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Polina Nesterovych, student of Odesa National Economic University

Ganna Kotsiurubenko, Associate Professor, PhD of the Economics. Assistant Professor of the Department of Finance, Odesa National Economic University

ANALYSIS OF THE EFFECT OF MONETARY POLICY INSTRUMENTS IN THE CONTEXT OF GLOBAL STAGFLATION

Abstract. The article is devoted to the study of the problems of effective application of monetary policy in the context of stagflation. The author reveals the causes of stagflation and analyzes a number of monetary policy tools that can be used to overcome the consequences of crisis processes. Special attention is paid to the analysis of the effects of exchange rate targeting in small open economies and the role of the transmission mechanism in economic crises. The article also highlights potential institutional and economic risks that may affect the effectiveness of monetary policy in the twenty-first century. A study of the impact of monetary measures on the stock market and government debt market is presented.

Key words: monetary policy, stagflation, exchange rate targeting, interest rates, economic threats, equity markets, bond markets, central bank independence.

Поліна Нестерович, студентка Одеського національного економічного університету

Ганна Коцюрубенко, кандидат економічних наук, доцент кафедри фінансів, Одеський національний економічний університет.

АНАЛІЗ ДІЇ ІНСТРУМЕНТІВ МОНЕТАРНОЇ ПОЛІТИКИ В УМОВАХ СВІТОВОЇ СТАГФЛЯЦІЇ

Анотація. У статті розглянуто сутність та особливості методики покращення бізнес-процесів на підприємствах Lean Six Sigma. Метою статті є дослідження ключових аспектів і особливостей Lean Six Sigma для покращення якості та ефективності виробничих процесів на підприємствах. Для досягнення поставленої мети використано методи аналізу, аналогії та порівняння. Розглянуто покладені в основу Lean Six Sigma

підходи до управління якістю: Lean management та Six Sigma. Проаналізовано недоліки окремих концепцій та переваги їх синтезу. Визначено роль Lean Six Sigma у сучасному бізнесі. Практична значимість дослідження полягає у наданні рекомендацій для організацій щодо впровадження даної концепції з метою покращення якості своїх процесів, досягнення успіху та конкурентних переваг.

Ключові слова: Lean Six Sigma, ощадливе управління, шість сигм, процеси, управління, якість, вдосконалення, підприємство.

Problem statement. The devastating consequences of the global financial crises lead to the formation of an unfavourable external environment for the functioning of the real and financial sectors in the most open economies. However, globalisation processes and the interpenetration of economic systems of the world's countries have a significant impact on internal processes and the potential for resistance to external adverse factors, which provokes the expansion of negative trends for most economies, determines the decline in the level and quality of life within the country.

Relevance of the chosen topic. The situation with regard to the development of the economic systems of open economies is complicated by the instability of the economic systems of countries around the world, including the EU, due to the impact of socioeconomic and geopolitical factors that negatively affect positive development dynamics and lead to inflation processes, in particular, restrictions on business activity as a result of the COVID-19 pandemic, as well as the intensification of military conflicts in the European part of the world. The deterioration of the macroeconomic situation in terms of restrictions on economic activity under the threat of inflation leads to the spread of stagflation. The emergence of these problematic aspects of economic development makes it important for regulators to study the effectiveness and improve the efficiency of monetary policy instruments to counteract the effects of stagflation.

Analysis of recent research and publications. The phenomenon of stagflation, which was noted in developed economies during the 1970-80s, is actively discussed in the economic literature. Zherdetska L. and Kambur M. (L. Zherdetska, M.Kambur, 2023) argues that it is the current recession that has renewed academic interest in high inflation when economic growth slows down. The study of issues related to stagflation processes takes an important place in the works of researchers and economists, in particular, certain aspects were considered by Taylor J., Bernanke B., Lucas R., Blanchard O., Phillips A., Friedman M., Cagan Ph.. Also, such ukrainian scientists as Lukyanenko I., Dadashova P., Farina O., Galchynskyi A., Mishchenko V., Zveryakov M., Zherdetska L., Kovalenko V. devoted their works to the study of the essence of the transmission mechanism in the conditions of stagflation.

Purpose of the article. To investigate the problematic aspects of the development of the countries economies and directions for increasing the effectiveness of macro-regulators' actions in the context of the use of monetary policy tools for leveling the negative consequences of stagflation processes under the influence of negative external factors.

Presentation of the main research material and results obtained. European The economic recession caused by the Covid-19 coronavirus pandemic has forced most governments around the world to turn to Keynesian measures to support effective demand by increasing public spending in the form of a programme to provide cash assistance to businesses and households that have lost the ability to generate their own profits due to reduced production. The significant growth of the money supply, which was not ensured by an increase in GDP, but rather due to its decline, was one of the reasons for the rise in global inflation. Most countries around the world are experiencing episodes of stagflation, a phenomenon characterised by slower economic growth and high inflation, which is more common in emerging economies in the current environment.

According to the data shown in figure 1, the annual increase in global inflation in 2021 was 1.54%. For most countries in the world, inflation rose quite dramatically. For example, the EU's inflation rate reached double digits for the first time in its history. The corresponding increase in the inflation rate was accompanied by a decline in supply, which was the main reason why the global community faced the problem of stagflation at a new level.

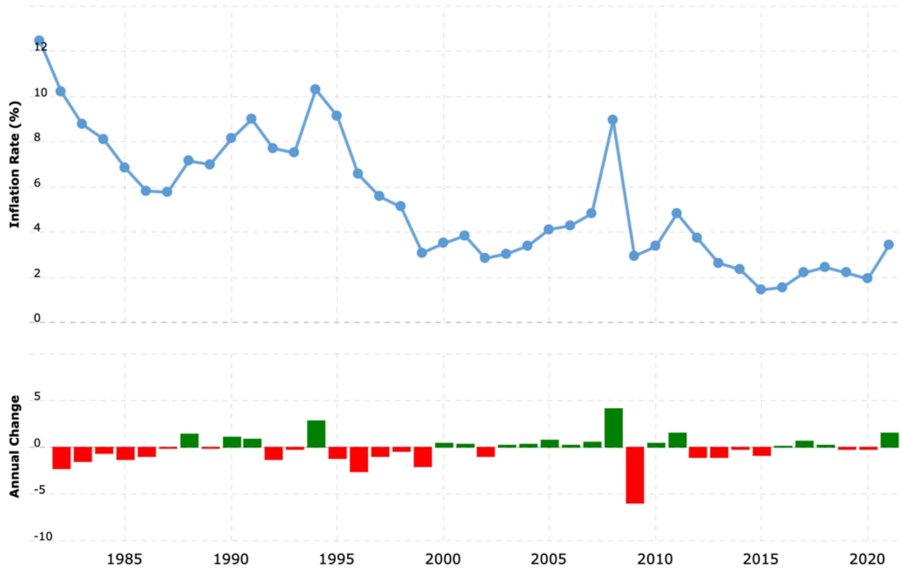

Fig. 1. Global inflation rate for the period from 1995 to 2022
Source: *World Bank Open Data, 2023*

The current global crisis caused by the Covid-19 pandemic requires active government and regulatory action to restore economic activity and stabilise the currencies of countries around the world.

The stagflationary crisis that Ukraine is currently experiencing is caused not by the effects of government programmes implemented during the pandemic, but by the supply shock that occurred as a result of the escalation of the armed conflict in Ukraine. The intensification of military actions has significantly escalated the problems that occurred after the development crisis caused by the 2020 pandemic, in particular, the decline in business activity, trade and investment due to reduced demand, supply chain problems and the withdrawal of fiscal and monetary incentives, price volatility for key commodities, local commodity shortages, etc.

Macroeconomic theory traditionally identifies three main monetary policy instruments, namely:

1. Setting the policy interest rate;
2. Regulation of the required reserve ratio;
3. Entry of the central bank into the bond market;

At the same time, Harkusha Y. (Y. Harkusha, 2016) determines that the National Bank of Ukraine is characterised by its entry into the market with deposit certificates, a special type of obligation of the National Bank of Ukraine to second-tier banks. Kovalenko V. and Serhieieva O. (V. Kovalenko, O. Serhieieva 2022) note that in the process of developing the financial market and infrastructure, central banks now have a much wider range of monetary policy instruments at their disposal, namely:

1. Setting and enforcing reserve ratios for banks;
2. Interest rate policy;
3. Refinancing of banks;
4. Managing foreign exchange reserves;
5. Operations with securities (except for securities confirming corporate rights), including treasury bills, on the open market;
6. Regulation of capital imports and exports;
7. Introducing a requirement for the mandatory sale of a portion of foreign currency proceeds for a period of up to six months;
8. Changing the terms of payments for export and import of goods;
9. Emission of own debt obligations and transactions with them;

Comparing traditional and modern instruments, we can conclude that central banks are increasing their powers to regulate the economy, moving away from the libertarian trend and the principle of laissez-faire. This is a necessary step related to the duty of central banks to ensure the stability of the national currency. It is advisable to pay attention to the effectiveness of using these tools in practice. First of all, consider controlling the exchange rate. This tool is quite popular for small open economies, including Ukraine. When using this tool, the central bank maintains a certain interval value of the exchange rate through operations in the interbank foreign exchange market. Among the above-mentioned monetary policy instruments, the instruments of fixing the exchange rate also include: management of foreign exchange reserves; regulation of capital imports and exports; introduction of a requirement to sell a part of foreign currency earnings for up to six months; and changes in the terms of settlement of export and import transactions. It is worth noting that the use of administrative regulation tools, such as changing the terms of settlement and requiring the sale of a portion of foreign currency proceeds, is not used by central bankers on a regular basis, but only in crisis and destablising situations.

Most countries do not use this tool to overcome the disruptive effects of stagflation. First, the rise of the national currency reduces the competitive advantage of national manufacturers in the national and international markets, which in turn leads to the effect of import substitution, which reduces GDP, further deepening the economic recession. Secondly, fixing the exchange rate, among other things, leads to a decrease in gold and foreign exchange reserves, which is dangerous for small open economies, which should be the main "users" of this instrument. Even if there is a sufficient amount of gold and foreign exchange reserves, modern economic theory shows that the instrument of fixing the exchange rate is ineffective.

Fisher S. (Fischer & Stanley, 2001) believes that a fixed exchange rate is inappropriate from the point of view of microeconomic analysis. In his opinion, one of the advantages of a market exchange rate is a more flexible adjustment to real asymmetric shocks.

But from the point of view of macroeconomic theory, for developing countries where the capital market is considered underdeveloped and where macroeconomic instability is quite high, a fixed exchange rate is a necessary factor for macroeconomic policy and household expectations. Equally important for small open economies, fixed exchange rates reduce transaction costs for international trade.

However, Edward & Levy-Yeyati (Edward & Levy-Yeyati, 2003) in their empirical study, using a group assessment of 180 countries, showed the positive impact of a flexible exchange rate on economic development.

The National Bank of Ukraine's transition to a market-based exchange rate in 2015 had positive consequences for economic development. However, at present, fixing the exchange rate and imposing a number of currency restrictions in Ukraine is a necessary measure that allows the state to control the outflow of foreign currency assets and the increasing dollarisation of the economy. In the context of Ukraine, the exchange rate channel of the transmission mechanism plays an extraordinary role - a supply shock, lack of necessary production capacities is covered by foreign imports, and that is why the exchange rate is a significant component in forming the level of consumer and producer prices (Sheludko S. A., 2019).

The most effective monetary policy tool of central banks around the world is the key policy rate. Among other things, the NBU discount rate [key rate] is one of the monetary instruments used by the national bank of Ukraine to set a benchmark for the cost of attracted and placed funds for the relevant period for monetary market participants and is the main interest rate. An increase or decrease in the key policy rate under the inflation targeting policy regime depends on the monetary policy chosen by the regulator. When choosing a policy of expensive and cheap money in a stagflationary environment, the central bank needs to qualitatively assess the causes of inflation - whether they are purely monetary or caused by a short-term supply shock. If the central bank chooses a deflationary policy, the inflation rate is reduced by withdrawing a certain part of the money supply from circulation, which, according to the Fisher equation, reduces the amount of money available for transactions. That is why deflationary policy, in addition to the obvious positive results of strengthening the national currency, has a rather negative effect, which is especially noticeable in a global economic recession, - it slows down GDP growth (Dierks & Leef H., 2023).

In 2021-2022, most central banks raised their key policy rates to deal with the effects of inflationary pressure, despite the threat of further slowing economic development,

Central banks, responding to challenges to macroeconomic stability, have chosen a strategy of focusing on the stabilisation of the value of the currency, often at the expense of the need to stimulate the real economy. As shown in Figure 2, the global economy has not returned to the trend of early 2019, meaning that the global economy has lost strength and is relatively weak.

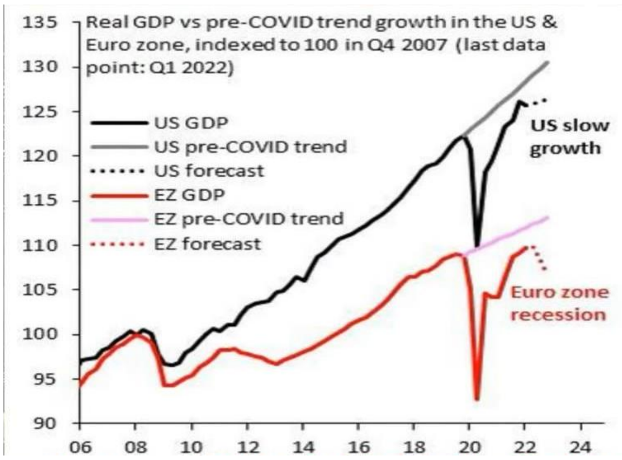

Fig. 2. US real GDP, EU real GDP, US GDP trend 2019, EU GDP trend 2019
Source: *International Monetary Fund, 2022*

Strict monetary policy may have a negative impact on business activity, in particular, by reducing the liquidity in the global financial system. As a result of this process, the assets of US companies may suffer a decline of more than $1.4 billion. According to the World Bank, stocks of goods in the United States and the European Union exceed the volume of new orders, and the existing imbalance indicates a phenomenon that can be called "economically unjustified market overload".

The rise in interest rates due to monetary policy has led to a decline in demand, which has led to a reduction in production. This, in turn, can lead to an increase in unemployment, which triggers an additional decline in gross domestic product (GDP) and higher inflation expectations in the face of high unemployment. In some situations, producers may be forced to lay off workers, which in turn may lead to a further decline in GDP.

The global economic recession is also increasing the level of policy uncertainty. Figure 3 shows the growth of the policy uncertainty index in Germany. RBC's research shows that Canada is also in a recession. In addition, Canada being a satellite of the United States will stimulate recessionary trends in the United States.

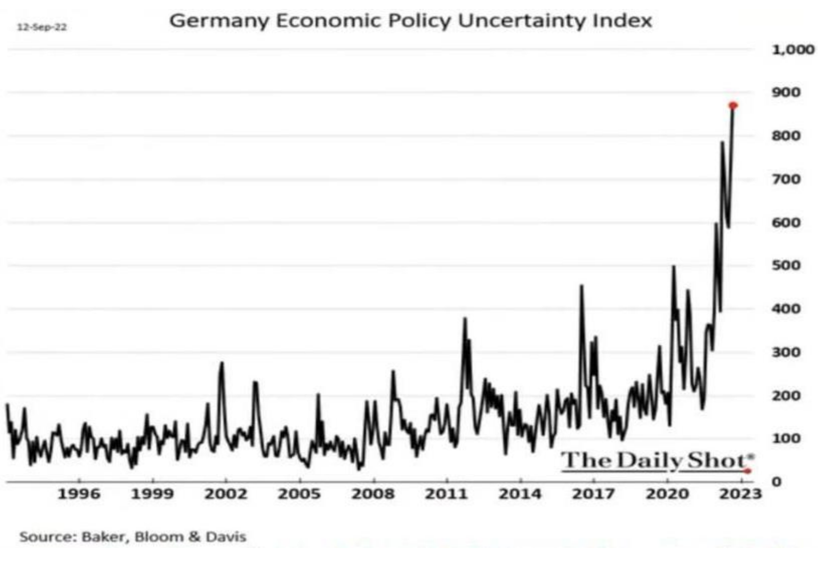

Fig. 3. Germany economic policy uncertainty index
Source: *Economic Policy Uncertainty Index, 2023*

The external economic environment is also having a negative impact on the activities and functioning of the US financial market. Strict monetary policy is most strongly reflected on the financial market. To begin with, equity market capitalisation continues to be under pressure and is expected to reach its lowest level since 2020 (Demary, Markus & Michael Hüther, 2022).

When the key policy rate rises, loan payments increase, which leads to an increase in the loss from financial activities of the enterprise. In turn, the profit from operating activities decreases, as households prefer investment profits to liquidity. Increased losses from operating and financial activities lead to a decrease in the net profit of the company, and thus reduce the amount of dividends received by shareholders.

Dividends are positively related to profits from investment activities, leading to a decline in net (retained) income for an increasing number of companies. There is a downturn in the securities market, which causes a decline in share prices. For example, after the US Federal Reserve raised its key policy rate in 2022 in response to the overheating of the economy, which triggered galloping inflation, the Dow Jones Industrial index (DJI) fell by 73. 55 points, or 0.22%, to 33,147.25; the S&P 500 index (SPX) lost 9.78 points, or 0.25%, to 3,839.50; and the Nasdaq composite (IXIC) was down 11.61 points, or 0.11%, to 10,466.48 (World Bank Open Data).

When a central bank decides to raise its key policy rate, newly emitted government securities, such as treasury bills and bonds, are often seen as the safest investments. They tend to experience a corresponding increase in interest rates. In other words, the risk-free rate rises, making investments in government securities more desirable. In turn, this increase leads to a demand for higher overall returns required for equity investments. As losses from operating, investing and financing activities increase, the risk premium decreases, so investors may feel that equities have become too risky and will try to invest their money in alternative financial instruments. In addition, an increase in the key policy rate, as a reaction of the regulator to inflation, leads to an increase in the discount rate, thereby reducing the yield to maturity of a long-term bond (Wagdi, Osama, Ahmad Sayed Abd Elbaseet Mustafa & Sharihan Sharihan, 2023).

Let us support the latter theoretical observation by calculating the Sharpe coefficient (Agarwal, A. & Lorig, M., 2020) for the Vanguard 500 Index Fund ETF (which will reflect the profit from shares) and the Vanguard Long-Term Bond Index Fund ETF (which will reflect the profit from long-term bonds). Having statistically processed the values for the quotes of financial assets for the period from the beginning of 2014 to the beginning of 2023, we will get the following values:

$$SHARPE\ (VOO) = 2{,}175\%$$

$$SHARPE\ (BLV) = -2{,}272\%$$

which demonstrates that when the discount rate rises, the profitability of an investment portfolio containing long-term bonds decreases significantly. This assumption is confirmed when applying the Markowitz model to a portfolio containing only two financial instruments: equities and long-term bonds - minimising risks with the highest income is observed only when the portfolio does not contain a long-term bond.

However, not all regulators pursue restrictive measures to prevent inflationary pressures. In most cases, this is due to the dependence of the country's central bank on a populist government that puts short-term interests above the country's economic development. A demonstrative and relevant example of the need for central bank independence and an adequate theoretical model of macroeconomic regulation is the government's policy in modern Turkey.

Turkish President Recep Erdogan intended to introduce an economic policy in which he told the central bank to cut the key policy rate to single digits ahead of the 2022 elections. Erdogan's beliefs were based on a modified Fisher effect equation (π=r-i), which states that the lower the nominal rate is, while the real rate remains unchanged, the lower the inflation rate is. These steps were based on the assumption that raising interest rates by the central bank would help to control inflation, which contradicts the "traditional" view of monetary policy.

As a result, Erdogan's actions have led to the worst inflation in the country in a quarter of a century. After the latest rate cut of 250 bps, the key policy rate of the Central Bank of Turkey is 10.5%.

The Financial Times reports that consumer price growth in Turkey accelerated for the seventeenth month in a row, with inflation reaching 85.5% in October 2023 under President Recep Tayyip Erdogan's economic policy (Hayatsever H. & Erkoyun E., 2023).

Food and transport prices have doubled over the year, exacerbated by higher global energy prices following the escalation of full-scale military actions in Ukraine. Turkey is only ahead of Zimbabwe, Venezuela, Syria, Lebanon, and Sudan in terms of inflation.

Summarising the conclusions from the analysis of macroeconomic conditions, it is reasonable to state that the separate use of monetary policy instruments in the context of stagflation may be ineffective. This assertion is based on the recognition that monetary policy is traditionally used primarily in times of crises and monetary disturbances in the context of inflation caused by supply shocks. It is important to understand that this type of inflation arising from supply shocks may not be accompanied by economic growth, making monetary policy less effective.

Conclusions. The global financial crisis, caused not only by economic instability but also by the effects of the COVID-19 pandemic, has created serious challenges for economic development. In this unforeseen context, stagflation, defined as a combination of slowing economic growth and high inflation, is often observed. Governments around the world have taken various measures, such as monetary assistance, to try to overcome the effects of these problems, but this has often resulted in a global rise in inflation. Central banks are responding to the challenges of the current economic environment by implementing tight monetary policies. This, in turn, causes a decrease in the level of liquidity in the financial system and has a negative impact on the stock market. The issue of deflation is also important, as attempts to reduce inflation may affect economic growth.

With the global economic recession comes uncertainty in economic policy. The dependence of central banks on governments that may be prone to populist decisions makes it difficult to adopt effective strategies. An example is the government's policy in Turkey, which led to hyperinflation. The current crisis of stagflation generates systemic risk in the banking system, which is not only an intermediary in the financial system but also a key institution for redistributing national product. In this context, it is important for central banks to focus on macroprudential policy and banking system stabilisation.

In solving the problem of stagflation, it is recommended that central banks work closely with governments to develop joint strategies. An important aspect is the creation of memorandums to coordinate actions aimed at overcoming monetary challenges and developing programs to support business infrastructure. Such an approach stimulates production, increases employment and contributes to the formation of effective demand, which, in turn, contributes to the recovery of economic growth

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