# **Exchange Rate Forecasts Based on Influencing Factors**

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*Abstract:* The rapid acceleration of global economic integration has significantly deepened trade ties among nations, and as a result, currency fluctuations have emerged as a key factor influencing international financial stability. Exchange rates indicate a country's global competitiveness and directly affect the profits of trading companies and the flow of capital. The increasing complexity of the global trade environment has spurred a growing need for reliable exchange rate forecasts in recent years. Since exchange rates are shaped by economic, political, and market sentiment factors, understanding and analyzing these factors to develop an effective predictive model has become a central challenge in financial research, providing a deeper understanding of the global financial system. This article discusses exchange rate fluctuations and their predictions, analyzes the multiple factors that affect exchange rate changes, and sorts out the main prediction methods. This article aims to provide a reference for understanding the law of exchange rate fluctuations and their impact on the global economy, and to provide ideas for research and practice in related fields.

*Keywords:* Exchange rate forecasts, Influencing factors, Model.

#### 1. Introduction

Fluctuations in exchange rates have profound implications for national economies and macroeconomic policymaking. For businesses, the volatility in currency values directly impacts the costs and returns of import-export activities—especially for those heavily reliant on international markets, where exchange rate changes can tightly constrain profit margins. For investors, shifts in currency values influence returns in the forex market and guide the direction of international capital flows, affecting asset allocation and risk management decisions. From a governmental perspective, maintaining a stable exchange rate is crucial for fostering economic growth, managing inflation, and promoting international trade. Many governments manage exchange rate stability through monetary and fiscal policies; for instance, the Federal Reserve's adjustments to benchmark interest rates alter the supply and demand for the U.S. dollar, triggering ripple effects across global markets. Traditional forecasting approaches overlook non-economic influences such as market sentiment, resulting in limited predictive performance. However, with big data and artificial intelligence, data-driven methods have emerged as promising alternatives. Modern forecasting models integrate economic indicators and political and sentiment data to enhance their accuracy, paving the way for a more precise and reliable future in financial research.

This article discusses exchange rate fluctuations and their predictions, analyzes the multiple factors that affect exchange rate changes, and sorts out the main prediction methods. The research covers multiple aspects such as macroeconomic situation, policy changes, market sentiment, etc., and

combines economic model methods to explore the applications and challenges in exchange rate prediction. This article aims to deepen the understanding of the laws of exchange rate fluctuations and provide a certain reference for international trade, financial markets and policy making. In the future, with the continuous evolution of the global economic environment and the advancement of data analysis technology, exchange rate prediction methods will continue to be optimized to provide more effective support for coping with complex and changing financial markets.

## 2. Influencing Factors

The determinants of exchange rate movements can generally be divided into three categories: economic factors, political factors, and market sentiment factors.

## 2.1. Economic Factors

Key economic indicators—such as GDP growth rate, interest rate changes, and inflation—directly reflect a nation's financial condition. Typically, a rising GDP suggests a healthy and active economy, which enhances the attractiveness of the nation's currency, thereby increasing its value. In contrast, a declining GDP may signal serious economic challenges and deteriorating living standards, leading to reduced trade volumes and a depreciation in the currency [1]. Interest rate adjustments and inflation are closely intertwined; central banks often modify interest rates as a response to changes in inflation. For example, when inflation accelerates, institutions like the Federal Reserve might raise benchmark interest rates to cool off consumption and investment, which helps control inflation. Conversely, a drop in inflation may prompt higher accurate interest rates to encourage savings. Thus, these economic factors have a direct and measurable impact on exchange rate dynamics.

### **2.2.** Political Factors

Political elements also play a decisive role in exchange rate fluctuations, primarily through governmental monetary policies. Changes in policies—such as a decision by the Federal Reserve to either reduce or increase interest rates—can swiftly alter the supply and demand for the dollar, thereby affecting global currency markets. In times of economic crises or international political turmoil, governments might adopt varied measures that can lead to abrupt short-term movements in exchange rates [2]. For instance, the Brexit referendum in the UK led to a significant depreciation of the British pound, reflecting the decision's uncertainty and potential economic impact. Similarly, the election of President Trump and the subsequent imposition of an additional 10% tariff on all Chinese exports to the U.S. led to a reduction in the volume of trade, subsequently affecting the exchange rate between the U.S. dollar and the Chinese yuan. Other examples of political factors influencing exchange rates include geopolitical tensions, changes in government leadership, and trade agreements. These examples illustrate the critical role of political factors in the multifaceted system that determines currency values.

### 2.3. Market Sentiment Factors

Market sentiment, which reflects investors' overall confidence and outlook, is another vital yet sometimes underestimated factor in exchange rate fluctuations. Essentially, market sentiment encapsulates how investors perceive the economic future and their general trust in the market. When there is widespread uncertainty, a decline in confidence may prompt investors to shift their assets into safe havens—such as gold or dollar-linked instruments—thereby indirectly driving up the dollar's value and exerting pressure on other currencies. Furthermore, with the rapid advancement of big data technologies, information (and consequently investor sentiment) can spread more quickly than ever.

This can lead to highly reactive markets where positive sentiment boosts activity, while negative sentiment can trigger widespread panic, ultimately influencing currency movements [3].

## 3. Exchange Rate Forecasting Model

Given the complexity of the various factors, relying on a single forecasting model is often insufficient. This discussion employs different types of models tailored to the characteristics of the data and their respective predictive capabilities.

The ARIMA model is a well-established method for time series forecasting that analyzes historical data to detect autocorrelations and trends [4]. When the data series exhibits non-stationarity—such as seasonality—it must first be differenced to achieve a stationary series [5]. By examining the residuals, anomalies can be identified, which aids in forecasting future trends. Although ARIMA effectively captures linear relationships and is widely used for short-term forecasts, its performance can suffer from nonlinear influences or unexpected events. It is important to note that ARIMA may not be the best choice for forecasting in situations where the data is highly volatile or influenced by sudden, unpredictable events. Zhang, L. and Li, M. proposed an input variable selection method for the ARIMA model. Before constructing the model, they first conducted statistical analysis and empirical tests on historical exchange rate data and related economic indicators. They achieved data stabilization through preprocessing steps such as differencing and filtering out the key variables that contributed the most to the prediction of exchange rate fluctuations. The results demonstrated that this optimization method significantly improved the accuracy of the ARIMA model in capturing the patterns of exchange rate fluctuations [6]. Garcia, P. and Lee, S. reviewed applying the ARIMA model in financial forecasting. By compiling multiple case studies, they showcased methods of utilizing historical data preprocessing (such as differencing) to capture linear trends. They also pointed out the limitations of the ARIMA model in dealing with nonlinear market changes and unexpected events. The results indicated that the predictive accuracy of a single ARIMA model is limited in complex market environments, and they recommended combining it with other methods to enhance forecasting effectiveness [7-8].

On the other hand, the Vector AutoRegression (VAR) model is designed to handle multivariate time series data, allowing for the examination of dynamic interactions among multiple variables. For instance, by including variables like interest rates and GDP, VAR can assess their combined effects on exchange rate movements. However, the accuracy of VAR models is highly sensitive to the selection of variables and the quality of the data, which can sometimes lead to biased predictions [9]. Alvarez, P. and Novak, M. developed an exchange rate forecasting method based on the VAR model. During the preprocessing stage, they screened and standardized various indicators and utilized multivariate analysis to reveal the interconnected effects of different factors on exchange rate fluctuations. The results showed that this method could provide relatively comprehensive forecasting information, but it also exhibited high sensitivity to variable selection and required high-quality data [10].

# 4. Conclusion

Drawing on the current international economic context and trends in financial markets, this study has explored the main factors affecting exchange rate volatility and their underlying mechanisms. It has provided an in-depth analysis of economic, political, and market sentiment dimensions and compared various forecasting approaches such as ARIMA and VAR models. The comparative analysis indicates that models integrating multiple influencing factors offer improved forecasting accuracy. Nevertheless, these approaches are not without challenges—issues such as data collection difficulties, the complexity of model calibration, and the impact of unforeseen external events remain significant

hurdles. However, there is a need for future research to overcome these challenges and enhance traditional models with advanced AI technologies to boost long-term forecast accuracy, using big data to assess market sentiment quantitatively (for instance, by analyzing social media) and developing dynamic adjustment mechanisms that allow models to adapt in real-time to changing market conditions and unexpected shocks, offers hope for the potential advancements in the field.

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