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METHODS OF FORECASTING EXCHANGE RATES IN DIGITAL ASSET TRADING

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Annotation: In digital asset trading, there are different ways of forecasting exchange rates, among which fundamental, quantitative and sentimental analysis occupy the main place. Fundamental analysis predicts exchange rate fluctuations by studying economic, political and financial factors. Quantitative analysis, on the other hand, focuses on predicting based on past data using mathematical models and artificial intelligence algorithms. Sentimental analysis, on the other hand, allows you to predict the future actions of investors by analyzing the mood of market participants. The combination of these methods serves to more accurately predict the movements of exchange rates.

Keywords: digital assets, exchange rates, fundamental analysis, quantitative analysis, sentimental analysis, market forecast, economic indicators, artificial intelligence, investment strategies.

Fundamental analysis is an approach based on the study of economic, political and social factors in predicting exchange rates, which provides a direction for traders and investors in making important decisions. The main purpose of this analysis is to identify factors affecting the value of the currency and assess their impact on the market. Economic factors include GDP growth, inflation rate, interest rates, and unemployment rates. If the economic growth of the country is stable and the gross domestic product increases regularly, the national currency is strengthened. An increase in inflation, on the other hand, can lead to depreciation of the currency, since its purchasing power decreases. The central bank's increase in interest rates makes this country's currency attractive to investors, as in countries with higher interest rates, revenues on deposits and bonds also rise. And when the unemployment rate decreases, economic activity can increase and strengthen the exchange rate.

Practically fundamental analysis allows you to forecast exchange rates based on real events and economic indicators. For example, when the U.S. Federal Reserve system raises interest rates in an attempt to lower inflation, the U.S. dollar is strengthened against other currencies as investors tend to invest in U.S. assets to generate higher returns. Another example is the depreciation of the Turkish lira. When the central bank lowers interest rates, investors give up their investment in the lira and convert capital into other currencies. This reduces the demand for the lyre and lowers its course. The depreciation of the Russian ruble also depends on geopolitical factors, and with the introduction of international sanctions against Russia in 2022, investors lost confidence in the Russian economy and caused the ruble to weaken. Later, after the Central Bank of Russia took emergency measures and sharply increased interest rates, the ruble exchange rate was consolidated for a short period.

Fundamental analysis is an important tool for understanding and analyzing long-term currency trends. Traders and investors make decisions on currencies, taking into account economic, political and geopolitical factors. More effective results can be achieved when this analysis is

used in conjunction with technical analysis.

Quantitative analysis is an approach to predicting exchange rates that aims to achieve accurate results based on statistical and mathematical models. This method helps to predict the movements of future exchange rates by analyzing past data. In this case, a large amount of data is processed, and future trends are determined using specific algorithms. The main principle of quantitative analysis is to understand the movement of exchange rates and determine the factors affecting their change, relying on historical data. This method makes it possible to make decisions based on economic models, statistical analysis and artificial intelligence, relying on accurate calculations rather than subjective conclusions.

Regression analysis is widely used among statistical models. This method analyzes whether exchange rates are related to different economic indicators. For example, how inflation rates, interest rates, or oil prices affect currency value is estimated through mathematical formulas. With this model, future exchange rates are predicted based on available data. Networked time series (time series analysis) is another important area of quantitative analysis. This method is aimed at identifying their recurrent patterns by analyzing the previous movements of exchange rates in depth. For example, the Autoregressive Integrated Moving Average (ARIMA) model or Long Short-Term Memory (LSTM) neural networks are applied to determine exchange rates. These methods allow algorithms to predict what changes will occur in the future.

Machine learning algorithms and artificial intelligence are also an important part of quantitative analysis. In this approach, large volumes of historical data are analyzed and the model more accurately predicts market movements through self-instruction. For example, technologies such as neural networks and gradient boosting help investors construct complex predictions. Artificial intelligence is able to adapt to dynamic changes, taking into account the instability of exchange rates, and allows you to analyze market signals in real time. In practical terms, quantitative analysis is of great importance for traders and investors. For example, large financial institutions use high frequency algorithmic trading (HFT – High Frequency Trading) in currency trading. These systems help to get the maximum income from market movements by making thousands of transactions in seconds. At the same time, in order to reduce risks, the expected market instability is assessed and appropriate strategies are developed.

Sentimental analysis is an approach based on the study of the behavior and mood of market participants in the prediction of exchange rates, allowing the analysis of factors affecting the decision-making process of investors. This method explores opinions expressed on media, social media, blogs, forums, and other online platforms to assess the attitudes and trends of market participants.

Sentimental analysis relies primarily on Text Processing (Natural Language Processing – NLP) and artificial intelligence technologies to enable real-time analysis of large amounts of information. Through this analysis, the optimistic or pessimistic mood of foreign exchange market participants is determined, and this data is used to forecast future market movements. For example, if investors in social networks and news make positive comments on a currency, demand is expected to increase, and as a result, this exchange rate can be strengthened. On the contrary, if alarming or negative news spreads in the market, investors tend to act cautiously and switch to secure assets, which leads to a weakening of a particular currency.

Sentimental analysis, when used in conjunction with specific and numerical analysis methods, helps to more fully understand trends in the market. Its main advantage is the possibility of processing large amounts of data in real time, while the disadvantage is the possibility of a false alarm due to the overreaction of investors to certain messages. For this reason, sentimental

analysis is often used in conjunction with fundamental and quantitative analysis, which allows for a more reliable forecast of the movements of exchange rates.

In conclusion, forecasting exchange rates in digital asset trading is of vital strategic importance to investors and traders. Through Fundamental analysis, economic and political factors are evaluated, quantitative analysis serves to create accurate forecasts using artificial intelligence and statistical models, while sentimental analysis allows you to understand the market mood. The combination of these methods of analysis will help to more reliably predict exchange rate changes and promote effective decision-making of investors.

LIST OF REFERENCES:

1. Frankel, Jeffrey and Kenneth Froot, 1987a, "Using Survey Data to Test Standard Propositions Regarding Exchange Rate Expectations," American Economic Review 77, 133–53.

2. Friedman, Milton, "The Case for Flexible Exchange Rates," in his Essays in Positive Economics, (Chicago: University of Chicago Press, 1953).

3. Froot, Kenneth, and Takatoshi Ito, "On the Consistency of Short-run and Long-run Exchange Rate Expectations," NBER Working Paper No. 2577, (May 1988). Forthcoming, Journal of International Money and Finance.

4. Rutledge, David, "Trading Volume and Price Variability: New Evidence on the Price Effects of Speculation," in Futures Markets: Their Establishment and Performance, ed. by B.A. Goss, (New York: New York University Press, 1986).

5. Шарипова Нигина Джоракуловна, Джураев Искандар. (2024). СОВЕРШЕНСТВОВАНИЕ ОРГАНИЗАЦИОННЫХ МЕХАНИЗМОВ ТРАНСФОРМАЦИОННЫХ ПРОЦЕССОВ В КОММЕРЧЕСКИХ БАНКАХ. *Эфиопский международный журнал многопрофильных исследований* , *11* (04), 66–68.
6. Sharipova Nigina Jorakulovna. Maksudov Orif Shakirovich , (2023). THE IMPORTANCE OF MONETARY REFORMS. *Ethiopian International Journal of Multidisciplinary Research*, *10*(12), 880–883.
7. Шарипова Нигина Джуракуловна Самаркандский институт экономики и сервиса Ассистент. (2023). ЗАРУБЕЖНЫЙ ОПЫТ РАЗВИТИЯ БАНКОВСКОЙ СИСТЕМЫ. Zenodo.
8. Шарипова, Н.Д. Акобиров, А.П., и (2023). ДАЛЬНЕЙШЕЕ СОВЕРШЕНСТВОВАНИЕ ПРЕДОСТАВЛЕНИЯ ДИСТАНЦИОННЫХ БАНКОВСКИХ УСЛУГ КОММЕРЧЕСКИМИ БАНКАМИ. *SCHOLAR* , *1* (35), 66–73.