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Macroeconomic factors and trade balance: An analysis of Vietnam's relations with RCEP countries

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ABSTRACT

This study conducts a comprehensive analysis of the impact of macroeconomic factors on Vietnam's trade balance with the member countries of the Regional Comprehensive Economic Partnership (RCEP) during the period from 2002 to 2021. Grounded in established trade theories and a comprehensive review of pertinent literature on inter-country trade balances, the investigation identifies the pivotal determinants influencing trade balances between Vietnam and RCEP nations. These determinants encompass key elements such as tariffs (TRF), foreign direct investment (FDI), gross domestic product (GDP), geographic distance (DIS), exchange rate (EXC), and the trade openness of individual economies (OPEN). The research outcomes substantiate parallels with previous studies, indicating that reducing tariffs, enhancing trade openness, augmenting GDP, and attracting higher foreign direct investment within RCEP member nations yield constructive effects on Vietnam's long-term trade balance. Conversely, in the short term, impediments like exchange rate fluctuations (EXC), geographic distance (DIS), and GDP disparities emerge as challenges to refining Vietnam's trade balance with RCEP countries. Accordingly, this article proffers pragmatic policy recommendations aimed at advancing Vietnam's trade equilibrium with RCEP countries. Proposed measures include facilitating business comprehension of tax regulations within RCEP, elevating the investment milieu to entice capital from developed RCEP economies, and executing trade promotion initiatives to facilitate market access for businesses across RCEP jurisdictions.

1. Introduction

According to a study conducted by the World Bank, the prospective implementation of the Regional Comprehensive Economic Partnership (RCEP) holds the potential to yield a noteworthy augmentation in Vietnam's Gross Domestic Product (GDP) by the year 2030. This anticipated augmentation is twofold: an initial enhancement of 0.4% can be ascertained when solely considering the direct benefits arising from RCEP participation. However, when we factor in the consequential advantages stemming from institutional reforms induced by RCEP, this gain has the potential to extend to an even more substantial 1%.

It is imperative to underscore the magnitude of RCEP as a transformative force in the global economic landscape. With its constituency comprising 15 member nations, RCEP engenders a colossal market boasting a populace of 2.2 billion individuals and an economic value approximating $26.2 trillion. In consequence, it constitutes the largest free trade area in the world. This newfangled panorama of commerce, orchestrated under RCEP, is poised to inaugurate a robust and enduring supply chain, thereby laying the groundwork for a reliable, long-term export arena for Vietnam.

Nevertheless, the advent of RCEP does not portend universal gains across the member states. Eminent economic analysts have voiced their concerns, pointing to the potential for certain nations, such as Cambodia, Indonesia, the Philippines, and indeed, Vietnam itself, to witness a diminution in their export volumes as an inadvertent consequence of RCEP integration.

Given the discernible significance of RCEP in the context of Vietnam's trade dynamics, the researcher has undertaken an investigation focused on

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discerning the multifaceted factors exerting influence on the bilateral trade equilibrium between Vietnam and its counterparts within the consortium of RCEP member nations (Pham et al., 2022).

RCEP, denoting the Regional Comprehensive Economic Partnership, constitutes a free trade agreement encompassing 10 member countries affiliated with the Association of Southeast Asian Nations (ASEAN), augmented by the inclusion of five nations that have forged independent free trade accords with ASEAN, namely Australia, China, Japan, Korea, and New Zealand. The momentous signing of the RCEP occurred in Hanoi on November 15, 2020, with the overarching goal of establishing the East Asia Free Trade Agreement (EAFTA) and commencing the multifaceted East Asia Comprehensive Economic Partnership (CEPEA).

The overarching raison d'être of RCEP is the amalgamation of the assorted Free Trade Agreements (FTAs) individually concluded by the 10 ASEAN nations with Japan, Korea, Australia, New Zealand, India, and China, collectively known as the ASEAN+1 FTAs. This consolidation endeavor is aimed at the maximization of economic benefits and harmonization of trade dynamics. RCEP, envisaged as a contemporary, comprehensive, high-caliber, and reciprocally advantageous pact, encompasses a spectrum of key domains, including trade in goods, services, investment, economic and technical cooperation, intellectual property, dispute resolution mechanisms, and other pertinent areas.

Projections for RCEP are undeniably ambitious, as the agreement is poised to gradually eliminate a substantial 90% of import tariffs among its signatories within a 20-year timeframe, alongside the establishment of a common regulatory framework governing electronic commerce, goods exchange, and property rights. Notably, RCEP represents a historic milestone as it marks the first-ever free trade accord uniting China, Japan, and South Korea—three of Asia's foremost economic powerhouses. The signing of RCEP was underscored by experts who anticipated that it would play a pivotal role in economic stabilization amidst the backdrop of the COVID-19 pandemic, and further, that it would contribute to a notable shift in the global economic axis towards Asia, potentially at the expense of a declining U.S. economy (Shimizu, 2021).

Fig. 1 shows that Vietnam only maintains a trade surplus with Cambodia and Brunei with very little trade volume. Meanwhile, Vietnam has most of the trade deficit with RCEP countries and the deficit is increasing.

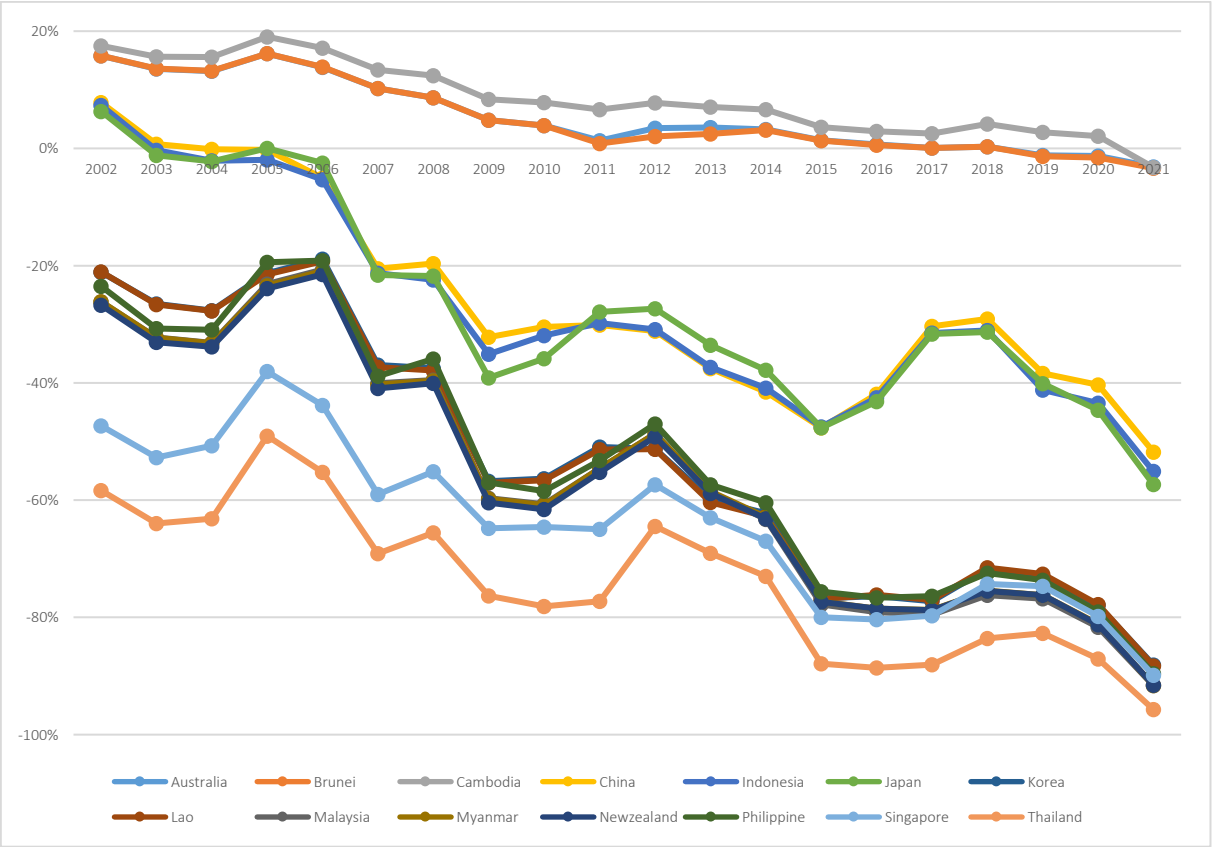

Fig. 1: Vietnam's trade balance with RCEP countries

However, Fig. 2 also shows that Vietnam's export turnover to RCEP countries has also increased continuously in the past time along with the growth of the trade deficit. This means that Vietnam continuously develops trade with RCEP countries in both export and import directions. However, Vietnam still only exports mainly to ASEAN member countries, Vietnam's export turnover to China, Australia, Japan, Korea, and New Zealand is still quite modest, not commensurate with the potential level of these markets.

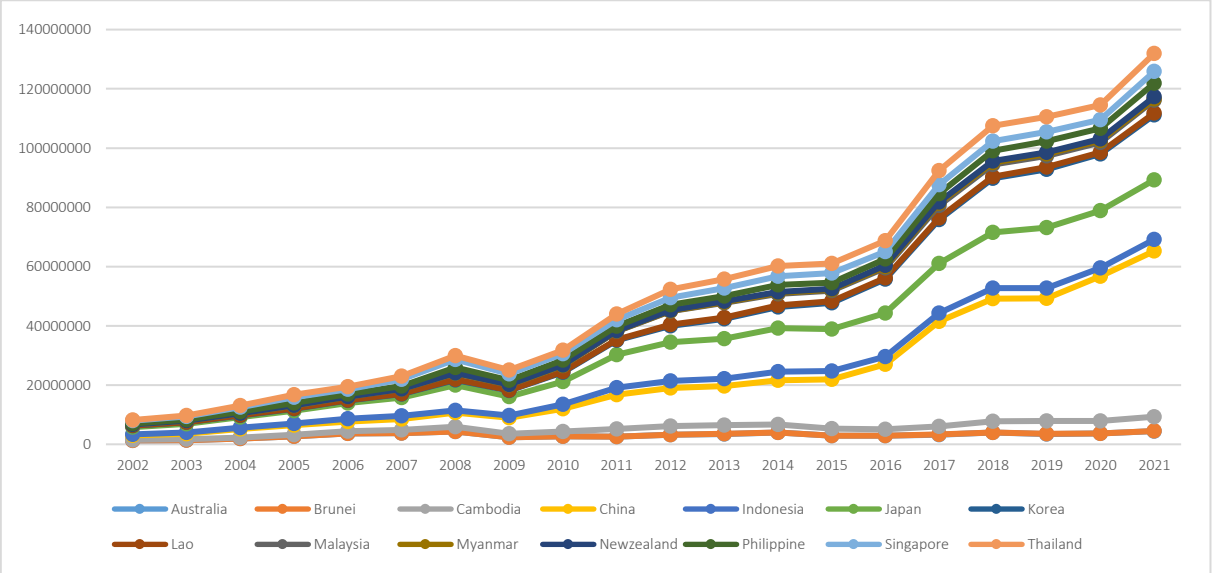

Fig. 2: Vietnam's export turnover to RCEP countries

Similar to exports, Vietnam also constantly increases imports from RCEP countries. Currently, Vietnam mainly imports raw materials from Japan and South Korea to produce electronic goods, and imports raw materials mainly from China and Korea to produce textiles (Fig. 3).

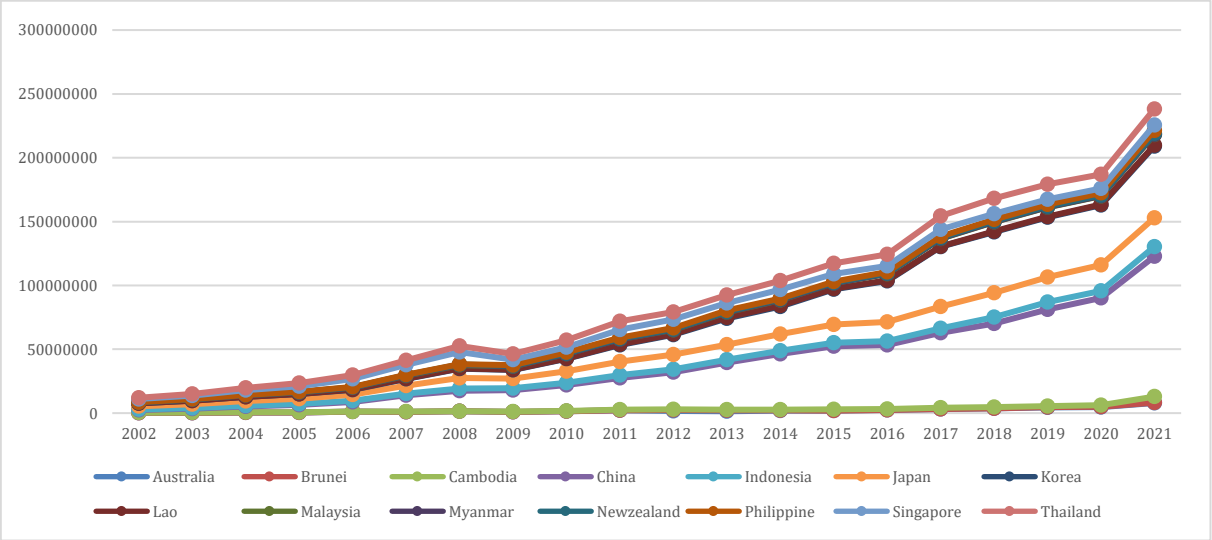

Fig. 3: Vietnam's import turnover to RCEP countries

2. Literature review

According to Bahmani-Oskooee and Baek (2019), most of the time, exchange rate changes have asymmetric effects on bilateral trade balances in both the short- and long-term. The main characteristic of the nonlinear model, separating appreciations from depreciations, relies on the nonlinear adjustment of the exchange rate and provides considerably more support for the J-curve effect.

Duasa (2007) studied the factors affecting the trade balance of Malaysia in the period 1974-2003. Using the ARDL model, the study shows that there exists a long-run relationship between income, money supply, and balance of trade and there is no relationship between exchange rate and trade balance. In Pakistan, India, and Bangladesh, the trade deficit is examined by Hassan et al. (2017). This study reveals evidence of a long-term relationship between the trade deficit and its drivers in Pakistan, India, and Bangladesh after using the ARDL bounds testing approach on a sample period from 1972 to 2013. The results show that Bangladesh and Pakistan's trade deficits are dramatically reduced when the actual effective exchange rate declines.

Wang et al. (2012) studied the effect of yuan devaluation on the bilateral trade balance with China's 18 main trading partners. The study uses secondary statistics for the period 2005-2009. The results show that in the long run, the bilateral real exchange rate has a positive correlation with the bilateral trade balance between China and most of all major partners.

Shawa and Shen (2013) have studied the factors affecting the trade balance, in the case study of Tanzania. The study uses secondary statistics by year from 1980 to 2012 with the OLS method of

least-average estimation. The research results show that the trade balance is affected by the following factors: FDI; human capital development, household spending, government spending, inflation, natural resources, and foreign income.

Gzaw (2015) examined the short-run and long-run relationships between trade balance, income, money supply, and real exchange rate in the case of the Ethiopian economy. The study uses the ARDL model with data for the period 1979-2013. The results show that there exists a long-run relationship between the trade balance and income, money supply, and real exchange rate. Three variables of income, money supply, and real exchange rate have positive effects on the trade balance in the long run and no short-run relationship exists.

Alhanom (2016) studied the factors of Jordan's trade balance. The study uses the ARDL model to estimate the impact of factors affecting Jordan's trade balance in the period 1970-2010. The model proposes factors affecting Jordan's trade balance including the real exchange rate, domestic income, and foreign income. The results show that the real exchange rate has no impact on the trade balance in both the short run and the long run.

Ibrahim and Bashir (2023) examined the impact of the money supply, income, and exchange rate over a 50-year span, from 1970 to 2020, on the trade balance of Sudan. The co-integration strategy and error-correction technique are used to create the empirical model for this study, which explicitly examines the effects of currency devaluation on the trade balance of Sudan with its key trading partners. The bounds test demonstrates that the relevant variables are long-term bound together. The significance of the accompanying equilibrium correction supports the existence of a long-run link. Additionally, variance decomposition is used to examine the dynamic interactions of the variables contained in the estimated model. According to the study's variance decomposition findings, foreign income innovations have a greater short-run impact on the forecast error variance of the trade balance than other explanatory variables. In contrast, compared to other factors, the domestic money supply has the greatest long-term impact on the trade balance. The study's main finding contends that devaluing Sudan's currency is not the best course of action for enhancing the position of the nation's trade balance.

Mutana et al. (2018) studied the macroeconomic factors affecting the trade balance of Kenya. The study uses the VECM model with five-year data from 1963 to 2016. The research results show that trade conditions, trade liberalization, and FDI have significant positive impacts on the trade balance in the long run. The real exchange rate has a negative effect on the trade balance in the long run.

Bao (2014), Anh et al. (2022), Xuan (2018), and Thom (2017) analyzed the impact of macroeconomic variables on Vietnam's trade balance. The analysis results show that the trade balance has a relationship with macro factors including real national income and consumer price index of trading partners, real multilateral exchange rate, income real country, consumer price index, and FDI size.

Lee et al. (2021) studied the impact of foreign direct investment capital on Vietnam's trade balance. The results show that FDI inflows have an impact on Vietnam's trade balance, especially export value. The study has not found statistical evidence of the relationship between the value of imported goods and the variables of FDI, income, and multilateral exchange rate.

A review of related studies shows that the issue of international trade balance is also an issue of interest to many researchers and has many different approaches and still many trade relationships between different countries have not been fully studied.

3. Methodology and data

3.1. Methodology

Through a review of related studies, the author has the following observations: Currently, there is no research to estimate the change in Vietnam's trade balance with RCEP countries; to evaluate the factors affecting the trade balance between countries in the world, there are many studies using the VECM model based on some core factors as follows.

Gross domestic product (GDP): In economic theory, an increase in gross domestic product means an increase in the quantity of goods in that country. That affects the country's ability to export, as well as its import demand. However, the degree of influence of the GDP of the partner countries on the trade balance of the countries varies depending on the economic strategy of that country.

Exchange rate: Changes in foreign exchange rates will significantly affect foreign trade activities. Businesses typically increase their imports as the value of the local currency increases. Businesses will spend less than before to purchase the same amount of items because the value of the local currency is rising at this time. Imports are therefore promoted during times when the local currency is appreciating. In contrast, the price of imports will rise when the local currency weakens. It will restrict imports. Meanwhile, the majority of trade transactions between Vietnam and foreign countries are using the US dollar, so in this study, the author will analyze based on the exchange rate of the countries compared to the US dollar.

Value of foreign direct investment of countries into Vietnam. For developing countries, FDI capital plays a very important role, considered as an additional source of capital to improve domestic production capacity and increase income for workers. FDI creates a two-way trade relationship with the investing country, contributing to improving the trade balance between countries in the medium and long term.

Openness of the economy: This is a representative factor for the foreign trade policy of a

country, calculated by the ratio of total import and export turnover to GDP. When foreign trade policy is more open-minded, liberalization makes the scale of exports and imports larger.

Geographical distance: The farther the geographical distance, the higher the transportation cost and at the same time increase the risks of damage, breakage, natural disaster, etc. for goods during international transportation. That increases the cost of the product. Therefore, geographical distance will affect the choice of source of goods, and the choice of market when you want to import from another country or export to another country.

Tariffs: Laffer (1981) researched and produced a curve model showing the relationship between tax rates and total tax revenue, called the Laffer curve. Based on the theoretical curve, Laffer proved that when the tax rate changes, it will affect the tax revenue by changing the quantity of imports and exports of a country. The model of factors affecting the trade balance between Vietnam-RCEP is proposed as follows:

$$TB = \beta 0 + \beta 1 TRFrcep + \beta 2 \ln GDPrcep + \beta 3 DISrcep + \beta 4 \ln OPENrcep + \beta 5 \ln FDIrcep + \beta 6 \ln EXCrcep + \varepsilon$$

3.2. Data description

The variables in the model are explained in detail in Table 1. Table 1 also shows the data collection source for each variable and the research hypothesis for each variable in the research model.

4. Results and discussion

4.1. Stationary and unit root test

According to the test results, all data series are initially non-stationary but become stationary after applying the first level of difference, or else all data series are I (1) (Table 2).

4.2. Co-integration analysis

The findings of the Johansen method's co-integration test support the idea that there is at least one co-integrating relationship. This indicates that the variables in the model are co-integrating at a lag of 4 (Table 3).

Table 1: Data description

Variable	Interpretation and unit	Expectation sign	Data sources
TB	Trade balance between Vietnam and RCEP countries by year (export value divided by import turnover)		Uncomtrade
TRF	Weighted average tariffs by year	-	World Bank
lnGDP	Logarithm of Gross Domestic Product by Year	+	World Bank
lnOPEN	Trade openness of countries by year.	+	World Bank
DIS	Distance from capital of Vietnam to capital of other countries in Km	-	timeanddate.com
EXC	Exchange rates of countries against the US dollar	+/-	World Bank
lnFDI	Value of foreign direct investment of countries in Vietnam	+	World Bank

Table 2: Stationary test results

Variable	ADF value	p-value
TB	-4.443086	0.0007
TRF	-2.701398	0.0804
lnFDI	-3.269464	0.0213
lnGDP	-3.059857	0.0357
lnOPEN	-2.256093	0.1897
DIS	-2.701398	0.0804
EXC	-3.209391	0.0248
D(TB)	-9.557504	0.0000
D(TRF)	-4.934081	0.0002
D(lnFDI)	-7.781525	0.0000
D(lnGDP)	-7.052575	0.0000
D(lnOPEN)	-7.329906	0.0000
D(DIS)	-4.934081	0.0002
D(EXC)	-7.124968	0.0000

Table 3: The results of the co-integration test

Assumption of co-integration relations number	Trace test				Maximum-eigenvalue test			
	Eigenvalue	Trace statistics	Critical value at 5%	Probability	Eigenvalue	Trace statistics	Critical value at 5%	Probability
H: No co-integration relation	0.686887	176.1318	95.75366	0.0000	0.686887	58.05957	40.07757	0.0002
H: There is at least one co-integration relation	0.634240	118.0722	69.81889	0.0000	0.634240	50.28895	33.87687	0.0003

The co-integration test's findings support the idea that there is at least one co-integration relationship. With this outcome, the study will use the VECM approach for estimating. There is therefore

preliminary evidence to draw the conclusion that the variables have a long-run equilibrium connection. The long-run equilibrium relationship between the variables in the model specified by the following equation is represented by a co-integration vector, which exists:

$$TB = -0.045\text{TRFrcep} + 0.1429\ \text{lnGDPrcep} + 0.0015\ \text{lnOPENrcep} + 0.1213\text{lnFDIrcep}$$

$$(0.02831) \qquad (0.08383) \qquad (0.00104) \qquad (0.0677)$$

The above equation shows that in the long run, the trade balance between Vietnam and RCEP countries depends on the factors of the average tariff of the RCEP countries, the GDP of the RCEP countries, the trade openness of the RCEP countries, and the RCEP countries. The amount of foreign direct investment capital of RCEP countries into Vietnam. These effects are all statistically significant at the 1% significance level.

4.3. Correlation analysis and estimation of VECM

In order to evaluate the impact of variables in the short run, the author estimates the VECM model and has the following results:

$$\begin{aligned}D(TB) = {} & C(1) * (TB(-1) - 0.000132090824518 * DIS(-1) + 5.56334542596e-06 * EXC(-1) + 0.170045208343 * LNFDI(-1) - \\ & 0.27907730857 * LNGDP(-1) - 0.00358075520546 * OPEN(-1) + 0.0029499006904 * TRF(-1) + 6.49791864761) + C(2) * \\ & D(TB(-1)) + C(3) * D(TB(-2)) + C(4) * D(TB(-3)) + C(5) * D(TB(-4)) + C(6) * D(DIS(-1)) + C(7) * D(DIS(-2)) + C(8) * \\ & D(DIS(-3)) + C(9) * D(DIS(-4)) + C(10) * D(EXC(-1)) + C(11) * D(EXC(-2)) + C(12) * D(EXC(-3)) + C(13) * D(EXC(-4)) + \\ & C(14) * D(LNFDI(-1)) + C(15) * D(LNFDI(-2)) + C(16) * D(LNFDI(-3)) + C(17) * D(LNFDI(-4)) + C(18) * D(LNGDP(-1)) + \\ & C(19) * D(LNGDP(-2)) + C(20) * D(LNGDP(-3)) + C(21) * D(LNGDP(-4)) + C(22) * D(OPEN(-1)) + C(23) * D(OPEN(-2)) + \\ & C(24) * D(OPEN(-3)) + C(25) * D(OPEN(-4)) + C(26) * D(TRF(-1)) + C(27) * D(TRF(-2)) + C(28) * D(TRF(-3)) + C(29) * \\ & D(TRF(-4)) + C(30)\end{aligned}$$

Estimation results of the VECM model show that in the short term, the trade balance between Vietnam and RCEP countries depends mainly on the distance between Vietnam and the RCEP countries, the exchange rate against the US dollar, and the GDP of the RCEP countries (Table 4).

Table 4: Summary of regression coefficients with statistical significance

	Correlation coefficient	Standard errors	Statistics t	Probability	Significance
C(1)	-0.850855	0.215718	-3.944289	0.0008	***
C(6)	-0.000127	4.94E-05	-2.569219	0.0183	**
C(7)	-9.56E-05	5.42E-05	-1.763529	0.0931	**
C(8)	-0.000177	5.42E-05	-3.264663	0.0039	**
C(9)	-0.000136	5.82E-05	-2.332157	0.0303	**
C(12)	-8.72E-05	3.51E-05	-2.487440	0.0218	**
C(18)	-0.173111	0.097581	-1.774012	0.0913	*
C(20)	-0.269341	0.104183	-2.585275	0.0177	***

***, **, and * correspond to the statistical significance level of 1%, 5 % and 10% respectively

4.4. Model verification

The residual test findings demonstrate that the VECM regression model's residuals are stationary and of high statistical significance (p-value=0.000). The residual from the ECM model is revealed to be white noise by the autocorrelation and variance variation of the residual in the regression model, which are findings of the stationary test. The BLUE (Best Linear Unbiased Estimator) estimate is the end outcome of the model estimating process. Results from ECM regression are trustworthy as a result.

5. Conclusion and policy implications

Research findings indicate that over the long term, the trade balance between Vietnam and the countries within the RCEP exhibits a negative correlation with the average tariff levels maintained by RCEP member nations. This observed pattern aligns seamlessly with the theoretical underpinnings of tariff impact. According to this theoretical construct, elevated tariffs tend to elevate domestic market prices, thereby eroding the competitiveness of imported goods. Consequently, Vietnam's export volumes to these nations are expected to diminish. This outcome resonates strikingly with the findings of Le (2021). Notably, the commitment schedule outlined within RCEP specifies that Vietnam is poised to benefit from a tariff elimination rate of 90.3% in relation to ASEAN member states, with Australia and New Zealand offering 89.6% tariff elimination, Japan and Korea extending 86.7% tariff elimination, and China delivering an 85.6% tariff elimination rate. Consequently, the effective implementation of RCEP is anticipated to yield a substantial enhancement in Vietnam's trade balance with RCEP-affiliated nations. Moreover, long-term research outcomes reveal that Vietnam's trade balance vis-à-vis RCEP nations is positively influenced by key factors, including the gross domestic product, foreign direct investment inflows, and the trade openness levels prevalent within RCEP nations. Economies characterized by higher GDP levels inherently generate heightened market demand, thereby presenting lucrative opportunities

for export expansion and the amelioration of trade balances. Simultaneously, economies characterized by high levels of trade openness tend to exhibit fewer impediments to international trade, facilitating increased market access and export augmentation, consequently fostering improved trade balances.

Nevertheless, short-term research results evince that geographical distance exerts a detrimental impact on the trade balance between Vietnam and RCEP member states. In the immediate context, substantial geographical separation between Vietnam and partner countries engenders elevated transportation costs, thereby impeding Vietnam's export promotion endeavors towards these distant markets. This dynamic is consequently reflected in a detrimental effect on Vietnam's trade balance with these nations. However, it is worth noting that the influence of geographical distance is a fixed variable over the long term, rendering its impact relatively stable, with transportation costs predominantly contingent on the transport infrastructure and connectivity of each respective nation.

Additionally, short-term research outcomes illustrate an inverse correlation between Vietnam's trade balance with RCEP nations and the foreign exchange rate of these countries vis-à-vis the United States dollar. As is conventionally understood, the U.S. dollar is the predominant currency employed in international import and export transactions. When the domestic currency of an importing nation depreciates against the U.S. dollar, it results in a significant upsurge in the price of imported goods when denominated in the domestic currency. This phenomenon, in turn, erodes the competitiveness of imported goods within the importing nation's market, consequently exerting an adverse influence on Vietnam's export performance to these countries.

Vietnam has established free trade agreements with ASEAN nations as well as several partner countries, notably China, Australia, Japan, and New Zealand. These partner countries collectively represent substantial import and export destinations for Vietnam. Hence, the efficacious implementation of the RCEP Agreement engenders novel opportunities for businesses by expanding the spectrum of preferential import and export avenues with these pivotal partners. Enterprises, therefore, find themselves presented with a broader array of options for availing themselves of tariff advantages and the non-tariff stipulations standardized within the framework of RCEP. It is imperative to note that RCEP delineates the conditions for securing preferential tariffs through what are referred to as harmonized intra-regional rules of origin. This, in essence, facilitates enterprises in capitalizing upon tariff advantages in a manner that is particularly advantageous vis-à-vis other extant free trade agreements. Enterprises possess a multitude of avenues, contingent upon their operational tier, status, supply chain, and production methodologies, through which to harness tariff preferences to their utmost benefit.

Furthermore, it is essential to acknowledge that RCEP member nations exhibit variances in terms of development levels and the administrative mechanisms underpinning import-export and international trade transactions. In this vein, Vietnamese enterprises stand to gain appreciably from RCEP by aligning with the minimal standard commitments pertaining to certain non-tariff measures. Such alignment significantly influences the flow of goods and the import-export undertakings of enterprises. Therefore, it is incumbent upon businesses to accord due diligence to the non-tariff commitments articulated within RCEP in order to extract maximal benefit from this accord.

Lastly, a noteworthy facet in the context of RCEP is the substantial role played by member nations as significant investment partners for Vietnam. Six member nations of RCEP, including China, Malaysia, Thailand, Singapore, Japan, and Korea, are enumerated within the top ten nations and territories that have made considerable investments in Vietnam. These countries have actively channeled foreign investment into Vietnam, even prior to the formalization of RCEP. Presently, China, Japan, South Korea, as well as Singapore, Thailand, and Malaysia, are displaying an intensified commitment to augmenting their foreign investments in Vietnam with a view toward bolstering their supply chains and manufacturing capacity. Consequently, Vietnam stands compelled to expedite enhancements in its investment climate and craft appealing policies conducive to attracting new investment inflows, whether originating from within the RCEP or from prospective partners beyond its purview.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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