Issues of stability and sustainability of exchange rates of the national currency of Azerbaijan

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Abstract.
The exchange rate has a direct impact on the economy of the Republic of Azerbaijan. Exchange rate changes depend on market conditions. Therefore, the exchange rate is affected by the state of the balance of payments, the extent of currency use in international payments, speculative currency transactions and the activity of currency markets, inflation and many other factors. The article shows the possible consequences of their influence on the exchange rate and gives examples. Dependence on the growth of money supply, monetary base and inflation is clearly manifested in the country. An analysis of the economic aspects directly affected by the exchange rate, namely foreign trade, capital flows, interest rates, business development, purchasing power of the population and economic growth is carried out. Currency stabilization measures, including stabilization of banks' currency positions, increasing control over the purposeful use of previously granted loans, distinguishing speculative operations from others, emphasize the importance of this topic. The implementation of these measures will have a positive effect on the stabilization of the exchange rate and the economic situation of the country in general.

Keywords:
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Introduction and purpose of the work. The foreign exchange market is one of the largest markets in the world today. Here, money is exchanged for a year. The currency of the economies of the world's most developed countries is many times greater than the GDP. Of course, this has not always been the case, and much has changed in the past century. For example, at the beginning of the 20th century, there were several currency systems tied to gold in the world, but today the currency market covers the whole world as a global network. Of course, the currency market has its own characteristics that distinguish it from other markets. This market is a market in which transactions are carried out without the participation of any goods - the money of one country is exchanged for the money of another country. In addition, there is no single means of payment due to the use of different currencies in the foreign exchange market. In this regard, there is a need to evaluate currencies and establish their ratio. This happens through the exchange rate. During the last seven years, the exchange rate has undergone significant changes, which, in turn, significantly affects the state of the economy of various countries.

The demand for foreign currency in Azerbaijan increased and reached 1.9 billion US dollars in currency auctions held in March 2020 (for comparison, in March 2019, this indicator was only 600 million US dollars). This trend naturally causes many people to question the short-term perspective of the national currency, the manat, and devaluation expectations among the general population are on the agenda again.

Analysis of recent publications. The continuous study of exchange rate fluctuations of currencies is investigated in [1]. By the models of technical dynamical systems with random actions, a mathematical model of the financial market in continuous time in a more general view of vectorial-matrix differential equation dependent variable of which is state vector of financial market is built in this paper the coordinates of this vector are the accidental meaning of current yield of financial tool (quotations of changes of courses of shares, currency, etc).

The paper has studied definite limitations on the coefficient of the differential system properties of trajectories, mathematical expectations, and dispersions of these trajectories, and solves the system of differential
equations for the covariance matrix.

The questions of stability and instability in markets and explosive oscillations that lead to big financial catastrophes are reflected in the article as well.

In the case of time series, the study of exchange rate changes of Azerbaijani manat against euro and USD/AZN was studied in [2,3]. In the first case, it was established the most appropriate model of exchange rate dynamics uses computer modeling, mean-error indicators of approximation, and the average quadratic divergence with the Fourier series approach and time-dependent behavior in a time series. This study was based on 360 daily observations of EUR/AZN currency exchanges covering the time period 03.02.2017–03.08.2018. In the second case, in the study, on the basis of real indicators covering the period from 01.01.2013 to 10.01.2017, an econometric analysis of changes in the USD/AZN rate was conducted. As a result of the study, the dependence of several factors provided a serious influence on the change in the USD/AZN rate and the relationship of interdependence with their endogenous variability was gained by carrying out empirical analysis. The analysis of the balance of payments in the Republic of Azerbaijan was reviewed in [4]. The article has explored the modeling of the balance of payments based on changes in the exchange rate, export-import operations, and general and foreign investment in the country. Based on statistical methods and an analytical approach to the analysis of the problem an econometric model was developed in the form of simple and multiple regression equations taking into account the influence of the key factors on the balance of payments in the country. In [5], the factors affecting the exchange rate were studied, and as a result, the interaction of the manat exchange rate with the main indicators of the monetary system in Azerbaijan was studied. A mathematical-statistical model of the exchange rate has been constructed, allowing the study by econometric methods of its interrelations with the basic monetary aggregates and the interest rate. The model is analyzed for adequacy. Currency rates are considered an important component of the international monetary system, which can affect the macroeconomic circumstance of each country, and acts as a tool between the global and national value indicators in the system of world economic relations. In [6], the theoretical and methodological aspects of exchange
rate changes in the financial system in Azerbaijan are studied. It is studied how the impact of recent processes on course changes develops. The sustainability and stability feature of this process is studied by looking at the change in the real income of the population before and during the pandemic period. The article illustrates the opportunity of applying some mathematical spectral methods for constructing the models of socioeconomic processes which use equations with partial derivatives and take into consideration the random factors specific to such events. This enables high-quality financial and economic analysis and forecasts the development of the studied process in the future.

Due to the pandemic, the reduction of savings from March-April 2021 (more or less) can be seen in public data. In the diagram below, you can see the change in real earnings of the population (taking into account inflation) for the years 2020 and 2021, that is, during the pandemic.

It seems that the real income of the population has decreased with the implementation of strict quarantine measures.
A quantitative decrease in real income naturally leads to a decrease in total savings, which imposes a mandatory limit on the amount of foreign currency that the population can demand. From April to December 2020, oil prices were extremely cheap and devaluation expectations were high, but the amount sold at currency auctions in almost all of these months was significantly lower than in 2019 and 2018.

**The main results of the study. Reasons for changing the currency in our country.** The exchange rate directly affects the economy of any country. Without optimal management methods, it is impossible to ensure the successful functioning of the country's economy, and this, in turn, necessitates the study of the subject under consideration. Exchange rate changes depending on market conditions.

The currencies of developing countries have been particularly volatile in 2018. The Brazilian real, the Azerbaijani manat, the Indian rupee, and the South African rand fell sharply against the US dollar. That's partly driven by politics in Washington, where the Federal Reserve has raised interest rates three times this year and encouraged people around the world to swap their currencies for dollar-denominated U.S. Treasury bonds. This also hurt other emerging market tenders, such as the Turkish lira and Argentine peso, which performed particularly poorly, although domestic factors played a role in those cases.

In fact, despite the same external pressures seen elsewhere, since the spring of 2017, shortly after the Central Bank of Azerbaijan announced that it would allow the exchange rate of the manat to fluctuate and pledged to intervene only to prevent a short-term crisis, the exchange rate of the manat per dollar decided.

Like the currencies of other major hydrocarbon exporters, the Azerbaijani manat has historically followed global oil prices. For example, after oil prices fell in 2014, Azerbaijan suffered a double devaluation in 2015 [4]. However, although oil prices rose for most of 2017 and 2018, the manat-to-dollar ratio did not change. Like the currencies of other major hydrocarbon exporters, the Azerbaijani manat has historically followed global oil prices. For example, after oil prices...
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In modern times, due to the rising oil prices, Azerbaijan accumulates foreign exchange reserves that it can sell to stabilize the manat. And partly because of those reserves, the inflation rate is low.

At present, the price of oil is much higher than during the recession of 2014 and inflation is lower than in 2016 and 2017. The Central Bank's insistence on pegging the manat to the dollar is unlikely to have a negative impact on the economy. However, if inflation reaches a double-digit level again, we can observe a sharp appreciation of the manat, as we saw in 2016 and 2017.

The economic growth of a particular country often depends on the policies chosen by each country and the ability to predict the movement of exchange rates.

A fixed exchange rate regime is set by the government and monitored by an appropriate authority, usually the central bank. Although such a system assumes the stability of the exchange rate of the national currency relative to one of the world currencies, the central bank can set a certain range (currency corridor) where the exchange rate is determined by supply and demand. If the rate reaches the upper or lower end of the range, the central bank can intervene.

Proponents of a fixed exchange rate regime justify their position by the fact that such a policy allows for stabilizing the economic system and helps attract investments. Another important argument is to keep the purchasing power of the population stable and control inflation. Such practice may have a short-term effect, but it can have serious long-term consequences.

Critics of the fixed exchange rate regime argue that such a policy leads to the creation of an artificial exchange rate that does not correspond to the balance of supply and demand in the market. Its maintenance requires the constant intervention of the state, which must have significant gold and foreign exchange reserves (British Foreign Exchange Reserves). If they are not enough, the government will not be
able to support the national currency, which, in turn, will lead to a sharp depreciation. This will have serious consequences until the country's economic and financial system collapses.

National income is a relatively autonomous indicator and can change on its own. However, factors that cause changes in national income can cause quite global changes in the exchange rate. In other words, an increase in product supply raises the exchange rate, while an increase in domestic demand lowers the exchange rate. Experience shows that the purchasing power of the ruble is constantly decreasing both within the country and compared to other world currencies.

The international movement of short-term capital, as well as the activity of foreign exchange markets and credit capital markets, depends on changes in interest rates. In this regard, the difference between interest rates in the national and world markets is very important for banks, as it directly affects the amount of profit. For this reason, banks tend to borrow in the foreign capital market at a low-interest rate and place foreign currency in the national loan market with a higher interest rate. For investors, the size of real interest rates in the host country plays an important role. So, for example, if the interest rate is high, the securities will bring a corresponding income, which will be very attractive for investors.

If a country's exchange rate falls, banks and firms can exchange it for more stable currencies. This, in turn, has a negative impact on the position of the national currency. Currency speculation is possible as a result of the rapid reaction of currency markets to various changes. This factor indicates that when a currency depreciates, banks and firms begin to exchange it for previously more stable currencies, thereby worsening the weakened currency. Currency markets react sharply to changes in exchange rates, as well as to changes in politics and the economy.

About 65% of transactions in world markets are conducted in dollars, which, of course, affects the supply and demand of this currency. Due to the volatility in the economy and the current bearish trend, the dollar is not comfortable as
a reserve currency.

The dynamics of the exchange rate may change depending on the degree of government intervention in the economy. If the exchange rate is formed as a result of the market mechanism, significant fluctuations are possible. As a result, we get the real exchange rate, which reflects the state of macroeconomic indicators and the degree of confidence in the currency. Government policy is applied to increase or decrease the interest rate.

However, currency stability, where minimal fluctuations in the exchange rate of the national currency can be achieved, is important. Therefore, in the conditions of sanctions and political-economic instability, our country faces very important tasks - to adapt to the current external economic situation and prepare its own specific policy that will ensure the sustainability of economic development and its independence from other negative manifestations.

The political and economic environment of the country is the last factor that can affect the change of currency. Investors also appreciate the predictability of investing despite high-interest rates. Therefore, the demand for currencies of countries with a politically stable and strong economy is higher, as a result, the exchange rate rises. The exchange rate, like many macroeconomic indicators, is in stable dynamics. To understand how the value of an exchange rate can cause changes in the economy, it is important to determine what factors cause exchange rate changes.

Another factor that significantly affects currency fluctuations is the inflation rate. The inflation rate is defined as "the rate of increase in the overall prices of goods and services". Low inflation indicates good economic growth, but excessive growth can cause the economy to become unstable and the currency to depreciate and depreciate. As a result of this process, the purchasing power of the currency decreases and becomes cheaper. This trend is generally observed in the medium and long term. On average, it takes about two years for the exchange rate to recover, and this factor is especially typical for countries that are heavily involved in the international exchange of goods, services,
and capital.

A country's interest and inflation rates have a major impact on the country's economy. If inflation is too high, the central bank can solve the problem by raising interest rates. This prompts people to stop spending and save their money instead, as well as encourages foreign investment and increases the amount of capital flowing into the market, leading to increased demand for the currency. Therefore, an increase in interest rates can lead to an increase in the value of the currency. Similarly, a fall in interest rates can cause a currency to fall in value.

The balance of payments directly affects the value of the exchange rate. If the country has an active balance of payments, the exchange rate of the national currency rises due to the increase in foreign demand for that currency. When it comes to the passive balance of payments, there is a tendency for the national currency to depreciate. The degree of impact of the balance of payments on exchange rate changes depends on the openness of the country's economy. From this point of view, great importance is attached to the economic policy of the state in the field of regulating the balance of payments and its components. On the one hand, an increase in the positive balance of the trade balance leads to an increase in the demand for the currency of a certain country and, consequently, the exchange rate, and on the other hand, it is caused by an excessive flow of capital to foreign currency. There may be an excess of money supply in the country, which leads to a decrease in the purchasing power of money. During this period, contradictions in the world intensified.

The currency system during the pandemic. Unlike 2015, last year the Central Bank of Azerbaijan (CBA) implemented a rather aggressive policy to prevent devaluation [4]. It is clear that the bank's goal this time was to delay the devaluation using all available means. For this purpose, several unconventional policies were implemented in 2020.

The devaluation of the manat during the pandemic would be disastrous for the people of Azerbaijan. It seems that the Central Bank aims to delay it. We can clearly see this from the diagram below [7]:
The vertical bars in the chart represent the ratio of total currency bought to total currency sold in each month since 2014. For example, if the indicator is equal to 5, it means that foreign currency equivalent to AZN 1 was sold and equivalent foreign currency was bought in that month.

The rest of the demand for foreign currencies (in our example - 4 AZN) was provided by auctions of the State Oil Fund, reserves of the Central Bank and reserves of commercial banks.

In 2014, with the sharp drop in the price of oil, the demand for foreign currency in Azerbaijan increased, and as a result, the "currency ratio" reached 7.5 in the month of the first devaluation. When the second devaluation took place in December, the indicator was again high, this time equal to 7.2. In March 2020, this ratio reached 13.5.

In general, the indicator was 7.2 in April, so it was not low. These indicators tell us that if this increased demand had occurred in a non-pandemic period, the Central Bank would probably have gone to devaluation already in March-April.
However, we must note that depending on the emergency conditions caused by the coronavirus pandemic, our country was forced to conduct a more serious currency policy.

The reduction of deposits in April–December, the relative stabilization of oil markets, and unconventional methods applied by the Central Bank, including its determination to keep the exchange rate of the manat unchanged during the pandemic, played a role in limiting factors.

**Conclusions:** The future of the manat. With the introduction of the vaccination process both in Azerbaijan and in the world, the global economy has slowly recovered. In June 2021, the average price of BRENT crude oil reached $73.1.

Short-term forecasts for oil prices are grouped at 65–70 US dollars. Considering the socio-economic situation caused by the pandemic, we can say that the approach to the exchange rate of the manat is appropriate. However, we must remember that the current exchange rate policy is still unstable.

It should be noted that without the huge reserves (in relative terms) of the State Oil Fund of Azerbaijan, it would not be possible to keep the manat stable in 2020. Considering the difficulties caused by the devaluation of 2015 (even felt in 2021), the central bank should transfer the manat to a real floating currency regime at the first opportunity.

In 2020, our country was able to support the manat by supplying the market with a large amount of foreign currency (and, of course, facing losses in the process), but next time this "solution" may not be effective.

Reserves of the Oil Fund formed from a limited source of natural resources should not be wasted to maintain the short-term stability of the national currency. The Oil Fund's resources should be used for longer-term, more efficient, and more sustainable purposes in accordance with the original mission of the Fund and should work to achieve intergenerational equity.

The more artificially the Central Bank maintains the exchange rate of the manat, the more severe the next devaluation and its negative consequences will be. In order to prevent this, the Central Bank and relevant state institutions should adopt an appropriate short- and medium-
term strategy in the short term, educate the population on this topic and stimulate the diversification of financial institutions' portfolios. All this should be done now when the price of oil is rising because only when the price of oil is high, there is no "psychological demand" for foreign currency in Azerbaijan.

By the time the next drop in oil prices occurs, it may be too late. The exchange rate of the national currency should not be determined by politics and its backward interests, but by the forces of the free market.

In general, we were able to end the last year positively. Due to high energy prices, the exchange rate of the national currency is expected to remain stable. Of course, risks are inevitable.

Since the exchange rate of the manat is strictly dependent on the prices of energy carriers, there is currently no strong pressure on the manat. Of course, the policy of the Central Bank is to ensure that short-term fluctuations, psychological pressures, and short-term influencing factors do not affect the exchange rate.

Now the basis of the US policy is the appreciation of the dollar, which in this scenario will directly affect the manat. We are affected not only by the appreciation of the dollar, but also by changes in the value of currencies in neighboring countries: Kazakhstan, Azerbaijan, and Turkey.

Maintaining the high price of the manat does not correspond to our priority direction for the development of the non-oil sector in Azerbaijan in the medium and long term. The Central Bank has sufficient resources to maintain the exchange rate of the manat in the short term.

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