Journal of Economics and Administrative Sciences, 25(2): 297-308, 2024
DOI: 10.37880/cumuiibf.1428225

Journal of Economics and Administrative Sciences

| esjournal.cumhuriyet.edu.tr | Founded: 2000 Available online, ISSN: 1303-1279 Publisher: Sivas Cumhuriyet Üniversitesi

An Analysis on Determinants of Cash and L/C Export: Findings from Türkiye's Export

Ahmed Yusuf Sarıhan[1,a,*]

[1]*Department of International Trade, O.S Faculty of Applied Sciences, Bandırma Onyedi Eylül University, Balıkesir, Türkiye*
**Corresponding author*

Research Article

History

Received: 30/01/2024
Accepted: 07/03/2024

JEL Codes: F14, O24

ABSTRACT

The payment methods used in international trade are of utmost importance for the financial flow of the involved parties. When it comes to transferring goods and funds across borders to their new owners, the risks faced by the parties may seem daunting. The use of a letter of credit payment method by banks serves a protective role, enabling the parties to engage in trade more securely. While the expenses linked to this approach are sometimes viewed as challenging for the involved parties, it is considered a significant enabler, particularly in new trade alliances. In fact, exporters' choices are classified in countries' trade statistics based on payment methods. This study aims to uncover the determinants of exports from Türkiye between January 2013 and September 2023, utilizing both cash in advance and letter of credit payment methods. To accomplish this objective, exchange rates and specific inflation indicators, and their causal relationship with export transactions based on payment types were examined using the Toda-Yamamoto causality test. The research findings indicate that exchange rates, inflation, and cash payment variables granger cause letter of credit payments. Conversely, the foreign producer price index was identified as a granger cause for cash-based exports. These findings illustrate that economic indicators, which may pose risks for Turkish exporters, are reasons for important decisions. In light of these findings, recommendations have been made for exporters and policymakers to proceed cautiously in the face of different economic scenarios.

Keywords: International trade, Import-export analyzes, Payment methods

Peşin ve Akreditifli İhracatın Belirleyicileri Üzerine bir Analiz: Türkiye'nin İhracatından Bulgular

Süreç

Geliş: 30/01/2024
Kabul: 07/03/2024

Jel Kodları: F14, O24

ÖZ

Uluslararası ticarette kullanılan ödeme yöntemleri tarafların finansal akışı için son derece büyük önem taşımaktadır. Söz konusu, malların ve paranın sınırları aşıp yeni sahibine ulaşması olduğunda tarafları bekleyen riskler daha korkutucu gibi görünebilmektedir. Akreditifli ödeme yöntemi ile bankaların üstlendiği koruyucu rol tarafların daha güvenli bir şekilde ticaret yapmasına olanak sağlamaktadır. Bu yöntemin oluşturduğu maliyetler taraflar için zaman zaman problem haline getirilse de özellikle yeni ticaret ortaklıklarında büyük bir kolaylık olarak görülmektedir. Nitekim ihracatçıların yaptıkları seçimler ülkelerin ticaret istatistiklerinde ödeme yöntemlerine göre de sınıflandırılmaktadır. Bu çalışmada Türkiye'den Ocak 2013 ile Eylül 2023 arasında peşin ve akreditifli ödeme yöntemleriyle gerçekleşen ihracatın belirleyicilerini ortaya çıkartmak amaçlanmıştır. Bu amaca istinaden döviz kuru ile bazı enflasyon göstergeleri ele alınarak bu makro ekonomik değişkenlerin ödeme türlerine göre gerçekleşen ihracatların nedeni olup olmadığı Toda-Yamamoto nedensellik testi ile incelenmiştir. Araştırma bulguları özellikle döviz kuru, enflasyon ve peşin ödemeli ihracat değişkenlerinin akreditifli ödemenin granger nedeni olduğunu göstermektedir. Öte yandan peşin ödemeli ihracatın bir granger nedeni olarak yurtdışı üretici fiyat endeksi bulunmuştur. Araştırma bulguları göstermektedir ki Türk ihracatçıları için risk olabilecek ekonomik göstergeler önemli kararların nedenidir. Söz konusu bulgulara dayanarak ihracatçılar ve politika yapıcılar için farklı ekonomik durumlar için dikkatli olunması gereken hususlar hakkında öneriler sunulmuştur.

Anahtar Kelimeler: Uluslararası ticaret, İthalat-ihracat analizleri, Ödeme şekilleri

[a] *asarihan@bandirma.edu.tr* *0000-0001-7119-9852*

How to Cite: Sarıhan AY (2024) An Analysis on Determinants of Cash and L/C Export: Findings from Türkiye's Export, Journal of Economics and Administrative Sciences, 25(2): 297-308, DOI: 10.37880/cumuiibf.1428225

Introduction

The participation of businesses in international trade has become a necessity in our globalized world. Currently, both demand and supply are no longer confined within local borders. Even if a country's producers do not export their products, goods from various parts of the world still find their way into that country. These economic integrations promote global competition and essentially eliminate barriers for money and goods (Yingi, 2022). In fact, all the major international trade and economic organizations at the forefront of the global economic system promote liberalization. The demand for a newly produced item from anywhere in the world is no longer a gradual process, as it was 50-60 years ago; it now emerges instantly. Consequently, the globalization of competition has become an unavoidable reality. The survival of local businesses in global competition depends on their ability to produce goods for foreign trade and/or engage in international trade of these goods. This issue holds even greater significance for developing countries such as Türkiye (Carrasco and Tovar-Garcia, 2021). For these nations, the focus should particularly be on the export aspect of international trade. The participation of Turkish companies in exports and their expansion into new markets is of immense importance for generating foreign currency inflow to the country. Ultimately, the commercial activities carried out by businesses contribute to a comprehensive representation of a country's balance of payments.

Considerable efforts are being made to encourage businesses to focus on exporting in developing countries such as Türkiye. For instance, Türkiye's Ministry of Trade (TMT) has been offering numerous export incentives for years (TMT, 2023). However, facilitating the international expansion of businesses remains a challenging task. One can easily arrive at this conclusion by referring to statistics from the Turkish Statistical Institute (TUIK) and the Turkish Exporters Assembly (TIM). A significant portion of Türkiye's exports is carried out by only 1000 companies (TIM, 2023). Moreover, an analysis of entrepreneurial traits indicates that a significant portion of Türkiye's exports is carried out by large enterprises (TUIK, 2023). Indeed, there are various perspectives to explain these reasons. Nevertheless, when it comes to internationalization, it is possible to state that small and medium-sized enterprises (SMEs) in Türkiye are particularly cautious in their internationalization efforts. It could even be argued that there might be a fear of international markets. This apprehension might stem from the fact that international markets significantly differ from local markets in terms of language, regulations, culture, and numerous other variables. Some studies suggest that these factors influence internationalization and export behaviors in various countries (Milanzi, 2012; Kyvik et. al., 2013; Gashi et. al., 2014) which may also be applicable to Türkiye. Therefore, it would not be incorrect to suggest that this is also true for Türkiye.

One of the primary concerns for exporters or businesses looking to export but encountering obstacles revolves around how they will receive payment (Candemir et. al., 2011). Participants are generally familiar with payment methods established by the global economic system and implemented by the International Chamber of Commerce (ICC). However, uncertainties arise for entrepreneurs when it comes to practical implementation (Abor, 2005). The most preferred and safest payment option for exporters is the cash in advance method, where payment is received before goods are dispatched (Mahata, 2015). However, this method carries risks for importers, such as the non-arrival or receipt of defective goods (Bayram, 2019). Consequently, importers might choose cash against goods, where payment is made only after the goods are in their possession, mitigating risks related to non-delivery or faulty goods. However, for exporters, there are persistent risks related to non-payment, delayed payment, or partial payment (Kodalak et. al, 2015). In the cash against documents process, the exporter sends transaction-related documents to the importer after the export process begins. Upon receiving these documents, the importer releases the payment to the exporter (Gökgöz, 2015). However, importers still have physical control of goods after payment. In addition to these payment methods, it is recommended to use the letter of credit (L/C) payment method, which is a regulated option under the rules of the Uniform Customs and Practice for Documentary Credits (UCP600) by the ICC (Kazanci, 2023). This method, conducted under stringent regulations, allows both trading partners, especially those unfamiliar with each other, to have the assurance of banks for both the delivery of goods to the importer under specified terms and the payment to the exporter within a defined timeframe. While banks provide security for both parties in this stringent trade environment, it inevitably entails a certain level of cost (Meral, 2019).

As is evident, existing payment methods in exports offer various opportunities for businesses and countries to improve their export capabilities. However, the sole concern for exporters is not limited to payments. Particularly in Türkiye, where a significant number of exporters also function as importers, sourcing raw materials and semi-finished goods from overseas, earning foreign currency as an exporter holds a different significance. Companies that rely on foreign currency to source materials within their supply chains will attach greater importance to their export earnings. Furthermore, expenses for sourcing domestically also increase due to currency fluctuations. All these factors emphasize the importance of the revenue generated by exporting businesses in their international trade efforts. Therefore, fluctuations in exchange rates, rising costs for exporters, and domestic cost increases influenced by exchange rates are considered potential factors that could affect the selection of payment methods for exporting businesses. This study aims to clarify whether such circumstances exist in the context of cash in advance and L/C payments.

Theoretical Framework

Although this study primarily examines variables and evaluations at a macro level, focusing on the country's exports, it is the businesses that actually receive the payments. Therefore, the research has been guided by a theoretical approach that incorporates theories related to business behaviors, creating a theoretical framework that connects macro and meso levels. Hence, transaction cost theory is considered an ideal theoretical framework for this research. In addition to this theory, real options theory and prospect theory will also be utilized as supporting arguments to strengthen the theoretical framework of the study. The selection of these three theories as the primary framework for this research reveals the underlying assumption of the study. This study suggests that as businesses encounter higher costs and risks, they are likely to choose more secure payment methods. Therefore, it is expected that within the framework of transaction cost theory, businesses' decisions will be influenced, resulting in the expectation of variability in payment methods within Türkiye's exports. From the perspective of other theories, the real options theory anticipates various ways to manage risk in the face of uncertainties during the decision-making process. Furthermore, prospect theory explores how individuals manage perceived risk. Based on all these considerations, it is believed that the payment methods for exports from Türkiye will actually vary according to the costs and risks faced by businesses. The study includes variables such as the domestic producer price index and the foreign producer price index as cost factors. Additionally, a risk factor like exchange rates has also influenced the main model of the research.

International trade is based on the processes that underlie its nature. The fundamental stages of an export process include decision-making for exports, finding customers, forming sales contracts, realizing exports, and receiving payments. At each of these stages, businesses face both time and cost issues. The impact of the time and cost incurred on relationships with customers is a significant concern (Chaudhuri and Holbrook, 2001; Kohli and Jaworski, 1990). However, the customers' response to these efforts and the benefits they bring to the exporting business are fundamental questions for the survival of businesses (Oğuz, 2015). The concept that explains the nature of this relationship is "transaction costs." According to this concept, the monitoring and performance assessment of all processes, including negotiations and contract processes, as well as the implementation of various organizational processes, impose additional burdens, potentially resulting in continuously escalating costs (Rindfleisch, 2020). Williamson (1985) described the transaction costs theory as a comparative analysis of relative transaction costs and the selection of which transaction to apply, based on the concept of transaction costs. In this context, given that every transaction in export processes involves costs, and considering international money transfers, it is accurate to say that business decisions will be influenced by transaction costs related to payment methods. Especially when multiple banks are involved in the payment process, additional commission fees are incurred. This is due to the belief that the more banks are involved in international money transfers, the higher the commission fees. Therefore, the transaction costs theory is an important scientific foundation for this research.

Although not commonly encountered in research on international trade and business (Kogut and Kulatika, 1994), the real options theory provides theoretical support for this study as a perspective for explaining the selected payment methods in country exports. Here, it is beneficial to first explain the concept of a real option. A real option can be defined as the right to choose a future course of action, assessed in the context of current asset costs, without any obligation (Belderbos and Zou, 2009). When uncertainty arises, it is believed that evaluating the value of current assets will enable decision-makers to take more advantageous steps with their options (Trigeorgis, 1996). In the context of this study, the selection of each payment method by the parties involved in international trade actually involves making decisions based on existing real options according to available opportunities. At this point, it can also be argued that the transaction costs theory and the real options theory may be compatible with each other. Therefore, the theoretical framework of this research is strengthened.

The final approach that solidifies the theoretical foundation of the research is the prospect theory. According to this theory, when individuals encounter a situation involving a loss, they are inclined to make riskier financial decisions in order to maximize their potential gains (Marshall et al., 2011). The theory's perspective focuses on a continuous trend of loss. It refers to a decision-making process that is similar to the belief that a continuously losing gambler will recover all their losses. In the end, individuals who have gained significantly will act more cautiously to protect their gains rather than risking to eliminate them (Jervis, 2004). Given the analogous decision-making processes involved in the export operations of businesses and the impact of variables such as rising exchange rates and inflation, the payment methods utilized for export transactions may present similar risky scenarios. According to the sources available, it has not been encountered that these theories are used in studies on trade with L/C. Still, as outlined in the theoretical framework, these three theoretical approaches are considered to provide a robust foundation for explaining the relationship between the variables that influence the payment methods used in exports from Türkiye.

Literature Review

Varlık and Uçar (2017) examined the operational risks associated with payment methods, particularly cash against documents, in their study on international trade. The study emphasized the importance of training personnel to ensure that process management complies with the regulations established by international economic organizations. In their study on export transactions within the honey sector in Türkiye, Toklu (2018) explored the role of the letter of credit (L/C) among the payment methods used. Particularly emphasizing its role in minimizing risks for both buyers and sellers, the research indicated that despite Türkiye being one of the major honey producers worldwide, its export levels remained low. Therefore, the study recommended increasing honey exports by utilizing the letter of credit payment method. In their research conducted in the city of Bursa, Türkiye, Alabayır (2017) empirically examined the reasons underlying interruptions in the letter of credit (L/C) processes. While the study did not find a direct relationship between proficiency in letter of L/C processes and foreign trade volume, it concluded that the primary causes of disruptions in L/C processes were errors in invoices, bills of lading, and insurance policies. In their study conducted on businesses operating in the Eastern Black Sea region of Türkiye, Öztürk, and Sandalcılar (2018) examined a sample of 104 enterprises. The research focuses on the primary payment methods that companies use in their international trade transactions. Upon reviewing their findings, the study revealed that cash in advance, cash against goods, and cash against documents were the most commonly used payment methods among businesses. Arslandere (2021) conducted a study on 158 enterprises involved in foreign trade activities in Türkiye, particularly in Istanbul. The study focused on the payment methods used in international trade. The research examined the usage rates of payment methods, investigated variations in these rates across different sectors, and explored the impact of international experience on these rates. The study's findings indicate that although cash in advance was the most commonly used payment method, as experience grew, there was a shift towards cash against documents. Ermakov et al. (2018) examined the role of L/Cs in global trade. The specifics of this particular study differ significantly from the literature discussed in the context of Türkiye. Particularly, one of the most significant aspects addressed in the research is the prevalence of L/Cs as the most widely used payment method worldwide. However, the study also highlighted a declining trend in the use of L/Cs during the research period. Additionally, it was noted that in countries such as Russia, the use of L/C was comparatively lower compared to developed countries. The research also indicated that L/Cs might not be particularly suitable for SMEs due to cost and complexity concerns.

Although research on payment methods in international trade is quite limited, it is still possible to find studies that cover various approaches. In a study on the operation of a L/C payment process, Lee (2021) emphasized that this payment method involves a substantial documentation process. In a research, Butakova (2020) emphasized the importance of the L/C payment method, noting that even newly established businesses find it easier to engage in international trade using this payment method. The study depicts this payment method as a vital tool for internationalization due to its ability to build trust. Furthermore, it was emphasized that for businesses involved in trade positions with Russia, a country often perceived as risky, the letter of credit instills a strong sense of trust. Alabayır and Muzır (2016) conducted a study in Bursa, the city that ranked second in Türkiye's export performance in 2014 and 2015. They collected data through face-to-face surveys with 42 large industrial firms. The empirical findings indicate statistically significant relationships between the selection of payment method and reasons for preference, as well as the sector in which the firms operate. In another empirical study, Crozet et. al. (2022) emphasized the significant importance of the L/C payment method in the international trade environment, particularly during crisis periods, when uncertainties can escalate into more pronounced risks. In their research, using data from international trade in the United States and the European Union, they found that banks restricting the supply of L/C during the Covid-19 pandemic had a negative impact on trade. Ahn and Sarmiento (2017) took a different approach to the letter of credit (L/C), examining the influence of financial uncertainty and crisis environments on the issuance of L/C by assessing their impact on banks' liquidity. The research found a decrease in the supply of L/C during such periods and identified that businesses dependent on this payment method experienced significant drawbacks due to the reduced availability of L/C.

Especially regarding the topic of L/C, there is a significant lack of information on payment methods in international trade, especially in terms of empirical studies. Based on the studies mentioned above, as well as the different perspectives on payment methods and L/C, several additional research studies will be incorporated before moving on to the methodology section of the study. Some studies explore the intersection of letter of credit transactions with Islamic finance and participatory banking. For example, Kazanci (2023) discusses issues related to participatory banking in the context of L/C, while Ceruz (2019) considers L/C as a financing tool and evaluates them from an Islamic perspective. Syed-Alwi et al. (2022) analyze the role of L/C in Malaysia in relation to Sharia principles, while Triyawan and Novitasari (2020) study the effects of Islamic banks' L/Cs on exporters in Indonesia. In addition to these, there are studies on the legal implementation of L/C (Ülkü, 2021) and the legal complexities arising from economic sanctions in the countries involved in the L/C process (Aygül and Çelenk, 2018). Finally, in an era where technology is at its peak, a study (Irmak, 2023) stands out for its examination of the implementation of blockchain technology in L/C practices.

As mentioned in the literature review, the conducted studies primarily focus on explaining, applying, and addressing issues related to payment methods. Although there are limited empirical studies on the topic, it is noted that the macro-level analysis of exports based on payment methods is not addressed in the existing literature. Considering the objectives of this study and the approach outlined in the theoretical framework section, it is believed that consolidating the results obtained through the applied method will significantly contribute to import-export analyses and risk management in the field of international trade.

Methodology and Findings

The research examines the causal relationship between exchange rates, domestic producer price index, foreign producer price index, and export rates conducted with cash and L/C payment methods. The application data was obtained from the Turkish Statistical Institute (TUIK). Through time series analysis of the collected data, findings evaluated the causal relationship between the factors posing a risk in foreign trade and the export rates, based on the payment method.

Data Set

For the analysis, export amounts conducted with cash payment, which is considered the least risky payment method for exporters, and L/C payment, widely used in international trade and known for mitigating risks have been selected. Furthermore, exchange rates and domestic and foreign producer price indices, which can impact these payment methods and have the potential to reflect other risks, have also been incorporated into the model. As additional information there are numerous studies investigating the relationship between the exchange rate and exports (Auboin and Ruta, 2011). Additively inflation rates and export relationship studies can be found easily (Ilmas et al., 2022). Although these studies have generally considered exports as a whole, the exchange rate has been included in the research model considering that it may also affect L/C exports in this study. However, credit default swap has not been added as a variable because the research perspective aims to draw attention to the relationship between macro and micro, and it is believed that CDS does not directly influence business decisions. Also, Information about the variables is available in Table 1.

As shown in the table above, around 11 years of data have been collected on a monthly basis and effectively integrated into the research model in accordance with the theoretical framework and literature of the study. Graphs related to the variables used in the research are presented in the following figures.

Table 1. Information about the data

Abbreviation	Description	Source	Time Period	Data Type
LOC	L/C Export Ratio to Total Export			
CP	Cash Export Ratio to Total Export			
EXCR	Exchange Rate TL/USD	TUIK	January 2013 - September 2023	Monthly
FPPI	Foreign Producer Price Index			
DPPI	Domestic Producer Price Index			

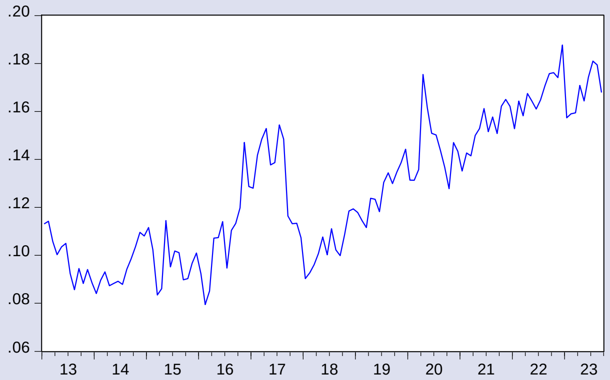

Figure 1. Cash export ratio to total exports

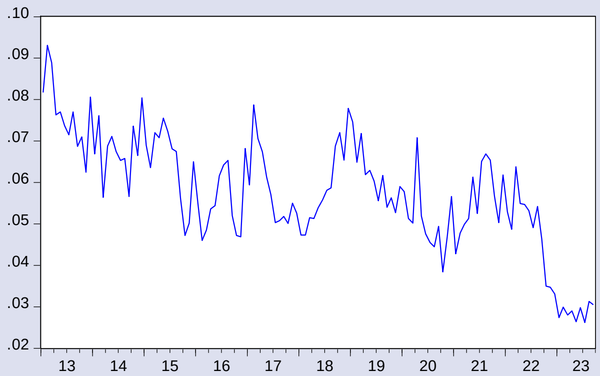

Figure 2. L/C export ratio to total exports

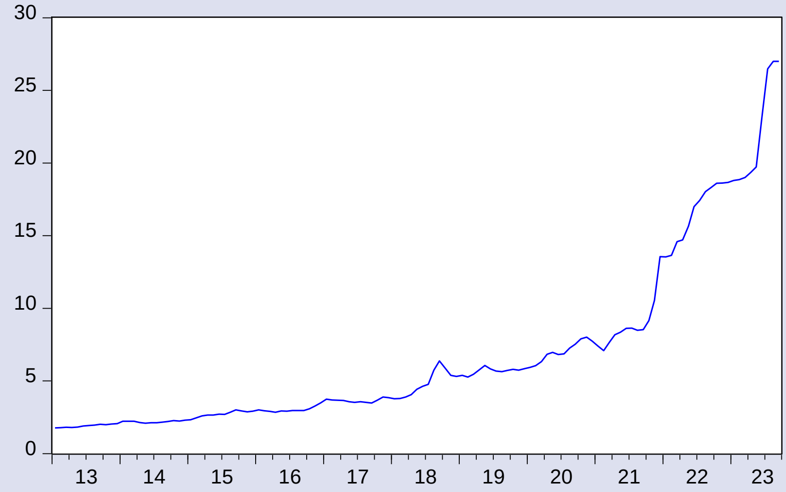

Figure 3. Exchange rate TL/USD

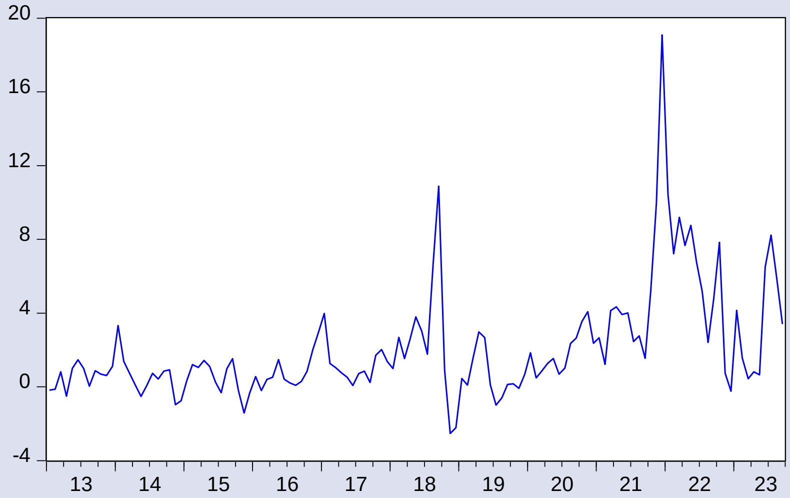

Figure 4. Foreign producer price index

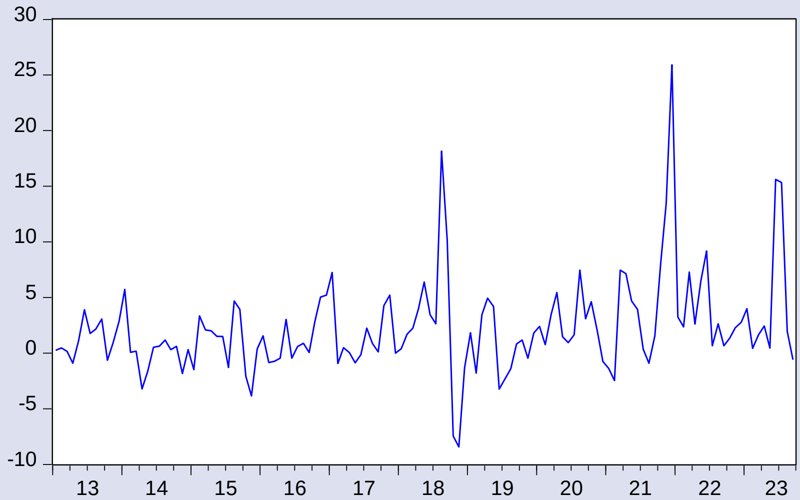

Figure 5. Domestic producer price index

Methodology

The study applied time series analysis to determine whether there is a causal relationship among the variables examined in the research. To accomplish this, unit root tests were initially conducted to determine the highest level of stationarity for the variables. Both the Augmented Dickey-Fuller (ADF) unit root test (Dickey and Fuller, 1981) and the Phillips-Perron (PP) unit root test (Philips and Perron, 1988) were used to conduct unit root tests. The highest level of stationarity for each series was determined separately using each unit root test and then compared. Subsequently, the appropriate lag length to include in the analysis was determined. Following the results of the unit root tests, the Toda-Yamamoto causality test was used to ascertain the presence of causality between the variables and, if a relationship exists, to determine the direction of this relationship.

Toda-Yamamoto (1995) is an approach based on estimating VAR models used to conduct Granger causality tests. Some studies argue that this approach is more advantageous as it eliminates specific prerequisites needed for unit root tests (Çetin and Şeker, 2013; Aksoy et al., 2020). While the Granger causality test necessitates series to be stationary or cointegrated at the same levels, the Toda-Yamamoto test does not have this requirement. The following equation method of the Toda-Yamamoto VAR model, developed by Siami-Namini (2017), offers a crucial initial explanation for the application of this test.

$$y_t = u_0 + \sum_{i=1}^{k} a_{1t}\, y_{t-1} + \sum_{i=k+1}^{d_{max}} a_{2t}\, y_{t-i} + \sum_{i=1}^{k} \beta_{1t}\, x_{t-i} + \sum_{i=k+1}^{d_{max}} \beta_{2t}\, x_{t-i} + \varepsilon_{1t} \quad (1)$$

$$x_t = \emptyset_0 + \sum_{i=1}^{k} y_{1t}\, x_{t-1} + \sum_{i=k+1}^{d_{max}} y_{2t}\, x_{t-i} + \sum_{i=1}^{k} \delta_{1t}\, y_{t-i} + \sum_{i=k+1}^{d_{max}} \delta_{2t}\, y_{t-i} + \varepsilon_{2t} \quad (2)$$

In the VAR model, k represents the maximum lag length, and dmax represents the maximum integration level. To test for causality from x to y (β1t=0) and from y to x (δ1t=0) in the equations, we formulate the null hypotheses and test them using the developed Wald test. The basic hypothesis and alternative hypothesis in the Toda-Yamamoto test are formulated as follows:

H0= The variable A is not the Granger cause of variable B.

H1= The variable A is the Granger cause of variable B.

If the calculated p-value in the analysis findings is below the specified statistical significance threshold (1%, 5%), the null hypothesis (H0) can be rejected. In other words, the alternative hypothesis is accepted. If the p-value is above the specified statistical significance threshold, the null hypothesis cannot be rejected. Therefore, variable A is not the Granger cause of variable B.

Findings

Table 2 presents the results of the Augmented Dickey-Fuller and Philips-Perron structural break unit root tests for the variables. Each variable was initially examined for stationarity in level values, and if it was not stationary at the level, the stationarity of 1st differences was investigated.

After concluding the unit root tests, the Toda-Yamamoto method was applied. For the application of the method, the stationarity level was determined as dmax = 1, and the optimal lag length of the VAR model was identified as k=1 based on the Schwarz Information Criterion. Table 3 below shows the results of Toda-Yamamoto test.

According to the information obtained from the table above:

• The foreign producer price index is the granger cause of export conducted in cash.

• The exchange rate is the granger cause of export conducted with L/C.

• The foreign producer price index is granger the cause of export conducted with L/C.

• Export conducted in cash is the granger cause of export conducted with L/C.

These findings are discussed and the overall evaluation of the study is presented in the conclusion section.

Table 2. Results of unit root tests

Variable	ADF		Philips Perron		d_{max}
	Level	1. Dif	Level	1. Dif	
LOC	-2,567	-17,222*	-2,944*	-19,045*	(1)
CP	-1,787	-10,671*	-1,450	-13,985*	(1)
EXCR	4,038	-6,875*	6,057	-6,265*	(1)
FPPI	-3,258*	-11,675*	-4,526*	-20,891*	(1)
DPPI	-7,577*	-8,930*	-6,942*	-34,725*	(1)

Table 3. Results of Toda-Yamamoto Causality Tests

Dependent Variable	Independent Variable	d_{max}	k	Chi-Sq. Test Stat.	Chi-Sq. P Value	Relationship and Direction
CP	EXCR	1	1	15,573	0,2121	None
	FPPI			62,567	0,0124	FPPI → CP
	DPPI			34,765	0,0622	None
	LOC			15,414	0,2144	None
LOC	EXCR	1	1	62,618	0,0123	EXCR → LOC
	FPPI			55,046	0,0190	FPPI → LOC
	DPPI			23,611	0,1244	None
	CP			54,422	0,0197	CP → LOC

Conclusion

For developing countries such as Türkiye, foreign exchange earnings from exports are of great importance. In Türkiye, it is widely recognized that a substantial portion of the raw materials and semi-finished products used in the production processes of export-oriented companies are obtained through imports. In this context, the issue of Türkiye's exports depending on imports comes to the forefront. While numerous studies have examined this relationship, it is crucial to understand the necessity of foreign currency for exporting companies operating in Türkiye. The connection between Turkish exporting businesses and foreign exchange underscores another risk that these companies must manage, namely the exchange rate risk.

On the other hand, the inflationary increases seen in the global environment have become a concern not only for consumers. The escalating costs of containers and freight, along with price hikes experienced by nearly all countries, and crises such as the pandemic and wars, collectively contribute to a widespread increase in prices. As production costs for manufacturers increase, both exporting companies and businesses involved in manufacturing and export activities also experience a rise in their costs. This makes it more challenging to manage another risk: market risk. At this point, the increase in supply costs attributed to the domestic producer price index for exporting companies in Türkiye and the rise in costs for companies involved in manufacturing and export activities, as indicated by the foreign producer price index, would be considered quite normal.

The theoretical framework of this study encompasses three theoretical approaches that elucidate the decision-making process in risky and costly environments. When considering each theoretical approach and the mentioned risks, it is accurate to say that the decisions made by exporting companies influence the payment methods used for Türkiye's macro-level exports. This research makes it possible to interpret the decisions made by businesses from a comprehensive perspective based on Türkiye's exports.

According to the results obtained, the reason for export transactions being conducted with cash in advance payment is the increase in exporters' costs. In other words, the foreign producer price index has been identified as the reason for requiring cash in advance payment for exports. Considering that cash in advance payment is the least risky method for exporters, it can be stated that the real options theory suggests that this option is feasible, leading to a significant preference among exporters operating from Türkiye. Additionally, since the cash in advance payment method incurs the lowest bank charges, it is accurate to conclude that the results are consistent with the transaction cost theory. According to prospect theory, companies engaged in exporting from Türkiye during a risky period with cost increases tend to avoid risks by choosing cash in advance payment. This is because they find themselves in a profitable position as exporters. This finding in the research aligns with the predominant use of cash in advance payment as identified by Öztürk and Sandalcılar (2018) and Arslandere (2021).

Upon examining the context of payment via L/C, the findings obtained are highly significant. As shown in Figure 2, export transactions involving L/C exhibit a declining trend. The analysis findings indicate that the granger causes of L/C-based exports are the exchange rate, foreign producer price index, and exports conducted with cash in advance payment. In this regard, as the exchange rate and costs for exporters increase, it can be said that they prefer to collect their receivables more quickly, even before the export takes place. Additionally, the complex banking procedures associated with L/C transactions (see Lee, 2021) and the commissions in the requested currency pose significant cost and reserve risk factors for businesses. In this context, the decline in exports with L/C payments may be attributed to the burden caused by banking transactions, as suggested by the transaction cost theory. Additionally, exporters may desire to receive money more quickly in an uncertain environment, in line with the real options theory. Furthermore, the inclination to preserve a strong position, as observed in cash in advance payments, aligns with the principles of prospect theory. Considering Butakova's (2020) assertion that the L/C payment method is more appropriate for inexperienced businesses, and the fact that a substantial portion of Türkiye's exports are conducted by established companies, the decline in L/C exports seems justified. On the other hand, it can be argued that the hypothesis proposed by Crozet et al. (2022) suggesting that L/C would be utilized more during uncertain periods does not apply to this research. However, the observation made by Ahn and Sarmiento (2017) will be crucial at this juncture. The research mentioned indeed discusses the decreased supply of L/C during crisis periods. In this context, it would not be wrong to say that the decision is largely left to the exporters.

It is believed that the findings of this research will provide a different perspective on international trade studies conducted especially in Türkiye. The obtained results indicate that businesses exporting from Türkiye want to have direct access to foreign exchange, particularly in an environment where costs are rising, and they prefer to manage the foreign exchange they earn under their own roof. Therefore, it is recommended that exporting businesses protect the foreign exchange income obtained through cash in advance exports against exchange rate risks with appropriate methods. Additionally, despite all this, it is emphasized that the L/C payment method, which is the most widely used method globally, should not be overlooked. It is essential to emphasize that not every exporter may have the luxury or option to engage in cash in advance exports. In this context, it is advised that exporting businesses, unable to conduct cash in advance transactions, opt for L/C exports to minimize risks in international trade. Thus, it is also recommended that export associations, chambers of commerce, and banks conduct more informative activities regarding L/C.

Extended Abstract

As evident, existing payment methods in exports offer different opportunities for businesses and countries to enhance their export capabilities. However, the sole concern for exporters is not confined to payments. Particularly in Türkiye, where a significant portion of exporters simultaneously act as importers—procuring raw materials and semi-finished goods from abroad—earning foreign currency as an exporter takes on a different significance. Companies relying on foreign currency for sourcing materials within their supply chains will place greater importance on export earnings. Additionally, costs for domestic sourcing also rise based on currency fluctuations. All these factors accentuate the importance of the revenue generated in the hands of exporting businesses in their international trade endeavors. Hence, fluctuations in exchange rates, cost increases of exporters, and domestic cost increases based on exchange rates are viewed as potential factors that could impact the choice of payment methods for exporting businesses. This study aims to elucidate whether such circumstances exist in the context of cash in advance and letter of credit payments.

Although this study primarily examines variables and evaluations at a macro level, focusing on the country's exports, it is the businesses that actually receive the payments. Therefore, the research has been shaped by a theoretical approach that draws from theories underlying these behaviors of businesses, bridging a theoretical framework that connects macro and meso levels. Therefore, transaction cost theory is considered an ideal theoretical approach for this research. In addition to this theory, real options theory and prospect theory will also be utilized as supportive arguments to strengthen the theoretical framework of the study. The reason these three theories will form the main framework for this research actually exposes the assumption of the study. In this study, it is believed that as businesses face increased costs and risks, they will tend to opt for more secure payment methods. Therefore, it is expected that within the context of transaction cost theory, businesses' decisions will be influenced, leading to the anticipation of variability in payment methods within Türkiye’s exports. From the perspective of other theories, the real options theory anticipates different possibilities in managing risk amidst uncertainties in the decision-making process. Additionally, prospect theory discusses how perceived risk is dealt with. Based on all these considerations, it is believed that the payment methods for exports from Türkiye will actually vary according to the costs and risks faced by businesses. Thus, variables such as the domestic producer price index and the foreign producer price index, as cost factors, have been included in the study, while a risk factor like exchange rates have also shaped the main model of the research.

The study employed time series analysis to determine whether there is a causal relationship among the variables considered in the research. To achieve this, unit root tests were initially conducted to determine the highest order of stationarity for the variables. Both the Augmented Dickey-Fuller (ADF) unit root test (Dickey and Fueller, 1981) and the Phillips-Perron (PP) unit root test (Philips and Perron, 1988) were applied as unit root tests. The highest order of stationarity for each series was determined separately with each unit root test and compared. Subsequently, the appropriate lag length to be included in the analysis was determined. Following the findings obtained from the unit root tests, the Toda-Yamamoto causality test was applied to determine the presence of causality between the variables and, if a relationship exists, to identify the direction of this relationship.

According to the obtained results, the granger cause of export transactions conducted with cash in advance payment is the increase in exporters' costs. In other words, the foreign producer price index has been identified as the granger cause of cash in advance payment in exports. Considering that cash in advance payment is the least risky method for exporters, it can be stated that the real options theory suggests that this option is feasible, leading to a significant preference among exporters operating from Türkiye. Additionally, given that the cash in advance payment method incurs the least bank charges, it is accurate to conclude that the results align with the transaction cost theory. According to the prospect theory, it is also possible to assert that companies engaged in exports from Türkiye, in a risky period experiencing cost increases, tend to avoid risks by opting for cash in advance payment since they find themselves in a profitable position, namely, as exporters. The analysis findings indicate that the granger cause of L/C-based exports are the exchange rate, foreign producer price index, and exports conducted with cash in advance payment. In this regard, as the exchange rate and costs for exporters increase, it can be said that they prefer to collect their receivables more quickly, even before the export. Additionally, the intensive banking procedures involved in L/C transactions (see Lee, 2021) and the costs

of commissions in the requested currency pose complete cost and even reserve risk elements for businesses. In this context, the decrease in exports with L/C payments may be attributed to the burden caused by banking transactions according to the transaction cost theory, exporters' desire to receive money more quickly in an uncertain environment according to the real options theory, and the inclination to preserve a strong position, as observed in cash in advance payments, according to prospect theory.

It is believed that the findings of this research will provide a different perspective on international trade studies conducted especially in Türkiye. The obtained results indicate that businesses exporting from Türkiye want to have direct access to foreign exchange, particularly in an environment where costs are rising, and they prefer to manage the foreign exchange they earn under their own roof. Therefore, it is recommended that exporting businesses protect the foreign exchange income obtained through cash in advance exports against exchange rate risks with appropriate methods. Additionally, despite all this, it is emphasized that the L/C payment method, which is the most widely used method globally, should not be overlooked. It is essential to emphasize that not every exporter may have the luxury or option to engage in cash in advance exports. In this context, it is advised that exporting businesses, unable to conduct cash in advance transactions, opt for L/C exports to minimize risks in international trade. Thus, it is also recommended that export associations, chambers of commerce, and banks conduct more informative activities regarding L/C.

Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	**Ethical Statement**	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: AYS (%100) Veri Toplanması: AYS (%100) Veri Analizi: AYS (%100) Makalenin Yazımı: AYS (%100) Makale Gönderimi ve Revizyonu: AYS (%100)	**Author Contributions**	Research Design: AYS (%100) Data Collection: AYS (%100) Data Analysis: AYS (%100) Writing the Article: AYS (%100) Article Submission and Revision: AYS (%100)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	**Complaints**	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	**Conflicts of Interest**	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	**Grant Support**	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları **CC BY-NC 4.0** lisansı altında yayımlanmaktadır.	**Copyright & License**	Authors publishing with the journal retain the copyright to their work licensed under the **CC BY-NC 4.0**

References

Abor, J. (2005). Managing foreign exchange risk among Ghanaian firms, *Journal of Risk Finance*, 6, 306-318.

Ahn, J., & Sarmiento, M. (2019). Estimating the direct impact of bank liquidity shocks on the real economy: Evidence from letter-of-credit import transactions in Colombia. *Review of International Economics*, 27(5), 1510-1536.

Aksoy, E., Teker, T., Mazak, M., & Kocabiyik, T. (2020). Kripto paralar ve fiyat ilişkileri üzerine bir analiz: Toda-Yamamoto nedensellik analizi ile bir inceleme. *Süleyman Demirel Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (37), 110-129.

Alabayir, A. (2017). Akreditifli ödeme şeklinde şirketlerin konuya hâkimiyetleri ve rezerv kesintisi oluşması üzerine ampirik bir çalışma. *İşletme Araştırmaları Dergisi*, 9(2), 420-439.

Alabayır, A., & Muzır, E. (2016). Dış ticaret işlemlerinde ticaret yapılan yere göre ödeme şekli tercihi ve tercih nedenlerini belirlemeye yönelik ampirik bir çalışma. *İşletme Araştırmaları Dergisi,* 8(3), 308-322.

Arslandere, M. (2021). Uluslararasi Tecrübe Ve Faaliyet Sektörü Çerçevesinde Uluslararasi Ticarette Ödeme Şekilleri: İstanbul İli Üzerine Bir Pilot Araştirma. Süleyman Demirel Üniversitesi İktisadi Ve İdari Bilimler Fakültesi Dergisi, 26(2), 129-152.

Auboin, M., & Ruta, M. (2011). The relationship between exchange rates and international trade: a review of economic literature. *Available at SSRN* 1955847.

Aygül, M., & Çelenk, B. V. (2018). Ekonomik yaptırımlar ve akreditif. *Ticaret ve Fikri Mülkiyet Hukuku Dergisi,* 4(1), 1-18.

Bayram, O. (2019). Uluslararasi ticarette tahsil esasina dayali ödeme şekilleri (collection basis) ve uygulama adimlari. *İzmir Kâtip Çelebi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi,* 2(2), 209-216.

Belderbos, R., & Zou, J. 2009. Real options and foreign affiliate divestments: A portfolio perspective. *Journal of International Business Studies*, 40(4): 600–620.

Butakova, N. (2020), Letter of credit as a payment instrument of the export-import deal Available at SSRN: https://ssrn.com/abstract=3598871 or http://dx.doi.org/10. 2139 /ssrn.3598871

Candemir, A., Zalluhoğlu, A. E., & Demiralay, E. (2011). Perception of financial and payment terms risks: the analysis of Aegean exporters. *International Journal of Contemporary Economics and Administrative Sciences*, 1(3), 188-207.

Carrasco, C. A., & Tovar-García, E. D. (2021). Trade and growth in developing countries: the role of export composition, import composition and export diversification. *Economic Change and Restructuring*, 54, 919-941.

Ceruz, O. (2019). İslam ekonomisinde uluslararası ticaretin yeri ve katılım bankalarında uluslararası ticaretin finansmanı. *Siyaset, Ekonomi ve Yönetim Araştırmaları Dergisi*, 7(3), 39-58.

Çetin, M., & Şeker, F. (2013). Doğrudan yabancı yatırımlar ve ihracat ilişkisi: gelişmekte olan ülkeler üzerine bir nedensellik analizi. *Eskişehir Osmangazi Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 8(1), 121-142.

Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing*, 65(2), 81–93

Crozet, M., Demir, B., & Javorcik, B. (2022). International trade and letters of credit: A double-edged sword in times of crises. *IMF Economic Review*, 70(2), 185-211.

Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: journal of the Econometric Society*, 1057-1072.

Ermakov, V. A., Burmistrova, E. M., Bodin, N. B., Chursin, A. A., & Shevereva, E. A. (2018). A letter of credit as an instrument to mitigate risks and improve the efficiency of foreign trade transaction. *Revista Espacios*, 39(06).

Gashi, P., Hashi, I., & Pugh, G. (2014). Export behaviour of SMEs in transition countries. *Small Business Economics,* 42, 407-435.

Gökgöz, A. (2015). Dis ticarette teslim ve ödeme sekillerinin TMS 18 hasilat standardi çerçevesinde incelenmesi. *Journal of Accounting, Finance and Auditing Studies*, 1(3), 105-122.

Ilmas, N., Amelia, M., & Risandi, R. (2022). Analysis of the effect of inflation and exchange rate on exports in 5-year ASEAN countries (Years 2010–2020). *Jurnal Ekonomi Trisakti,* 2(1), 121-132.

Irmak, E. (2023). Uluslararası ticarette kullanılan akreditif ödeme yönteminde blokzincir teknolojisi ve akıllı sözleşmeler. *İşletme ve İktisat Çalışmaları Dergisi*, 11(2), 87-102.

Jervis R. The implications of prospect theory for human nature and values. Polit Psychol 2004;25(2):163–76.

Kazanci, F. (2023). Akreditiflerde katılım bankacılığına özgü sorunlar: UCP 600 kurallarının katılım bankacılığına uyumu. *Kocatepe İslami İlimler Dergisi*, 6(Özel Sayı), 1-17.

Kodalak, O., Topal B. ve Dizkırıcı A. S. (2015). Dis ticarette akreditifli ödemeler: ucp 600'e göre bankalarda güncel örnek uygulamalar. *Journal Of Accounting, Finance and Auditing Studies,* 1(3), 68-90.

Kogut, B., & Kulatilaka, N. (1994). Operating flexibility, global manufacturing, and the option value of a multinational network. *Management Science,* 40(1): 123–139

Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: The construct, research propositions and managerial implications. *Journal of Marketing*, 54(2), 1–18.

Kyvik, O., Saris, W., Bonet, E., & Felício, J. A. (2013). The internationalization of small firms: The relationship between the global mindset and firms' internationalization behavior. *Journal of International Entrepreneurship*, 11, 172-195.

Lee, J. S. (2021). A study on documentary letter of credit transaction based on import & export procedure. *East Asian Journal of Business Economics* (EAJBE), 9(3), 15-28.

Mahata, G. C. (2015). Partial trade credit policy of retailer in economic order quantity models for deteriorating items with expiration dates and price sensitive demand. Journal of *Mathematical Modelling and Algorithms in Operations Research*, 14(4), 363-392.

Marshall, R., Huan, T. C. T., Xu, Y., & Nam, I. (2011). Extending prospect theory cross-culturally by examining switching behavior in consumer and business-to-business contexts. *Journal of Business Research,* 64(8), 871-878.

Meral, Y. (2019). Uluslararası ticaret, ülke riski ve finansman metodu olarak teyitli akreditifler: uygulamada dikkat edilmesi gereken hususlar. *InTraders International Trade Academic Journal,* 2(1), 1-31.

Milanzi, M. A. (2012). The impact of barriers on export behavior of a developing country firms: Evidence from Tanzania. *International Journal of Business and Management*, 7(3).

Oğuz, F. (2015). Örgüt iktisadı: Ekonomi, örgüt ve hukuk ilişkileri. İçinde A. S. Sargut & Ş. Özen (Ed.), *Örgüt Kuramları* (ss. 193-235). İmge Kitabevi Yayınları.

Öztürk, A., & Sandalcilar, A. R. (2018). Diş ticaret işlemlerinde tercih edilen ödeme yöntemleri: Doğu Karadeniz bölgesi üzerine bir uygulama. *Kastamonu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 20(4), 201-218.

Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, 75(2), 335-346.

Rindfleisch, A. (2020). Transaction cost theory: past, present and future. *AMS Review*, 10(1-2), 85-97.

Siami-Namini, S. (2017). Granger causality between exchange rate and stock price: A Toda Yamamoto approach. *International Journal of Economics and Financial Issues*, 7(4), 603-607.

Syed Alwi, S. F., Osman, I., Badri, M. B., Muhamat, A. A., Muda, R., & Ibrahim, U. (2022). Issues of letter of credit in malaysian islamic banks. *Journal of Risk and Financial Management*, 15(9), 373.

TIM, 2023. *Türkiye'nin Ilk 1000 Ihracatçısı Araştırması*, (Erişim Linki: https://tim.org.tr/tr/turkiyenin-ilk-1000-ihracatci-arastirmasi, Erişim Tarihi: 01.01.2024).

TMT, 2023. *İhracat Destekleri*, (Erişim Linki: https://ticaret.gov.tr/destekler/ihracat-destekleri, Erişim Tarihi: 01.01.2024).

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of econometrics*, 66(1-2), 225-250.

Toklu, İ. T. (2018). İhracatta akreditifli ödeme: Bal sektörü üzerine bir vaka analizi. *Anemon Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi,* 6(ICEESS'18), 53-60.

Trigeorgis, L. 1996. *Real Options: Managerial Flexibility And Strategy In Resource Allocation*. Cambridge: MIT Press

Triyawan, A., & Novitasari, A. S. (2020). The influence of islamic commercial bank's letter of credit financing and exchange rate towards indonesia's exports from 2014 to 2018. Ad-Deenar: *Jurnal Ekonomi dan Bisnis Islam*, 4(02), 263-275.

TUIK, 2023. *Girişim Özelliklerine Göre Dış Ticaret*. (Erişim Link: https://data.tuik.gov.tr/Bulten/Index?p=Girisim-Ozelliklerine-Gore-Dis-Ticaret-Istatistikleri-2022-49601, Erişim Tarihi: 01.01.2024).

Ülkü, H. A. (2021). Akreditif hukukunda temel ilişkiye esas geçersizlik ve akde aykırılık durumlarının türk borçlar kanunu çerçevesinde irdelenmesi. *Maltepe Üniversitesi Hukuk Fakültesi Dergisi,* (2), 297-308.

Varlik, U., & Uçar, M. (2017). Diş ticarette ödeme şekilleri ve vesiak mukabili işlemlerde operasyonel riskler. *Uluslararası Ticaret ve Ekonomi Araştırmaları Dergisi,* 1(1), 1-16.

Williamson, O. E. (1985). *The Economic Institutions Of Capitalism*. New York: Free Press

Yingi, E. (2022). Beyond the pandemic: Implications of COVID-19 on regional economic integration in Southern Africa. *International Journal of Research in Business and Social Science* (2147-4478), 11(2), 270-279.