling; monetization ratio; money supply.

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Introduction

One of the important indicators of economic development, which is traditionally associated with the development of the financial sector and the growth of the capitalization of the banking sector, is the monetization level of the country's economy. According to the monetization level, the degree of providing the economy with the funds necessary for making payments and settlements is specified (Myshchenko, 2015; Kniazieva et al., 2021). Monetization is an

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objective characteristic of the economic system, determining the degree of saturation with liquid financial assets that are able to perform the functions of money (Grekov, 2006). In this context, the monetization level indicates the degree of development of the country's financial and credit system, determining in a certain way the freedom of capital movement in the economy.

On the other hand, monetization is a characteristic of the demand for money, which is formed in the economy under the influence of factors not related to the GDP and price level (Metlushko, 2013; Ruslan et al., 2020). It has been established that the dynamics of the monetization level is on the one hand due to the development of consumption patterns, the differentiation in the needs of the population and other non-price factors, and on the other hand to the development of the market infrastructure, the structure of social production and market relations. An alternative approach to the interpretation of the monetization indicator is its determination by a number of mutually agreed characteristics of monetary management with the real and financial sectors of the economy: the adequacy of the issued cash for the circulation of goods, the degree of saturation of the national economy with liquid financial assets, the level of provision of the national economy with cash (Kremen & Ogol, 2012; Sybirianska et al., 2018).

Evaluation of monetization from different viewpoints determines the leading role of the central bank of the country in the process of managing the monetization level. The study of the connection between the monetization level and the economic development of the country is due to the search for the most effective monetary policy instruments for the state of the country in general and its financial and credit sphere in particular. The increase in the monetization level is crucial for the timely and full implementation of the domestic product, the formation of state funds, the growth of savings with their subsequent transformation into investments, and the development of the financial market and bank sector (Alyoshina, 2008). When the monetization ratio is insufficient, the country can experience a restriction of aggregate demand, deterioration of credit conditions, hindrance of investment and innovation activities. This, in turn, leads to a reduction in commodity market supply and inflationary processes (Hayduk, 2010).

As an economic phenomenon, monetization is associated with the processes of managing the demand and supply of money in the national economy to ensure the sustainable functioning of the monetary market and the national payment system, the stability of the financial sector and the financial system as a whole (Lon, 2016). In this case, the monetization level is an indicator which determines the state and level of development of a separate economic system, a country's monetary system, and the organization of money circulation. At this time, the monetization process is a combination of targeted actions of the central bank to regulate money circulation for the stability of the country's money market and a sustainable economic development.

The management of the monetization process should take into account the cyclicity of the development of economic and financial systems, be based on estimated forecasts of influencers, use the most effective strategies for managing the process and its components (Kniazieva et al., 2017). In this regard, the mechanism for managing the monetization process should be revised considering the factors of direct and indirect influence, the

effect of other macroeconomic processes on the level of monetization and the provision of liquid assets in the financial and credit sphere of the country.

The following methods of scientific knowledge were used in the process of the theoretical analysis of the processes of economic development and monetization: methods of analysis and synthesis, logical generalization, grouping of influences, description of the elements and components of the model of the dependence of the level of monetization of the country's economy on individual indicators of macroeconomic development. Empirical research methods were used to form the statistical base of the study, to identify causal dependencies between individual elements of the model. Using mathematical statistics methods, the available statistics on the dynamics of selected economic development indicators of selected countries which differ in their level of economic development, were initially processed. The analysis of data and construction of a model of dependence of the level of monetization of the country's economy on macroeconomic indicators of the economy`s development was carried out using multiple regression and correlation analysis of the mutual influence of the components of the model. The results were presented using tabular and graphical methods.

The study is based on five countries with different levels of economic development: Germany, China, Turkey, Poland, Ukraine. An initial statistical base of a research are macroeconomic indicators of development of economies: Monetization rate (Percent), Exchange Rates (Domestic Currency per US, period average), Unemployment Rate (Percent), GDP per capita (current US), Minimum Wage level (current US), Customer Prize Index (2010 = 100). The time range of the study is 16 years (2005-2020) and covers certain global trends in macroeconomic development: the global financial crisis 2008-2009 and the economic crisis associated with the COVID-19 pandemic in 2019-2020. The information base of the study is official statistics on the main macroeconomic indicators of development, statistics of central banks of selected countries, International Monetary Fund (2005-2020), World Bank (2005-2020), International Labour Organization (ILOSTAT, 2005-2020).

The study was conducted in three stages. The first stage involves the following: a theoretical study of the essence of the monetization process and its significance for the country's economic growth; an analysis of existing methodological approaches to assess the monetization level; examination of particular macroeconomic processes and their impact on the monetization level; hypothetical reasoning about the relationship between the level of monetization of the country's economy and the indicators of economic development (Monetization rate, Exchange Rates, Unemployment Rate, GDP per capita, Minimum Wage level, Customer Prize Index).

At the second stage, the existing statistical framework for the dynamics of the principal macroeconomic indicators of economic development takes place. This stage also involves conducting a correlation analysis of the mutual influence and dependence of particular macroeconomic indicators and the level of monetization of the country's economy. At the end of the second stage, we build models of multiple regression of the dependence between the level of monetization and the macroeconomic indicators for five countries.

During the third stage, we resort to the following actions: obtained results of the regression analysis are summarized and conclusions based on them are systematized; directions for further research on how the level of monetization of the country influences particular economic processes are determined.

Approaches to the research of the monetization level

The indicator of the monetization of the economy is the monetization coefficient, which characterizes the share of goods and services in the economy that were paid for by money. For the first time, A. Marshall proposed a method for calculating the monetization coefficient of economics, studying the equations of conversion. The numerical coefficient (level) of monetization is calculated by the ratio of the cash supply to the GDP. The most common approach for calculating the monetization level is the ratio of the money aggregate M2 (money and quasi-money) or the aggregate M3 (Broad Money) to the GDP of the country. In complex studies of the monetization level, scientists use many monetization coefficients: the ratio of various Monetary aggregates to the GDP of the country (1):

$$M_r = \frac{M\,(M1,M2,M3)}{GDP} \cdot 100\% \quad (1)$$

The monetization level, as a quantitative expression of the required volume of liquid assets in the country's economy, is based on theories of demand for money. According to the quantitative theory of demand for money, their volume depends on the number of benefits produced and consumed in the economy over a certain period (PQ), as well as the speed of rotation of the money supply (V), which is determined by the exchange equation of I. Fisher (2) and the Cambridge school (3):

$$M = \frac{P \cdot Q}{V} \quad (2)$$

$$M = k \cdot P \cdot Q, \;\; k = \frac{1}{V} \quad (3)$$

These approaches indicate the inverse dependence of the indicator of monetization of the economy on the speed of turnover of the money supply. In Keynesian money demand theory, the amount of money supply depends on the level of income of individuals ((Y), the expected inflation rate (r) and the real interest rate (π) (4):

$$M = f(Y, r, \pi) \quad (4)$$

Keynesian theory identifies motives that encourage individuals to keep money in cash: a transactional motive, a precautionary motive, and a speculative motive. At the same time, both quantitative and Keynesian theories of demand for money determine among the main factors influencing the volume of money supply the turnover rate, income level and interest rate. The modern theory of money demand is based on the statement that money, like any other commodity, falls under the law of reducing marginal usefulness - the more money an individual has, the less its marginal usefulness becomes (Bogdan & Lomakovych, 2021). Thus, money is replaced by other financial assets that will bring the individual a greater level of profitability. The function of demand for money proposed by M. Friedmen, according to the concept proposed by him, depends on the profitability (return) of various assets in the individual's "portfolio" (5):

$$M = f(Y, W, H, i_M, i_A, P, \pi, U) \quad (5)$$

where Y – permanent income of the individual;

W – Material wealth of the individual;

H – human capital;

i_M – expected return on cash deposits;

i_A – expected return on securities (financial assets);

P – current (average) price level in the economy;

π – rate of inflation;

U – other factors.

According to theories of demand for money, an increase in the monetization level can occur due to an increase in demand for money or with a decrease in the rate of turnover of the money supply. As for the impact on the monetization level of interest rates, since their reduction contributes to a decrease in the speed of money running, the monetization coefficient will increase, and with an increase in interest rates, the monetization coefficient will decrease. At the same time, the monetization level of the economy is a more predictable indicator than the rate of circulation of the money supply, since it also depends on the activities of central banks to predict the volume and dynamics of monetary aggregates and the coefficient of monetization.

A study of the monetization level of less developed countries (Chandavarkar, 1977; Lavrentieva et al., 2020) made it possible to form a model for assessing and analyzing the monetization level, as well as its impact on the country's monetary policy (6):

$$M_r = f(Mk_s, M_c, M_l, M_{sc}, M_d, M_m) \quad (6)$$

where Mr – monetization ratio;

Mk_s – marketed surplus of major subsistence crops, livestock, household industries, etc. (weighted by shares of these sectors in total GNP);

M_c – own-account capital formation;

M_l – ratio of hired labor to family labor;

M_{sc} – ratio of sharecropping to total agricultural output;

M_d – imputed value of owner-occupied dwellings;

M_m – other nonmonetary transactions (e.g., interest and taxes in kind).

Thus, existing models for assessing monetization and its level do not assess the existence of a relationship between the monetization coefficient and other macroeconomic indicators of the country's development, in particular the GDP per capita, Employment Rate, Minimum Wage level, Customer Price Index, Exchange Rates. It requires an analysis and quantitative measurement of the extent of the relationship between the monetization of the country's economy and macroeconomic indicators of economic development. In addition, the financial sector, as part of the global economic system, is influenced by cyclical-seasonal factors (Dzhusov et al., 2019), which necessitates the use of seasonal-cyclical models and tools for analyzing the level of monetization of the country's economy.

Trends in the monetization of the economies of the world

The main indicator of the development of any economy is the volume of GDP. World GDP grew significantly at the beginning of the 21st century (Fig.1). At the end of 2020, global GDP amounted to 84.706 trillion US dollars, somewhat slowing down in growth due to the world pandemic. The countries of the world are gradually restoring the pre-COVID GDP level, among emerging market and developing economies, China had already returned to pre-COVID GDP in 2020, whereas many others are not expected to do so until well into 2023.

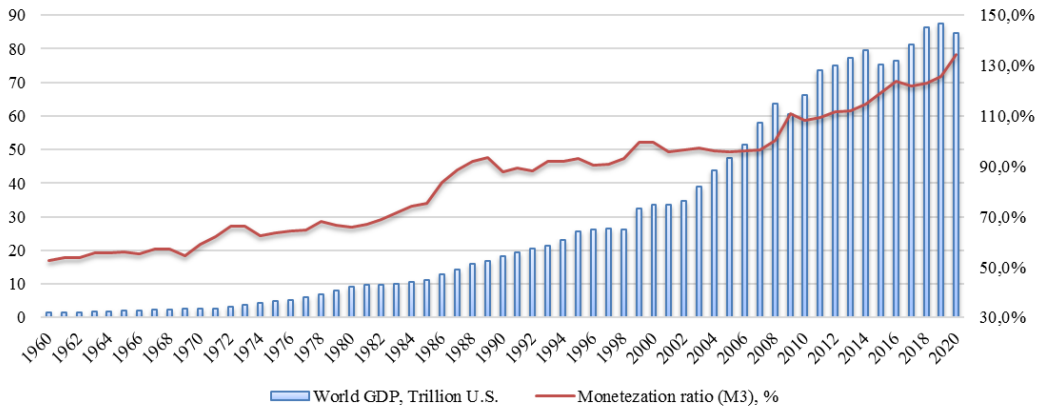

Figure 1: *World GDP and Monetization ratio*
Source: systematized by the authors according to Data base of the International Monetary Fund, 2021.

According to Bloomberg (Burgess, 2020), the volume of the global demand for money at the end of 2020 reached $94.8 trillion, with the largest increase observed in the 12 largest economies in the world. The total money supply of the United States, China, Japan, the euro zone and eight other developed countries increased by $14 trillion in 2020. Demand for money, despite the consequences of the global pandemic and crisis events in most economies of the world, remains at a high level.

Thus, the monetization level of the world economy increases as the global money supply increases. And given the fact that the growth rate and the volume of the money supply exceed the growth rate and GDP of the world, the monetization ratio of the world economy exceeded the mark of 100% in the crisis period 2008, (100.3%) and has only grown since then. Considering the significant growth of the money supply in 2020 and the decrease in global GDP as a result of the global pandemic, the level of monetization of the world economy amounted to 134.3%. The leader in the monetization level of the economy for a long period remains China (Fig.2) with a monetization coefficient of 211.387%, as well as the United Kingdom (163.261%), Korea (166.272%), Morocco (138.549%) and Australia (137.061%). The monetization level of the vast majority of developed countries is within 83.14-127.17%.

Developing countries which are undergoing transformational changes in the financial and economic sectors have a monetization rate of 49.65-83.17%. The low rate of monetization is inherent in the least developed countries and countries with significant economic transformations. At the same time, a study of the monetization level of China's economies indicates an increase in the ratio of the money supply to GDP due to the "depressed state" of the country's financial system and long-term economic growth (Wang & Zhu, 2017). According to the author's research, fast economic growth leads to high-expected wealth. A depressed financial system leads to low opportunity costs of holding money. The combination of those two factors increases money demand and leads to very high monetization ratio.

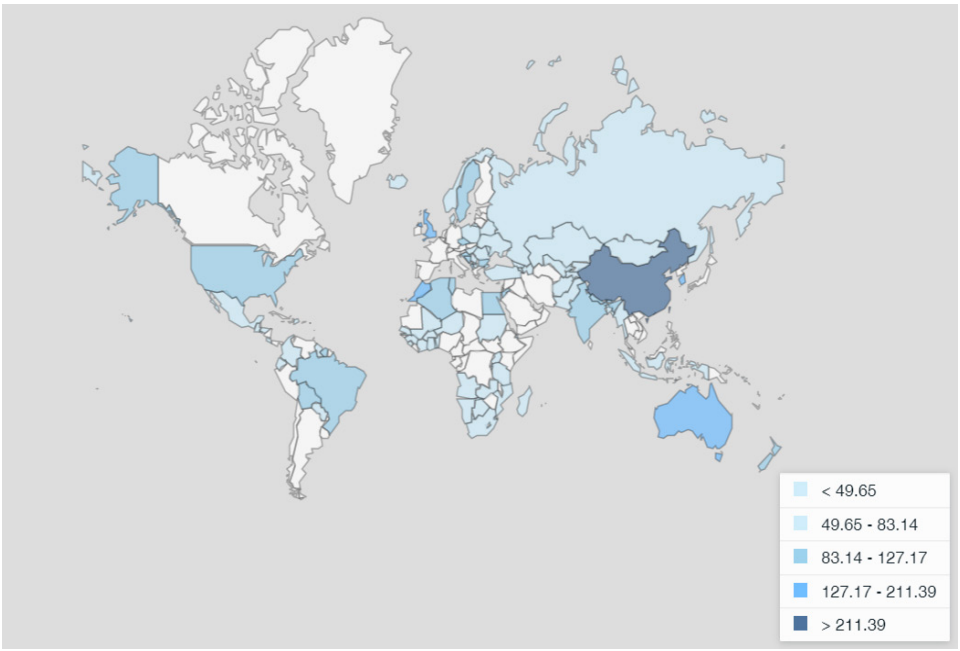

Figure 2: *Monetization ratio by the countries, 2020*
Source: systematized by the authors according to Data base of the World Bank, 2021.

Therefore, when examining the monetization level of the economies of the countries of the world, other factors and macroeconomic indicators that directly or indirectly affect the demand for money and the level of gross domestic product produced in the economy of the country should be considered (Bogdan & Lomakovych, 2021). Groups of such factors in developing countries may include Employment Rate, Minimum Wage level, Customer Price Index, Exchange Rates.

Multiple Regression Model

The study of the influence of macroeconomic factors of the country's development on the level of its monetization was carried out on the basis of data for 2005-2020 from five countries: China, Germany, Poland, Turkey, Ukraine. The zero hypothesis is that there is a connection between the effective indicator - the monetization level of the country's economy (Y) and factor signs - macroeconomic indicators which are Exchange Rates (X_1), Unemployment Rate (X_2), GDP per capita (X_3), Minimum Wage level (X_4), Customer Price Index (X_5).

At the first stage of the study, a correlation analysis was carried out to determine the degree of interaction between the level of monetization of the country's economy and certain macroeconomic indicators. By the obtained paired correlation coefficients for the study countries (Tabl. 1-5) you can draw conclusions about the nature and density of the relationship between the effective and factor features, the presence of mutual influence between indicators. For three of the five countries studied (Ukraine, Poland, Germany) there is a close negative relationship between the monetization level and the level of unemployment. The same group of countries

is characterized by the mutual influence of the GDP per capita, Minimum Wage level and Customer Price Index when affecting the monetization level of the country.

The more developed countries (Germany, China) are characterized by a positive close relationship at the level of the correlation coefficient value of 0.95 between the monetization level and the Minimum Wage level and Customer Price Index. Ukraine has a negative relationship with the four selected indicators, which indicates a number of negative trends in the country's economic and financial systems. In the study period, selected countries are characterized by a negative association of Exchange Rates with one or more other macroeconomic indicators. There is a close positive relationship between Customer Price Index and Minimum Wage level for China, Germany and Poland.

China's pairwise correlation coefficients indicate a strong positive association between the monetization level and the GDP per capita, Minimum Wage level and Customer Price Index, a negative tight association with the Exchange Rates indicator. Paired correlation coefficients indicate the mutual influence of GDP per capita, Minimum Wage level and Customer Price Index.

Table 1: Pairwise Correlations for China

	Y	x1	x2	x3	x4	x5
Y	1					
x1	-0.637	1				
x2	0.077	0.138	1			
x3	0.928	-0.631	0.151	1		
x4	0.925	-0.544	0.102	0.967	1	
x5	0.925	-0.643	0.161	0.996	0.951	1

The pairwise correlation coefficients of Germany indicate a link between the effective and the factor features. A tight positive link was identified between the monetization level and Minimum Wage level and Customer Price Index, a positive link with Exchange Rates and GDP per capita, as well as a significant negative link with Unemployment Rate. In addition, the macroeconomic indicators of the development of the German economy are characterized by a negative positive relationship of the Non-employment Rate indicator with other factor characteristics.

Table 2: Pairwise Correlations for Germany

	Y	x1	x2	x3	x4	x5
Y	1					
x1	0.653	1				
x2	-0.893	-0.516	1			
x3	0.624	-0.030	-0.802	1		
x4	0.951	0.697	-0.937	0.669	1	
x5	0.956	0.647	-0.963	0.722	0.991	1

The pairwise correlation coefficients of Poland are similar to the pairwise correlation coefficients of the studied effective and factor characteristics of the pairwise correlation coefficients of Germany, which may be due to certain pan-European trends in economic processes in the countries of the European Union. As for the German coefficients, there is a close positive relationship between the monetization level and Minimum Wage level and Customer Price Index, a positive relationship with Exchange Rates and GDP per capita, as well as a significant negative relationship with Unemployment Rate. The relationship between Employment Rate and other macroeconomic indicators also remains.

Table 3: Pairwise Correlations for Poland

	Y	x1	x2	x3	x4	x5
Y	1					
x1	0.778	1				
x2	-0.844	-0.501	1			
x3	0.805	0.315	-0.863	1		
x4	0.898	0.494	-0.869	0.971	1	
x5	0.941	0.689	-0.765	0.856	0.934	1

The pairwise correlation coefficients of Turkey indicate a positive connection between the level of monetization of the country's economy and the indicators of Exchange Rates, Customer Price Index, a less tight connection with the indicator of Unemployment Rate. The level of monetization of Turkey is hardly influenced by the indicators of Minimum Wage level and GDP per capita. There is a mutual positive relationship between Exchange Rates and Customer Price Index, as well as GDP per capita and Minimum Wage level. The existing negative relationships between factor features are insignificant.

Table 4: Pairwise Correlations for Turkey

	Y	x1	x2	x3	x4	x5
Y	1					
x1	0.810	1				
x2	0.699	0.690	1			
x3	0.162	-0.265	-0.387	1		
x4	0.068	-0.361	-0.284	0.905	1	
x5	0.876	0.977	0.656	-0.063	-0.162	1

The paired correlation coefficients of Ukraine indicate a negative relationship between the level of monetization of the country's economy and certain factor features. Moreover, the greatest degree of interaction is observed with the indicators of Exchange Rates and Customer Price Index. According to the mutual influence of factor characteristics, the greatest degree of relationship is traced between Exchange Rates and Customer Price Index, as well as GDP per capita and Minimum Wage level indicators. Ukraine is characterized by the least degree of interaction between factor traits.

Table 5: Pairwise Correlations for Ukraine

	Y	x1	x2	x3	x4	x5
Y	1					
x1	-0.702	1				
x2	-0.333	0.776	1			
x3	0.263	-0.059	-0.211	1		
x4	-0.143	0.317	0.178	0.807	1	
x5	-0.685	0.968	0.721	0.153	0.530	1

The analysis made it possible to construct a multiple regression equation of the dependence of the monetization level of the country's economy on a number of macroeconomic indicators (7):

$$M_r = f(Er, Ur, Gpc, Mw, Cpi, U) \quad (7)$$

where Mr – monetization ratio;

Er – Exchange Rates;

Ur – Unemployment Rate;

Gpc – GDP per capita;

Mw – Minimum Wage level;

Cpi – Customer Price Index;

U – other factors.

The results of regression modelling in the program environment STATISTICA.12 for selected countries allow us to adopt a zero hypothesis about the existence of a relationship between the monetization level of the country's economy and certain macroeconomic indicators. The resulting multifactor regression models are adequate and statistically significant (Tabl. 6).

Table 6: Indicators of significance of the obtained results of multiple regression models

	China	Germany	Poland	Turkey	Ukraine
R2	88.8	94.1	96.2	91.2	88.1
Number of factors	4	5	5	3	4
F-statistic	21.9	32.16	50.24	41.6	20.2
F-tabl	3.36	3.33	3.33	3.49	3.36

The results of modeling the monetization level depending on macroeconomic indicators of economic development are given in Fig. 3-7. The model of multiple regression of the monetization level of the Chinese economy from macroeconomic indicators of development indicates a negative relationship between the monetization level and the exchange rate of the national currency, a positive relationship with the level of the minimum wage and the consumer price index.

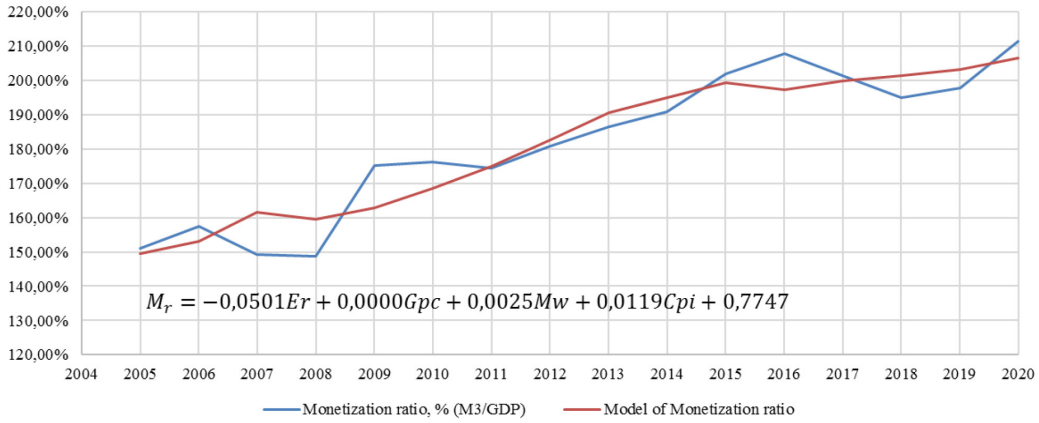

Figure 3: *China: real and modelled monetization level of the country's economy*

A feature of this model is the large specific gravity of other factors not included in the model, confirms the study (Wang & Zhu, 2017) about the significant impact on the monetization level of the "depressed" financial system and excessive saturation of the country's economy with cash.

The model of monetization of the German economy indicates a negative connection with the exchange rate of the national currency, which is explained by the greater stability of the euro against the US dollar. There is only a significant link between unemployment and the consumer price index.

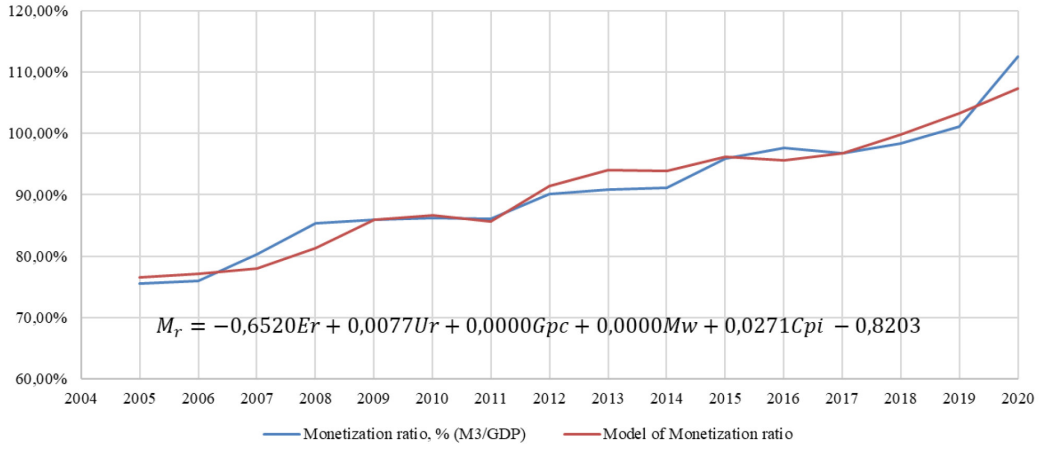

Figure 4: *Germany: real and modelled monetization level of the country's economy*

As with China's monetization level, the regression model of Germany's monetization level is characterized by the significant influence of other factors not included in the models. In particular, such factors may include the level of institutional development of the country's financial system, financial institutions, the degree of openness and integration of the financial system into the world space.

The regression model of the monetization level of Poland indicates a positive influence on the monetization coefficient of the currency exchange rate economy, the consumer price index and the minimum wage level. The feedback is related to the unemployment rate in the country.

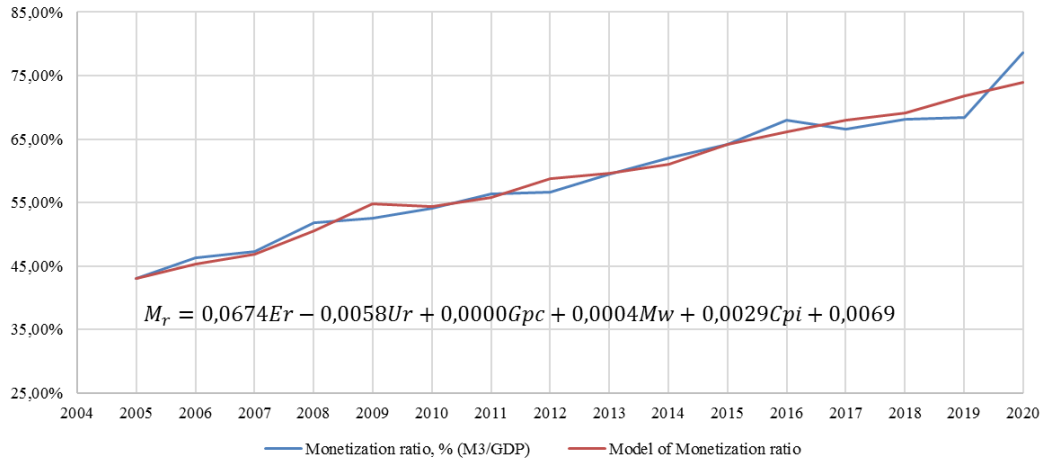

Figure 5: *Poland: real and modelled monetization level of the country's economy*

The monetization level of the Polish economy, characterized by rapid growth during the study period (2005-2020), responding to the global trend. At the same time, the influence of other factors that were not included in the models is very insignificant, as is the level of GDP per capita.

The monetization model of Turkey's economy includes only three significant factors of influence: the exchange rate, unemployment rate and GDP per capita. At the same time, there is a negative influence of other factors on the monetization coefficient of the country's economy.

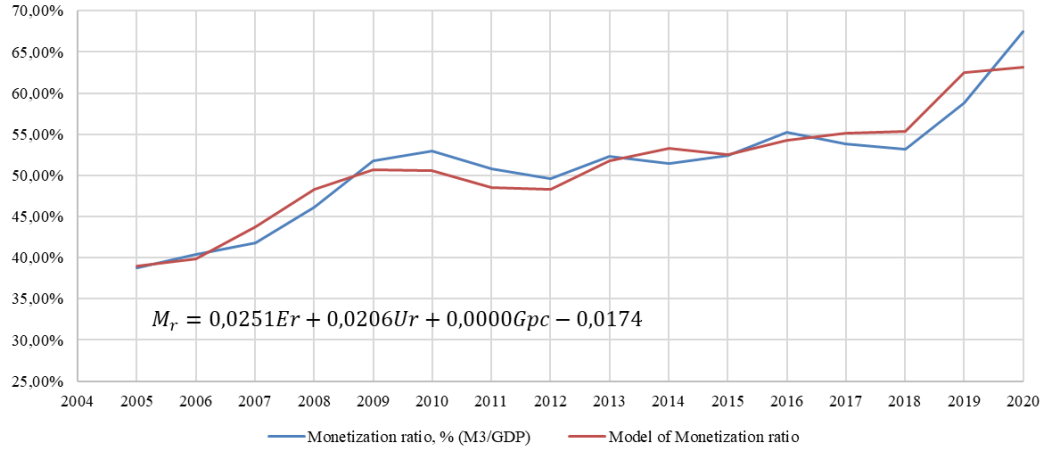

Figure 6: *Turkey: real and modelled monetization level of the country's economy*

The resulting regression model explains 91% of the changes in the monetization coefficient depending on certain factors. A feature of the Turkish model is the positive impact of the unemployment rate on the monetization level of the economy, which may be due to significant unemployment payments that increase the amount of money in the country.

The model of the monetization level of the Ukrainian economy indicates a positive impact on the state of the economy's provision of liquid assets of the exchange rate, unemployment rate and GDP per person. At the same time, there is an inverse influence of the consumer price index and other factors not included in the model.

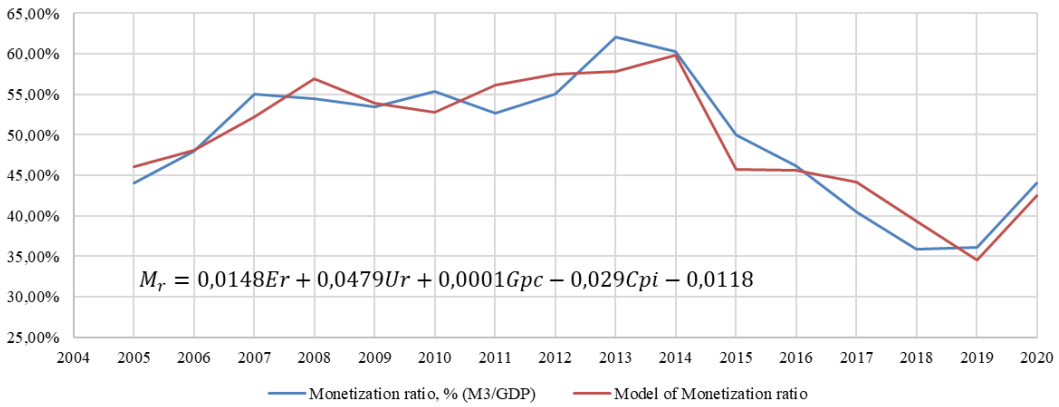

Figure 7: *Ukraine: real and modelled monetization level of the country's economy*

The monetization level of the Ukrainian economy, unlike the countries discussed above, does not correspond to global trends towards constant gradual growth. The rapid drop in the monetization level since 2014 until 2019 is due to the deployment of a military conflict in the Donbass, crisis phenomena in the economic and financial systems of the country.

Discussion

The level of monetization of the country's economy is a multidimensional category that characterizes the level of saturation of the country's economic and financial systems with liquid assets, provides an assessment of the state of development of the banking system and freedom of capital movement. As an estimated indicator, the level of monetization characterizes the share of the M3 monetary unit (Broad money) in the country's GDP. In turn, the level of monetization of the country's economy depends not only on the volume of GDP and the number of liquid assets in the financial system.

In particular, the study hypothesized that there is a connection between the level of monetization of the country's economy and individual indicators of economic development - Exchange Rates, Employment Rate, GDP per capita, Minimum Wage level, Customer Price Index. The results of the correlation analysis indicate the existence of a relationship between the selected effective and factor features. The conducted regression analysis allowed the formation of multiple regression models, which at the significance level of 95% describe the impact of Exchange Rates,

Employment Rate, GDP per capita, Minimum Wage level, Customer Price Index on the state of provision of the country's economy with liquid assets.

Weight coefficients of factor characteristics depend on the level of development of financial and economic systems of the country, implemented monetary policy, the legal field. However, economically developed countries are characterized by a large weight of influence from others not included in the model. While for developing countries the influence of other factors is insignificant. Despite the conclusions in the study (McLoughlin & Kinoshita, 2012; Polishchuk et al., 2019) regarding the significant dependence of the monetization level of the country's economy on the indicator of GDP per capita, the analysis showed that, compared with other macroeconomic indicators, this factor is not significant in relation to the level of saturation of the financial system with cash. At the same time, for all of the countries studied, there is a positive (Poland, Turkey, Ukraine) or negative (Germany, China) relationship between the level of monetization of the economy and the Exchange Rates indicator. The association of the monetization level with the indicators Customer Price Index, Minimum Wage level and Unemployment Rate is not significant for all investigated countries.

Thus, further research requires determining the composition of "other" factors influencing the monetization level of the economies of developed countries. In particular, for economically developed countries, such factors may include the state of development of financial and credit institutions, the state of market capitalization, the degree of inclusion of the country's financial system in the global financial sector, and the like. For developing countries, other factors of significant influence may be the type of monetary and credit policy, the implementation of financial sector reforms, the state of development of certain sectors of the country's financial system. Highlighting the factors of influence on the level of monetization of the country's economy will contribute to the development of the most effective methods of managing the monetization process. This will create conditions for the prospective development of the financial sector, considering real cash needs.

Conclusion

Available theoretical and empirical studies suggest that monetization can be a key factor in the development of the country's financial and economic sector. However, there are no significant studies on the extent and nature of the relationship of the level (coefficient) of monetization with other indicators of economic development, the nature of monetary and credit policy, the level of development of financial institutions and the openness of the financial system, etc. In this regard, studies are relevant that determine the extent and nature of the influence of certain macroeconomic processes on the level of monetization of the country's economy. Based on the essence of the monetization coefficient, first of all, factors that influence the volume of cash in the country (Broad money), which stimulate or restrain its changes that affect the demand and supply of money, require attention. Factors affecting the level of GDP, which can vary significantly depending on the baselines of economic development of the countries chosen for research, also require attention.

The level of monetization is an important indicator of the development of the country's financial sector, which also determines the need to balance the demand and supply

of liquid financial assets in the country's economy in order to ensure the sustainable functioning of the country's monetary system and the financial sector as a whole. The study confirmed the hypothesis of the influence on the level of monetization of various macroeconomic processes, and also revealed the need for further analysis of the influence of macroeconomic and monetary policy factors on the level of adequacy of liquid assets in the economy in order to develop new effective tools for managing the country's economic development. Moreover, it is appropriate to conduct this analysis with a preliminary distribution of the selected countries according to the level of economic development, which will help to identify the most significant factors of influence on the monetization level of the economy. The identification of the main (direct impact) and secondary (indirect influence) factors will form an effective mechanism for managing the process of monetization of the economy, aimed at ensuring the stability of the country's monetary and financial system and sustained economic growth.

References

Alyoshina, I.V. (2008). *Monetization of transformational economy: research methodology, content and factors*. Kharkiv: Kharkiv National University named after V.N. Karazin, 20 p.

Bogdan, T., & Lomakovych, V. (2021) Financialization of the global economy: Macroeconomic implications and policy challenges for Ukraine. *Investment Management and Financial Innovations, 18*(1), 151-164.

Chandavarkar, A. (1977). Monetization of developing economies. *Staff Papers (International Monetary Fund), 24*(3), 665-721.

Data base of International Monetary Fund. (2021). Retrieved from https://data.imf.org/

Data base of World Bank. (2021). Retrieved from https://databank.worldbank.org/

Dzhusov, O., Smerichevskyi, S., Sardak, S., & Klimova, O. (2019) The application features of seasonal-cyclic patterns in international financial markets. *Academy of Accounting and Financial Studies Journal, 23*(5), 1-10.

Grekov, I.E. (2006). On the definition of the monetization of the economy and its optimal level. Retrieved from https://hugepdf.com/download/5ad6aa1fee148_pdf

Hayduk, V.A. (2010). Monetary policy as a factor influencing the competitiveness of the national economy. *Investments: Practice and Experience, 12*, 21-23.

ILOSTAT. (2005-2020). Statistics on wages. Retrieved from https://ilostat.ilo.org/topics/wages/#

International Monetary Fund. (2005-2020). Retrieved from https://data.imf.org/

Kniazieva, T. V., Shevchenko, A. V., Shevchenko, A. V., Yaroshenko, O. M., Inshyn, M. I., & Yakovlyev, O. A. (2021). Current trends in the formation and development of insurance marketing in Ukraine. *Risk Management and Insurance Review, 24*(3), 279-292. DOI: 10.1111/rmir.12185

Kniazieva, T., Kolbushkin, Yu., & Smerichevskyi, S. (2017) Method of strategic planning and management decisions making considering the life cycle theory. *Baltic Journal of Economic Studies, 3*(5), 175-182.

Kremen, V.M., & Ogol, O.D. (2012). Economic and statistical analysis of the level of monetization of the economy. *Applied Statistics: Problems of Theory and Practice, 11*, 185-191.

Lavrentieva, O., Pererva, V., Krupskyi, O., Britchenko, I., & Shabanov, S. (2020). Issues of shaping the students' professional and terminological competence in science

area of expertise in the sustainable development era. Paper presented at the *E3S Web of Conferences*, 166. DOI: 10.1051/e3sconf/202016610031

Lon, I.M. (2016). The essence of the monetization process and its role in ensuring economic development. Retrieved from http://www.vestnik-econom.mgu.od.ua/journal/2016/22-2016/30.pdf

McLoughlin, C., & Kinoshita, N. (2012) Monetization in Low- and Middle-Income Countries. *IMF Working Paper.* Retrieved from file:///C:/Users/%D0%9F%D0%9A7/Downloads/[9781475504651%20-%20IMF%20Working%20Papers]%20Volume%202012%20(2012)_%20Issue%20160%20(Jun%202012)_%20Monetization%20in%20Low-%20and%20Middle-Income%20Countries.pdf

Metlushko, O. (2013) The impact of monetization on the monetary policy of the state. *Visnyk of TNEU, 1*, 97-107.

Myshchenko, S.V. (2015). The economic essence of the monetization process and its role in ensuring economic development and stability of the financial system. *Bulletin of Taras Shevchenko National University of Kyiv, 10*(175), 41-45.

Polishchuk, Y., Ivashchenko, A., Britchenko, I., Machashchik, P., & Shkarlet, S. (2019). European smart specialization for ukrainian regional development: Path from creation to implementation. *Problems and Perspectives in Management, 17*(2), 376-391. DOI: 10.21511/ppm.17(2).2019.29i

Ruslan, K., Inshyn, M., Dmytro, S., Yelena, T., & Olena, A. (2020). Occupational safety and health of factory workers in European countries in the nineteenth century: Historical and legal analysis. *Labor History, 61*(3-4), 388-400. doi: 10.1080/0023656X.2020.1775796

Sybirianska, Y., Dyba, M., Britchenko, I., Ivashchenko, A., Vasylyshen, Y., & Polishchuk, Y. (2018). Fintech platforms in SME's financing: EU experience and ways of their application in Ukraine. *Investment Management and Financial Innovations, 15*(3), 83-96. doi:10.21511/imfi.15(3).2018.07

Wang, L., & Zhu, T. (2017) The myth of China's monetization. *Applied Economics Letters, 25*(11), 772-775.

World Bank. (2005-2020). Retrieved from https://databank.worldbank.org/