MEHMET AKİF ERSOY ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ DERGİSİ
Mehmet Akif Ersoy University Journal of Social Sciences Institute

e-ISSN: 1309-1387
Sayı/Issue: 31
Yıl/Year: 2020
ss./pp.: 109-119

EXCHANGE RATE AND STOCK PRICE INTERACTIONS: AN EVIDENCE FROM TURKISH TRANSPORTATION SECTOR

DÖVİZ KURU VE HİSSE SENEDİ FİYATI ARASINDAKİ ETKİLEŞİM: TÜRK ULAŞTIRMA SEKTÖRÜNDEN BİR BULGU

Abdullah AÇIK[1], İlke Sezin AYAZ[2], Esra BARAN KASAPOĞLU[3]

1. Arş. Gör. , Dokuz Eylül Üniversitesi, abdullah.acik@deu.edu.tr, https://orcid.org/0000-0003-4542-9831
2. Arş. Gör., Dokuz Eylül Üniversitesi, ilke.ayaz@deu.edu.tr, https://orcid.org/0000-0002-7053-3940
3. Arş. Gör., Dokuz Eylül Üniversitesi, esra.baran@deu.edu.tr, https://orcid.org/0000-0002-2235-5617

Makale Türü Araştırma Makalesi

Article Type ResearchArticle

Başvuru Tarihi/Appliation Date
10.10.2018

Yayına Kabul Tarihi/Acceptance Date
27.03.2020

DOI
10.20875/makusobed.469158

Abstract

The aim of this study is to examine the relationship between stock values of the companies serving in the transportation sector in Turkey and exchange rate. In addition to being an alternative investment tool for transportation sector share values, it is possible that the effects of exchange rate on the share values will be different with its structure affecting both their costs and their transportation demands. Therefore, it is likely to have a nonlinear relationship between the two variables. XULAS variable formed by transportation companies in the BIST index and TL equivalent of USD which is the basic exchange rate all over the world are used in the analysis. The data consists of 971 observations on a weekly basis covering the period between 2 January 2000 and 16 September 2018. The asymmetric causality test is used to determine the unidirectional causal relationship between the shocks in the variables. The obtained results reveal a situation contrary to the general view of negative relationship. It is also hoped that the findings will be useful in developing investment strategies for existing and potential investors in the market.

Keywords: *Transportation Industry, Stock Value, Exchange Rate, Asymmetric Causality*

Öz

Bu çalışmanın amacı Türkiye'de ulaştırma sektöründe hizmet veren firmaların hisse senedi değerleriyle döviz kurları arasındaki ilişkinin incelenmesidir. Döviz kurlarının ulaştırma sektöründeki hisse değerlerine etkisi, hisselere alternatif yatırım araçları olmalarının yanında, ulaştırma sektörünün maliyetlerini ve taşımacılık aktivitelerine olan talebi etkilemeleri nedeniyle farklı olabilir. Bu nedenle iki değişken arasında doğrusal olmayan bir ilişki olması muhtemeldir. Analizde BIST endeksindeki ulaştırma şirketlerinin hisse değerlerinden oluşan XULAS ve dünyada temel döviz kurlarından olan doların Türk Lirası olarak karşılığı değişkenler kullanılmışlardır. Veri seti 2 Ocak 2000 ve 16 Eylül 2018 tarihleri arasını kapsayan haftalık bazda 971 gözlemden oluşmaktadır. Değişkenlerdeki şoklar arasındaki tek yönlü nedensellik ilişkisini tespit etmek için asimetrik nedensellik testi kullanılmıştır. Elde edilen sonuçlar genel görüş olan negatif ilişki görüşüne ters bir durum ortaya koymuştur. Ayrıca bu sonuçların mevcut ve potansiyel yatırımcıların yatırım stratejileri oluşturmalarında faydalı olacakları umulmaktadır.

Anahtar Kelimeler: *Ulaştırma Sektörü, Hisse Senedi Değeri, Döviz Kuru, Asimetrik Nedensellik*

GENİŞLETİLMİŞ ÖZET

Çalışmanın Amacı

Döviz kuru ve hisse senedi araçları yatırımcılar tarafından en çok kullanılan yatırım araçlarıdır. Yatırımcılar kar elde etme amacı güderek bu araçlar arasında sürekli geçişler yapmaktadır. Bu geçişlerin sonucunda da yatırım araçları arasındaki etkileşimler ve ilişkiler büyük önem kazanmaktadır. Bu noktadan hareketle çalışmada Türkiye'de ulaştırma sektöründe hizmet veren firmaların hisse senedi değerleri ile döviz kurları arasındaki ilişkiyi incelemek amaçlanmıştır.

Çalışmanın Ana Araştırma Sorusu

Türkiye'de ulaştırma sektöründe faaliyet gösteren firmaların hisse senedi değerleri döviz kurundaki değişimlere nasıl tepki veriyor?

Literatür Araştırması

İlgili literatür incelendiğinde borsalar ve döviz kurları arasındaki ilişkiyi inceleyen bir çok çalışmanın olduğu görülmektedir. Fakat ulaştırma sektörü göz önüne alındığında, sektörün türetilmiş bir talep olması nedeniyle mevcut durum farklılaşmaktadır. Bu farkın daha açık bir şekilde ortaya konulabilmesi için öncelikle döviz kuru ve hisse senedi değerleri arasındaki ilişkiyi araştıran çalışmalar ve sonuçları incelenmiş, daha sonra ise döviz kuru ile ticaret arasındaki ilişkiyi inceleyen çalışmalar araştırmanın literatür taramasına dahil edilmiştir.

Değişkenler ve Yöntem

Araştırmanın analiz kısmında BIST endeksindeki ulaştırma şirketlerinin hisse değerlerinden oluşan XULAS ve dünyada temel döviz kurlarından olan doların Türk Lirası olarak karşılığı değişkenleri kullanılmıştır. Çalışmada kullanılan veri seti 2 Ocak 2000 ve 16 Eylül 2018 tarihleri arasını kapsayan aylık bazda 971 gözlemden oluşmaktadır. Yöntem olarak ise, değişkenlerdeki şoklar arasındaki tek yönlü asimetrik nedensellik ilişkisini tespit etmek için asimetrik nedensellik testi kullanılmıştır

Sonuç ve Değerlendirme

Elde edilen sonuçlara göre, döviz kurlarındaki pozitif şoklardan, ulaştırma endeksindeki pozitif şoklara ve döviz kurlarındaki negatif şoklardan ulaştırma endeksindeki negatif şoklara asimetrik nedensellik ilişkileri tespit edilmiştir. Bu sonuç genel görüş olan negatif ilişki görüşüne ters bir durum ortaya koymuştur. Ayrıca, araştırmanın sonuçlarına göre yatırımcıların döviz kurları ile ulaştırma sektöründe hizmet veren firmaların hisse değerleri arasındaki tercihlerinin, iki yatırım aracı arasındaki arbitrajdan ziyade ulaştırma firmalarının performanslarına daha fazla odaklandığı düşünülmektedir. Bu bağlamda, sonuçların yatırım tercihlerini değerlendirmek için mevcut yatırımcılara ve potansiyel yatırımcılara ışık tutacağı ümit edilmektedir.

1. INTRODUCTION

The economy includes many tools for its players to use as instruments to manage their resources, and the stock market is one of the most widely used of them. This increases the role of the stock market in economic prosperity and increases its contribution to sustainable growth and capital formation. The capital is mobilized by stock market for the corporate sector and the market offers alternative investment opportunities for individuals and institutional investors for the purpose of maximizing their returns. There are many factors affecting volume and return of all capital market transactions, and the main ones are thought to be the issuers and investors. However, the general situation of the country's economy also affects returns. Therefore, investors evaluate the macroeconomic variables to rise their stock market returns substantially. Recognition of this situation triggers many researches about the investigation of the influences of macroeconomic indicators on expected cash flows and stock returns of the companies (Kvietkauskiene, 2017, p. 59-60).

Exchange rate, which is the significant macro economic variable influencing the stock values, can be described as the corresponding value of the foreign currency in the domestic currency (William and Alan, 1998, p. 821). The demand for a foreign currency denominated deposit is influenced by factors which affect the demand for any other financial asset and the first factor taken into account is the future value of that deposit where nominal interest rates provide important information in this regard (MacDonald, 2012, p. 47-49). The future value of a foreign currency-denominated deposit then mainly depends on two factors: (1) the nominal interest rate offered by the deposit in case and (2) the anticipated altering of the value of that particular currency against another currency (Isard, 1995, p. 78). Profit opportunities that may arise from switching between currencies can also be seen among investment instruments. Therefore, there is also a transition between exchange rates and stock values.

In the literature, the relationship between exchange rate and stock market is generally determined in a negative direction. However, the transportation sector is thought to be partly different from other markets. Because there its demand is derived, the increase in the exchange rate may lead to an increase in the demand for exports and increase in demand for transportation activities. The positive effect obtained by increasing the revenues of transportation companies may reflect to the value of the firm and the value of the stocks. Therefore, this relationship is worth examining and constitutes an important gap in the literature. So, it is aimed to investigate the relationship between XULAS index which is formed by stock prices of top transport companies and USD/TL which is the major currency in the world.

Economic and financial data may have nonlinear structure owing to high volatility in short time periods and unexpected crises (Bildirici and Turkmen, 2015). Also sudden changes in economic structure, investor heterogeneity, reform policies, industrial production support this nonlinearity (Ajmi et al., 2013). Therefore, in this study, the causal relationship between USD / TL and XULAS variables is analyzed with nonlinear asymmetric causality method developed by Hatemi-J (2012), which allows to analyze causality between positive and negative shocks (news) in the variables. This method is very suitable for use in the research, because agents in the market may react differently depending on the type of news. The data of the study cover the period between 2 January 2000 and 16 September 2018 and consist of 971 weekly observations.

As a result of the study, asymmetric causalities are found from the positive shocks in exchange rate to positive shocks in the transportation index, and from negative shocks in the exchange rate to negative shocks in the transportation index. The findings show that the relation of the shares of the companies traded in the transportation sector with exchange rate is different from the general view. It can be said that investors who invest in transportation companies have different responses to the exchange rate news, and this is thought to be important to guide investment decisions of the current and potential investors.

The remainder of the study is designed as follows; the theoretical background is drawn in the second section; the data set and methodology are presented in the third section; findings of the study are discussed in the fourth section; and conclusions are given in the final section.

2. THEOROTICAL BACKGROUND

When the related literature is examined, it is observed that there are parallel studies with the subject of this study, but no one has formed the same framework. Several studies examining the relationship between stock market and exchange rate are encountered. However, when the transportation sector enters the business, the current situation may differ slightly. The mechanism varies slightly since the transport sector is a derived demand. To be able to handle this difference in a nice way; firstly, the studies examining the relationship between exchange rate and stock are included; and secondly, studies examining the relation between exchange rate and trade are included. Then the model of the research is formed.

Over the years, many researchers explored impressive role of the stock prices and exchange rates in countries' economic developments by investigating the relationship both theoretically and empirically (Nieh and Lee, 2001). However, the relationship between stock prices and exchange rate is far from consensus in the related literature. Two primary theories that interrelate these financial markets may be adressed. The first approach is the traditional one advocates that exchange rate leads the stock prices. On the other hand, the presumption of portfolio approach shows that, the stock prices lead exchange rate (Tabak, 2006, p. 1377; Buhuvaneshwari and Ramya, 2017, p. 32). In this context, there are many studies examining the relationship between stock prices and foreign exchange rates in the literature.

Nieh and Lee (2001) investigated the relationship for G-7 countries. They used daily closing values stock market indexes and foreign exchange rates, and the dataset covered the period from October 1993 to February 1996. The results of the study revealed that there is no long-run equilibrium relationship between the variables for each G-7 countries. A meaningful relationship has been found in particular G7 countries in the short-term, however a meaningful relationship in the United States couldn't be verified. In another study, Kim (2003) used monthly data for the period between January 1974 and December 1998 in the U.S.A. and the author found that the relationship between S&P's common stock price and the exchange rate is negative. Doong et al. (2005) investigated the case in six Asian countries which are Thailand, South Korea, Taiwan, Indonesia, Malaysia and Philippines for the period between 1989 and 2003. They implemented cointegration and causality analysis and the results showed that the financial factors are not co-integrated which also indicated no long-run relationship. Bidirectional causalities can be defined in Indonesia, Korea, Malaysia, and Thailand. Morover, except Thailand, there are negative relations between the stock returns and the exchange rates for all countries. Ozair (2006) examined the causal relationship in USA by quarterly data covering 1960 and 2004 period. The author found no causality and cointegration among two financial markets. Tabak (2006) investigated the relationship in Brazil by linear Granger causality, and the author found causal relation between stock prices and exchange rates with a negative correlation in Brazil after its former exchange rate regime change in 1999.

When it comes to studies in Turkey, the interaction of stock prices and exchange rates was investigated by Aydemir and Demirhan (2009) with a dataset covering the period February 23, 2001 and January 11, 2008. The analysis was carried out by Toda and Yamamoto (1995) method and the results revealed the two-way causality between exchange rate and all stock market indices. Also they investigated positive and negative causalities based on the sub-indices. The causalities from national 100, services, 20 financials and industrials indices to exchange rate found negative, while the causality from technology indices to exchange rate found positive. Moreover, the causalities from exchange rate to all stock market indices are spotted as negative. In another study investigating the relationship in Turkey, Kose et al. (2010) examined the relationship analyzing the data covering the period between 23.02.2001 and 4.11.2009. They determined one-way causality from stock prices to exchange rates, and they suggested policy makers to consider the former values of the stock exchange when implementing policies about exchange rates. The last mentioned study about this topic is carried out by Rjoub (2012) for the period between August 2000 and August 2009. While he couldn't find any causal relationship, he found long-run co-integrated relationship.

When the studies between exchange rate and stock market are evaluated, the studies that have found both significant and insignificant relationships exist. In general, the result is that there is a negative relationship between them, and the underlying opinion in this study is in this direction. Because the increase in the profitability of a market attracts investors from the other market and generates a relationship in the opposite direction.

In the researches examining the interaction of exchange rate and trade, there are so many theoretical and practical ones that examine the relationship between exports, imports and real foreign exchange rate with the various opinions. Because this relationship becomes an important issue for both professionals and researches particularly in developing countries since 1972 when fixed exchange rate policy turned to floating exchange rate system (Chaudhary et al., 2016, p.86).

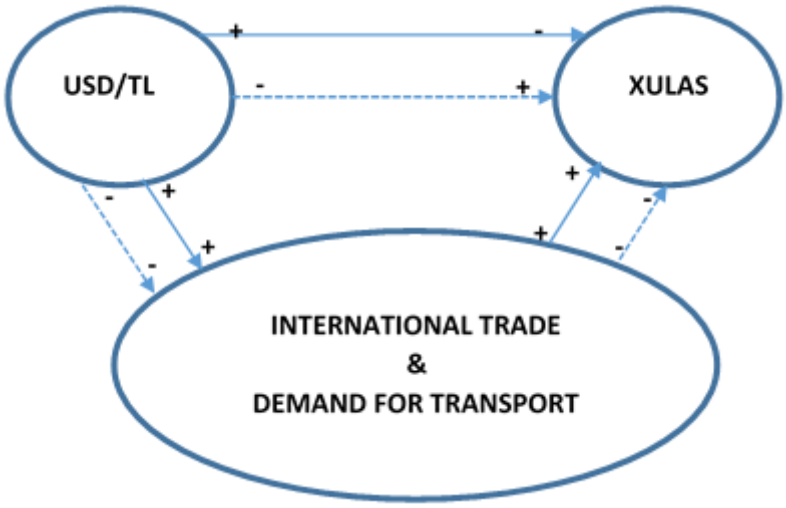
Lal and Lowinger (2002) researched the interaction of exchange rate and trade balance in South Asian countries and concluded that the relationships exist in both short and long run in these economies. Baharumshah (2001) investigated the exchange rate-trade balance relationship. The author discovered a long run steady and positive relation of exchange rate to trade balance for Malaysia and Thailand, which have two-way commercial relationship with United States and Japan. Onafowora (2003) investigated the real exchange rate and real balance of trade for the two-way commercial relationship of Malaysia, Thailand and Indonesia to Japan and US. The author spotted the existing of positive long-term relations between variables. Kemal and Qadir (2005) examined the relationship in Pakistan by using imports, exports and exchange rate in Pakistan, and they concluded that the effect of exchange rate to import is positive while its effect to export is negative. The subject was investigated by Grier and Smallwood (2007) for the 18 countries whose half consists of developed and the other half consists of developing countries. They investigated foreign income and exchange rate uncertainties' impact on international trade. The results revealed significant negative impact of real exchange rate uncertainty on export growth. But these impact was only valid for six less developed countries, the impact for developed countries is insignificant. Asif (2011) investigated the relation from the context of devaluation of currency in Pakistan, and the author founded that the devaluation of currency is influential in developing the trade balance of the country. Also a co-integrated lon run relationship of real effective exchange rate and trade balance was determined.

Some authors have investigated the relations among exchange rate, exports and imports based on the economy in Turkey. For example, Acaravci and Özturk (2002) found that exports are negatively affected by uncertainty in foreign exchange rate according to data for January 1989 –August 2002 period. In another study, Tunçsiper and Öksuzler (2006) investigated exchange rate risk and sectoral imports. The results revealed that the risk of foreign exchange rate affected exports negatively in terms of total and sectoral. The effect of uncertainty of exchange rate to the two-way trade volume and trade volatility investigated by Baum and Caglayan (2010) by using data from 13 countries covering the dates between 1980 and 1998. They spotted that the relationship between exchange rate volatility and trade flows are unclear. However, the relationship between exchange rate volatility and trade volatility was determined as significant and positive.

Although the results in these studies vary, the general opinion is that exchange rate increases have a positive effect on trade balances. However, in some studies, it is also presented that the uncertainty in exchange rates have negative impacts on exports. The absorption approach, which is developed firstly by Alexander (1952), can define he relationship between exchange rate and foreign trade in a more comprehensible way. According to this approach, excess production in a country results in trade surplus since it cannot absorb all products, which also causes appreciation of its currency. Likely, a deficit in current account results in loss in value of the domestic currency according to Balance of Payment (BOP) theory. Owing to the importance of these mechanisms, some countries deliberately aim to increase their exports and reduce their imports by decreasing the value of their domestic currency exchange rates. In this context, it is thought that the increase in foreign exchange rates will increase exports and this increase will also contribute to the increase in the transportation volume of the logistics companies in the country, which will also contribute to the firm values.

In the framework of all these assessments obtained from the literature, the theoretical model of the study is formed and presented in Figure 1. According to this model, considering the methodology used in the study, the causal relations between the shocks are designed theoretically as in the Figure. Within this framework, the positive shocks in the exchange rate are reflected in the stock market in two different ways. First of all, as it is generally accepted in the literature, the exchange rate has a negative effect on the stock and therefore the positive shocks in the exchange rate are designed as the cause of negative shocks in the stock market. Likewise, negative shocks in exchange rates are considered as the cause of positive shocks in stocks. Secondly, the increase in the exchange rate is expected to increase the export volume positively, then this increase in exports expected to contribute positively to the work capacity of the transportation sector. So this positive effect is thought to increase value of the transportation companies. Therefore, the positive shocks in exchange rates are considered as the reason for the positive shocks in the stock market. At this point two opposite effects are formed, and this theoretical model is discussed in the conclusion section according to the results of the study. In the following part, the method and dataset used in the paper are presented.

Figure 1. Research Model



3. METHODOLOGY

The asymmetric causality test used in the study is introduced in this part. In addition, the data used in the study is evaluated with descriptive statistics.

3.1 Asymmetric Causality Test

There are many methods in the econometric literature that examine the relationships between variables. Areas of use vary with data type, frequency and purpose of the research. In this study, as it is aimed to examine how the stock values of the Transport Sector in Turkey react to the exchange rate, the use of asymmetric causality test developed by Hatemi-J (2012) is considered to be the most suitable option. The method spots the causal relationships between variables' shocks in four possible ways from; (a) positive to positive, (b) positive to negative, (c) negative to negative, and (d) negative to positive shocks. First of all, the variables used in this test do not have to be stationary as the Toda and Yamamoto (1995) procedure is applied in this test. Performing a difference in some series may cause loss of information in the series. Secondly, this test allows to investigate the asymmetric causality between positive or negative shocks in the series (Shahbaz et al., 2017). That function is very useful as the agents in the market can give different kinds of reactions to different kinds of news (Hatemi-J, 2012).

The asymmetric causality test spots the relationship among shokcs by summing cumulatives of positive and negative ones (Tugcu and Topcu, 2018). The bootstrapping simulation method was used by Hatemi-J (2012) to take account ARCH (Autoregressive Conditional Heteroscedasticity) effect (Tugcu et al., 2012). He calculates critical values and mwald statistics by bootstrap simulation and so more accurate critical values are obtained due to the leverage corrections (Hatemi-J and Uddin, 2012). One of the most important steps of the application of the method is to decide the most suitable integration order value since it embodies Toda and Yamamoto (1995) process (Umar and Dahalan, 2016). This process is carried out through stationarity and unit root tests, and if the series contain any roots, and additional lag(s) is put in to the unrestricted Vector Autoregressive (VAR) model.

In this study, augmented Dickey-Fuller (ADF) test is applied in order to investigate possible unit roots in the series. In the application of asymmetric causality test, GAUSS code designed by Hatemi-J (2012) is used. In the next section, the dataset used in the study are examined.

3.2 Data

The data of the study cover the period from 2 January 2000 to 16 September 2018 and consist of 971 weekly observations. Natural logarithms are taken to make the series continuous and ease the processing of the data. Descriptive statistics for both raw and logarithmic data are presented in Table 1. In addition, descriptive statistics of the log-return versions are also included in the table. According to Jarque Bera statistics, both series have normal distribution characteristics. Moreover, according to the Skewness values, the USD variable has been more influenced by the positive news throughout the process, whereas the XULAS variable has been more influenced by the negative news. Namely, positive news here is the value-increasing news. However, it is stated by many researchers that the increase in exchange rate is a negative situation for the economy. The comments vary depending on which side you are looking at.

XULAS consists of large companies operating in the field of transportation in the country. The sectors that make up the index are car rental, airway transportation, airway catering, sea transportation, and logistics transportation. The companies that form XULAS are Beyaz Filo, Celebi, DO&CO, GSD Marin, Pegasus, Reysaş and THY (Investing, 2018).

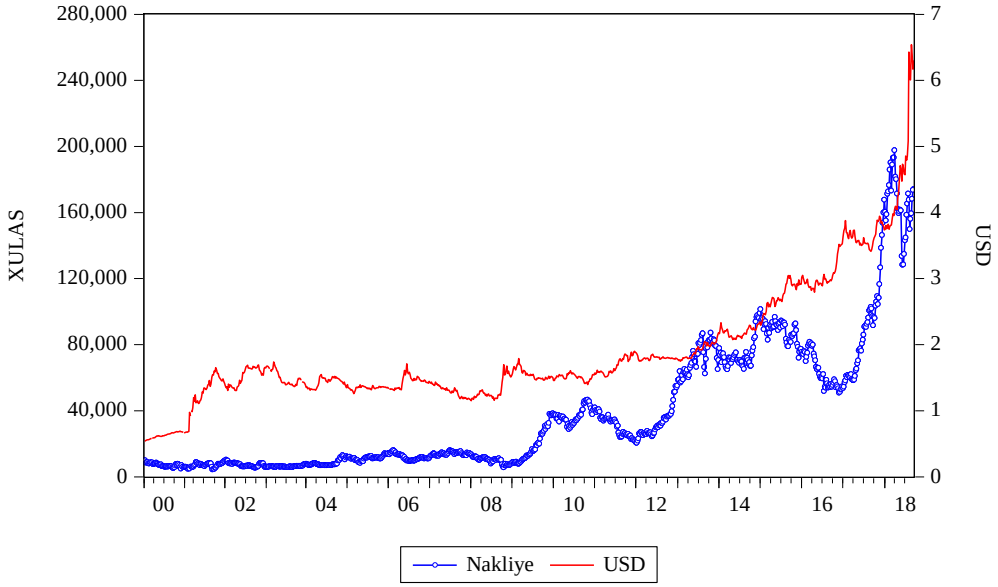
Table 1. Descriptive Statistics

	XULAS	**USD**	**Ln XULAS**	**Ln USD**	**Δ Ln XULAS**	**Δ Ln USD**
Mean	37902.10	1.878672	10.01778	0.534038	0.003053	0.002535
Median	15694.25	1.552000	9.661050	0.439544	0.005839	0.000740
Maximum	197673.9	6.538000	12.19437	1.877631	0.340435	0.351268
Minimum	4282.970	0.539200	8.362402	-0.617669	-0.335797	-0.102186
Std. Dev.	39569.13	0.907578	1.036464	0.431440	0.057741	0.025108
Skewness	1.610677	1.763045	0.284434	0.195298	-0.423720	3.965895
Kurtosis	5.532566	6.989766	1.685256	3.827112	7.534015	50.10450
Jarque-Bera	679.3365	1147.056	83.02707	33.85066	2.961550	2.458488
Probability	0.000000	0.000000	0.000000	0.000000	3.230677	0.610851
Observations	971	971	971	971	970	970

Source: Investing, 2018

The graphical representation of the variables is presented in Figure 2. The exchange rate variable is generally more stable until the end of the 2013, but after 2014 it has entered a serious upward trend. Transportation index generally follows a fluctuating course and is generally following an increasing trend after 2008. In the following part, the findings obtained from the analysis using the data introduced here are presented.

Figure 2. Graphical Display of the Variables



4. FINDINGS AND RESULTS

The data used in the study should first be controlled for unit roots and the stationarity control should be provided. The series do not have to be stationary, becasue Toda and Yamamoto (1995) procedure allows unit roots. But, order of integration should be determined. In this framework, Augmented Dickey-Fuller unit root test is implemented to the variables and the findings are shown in Table 2. The obtained findings reveal that both variables are not stationary at the level. If the first differences of series are taken, they become stationary, in other words, both the USD and XULAS variables are I (1). Thus, the maximum integration degree to be used in the causality method is determined as 1. After, the process of applying the asymmetric causality test is started.

Table 2. Results of the Unit Root Test

	Level		**First Difference**	
Variable	**I**	**T&I**	**I**	**T&I**
XULAS	0.0388	-2.9534	-29.829*	-29.855*
USD	-0.3411	-1.2548	-33.683*	-33.671*

Critical values for Intercept: -3.436871 for *1%, -2.864308 for **5%, -2.568296 for ***10%. Critical Values for Trend and Intercept: -3.967538 for *1%, -3.414453 for **5%, -3.129361 for ***10%.

In the application of asymmetric causality test, econometric GAUSS codes proposed by Hatemi-j (2012) are used. Maximum lag has been selected as 12, while the maximum number of simulations for computing bootstrapped critical values has been selected as 1000. As information criteria, the HJC information criteria proposed by Hatemi-J (2012) has been selected. Then the analysis process is carried out with the help of the econometric program and the findings are shown in Table 3.

Then the analyses are applied by GAUSS and the findings are shown in Table 3. The findings revealed asymmetric causal relationship between positive and negative shocks in USD / TL exchange rate and positive and negative shocks in XULAS index. The positive shocks in the exchange rate are the reason for positive ones in the transportation index, and the negative shocks in the exchange are the reason for negative ones in the transportation index.

Table 3. Asymmetric Causality Results

		USD => XULAS			
		$\mathbf{U^+T^+}$	$\mathbf{U^+T^-}$	$\mathbf{U^-T^-}$	$\mathbf{U^-T^+}$
Opt. Lag		3	1	2	1
Addt. Lags		1	1	1	1
Test Stat (MWALD)		21.8	0.71	10.2	0.43
P-value		0.00*	0.39	0.00*	0.51
C.V..	1%	14.1	7.06	11.4	7.90
	5%	8.53	4.07	6.55	4.00
	10%	6.54	2.87	4.58	2.67

* Refers to significan causal relationship.

5. CONCLUSION

The asymmetric causal relations among shocks in the exchange rates and XULAS variable formed from transportation companies in BIST 100 is examined in this study. There is no similar study in the literature in the transportation framework, but there are some studies investigating the relationship between exchange rates and stock markets in general. These studies generally have found negative relationships between the two variables. However, the situation of transport companies is thought to be slightly different from other companies. Because demand for transport is a derived demand, and a depreciation of the domestic currency may lead to an explosion in exports, leading to a large increase in demand for transportation operations. This increase in demand may also increase the revenues of the firms and thus the company values.

In this context, in this study, the unidirectional asymmetrical causal relationship from USD / TL to XULAS variables is examined by the method developed by Hatemi-J (2012). Because financial data are mostly affected by shocks, crises and political events, so they are more suitable for non-linear methods. The dataset consists of 971 weekly observations covering the period from 2 January 2000 to 16 September 2018. As a result of the study, two causal relationships have been determined. Firstly, the positive shocks in the USD / TL exchange rate are the causes of the positive shocks in the XULAS index, and secondly, the negative shocks in the USD / TL exchange rate are the causes of negative shocks in the XULAS index. These results show that, contrary to the results obtained in the general literature, there are positive to positive and negative to negative relationships between variables. It can be considered that the investor preferences between the exchange rate and the share values of the transport companies are more focused on the performances of transportation companies than the arbitrage between the two investment instruments. This shows that the relationship between these two instruments can vary by sector. In this respect, it is hoped that the results will shed light on the current investors and potential investors to evaluate their investment preferences. In addition, it is thought that a significant contribution has been made to the literature by examining the subject from a different perspective with a rare method.

This obtained results may also be a reflection of the increase in revenues due to the cost increase of the transportation companies, especially for the airway companies since they constitute the big part of the XULAS. One of the main cost items of them is the fuel cost and it is priced in dollar in the global oil markets, and the increase in the exchange rate significantly increases fuel prices. This issue does not fall within the scope of our study but is worth studying for further studies.

REFERENCES

Acaravcı, A., and Öztürk, İ. (2002). Döviz Kurundaki Değişkenliğin Türkiye İhracatı Üzerine Etkisi: Ampirik Bir Çalışma. *Review of Social, Economic and Business Studies*, 2, 197-206.

Alexander, S. S. (1952). Effects of Devaluation on a Trade Balance. *IMF Staff Paper*, *2*(2), 263-78.

Asif, M. (2011). Impact of Devaluation on Trade Balance in Pakistan. Economics of Knowledge, 3(3), 16-25.

Aydemir, O., and and Demirhan, E. (2009). The Relationship Between Stock Prices Exchange Rate Evidence from Turkey. *International Research Journal of Finance and Economics*, 23, 207-215.

Baharumshah, A. Z. (2001). The Effect of Exchange Rate on Bilateral Trade Balance: New Evidence from Malaysia and Thailand. *Asian Economic Journal*, *15*(3), 291-311.

Baum, C. F., and Caglayan, M. (2010). On the Sensitivity of the Volume and Volatility of Bilateral Trade Flows to Exchange Rate Uncertainty. *Journal of International Money and Finance*, *29*(1), 79-93.

Bhuvaneshwari, D., and Ramya, K. (2017). Cointegration and Causality Between Stock Prices and Exchange Rate: Empirical Evidence from India. SDMIMD Journal of Management, 8(1), 39-45.

Bildirici, M. E., and Turkmen, C. (2015). Nonlinear Causality Between Oil and Precious Metals. *Resources Policy*, 46, 202-211.

Chaudhary, G. M., Hashmi, S. H., and Khan, M. A. (2016). Exchange Rate and Foreign Trade: A Comparative Study of Major South Asian and South-East Asian Countries. *Procedia-Social and Behavioral Sciences*, 230, 85-93.

Doong, S. C., Yang, S. Y., and Wang, A. T. (2005). The Dynamic Relationship and Pricing of Stocks and Exchange Rates: Empirical Evidence from Asian Emerging Markets. *Journal of American Academy of Business*, *7*(1), 118-123.

Grier, K. B., and Smallwood, A. D. (2007). Uncertainty and Export Performance: Evidence from 18 Countries. *Journal of Money, Credit and Banking*, *39*(4), 965-979.

Hatemi-j, A. (2012). Asymmetric Causality Tests with an Application. *Empirical Economics*, *43*(1), 447-456.

Hatemi-J, A., and Uddin, G. S. (2012). Is the Causal Nexus of Energy Utilization and Economic Growth Asymmetric in the US?. Economic Systems, 36(3), 461-469.

Investing (2018). BIST Transportation Index, USD/TL Exchange Rate. Accessed: 17.09.2018.

Isard, P. (1995). *Exchange rate economics.* Cambridge: Cambridge University Press.

Kemal, A. M., and Qadir, U. (2005). Real Exchange Rate, Exports, and Imports Movements: A Trivariate Analysis. The Pakistan Development Review, 44(2), 177-195.

Kim, K. (2003). Dollar Exchange Rate and Stock Price: Evidence from Multivariate Cointegration and Error Correction Model. Review of Financial Economics, 12, 301-313.

Kose Y., Doganya M., and Karabacak, H. (2010). On the Causality Between Stock Prices and Exchange Rate: Evidence from Turkish Financial Market. *Problems and Perspective in Management*, 8: 127-135.

Kvietkauskienė, A., and Plakys, M. (2017). Impact Indicators for Stock Markets Return. *Business Excellence, 11*(2), 59-84.

Lal, K. A., and Lowinger, C. T. (2002). Nominal Effective Exchange Rate and Trade Balance Adjustment in South Asia Countries. *Journal of Asian Economics*, 13, 371-383.

MacDonald, R. (2012). What do We Really Know about Real Exchange Rates? MacDonald, R., and Stein, J. L (Eds.), in *Equilibrium exchange rates (19-66)*. New York: Springer Science & Business Media.

Nieh, C. C., and Lee, C. F. (2001). Dynamic Relationship Between Stock Prices and Eexchange Rates for G-7 Countries. The Quarterly Review of Economics and Finance, 41(4), 477-490.

Onafowora, O. (2003). Exchange Rate and Trade Balance in East Asia: Is there a J-Curve. *Economics Bulletin, 5*(18), 1-13.

Ozair, Amber. (2006). *Causality Between Stock prices and Exchange Rates: A Case of The United States* Unpublished Master of Science Thesis, Florida Atlantic University.

Rjoub, M. (2012). Stock Prices and Exchange Rates Dynamics: Evidence from Emerging Markets. *African Journal of Business Management*, 6, 4728-4733.

Shahbaz, M., Van Hoang, T. H., Mahalik, M. K., and Roubaud, D. (2017). Energy Consumption, Financial Development and Economic Growth in India: New Evidence from a Nonlinear and Asymmetric Analysis. *Energy Economics*, 63, 199-212.

Tabak, B. M. (2006). The Dynamic Relationship Between Stock Prices and Exchange Rates: Evidence for Brazil. *International Journal of Theoretical and Applied Finance*, *9*(08), 1377-1396.

Toda, H. Y., and Yamamoto, T. (1995). Statistical Inference in Vector Autoregressions with Possibly Integrated Processes. *Journal of Econometrics*, *66*(1-2), 225-250.

Tugcu, C. T., and Topcu, M. (2018). Total, Renewable and Non-renewable Energy Consumption and Economic Growth: Revisiting the Issue with an Asymmetric Point of View. *Energy*, 152, 64-74.

Tugcu, C. T., Ozturk, I., and Aslan, A. (2012). Renewable and Non-renewable Energy Consumption and Economic Growth Relationship Revisited: Evidence from G7 Countries. *Energy Economics*, *34*(6), 1942-1950.

Tunçsiper, B., and Öksüzler, O. (2006). Döviz Kuru Riski Türkiyenin İhracatını Azaltır mı? Hata Doğrulama Yöntemi ile Bir Ampirik Değerlendirme. Zonguldak Karaelmas Üniversitesi Sosyal Bilimler Dergisi, 2(3), 1-13.

Umar, M., and Dahalan, J. (2016). An Application of Asymmetric Toda-Yamamoto Causality on Exchange Rate-Inflation Differentials in Emerging Economies. *International Journal of Economics and Financial Issues*, *6*(2), 420-426.