The Effects of RMB on Exchange Rate Volatility in the "Belt and Road" Initiative Countries

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ABSTRACT
Using the high-dimensional factor model and the currency anchor model, this study analyses the driving factors of the exchange rate volatility for the 65 countries along the "Belt and Road" Initiative. Based on the data from January 2005 to December 2023, it investigates the spatiotemporal evolution of currency anchor in these countries. The results indicate that since the implementation of the "Belt and Road" Initiative in 2013, the RMB has become the third-largest "approximate leader" driving exchange rate volatility in the "Belt and Road" region, following the US dollar and the euro. In addition, the "Belt and Road" Initiative has a promoting effect on the currency anchor of RMB, and the RMB's currency anchor exhibits significant spatial heterogeneity.

Keywords: *RMB, Exchange rate volatility, The "Belt and Road" Initiative.*

1. INTRODUCTION

As China continues to deepen its opening to the outside world, the Renminbi (Abbreviated as RMB) has become an important engine for promoting modernization with Chinese characteristics. The "Belt and Road" serves as a key strategic initiative to promote RMB internationalization. Current studies on the internationalization of the RMB under the "Belt and Road" Initiative mainly focus on two aspects. One is about the driving factors for the RMB internationalization. Evidence suggests that the economic scale contributes a significant marginal utility to the progress of RMB internationalization under the "Belt and Road" Initiative (Wu and Sun 2023). Additionally, the increase in the proportion of RMB cross-border settlements has created a "companion effect" for RMB settlements, significantly advancing the level of RMB internationalization (Ouyang and Ling 2022). In this process, the characteristics of exchange rate are closely related to cross-border RMB balances (Cai 2022). While some other horizontal comparative studies investigated the influence of the RMB. Since the introduction of the "Belt and Road" Initiative, there has been significant progress in the level of RMB internationalization (Cao and Feng 2020). By 2024, the RMB's currency anchor effect on countries along the "Belt and Road" has exceeded that of the British Pound, but there is still a big gap compared to the US Dollar and Euro (Wang and Zhu 2024).

There is currently a lack of exploration into the factors driving exchange rates in the "Belt and Road" region and a shortage of studies on the role of exchange rates in RMB globalization (Wang et al. 2020). Therefore, this paper attempts to address the limitations through analyzing the driving factors of exchange rate volatility in countries along the "Belt and Road" and investigating the spatiotemporal evolution of the RMB's currency anchor in the region.

2. RESEARCH DESIGN

2.1 Construction of Index System

Drawing on the research of Zhang (2013), this study selects five indicators: national strength, internal stability, development of international financial market, development of domestic financial market, stability and profitability of RMB. Based on the principles of observability, data availability and scientificity, this study constructs an RMB internationalization evaluation index

system containing 15 secondary indicators, which is shown in "Table 1".

Table 1. RMB internationalization evaluation index system and its weights

Primary indicators	Secondary indicators	Attributes
National strength	Share of GDP (%)	Positive
	Share of trade (%)	Positive
	Ranking of military expenditure share	Negative
Internal stability	Political stability	Negative
	Government efficiency	Negative
Development of international financial market	Rate of RMB debt repayment (%)	Negative
	Share of RMB in global foreign exchange transaction	Positive
	Share of RMB international reserve	Positive
	Share of RMB in global external credit	Positive
	Share of RMB in global foreign direct investment assets (%)	Positive
	Share of RMB in global foreign direct investment liabilities	Positive
Development of domestic financial market	Index of financial market development	Positive
Stability and profitability of RMB	Exchange rate volatility (%)	Positive
	Inflation rate (%)	Negative
	Real interest rate (%)	Positive

2.2 Method of Measurement

This paper uses the entropy weight TOPSIS method to evaluate the level of RMB internationalization. On the principle of information entropy, the entropy weight method determines the weight according to the variation of the indicator values, avoiding the arbitrariness of subjective weighting. The TOPSIS method can evaluate the relative superiority or inferiority of each evaluation object through calculating the distance between each evaluation object and the optimal solution or the worst solution. The entropy weight TOPSIS method combines the two methods to effectively avoid interference from human factors, thus it has strong operability and stability. The specific operation steps are as follows:

The first is to standardize the relevant indicators.

$$Y_{ij} = \begin{cases} \frac{x_{ij} - \min(x_{ij})}{\max(x_{ij}) - \min(x_{ij})}, when\ x_{ij}\ is\ positive \\ \frac{\max(x_{ij}) - x_{ij}}{\max(x_{ij}) - \min(x_{ij})}, when\ x_{ij}\ is\ negative \end{cases} \quad (1)$$

In formula (1), *i* represents country; *j* represents indicator; $Y_{i,j}$ represents standardized value; $x_{i,j}$ represents original value; $\max(x_{i,j})$ and $\min(x_{i,j})$ represents the maximum and minimum values in the original data respectively.

The second is to use the entropy method to calculate the information entropy weight of the indicator.

$$e_j = -\frac{1}{\ln m}\sum_{i=1}^{m} p_{ij} \ln(p_{ij}), j = 1, \cdots, m \quad (2)$$

Where $p_{ij} = Y_{ij} / \sum_{n}^{i=1} Y_{ij}$ .The third is to calculate the difference coefficient of the j-th indicator.

$$d_j = 1 - e_j, j = 1,2,\cdots,m \quad (3)$$

According to the difference coefficient, the researchers can calculate the weight of the RMB internationalization-related indicator.

$$\omega_j = \frac{d_j}{\sum_{j=1}^{m} d_j}, j = 1,2,\cdots,m \quad (4)$$

The fourth is to construct the standardized matrix and the weight normalization matrix according to the weight of the RMB internationalization-related indicator.

$$b_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}}, i = 1,2,\ldots,n; j = 1,2,\cdots,m$$
$$c_{ij} = \omega_j b_{ij}, i = 1,2,\ldots,n; j = 1,2,\cdots,m \quad (5)$$

The fifth is to use the positive ideal solution $c_j^* = max\{c_{ij}\}$ and the negative ideal solution $c_j^0 = min\{c_{ij}\}$ to measure its gap with each indicator (Euclidean Distance).

$d_i^* = \left[\sum_{j=1}^{m}(c_{ij} - \max\{c_{ij}\})^2\right]^{\frac{1}{2}}, i = 1,2,\ldots,n; \mathrm{j} = 1,2,\cdots,\mathrm{m}$ (6)

$d_i^0 = \left[\sum_{j=1}^{m}(c_{ij} - \min\{c_{ij}\})^2\right]^{\frac{1}{2}}, i = 1,2,\ldots,n; \mathrm{j} = 1,2,\cdots,\mathrm{m}$ (7)

The sixth is to calculate the RMB internationalization index C_i

$$C_i = \frac{d_i^0}{d_i^0 + d_i^*}, \quad i = 1,2,\cdots,n \tag{8}$$

2.3 Construction of Factor Model

This paper draws on the "approximate leader" factor model proposed by Bai & Serena (2002) to identify the exchange rate volatility driving factors of the countries along the "Belt and Road". The "approximate leader" is an unobservable real factor. The method to identify this factor is to fit it with observable economic variables and identify the most similar economic variables as substitutes.

2.3.1 Construction of "Belt and Road" Exchange Rate Volatility Factors

Assuming that there is a total of N+1 currencies, the US dollar is represented by "0", the RMB is represented by "1", and the euro is represented by "2". Under the random discount theory, the exchange rate volatility return of the *i*-th country can be expressed as:

$$\Delta s_{it} = n_{it} - n_{0t} \tag{9}$$

Where, s_{it} represents the nominal exchange rate volatility of the i-th country with the US dollar as the base currency; n_{it} represents the logarithm of the random discount factor of the country; and n_{0t} represents the logarithm.

According to Verdelhan's (2018) study on the movement law of random discount factors, the random discount factors of different countries can be expressed as the following factor structure:

$$n_{it} = \delta_i' f_t + n_{it}^o \tag{10}$$

δ_i' is a k-dimensional factor loading vector; n_{it}^o is a special factor; f_t is a common factor. In order to reduce the impact of the US dollar random discount factor on cross-sectional data, the observed value is converted into a deviation from the cross-sectional mean:

$$\Delta\bar{s}_t^{\$} = \frac{1}{N}\sum_{i=1}^{n}\Delta s_{it} = (\bar{\delta}' - \delta_i')f_t - n_{0t} \tag{11}$$

Where, $\bar{\delta}' = (\frac{1}{N}\sum_{i=1}^{N}\delta_{i,1},\cdots,\frac{1}{N}\sum_{i=1}^{N}\delta_{i,k})$. Let the exchange rate volatility return of the i-th country be estimated as $\Delta\tilde{s}_{it} = \Delta s_{it} - \Delta\bar{s}_t^{\$}$, and the factor loading deviation be estimated as $\tilde{\delta}' = (\bar{\delta}' - \delta_i')$, then the exchange rate volatility return of the i-th country can be re-expressed as:

$$\Delta\bar{s}_{it} = \bar{\delta}_i' f_t + \bar{n}_{it}^o \tag{12}$$

When the amount of currency tends to infinity, the observed value approaches the true value. The "Euro" factor and the "RMB" factor are constructed as follows:

$$\Delta\bar{s}_t^{€} = \frac{1}{N}\sum_{i=1}^{N}\Delta s_{it} - \Delta s_{2,t} \tag{13}$$

$$\Delta\bar{s}_t^{¥} = \frac{1}{N}\sum_{i=1}^{N}\Delta s_{it} - \Delta s_{1,t} \tag{14}$$

2.3.2 Determination of k (the Number of "Approximate Leader" Factors)

Assuming that there are *M* variables in the panel data and there are *T* observations for each variable, the number of common factors *k* is calculated through the information criterion IC_2:

$$\mathrm{IC}_2 = \ln\left(\sum_{i=k+1}^{C}\lambda_i\right) + k\left(\frac{M+T}{MT}\right)lnC \tag{15}$$

Where, $C = min(M,T)$. λ_i represents the i-th eigenvalue of the sample covariance matrix in order to minimize the number of "approximate leader" factors *k*.

2.3.3 Identification of Economic Variables

To explain the identification process intuitively, assume that the value of *k* is 2, then the common factor (f_{1t}, f_{2t}) can be expressed as:

$$f_{1t} = a_{11}f_{jt}^p + a_{12}f_{kt}^p + \varepsilon_{1t} \tag{16}$$

$$f_{2t} = a_{21}f_{jt}^p + a_{22}f_{kt}^p + \varepsilon_{2t} \tag{17}$$

When the observed value tends to infinity, the error tends to zero. Substituting the above formula into the exchange rate volatility return of each country, the economic variable expression of the exchange rate volatility return can be obtained:

$$\Delta\bar{s}_{it} = \alpha_i + \beta_{i1}f_{jt}^p + \beta_{i2}f_{kt}^p + \Delta s_{it}^o \tag{18}$$

Through the calculation of the information criterion, the factor identification is completed according to the following criteria: If there is no common factor in Δs_{it}^o, that is, *k* is 0, then the group of economic variables is a true common factor; if there is a common factor in Δs_{it}^o, that is, *k* is not 0, then the group of economic variables is not a true common factor.

2.4 Currency Anchor Model

Assume that the exchange rate volatility of a country's currency is determined by a basket of

currencies, and one of the currencies in the basket is called the anchor currency. The impact of the anchor currency on a country's currency can be calculated by formula (18):

$$\text{Currency}_t = \alpha + \sum \beta_{it} \text{InterCurrency}_{it} + \varepsilon_t \quad (19)$$

Where Currency_t represents the exchange rate volatility of a certain country's currency in period t, and $\text{InterCurrency}_{it}$ represents the exchange rate volatility of the i-th anchor currency in period t. To ensure a more stable sequence, the returns of exchange rate volatility for each country are used instead of the observed values. Based on the research by Li and Cai (2019), the model used in this study is:

$$\Delta\text{InterCurrency}_t = \alpha + \beta_1 \Delta\ln\text{CNY}_t + \beta_2 \Delta\ln\text{USD}_t + \beta_3 \Delta\ln\text{EUR}_t + \beta_4 \Delta\ln\text{JPY}_t + \beta_5 \Delta\ln\text{GBP}_t + \varepsilon_t \quad (20)$$

Where RMBt, USDt, RURt, JPYt, GBPt denote respectively the exchange rate volatility of the RMB, US Dollar, Euro, Japanese Yen, and British Pound in period t, with the Swiss Franc as the base currency for all countries.

Given that there are many countries along the "Belt and Road" in the selected sample, the RMB may anchor to other currencies in the basket, leading to mulicollinearity and making it difficult to differentiate whether a country's exchange rate volatility is influenced by the RMB or other anchor currencies. Therefore, it is necessary to exclude the influence of other anchor currencies on the RMB's exchange rate volatility and to use the residual sequence obtained from auxiliary regression to replace the RMB's exchange rate volatility sequence.

$$\Delta\ln\text{CNY}_t = a + b_1 \Delta\ln\text{USD}_t + b_2 \Delta\ln\text{EUR}_t + b_3 \Delta\ln\text{JPY}_t + b_4 \Delta\ln\text{GBP}_t + v_{1t} \quad (21)$$

2.5 Data Source

Based on the time when the "Belt and Road" strategy was proposed and the division of the "Belt and Road" regions in "The Vision and Actions", this paper selected 65 countries along the "Belt and Road" from 2005 to 2023 as the research sample. The original data mainly come from the International Monetary Fund (IMF), the World Bank, China's "Belt and Road" Initiative, the State Administration of Foreign Exchange and *the China Statistical Yearbook*. For the small amount of missing data, the linear interpolation method is used to fit the existing data into a function, and then the missing data is calculated by the slope of the function.

It should be noted that since the exchange rate volatility data of most sample countries are missing from January to April 2023, the time range of the exchange rate volatility data is from January 2005 to December 2022. There are a large number of missing values in countries such as Myanmar and Afghanistan, which are deleted in the actual analysis. The national currency of Palestine is the Israeli shekel, which is consistent with the national currency of Israel and needs to be merged. Some countries in the euro zone, such as France, Germany, Italy, etc., are merged because their exchange rate volatility is the same during the sample time.

3. EMPIRICAL ANALYSIS

3.1 Overall Measurement Analysis of the RMB Internationalization Index

Based on the RMB internationalization evaluation index system, this paper uses the entropy weight TOPSIS method to calculate the RMB internationalization index from 2005 to 2023. As shown in "Figure 1", the RMB internationalization index increased slightly from 2005 to 2012. In 2013, China proposed the "Belt and Road" Initiative, so the RMB internationalization index rose rapidly until it reached a maximum value of 0.635 in 2019, indicating that the construction of the "Belt and Road" may have an important role in promoting the internationalization of the RMB. With the outbreak of the COVID-19 pandemic in 2020, the global economic situation was sluggish, and the RMB internationalization index also declined, with slight fluctuations in recent years.

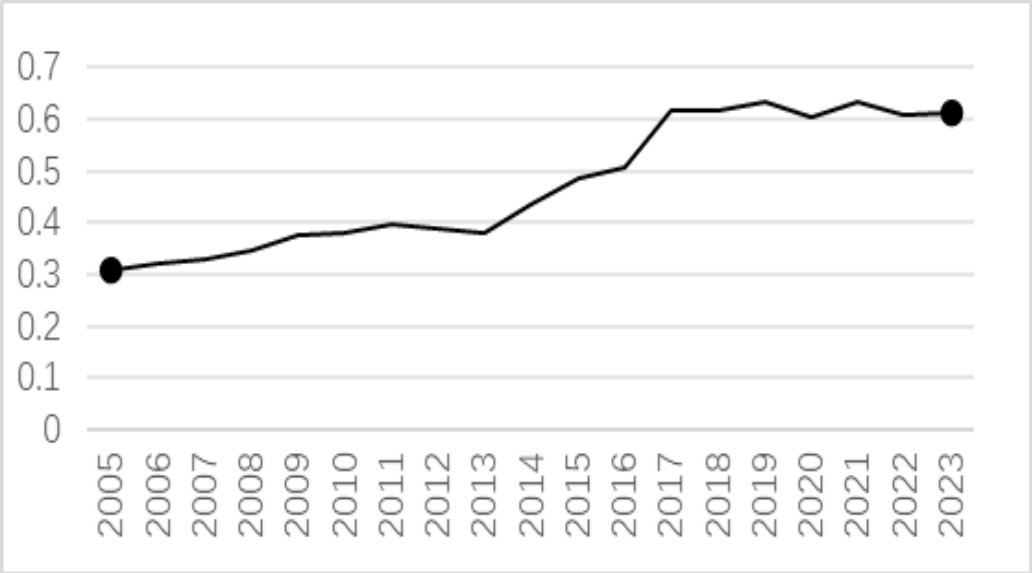

Figure 1 Index of RMB internationalization from 2005 to 2023.

"Table 2" shows the weights of specific indicators. Among the primary indicators, the weight of "development of international financial market" is the largest, reaching 38.321%, which proves that the ties between China's trade, investment and global economies have become increasingly close in the past decade, and the demand for RMB transactions and reserves in the international financial market has increased. At the same time, the establishment and development of the offshore RMB market, RMB bond market, and RMB outbound direct investment market have provided non-residents with more RMB asset options, thereby enhancing the international appeal of the RMB and laying the foundation for the internationalization of the RMB to a certain extent. The second-ranked weight is "stability and profitability of RMB", with a weight of 22.599%, which shows that the RMB has shown a certain degree of stability and controllability in recent years. Specifically, the stability of RMB exchange rate volatility, low inflation rate, and attractive real yield have won the favor of the international market for the RMB. The two indicators ranked third and fourth in weight are "national strength" and "internal stability". Their weights are quite close, both reflecting that the country has a greater impact on the internationalization of the RMB, which cannot be ignored. The smallest weight is "development of the domestic financial market", which proves that the current international market's acceptance and cognition of China's domestic financial market is low, and there are certain constraints on the path of promoting the internationalization of the RMB through the domestic financial market.

Table 2. Weights of evaluation indicators for RMB internationalization from 2005 to 2023

Primary indicators	Weights (%)	Secondary indicators	Weights(%)
National strength	16.253	Share of GDP (%)	6.858
		Share of trade (%)	5.952
		Ranking of military expenditure share	3.443
Internal stability	16.228	Political stability	10.101
		Government efficiency	6.117
Development of international financial market	38.321	Rate of RMB debt repayment (%)	8.26
		Share of RMB in global foreign exchange transaction	4.163
		Share of RMB international reserve	3.744
		Share of RMB in global external credit	6.02
		Share of RMB in global foreign direct investment assets (%)	10.962
		Share of RMB in global foreign direct investment liabilities	5.172
Development of domestic financial market	6.608	Index of financial market development	6.608
Stability and profitability of RMB	22.599	Exchange rate volatility (%)	12.453
		Inflation rate (%)	4.14
		Real interest rate (%)	6.006

Among the secondary indicators, "exchange rate volatility" has the greatest impact on the internationalization of the RMB, accounting for 12.453% of the weight. This means that the RMB exchange rate is relatively stable between 2005 and 2023, and more countries and regions may choose the RMB as a settlement currency or reserve currency, thereby promoting the internationalization of the RMB. "Political stability" and "share of RMB in global foreign direct investment assets" are two other secondary indicators with weights exceeding 10%, indicating that China's political environment can provide a good platform for the internationalization of its RMB, and the scale of China's foreign direct investment has expanded. However, the weights of indicators such as "share of RMB international reserve" and "share of RMB in global foreign exchange transaction" are relatively low, reflecting that the RMB's global status has not yet reached a level comparable to that of major international currencies. When allocating foreign exchange reserves, countries still tend to choose traditional major currencies such as the US dollar and the euro, rather than the RMB.

3.2 Identification of RMB Factors Along the "Belt and Road" from the Perspective of Exchange Rate Volatility

From the results of entropy weight TOPSIS, it can be seen that the "Belt and Road" may have a promoting effect on the internationalization of RMB, and exchange rate volatility is the most important indicator influencing RMB internationalization. Therefore, this section further discusses the relationship between RMB internationalization and exchange rate volatility based on the large-dimensional factor theory. First, the researchers identify global monetary economic variables. By applying criteria IC_2, it is determined that the number of "Approximate Leader" factors driving exchange rate volatility in the countries along the "Belt and Road" is 3. In all samples, both the "US Dollar" factor and "Euro" factor are present, indicating that the US Dollar and the Euro also serve as the top two "Approximate Leader" factors driving exchange rate volatility in the "Belt and Road" region. To examine which currency serves as the third-largest "Approximate Leader" factor, other currencies are considered along with the Euro and US Dollar factors as common factors, and the proportion of their joint occurrence is calculated.

Table 3. Frequencies of other factors along with the factors of US Dollar, Euro

	RMB	GBP	JPY	INR	RUB	IDR	TRY
RMB	0.848	0.000	0.000	0.000	0.000	0.000	0.000
EUR	0.964	0.955	0.946	0.964	0.955	0.955	0.964
VND	0.161	0.170	0.161	0.179	0.161	0.188	0.161
JOD	0.188	0.188	0.179	0.188	0.188	0.205	0.188
SAR	0.205	0.205	0.188	0.205	0.205	0.205	0.205
GE	0.929	0.920	0.911	0.929	0.911	0.902	0.920
CY	0.188	0.188	0.170	0.196	0.188	0.205	0.188
LT	0.384	0.375	0.384	0.384	0.384	0.375	0.384
SI	0.196	0.196	0.179	0.277	0.196	0.304	0.232
BGN	0.009	0.009	0.009	0.009	0.009	0.116	0.009
NL	0.964	0.955	0.946	0.964	0.955	0.955	0.964
DKK	0.205	0.205	0.188	0.205	0.196	0.205	0.205
MT	0.295	0.286	0.295	0.295	0.295	0.286	0.295
USD	0.848	0.848	0.679	0.795	0.848	0.848	0.839
Average	0.456	0.393	0.374	0.399	0.392	0.411	0.397

"Table 3" shows that there is another currency factor, together with the US Dollar and Euro factors, accounting for a relatively high proportion of the impact factors. The average value of the RMB factor reaches 0.456, which implies that in nearly half of the countries along the "Belt and Road", the US Dollar, Euro, and RMB collectively serve as the basis for currency value fluctuations. By changing the starting time of the sample for multiple identifications to ensure its robustness, the results can be found in "Table 4" which displays the stability of the key currency factors in 82

retrospective samples. The factor stability of the RMB reaches the highest at 86.61%, confirming that the RMB has become the third-largest "Approximate Leader" driving exchange rate volatility in the "Belt and Road" region.

Table 4. Factor stability

	RMB	GBP	RUB	IDR	INR	TRY	JPY
Ratio	86.61	84.82	84.82	84.82	79.46	75	67.86

3.3 The Temporal and Spatial Evolution of the RMB Currency Anchor in the "Belt and Road" Regions

Next, the researchers construct a currency anchor model to include the RMB, Euro, US Dollar, and the currencies of other countries along the "Belt and Road". The number of countries, where the coefficients for the five anchor currencies are significant and positive, is calculated. The results are shown in "Table 5". The RMB ranks third among the sample countries. The proportion of countries with significantly positive anchor coefficients for the RMB is 0.169697, which means that nearly 17% of the countries take the RMB as the basis for the fluctuations of their currencies. This result proves that the RMB has already had considerable influence in the "Belt and Road" region.

Table 5. Proportion of Countries Anchoring to Different Currencies

	USD	EUR	RMB	GBP	JPY
Ratio	0.363636	0.254545	0.169697	0.157576	0.054545

To further explore the currency anchor effect of the RMB in the countries along the "Belt and Road", the samples are regressed first totally and then separately in different space and time. Spatially, based on the division of the regions along the "Belt and Road" outlined in the document "Vision and Actions", the samples are categorized into seven regions: East Asia, West Asia, Central Asia, South Asia, Commonwealth of Independent States, Central and Eastern Europe, and the Asian Infrastructure Investment Bank (AIIB). Temporally, the samples are divided into two intervals according to the timeline of the "Belt and Road" Initiative: I. from January 2005 to September 2013; II. from October 2013 to December 2023. The results are presented in "Table 6".

Table 6. Proportion of countries anchoring to different currencies in different time intervals by regional division

Region	Time Interval	RMB	USD	EUR	JPY	GBK
East Asia	I	0.067	0.667	0.133	0	0.133
	II	0.290	0.323	0.129	0.161	0.097
West Asia	I	0.053	0.737	0.158	0	0.053
	II	0.189	0.405	0.135	0.216	0.054
Central Asia	I	0.125	0.625	0	0.125	0.125
	II	0.125	0.625	0.125	0	0.125
Commonwealth of Independent States	I	0.250	0.313	0.188	0	0.250
	II	0.091	0.636	0.182	0	0.091
Central and Eastern Europe	I	0.050	0	0.700	0	0.250
	II	0.045	0.227	0.636	0.045	0.045
the Asian Infrastructure Investment Bank	I	0.034	0.276	0.345	0.035	0.310
	II	0.167	0.200	0.433	0.067	0.133
South Asia	I	0.083	0.583	0.250	0	0.083
	II	0.250	0.583	0	0.167	0
Average	I	0.098	0.457	0.253	0.023	0.172
	II	0.165	0.428	0.234	0.094	0.078

a Note: This table divides the countries anchoring the anchor currency by region. For example, in Phase I, the proportion of countries anchoring RMB in East Asia accounted for 0.067 of the total anchoring countries in East Asia.

In terms of spatial variation, the proportions of countries anchoring to the RMB are relatively high in East Asia, West Asia, Commonwealth of Independent States, and South Asia, with over 10% of countries choosing the RMB as the currency anchor. Among these regions, East Asia has the highest proportion, reaching 6.7% and 29% in the periods from 2005 to 2013 and 2013 to 2022 respectively, indicating the strong influence of the RMB in the Asian region. The lowest proportion is in Central and Eastern Europe, with only about 5% of countries anchoring to the RMB. This means that although the RMB has a greater influence on neighboring countries, its influence is significantly reduced as political distance increases. In terms of time changes, the number of countries anchoring to the RMB showed a clear upward trend since the proposal of the "Belt and Road" Initiative in 2013. The proportion of countries anchoring to the RMB increased from 9.8% in the first phase to 16.5% in the second phase, surpassing the British Pound which previously ranked third. This proves that the "Belt and Road" strategy has a positive impact on the influence of the RMB and promotes the internationalization of the RMB.

4. CONCLUSION

This paper applies the large-dimensional factor theory and currency anchor theory to describe the driving factors and the spatiotemporal evolution of exchange rate volatility in countries along the "Belt and Road". It is proved that the number of common factors driving exchange rates in the "Belt and Road" region is 3, namely the US Dollar, Euro, and RMB, with 45.6% of countries in the "Belt and Road" region taking the US Dollar, Euro, and RMB as the basis for their currency value fluctuations. Subsequently, the researchers conduct regressions on the full sample and the individual sample from different spatial and temporal contexts to investigate the spatiotemporal evolution of the RMB currency anchor in the "Belt and Road" region. The results indicate that there are more countries anchoring to the RMB in East Asia, West Asia, Commonwealth of Independent States, and South Asia, while the proportion of anchors is lower in Central and Eastern Europe. This suggests that although the RMB has a significant influence on neighboring countries, its influence diminishes significantly with increased political distance. Temporally, the RMB's currency anchor effect surpassed the British Pound after the proposal of the "Belt and Road" Initiative, and the number of countries anchoring to the RMB in different regions has shown a clear upward trend since the introduction of the "Belt and Road" strategy.

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