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The Causal Effects of Economic Policy Uncertainty on Changes in Exchange Rates and Volatility: Empirical Evidence from Türkiye

Ekonomi Politika Belirsizliğinin Döviz Kurlarının Getirileri ve Oynaklığı Üzerinde Nedensel Etkileri: Türkiye'den Ampirik Kanıtlar

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Abstract

Applying a novel econometric method, nonparametric causality-in-quantiles approach, this paper investigates the causal effects of economic policy uncertainty (EPU) on Turkish changes in exchange rates and volatility with the monthly data spanning from February 1998 to December 2019. This approach of gives an opportunity to investigate the (non)causality in the θ-th quantile only in mean (first moment,i.e., m=1) or variance (second moment,i.e.,m=2) as well as the (non)causality in the mean and variance (m=1 and 2) successively. In sum, this approach calculates volatility by squaring returns. We use EPU indexes of the United States, Australia, European Union, Japan, Canada, and the United Kingdom and their currencies (USD, AUD, EUR, JPY, CAD, GBP, respectively) vis-à-vis Turkish Lira (TRY) and find that the EPUs of Australia, the European Union and Japan affect the returns of the AUD/TRY, EUR/TRY and JPY/TRY exchange rates, respectively. These results show that the EPU indices of these countries can give an idea about the returns and volatility of the relevant Turkish changes in exchange rates. The findings of this paper provide important implications for policymakers, investors, firms, exporters, and importers. Also, some studies can be carried out on the effects of the EPU index that will be created to Türkiye on the Turkish exchange rates or the other Turkish financial assets.

Keywords: Economic policy uncertainty, causality-in-quantiles test, exchange rates

Paper Type: Research

Öz

Bu çalışma, ekonomik politika belirsizliğinin (EPB) Türkiye döviz kurlarının getirileri ve oynaklığı üzerindeki nedensel etkilerini Şubat 1998'den Aralık 2019'a kadar olan aylık verilerle yeni bir ekonometrik metod olan parametrik olmayan kantil nedensellik yaklaşımını uygulayarak araştırmaktadır. Bu yaklaşım, θ-inci nicelikteki (olmayan) nedenselliği yalnızca ortalama (ilk moment, yani m=1) veya varyans (ikinci moment, yani m=2) olarak araştırma fırsatı verir. Ayrıca ortalama ve varyansta (m=1 ve 2) art arda nedensellik (olmayan) bulunur. Özetle, bu yaklaşım, getirilerin karesini alarak oynaklığı hesaplar. Çalışmada Amerika, Avustralya, Avrupa Birliği, Japonya, Kanada ve Birleşik Krallık'ın EPB endeksleri ve para birimlerinin (sırasıyla USD, AUD, EUR, JPY, CAD, GBP) Türk Lirası (TRY) karşısındaki değerleri kullanılmış ve Avustralya, Avrupa Birliği ve Japonya'nın EPB'sinin sırasıyla AUD/TRY, EUR/TRY ve JPY/TRY döviz kurlarının getirilerini etkilediği bulunmuştur. Bu sonuçlar, söz konusu ülkelerin EPB endekslerinin ilgili Türk döviz kurlarının getirileri ve oynaklıkları hakkında fikir verebileceğini göstermektedir. Bu çalışmanın bulguları, politika yapıcılar, yatırımcılar, firmalar, ihracatçılar ve ithalatçılar için önemli çıkarımlar sağlamaktadır. Ayrıca Türkiye'ye oluşturulacak EPU endeksinin Türk döviz kurları veya diğer Türk finansal varlıkları üzerindeki etkileri konusunda da bazı çalışmalar yapılabilir.

Anahtar Kelimeler: Ekonomi politika belirsizliği, kantil nedensellik testi, döviz kuru

Makale Türü: Araştırma

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Introduction

One of the most critical factors affecting the increasing economic activities among globalized countries is the exchange rates. The foreign exchange market has two important features. (1) It is the largest and (2) the most liquid financial market in the world. In countries that prefer flexible exchange rate policy due to the collapse of the Bretton Woods system, exchange rates have been at the center of macroeconomic policy discussions for a long time, especially since the exchange rates changes occurring according to supply and demand affect many variables of the country's economy. In countries which export rate is closely tied to import rate (e.g. Türkiye), sudden changes in exchange rates are likely to have a major effect on the economy (Bal et al., 2017; Boyacioglu and Curuk, 2016; Tumturk, 2017; Kostak, 2021; Dumrul & Gökalp, 2022).

Exchange risks arising from the uncertainty caused by changes in foreign exchange rates significantly affect both international investors and foreign currency investments (Aksoy and Tanrioven, 2007). Factors affecting the returns and volatility of exchange rates are vital for policymakers, investors, firms, exporters, and importers in the form of capital budgeting, portfolio management, and borrowing (Apergis et al., 2018). One of these factors is uncertainty which is the key issue in the economy. When uncertainty is high, economic units prefer to postpone their consumption and investment decisions at the microeconomic level. These individual responses at the micro level can lead to insufficient aggregate demand and, consequently, lead to unemployment at the macro level (Arrow, 1968; Bernanke, 1983; Jirasavetakul and Spilimbergo, 2018; Leduc and Liu, 2016; Pindyck, 1988; Rodrik, 1991; Ghosh et al., 2021).

Uncertainty over economic policies has gained importance, especially after the 2008 Global Financial Crisis (Baker et al., 2016) and several studies in the empirical literature have investigated the impacts of EPU on the exchange rates. Krol (2014) examines the effect of EPU on the exchange rate volatility and he finds that EPU directly increased the exchange rate volatility for some economies investigates. Balcilar et al. (2016) investigate whether EPU differentials can be used to forecast changes in exchange rates and volatility and they report that both changes in exchange rates and volatility can be forecasted by using EPU differentials. Kido (2016) examines the effects of the US EPU shock on changes in exchange rates and he reports a positive (negative) relationship between the US EPU and Japanese Yen (high-yielding currencies) returns. Beckmann and Czudaj (2017) investigate whether EPU has an impact on exchange rates and they note that expectations about the exchange rates are affected by EPUs. Dai et. al. (2017) investigate causality between EPU and exchange rate for China and they state that the causality between EPU and exchange rate mostly exists in the tail quantile interval. They also state that when the value of EPU (exchange rate) is too high, the causality running from EPU (exchange rate) to the exchange rate (EPU) exists in China. The impact of EPU on the Dollar-Pound exchange rate volatility is investigated by Bartsch (2018) and he finds that the daily EPU data affects the Dollar-Pound exchange rate volatility much faster relative to its monthly data. Juhro and Phan (2018) examine the impact of global EPU on returns and volatility of exchange rates for ten ASEAN countries and they report that the global EPU has a predictive ability on changes in exchange rates for six ASEAN countries whereas it has a predictive ability on exchange rate volatility for all ASEAN countries. Liming et al. (2019) examine whether EPU has an effect on exchange rate volatility for China and they find that EPU of the US, EU, and Japan has a significant impact on exchange rate volatility, while Hong Kong EPU has an insignificant effect.

1. Literature Review

Existing literature raises some questions, such as: (a) Does EPU of any country affect the corresponding Turkish changes in exchange rates or volatility? Or (b) Can EPU of any country be used to predict corresponding Turkish changes in exchange rates or volatility? To the

best of our knowledge, although there are studies (see, for example, Demir and Ersan, 2018; Jirasavetakul and Spilimbergo, 2018; Korkmaz and Gungor, 2018; Sahinoz and Cosar, 2018; Tiryaki and Tiryaki, 2019; Yılmaz, 2022) in the existing literature investigating the impact of EPU on Turkish financial markets, these questions are yet to be answered. While exchange rate uncertainties do not affect high and medium high technology export flows in the short term, exchange rate uncertainties affect exports negatively in the long run (Aslan & Akpiliç: 2022), There is cointegration between EPU USD/TRY and between trade policy uncertainty USD/TRY, besides, it has been determined that both EPU and trade policy uncertainty are Granger causes of USD/TRY exchange rate (Özkan, 2020). Also, determining the factors affecting Turkish changes in exchange rates and volatility is required for different economic units and is a necessity to ensure economic stability (Balcilar et al., 2016), Compared to developing countries, it was found the stronger relationship between developed country stock markets and EPU indices (Gürsoy & Zeren, 2022), EPU shocks have contractionary effects on macroeconomic activity in the short and/or medium term and that the investment variable is the variable that is most responsive to these shocks (Daştan & Karabulut, 2022). Therefore, the objective of this paper is to investigate the effects of EPU on Turkish changes in exchange rates and volatility. For this objective, the analysis will be carried out using a novel econometric method, nonparametric causality-in-quantiles test, developed by Balcilar et al. (2018) with monthly data from February 1998 and December 2019 of the EPU indexes of the United States (US), Australia (AU), China (CN), European Union (EU), Japan (JPN), Canada (CAN) and United Kingdom (UK) countries and the currencies of these countries relative to the Turkish Lira (USD/TRY, AUD/TRY, CNY/TRY, EUR/TRY, JPY/TRY, CAD/TRY, GBP/TRY, respectively), and the findings will be interpreted.

Our contribution to the literature is two-fold. First, this is the first paper investigating the effects of EPU on both Turkish changes in exchange rates and volatility. Second, we use a newly developed methodology, proposed by Balcilar et al. (2018) which catches general nonlinear dynamic dependencies, considers all the quantiles in the distribution, i.e., robust to extreme values in the data sets, and allows causality analysis not only in mean but also variance.

We organize the rest sections of the paper as follows: Section 2 presents the methodology, while Section 3 discusses the data and empirical results. Finally, Section 4 concludes the paper.

2. Methodology

In this section, we provide the description of the nonparametric causality-in-quantiles approach proposed by Balcilar et al. (2018). It catches general nonlinear dynamic dependencies and considers extreme values of the dataset. Lets epu_t denotes the independent variable and r_t the Turkish changes in exchange rates. Let $R_{t-1} \equiv (r_{t-1}, \dots, r_{t-p})$, $EPU_{t-1} \equiv (epu_{t-1}, \dots, epu_{t-p})$, $X_t = (EPU_t, R_t)$, and $F_{r_t|\cdot}(r_t|\bullet)$ denote the conditional distribution of r_t given $\bullet$. Defining $Q_\theta(X_{t-1}) \equiv Q_\theta(r_t|X_{t-1})$ and $Q_\theta(R_{t-1}) \equiv Q_\theta(r_t|R_{t-1})$, we have $F_{r_t|X_{t-1}}\{Q_\theta(X_{t-1})|X_{t-1}\} = \theta$ with probability one. According to Jeong et al. (2012), the null hypothesis that epu_t does not Granger cause r_t in the θ-th quantile is tested with the alternative hypothesis as follows:

$$H_0: P\{F_{r_t|X_{t-1}}\{Q_\theta(R_{t-1})|X_{t-1}\} = \theta\} = 1 \quad (1)$$

$$H_1: P\{F_{r_t|X_{t-1}}\{Q_\theta(R_{t-1})|X_{t-1}\} = \theta\} < 1 \quad (2)$$

Since the method of Jeong et al. (2012) investigates causality only in the first moment, it was extended by Balcilar et al. (2018) with the method of Nishiyama et al. (2011) to investigate causality in not only first moment but also second or higher moment. With the extension of Balcilar et al. (2018), the null hypothesis that epu_t does not Granger cause r_t in the θ-th quantile up to M-th moment is tested with the alternative hypothesis as follows:

$$H_0: P\{F_{r_t^m|X_{t-1}}\{Q_\theta(R_{t-1})|X_{t-1}\} = \theta\} = 1, \quad m = 1,2,\dots,M \tag{3}$$

$$H_1: P\{F_{r_t^m|X_{t-1}}\{Q_\theta(R_{t-1})|X_{t-1}\} = \theta\} < 1, \quad m = 1,2,\dots,M \tag{4}$$

The approach of Balcilar et al. (2018) gives an opportunity to investigate the (non)causality in the θ-th quantile only in mean (first moment,i.e.,m=1) or variance (second moment,i.e.,m=2) as well as the (non)causality in the mean and variance (m=1 and 2) successively. In sum, this approach calculates volatility by squaring returns.

3. Data Description And Empirical Results

For an assessment of the effects of EPU on Turkish changes in exchange rates and volatility, we first obtain the monthly EPU indexes of the US, AU, CN, EU, JPN, CAN and the UK from the Economic Policy Uncertainty database and the monthly values of the Turkish exchange rates (USD/TRY, AUD/TRY, CNY/TRY, EUR/TRY, JPY/TRY, CAD/TRY, and GBP/TRY) from the website named Investing between February 1998 and December 2019 (i.e. 262 observations). The sample of the study is determined as the currencies included in the International Monetary Fund's official foreign exchange reserves. We use EPU indexes of USA, AU, CN, EU and UK developed by Baker et al. (2016), the CN EPU index developed by Baker et al. (2016) and the JPN EPU index of Arbatli et al. (2019).

Table 1. Augmented Dickey-Fuller Unit Root Test

Country	Data	Intercept		Trend and Intercept	
		t-Statistic	Probability	t-Statistic	Probability
USA	EPU	-12.10	0.00***	-12.08	0.00***
	USD/TRY	-13.67	0.00***	-13.71	0.00***
AU	EPU	-15.12	0.00***	-15.10	0.00***
	AUD/TRY	-14.91	0.00***	-15.06	0.00***
CN	EPU	-19.46	0.00***	-19.43	0.00***
	CNY/TRY	-14.04	0.00***	-14.11	0.00***
EU	EPU	-13.57	0.00***	-13.54	0.00***
	EUR/TRY	-14.76	0.00***	-14.86	0.00***
JPN	EPU	-13.56	0.00***	-13.56	0.00***
	JPY/TRY	-14.52	0.00***	-14.60	0.00***
CAN	EPU	-12.19	0.00***	-12.18	0.00***
	CAD/TRY	-14.09	0.00***	-14.23	0.00***
UK	EPU	-15.84	0.00***	-15.83	0.00***
	GBP/TRY	-15.18	0.00***	-15.26	0.00***

Notes: *** denote significance at the levels of 1%.

Second, we calculate monthly changes in the EPU indexes and the returns of the exchange rates as follows:

$$R_t = (lnV_t - lnV_{t-1}) \times 100 \tag{5}$$

where R_t denote changes and returns for EPU indexes and exchange rates, respectively, V_t and V_(t-1) the value of EPU indexes or exchange rates at time t and t-1, and ln the natural logarithm.

Since the nonparametric causality-in-quantiles approach requires the stationary data (Özkan, 2020), we first examine the stationarity status of the data sets used in the paper with the (ADF) unit root test. Table 1 clearly indicate that all data sets are stationary and suitable for the test.

We present the descriptive statistics of the changes in exchange rates and changes of EPU indexes in Table 2. With a quick glance to standard deviation values, we can see the EPU index changes of each country more volatile than corresponding Turkish changes in exchange rates. Mean values of the Turkish changes in exchange rates demonstrate that the CNY/TRY

exchange rate has the highest monthly average return, while the GBP/TRY exchange rate has the lowest monthly average return.

Standard deviation values of the Turkish changes in exchange rates show that the JPY/TRY exchange rate has the highest volatility whereas the AUD/TRY exchange rate has the lowest. The distribution of the changes of AU's, JPN's, and UK's EPU indexes are negatively skewed while the other EPU indexes changes and all Turkish changes in exchange rates are positively skewed.

Kurtosis values demonstrate that all EPU indexes and exchange rates used the paper have excess kurtosis. These results indicate that data sets of this paper are not normally distributed. The non-normality of the series used the paper is also confirmed by test statistics of the JB test.

The returns and changes distribution features also confirm the choice of using approach in this paper.

Table 2. Descriptive statistics

Country	Data	n	Mean	S.D.	Min.	Max.	Skew.	Kur.	JB
USA	EPU	262	0.25	27.41	-91.89	107.65	0.52	4.78	46.34***
	USD/TRY	262	1.24	4.93	-10.38	34.67	2.01	14.03	1503.93***
AU	EPU	262	0.05	39.19	-166.78	125.20	-0.05	3.93	9.60***
	AUD/TRY	262	1.25	4.56	-10.97	29.98	1.79	11.46	920.20***
CN	EPU	262	0.85	54.33	-176.69	194.66	0.01	4.02	11.38***
	CNY/TRY	262	1.31	4.88	-10.38	34.60	1.99	14.26	1555.85***
EU	EPU	262	0.45	24.20	-80.82	107.08	0.40	4.74	40.22***
	EUR/TRY	262	1.25	4.91	-14.09	33.20	1.77	12.72	1168.24***
JPN	EPU	262	-0.17	19.28	-59.81	53.96	-0.21	3.59	5.80*
	JPY/TRY	262	1.30	5.85	-12.57	33.77	1.47	8.89	472.37***
CAN	EPU	262	0.37	28.47	-80.87	96.73	0.20	3.58	5.79*
	CAD/TRY	262	1.25	4.61	-10.21	29.61	1.81	12.30	1087.80***
UK	EPU	262	0.50	32.12	-152.30	105.53	-0.17	4.78	35.82***
	GBP/TRY	262	1.16	5.08	-13.44	33.38	1.55	11.43	880.42***

Notes: *** and * denote significance at the levels of 1% and 10% respectively. n, S.D., Min., Max., Skew., Kur., and JB stands for the number of observations, standard deviation, minimum, maximum, Skewness, Kurtosis, and Jarque-Bera, respectively.

Before proceeding to the test, we analyze the causality running from changes in EPUs to Turkish changes in exchange rates using the linear Granger causality test and report the results in Table 3. The results show that the changes in the EPU indexes of the US and the UK are the Granger cause of the USD/TRY and GBP/TRY changes in exchange rates, respectively. According to other results in Table 3, we see that there is no linear Granger causality among other variables.

Table 3. Linear Granger Causality Test

	Lag Length	Statistic Value	Probability
USA EPU=> USD/TRY	7	20.21	0.00***
AU EPU≠> AUD/TRY	2	0.22	0.89
CN EPU≠> CNY/TRY	2	0.29	0.86
EU EPU≠> EUR/TRY	3	0.38	0.94
JNP EPU≠> JPY/TRY	3	0.55	0.91
CAN EPU≠> CAD/TRY	4	3.21	0.52
UK EPU=> GBP/TRY	2	5.75	0.06*

Notes: *** and * denote significance at the levels of 1% and 10%, respectively.

Determining whether the results of the test are valid is possible by examining whether there is a nonlinear structure in the series. For this purpose, we use the Brock-Dechert-

Scheinkman (BDS) test of Brock et al. (1996) on the residuals of both AR(1) and VAR(1) models as Das et al. (2018) and report the test results in Table 4. These results clearly show that there are nonlinear structures in the whole return series and the linear test results are not valid.

Table 4. BDS Test Statistic

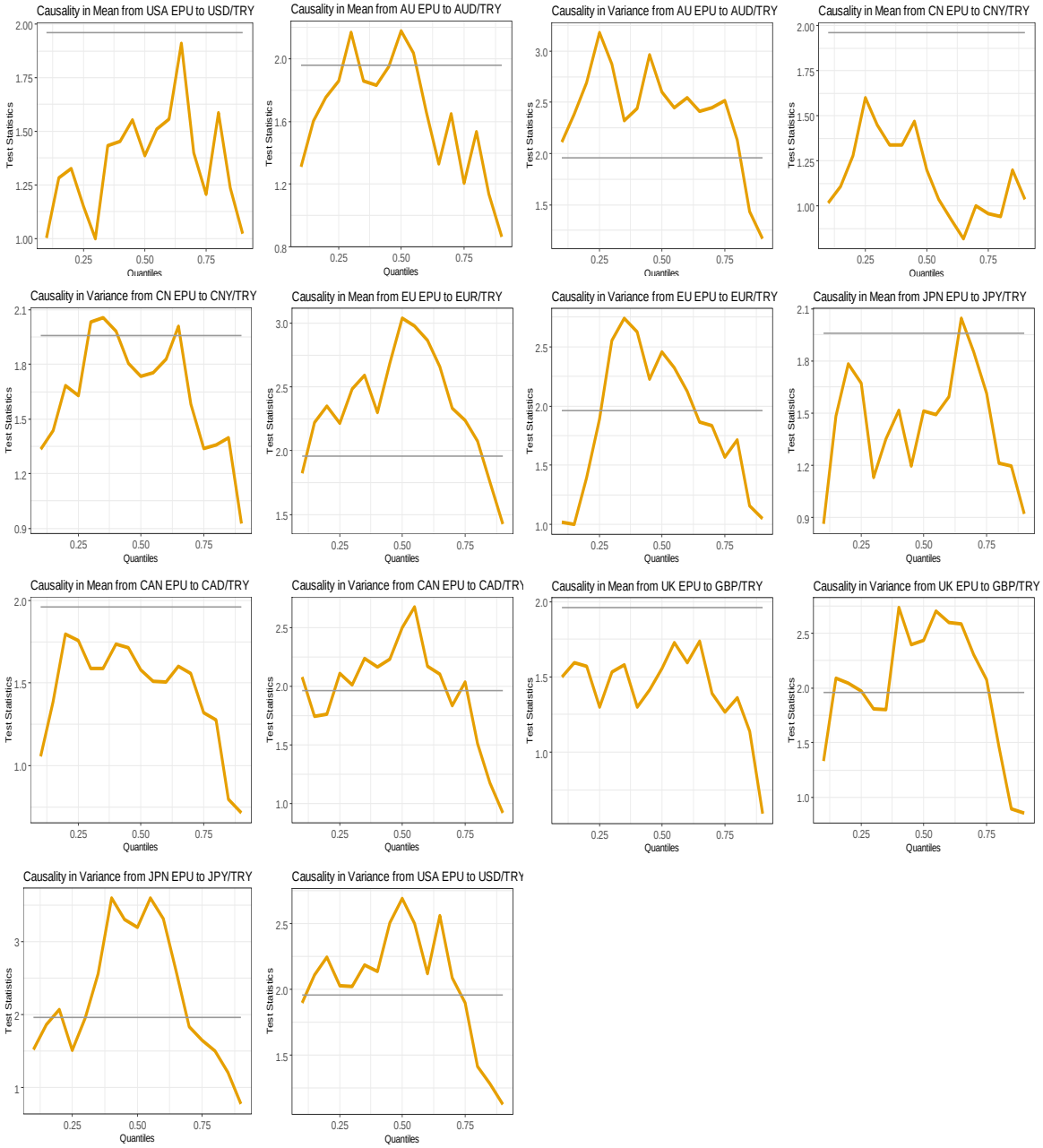
Exchange Rate	M				
	2	3	4	5	6
Panel A: AR(1) Model					
USD/TRY	3.48***	4.55***	4.97***	4.92***	5.12***
AUD/TRY	2.13**	3.47***	4.42***	4.73***	5.37***
CNY/TRY	3.84***	4.99***	5.58***	5.64***	5.92***
EUR/TRY	3.83***	5.67***	6.38***	6.76***	7.28***
JPY/TRY	2.69***	2.88***	2.72***	2.61***	2.71***
CAD/TRY	2.71***	4.09***	4.99***	5.36***	5.84***
GBP/TRY	2.39**	4.31***	4.71***	5.00***	5.54***
Panel B: VAR(1) Model					
USD/TRY	2.14**	3.24***	3.83***	3.78***	3.98***
AUD/TRY	2.30**	3.54***	4.46***	4.62***	5.26***
CNY/TRY	2.59***	3.93***	4.67***	4.74***	4.95***
EUR/TRY	3.83***	5.58***	6.39***	6.73***	7.22***
JPY/TRY	2.60***	2.87***	2.73***	2.57***	2.57***
CAD/TRY	2.07**	3.28***	4.205***	4.59***	4.92***
GBP/TRY	2.53**	4.54***	5.06***	5.40***	5.89***

Notes: m represents the number of dimensions. *** and ** indicates rejection of independent and identically distributed residuals at 1% and 5% significance levels, respectively. This part of this paper presents the results of the nonparametric test between Turkish changes in exchange rates and changes in the EPU indexes. The test allows analyses of the causality not only in mean but also variance (Bhatia et al., 2018).

Figure 1 shows the results obtained from the nonparametric causality-in-quantiles test for Turkish changes in exchange rates and squared returns (i.e. volatility) from the changes in the EPU indexes over the quantile-range of 0.10 to 0.90. The horizontal line indicates a value of 1.96 which is the critical value of the 5% significance level. The value of the test statistic above the horizontal line indicates the rejection of the null hypothesis that EPU does not cause changes in exchange rates or volatility in the relevant quantile. In Figure 1, the graphs on the left show causality in mean, and graphs on the right show causality in variance. When we look at the causality in mean charts, we see that the EPUs of AU, EU and JPN have a predictive effect on the AUD/TRY, EU/TRY and JPY/TRY changes in exchange rates in the quantiles between 0.26-0.30 and 0.45-0.55, 0.12-0.80 and 0.63-0.67, respectively. The EPUs of the other countries have no causal effect on the corresponding Turkish changes in exchange rates at a 5% significance level.

While linear Granger causality test results show that there is causality from the changes in the EPU indexes of the US and the UK to the USD/TRY and GBP/TRY changes in exchange rates, respectively, the test shows that there is no causality between these variables. This result clearly shows that using the linear test with the data containing nonlinear structures will give inaccurate results.

Figure 1. Causality in mean and variance results from EPU indexes to Turkish exchange rates



Note: The horizontal line represents the critical value of the 5% significance level (i.e., 1.96).

When we look at the causality in variance charts in Figure 1, we see the causality from the changes in the EPU index of the US to the USD/TRY exchange rate volatility between 0.10-0.75 quantities. This result shows that the USD/TRY exchange rate volatility can be predicted by examining the changes in the EPU index of the US. The AU chart shows us that there is a causality between 0.10 and 0.85 quantities from the changes in the EPU index of AU to the AUD/TRY exchange rate volatility. That is, the EPU index of AU can be used to forecast the AUD/TRY exchange rate volatility. The CN chart shows that the changes in the EPU index of CN have a predictive effect on the CNY/TRY exchange rate volatility from 0.27 to 0.40 and from 0.62 to 0.65 quantities. Therefore, we can say that the EPU of CN can be used to estimate the volatility of the CNY/TRY exchange rate.

Causality in variance from EU EPU to EUR/TRY chart clearly shows that the EU's EPU changes between 0.25 and 0.63 quantities affect EUR/TRY exchange rate volatility. Those who want to estimate the EUR/TRY exchange rate volatility can closely monitor the changes in the EPU index of the EU. If we look at the chart showing the analysis result for JPN, we see that the causality from the changes in the EPU index of JPN to the volatility of the JPY/TRY exchange rate between 0.30 and 0.70 quantities. This result indicates that the JPY/TRY exchange rate volatility can be predicted by examining the changes in the EPU of JPN. The CAN chart shows us that there is causality in the middle quantiles from the CAN's EPU index changes to the CAD/TRY exchange rate volatility. That is, the EPU index of CAN can be used to forecast the volatility of the CAD/TRY exchange rate. When we look at the chart of the causality in variance from UK EPU to GBP/TRY, we can see that the results obtained for CAN are also valid for the UK. In short, the causality in variance charts indicate that EPUs of all mentioned countries have causal effects on the volatility of the relative Turkish exchange rates in various quantities. With these results, we can say that EPUs are an important indicator to predict the volatility of Turkish Exchange rates.

Conclusion

This study investigates the effects of economic political uncertainty on returns and volatility of the Turkish Exchange rates with the nonparametric causality-in-quantiles test. In this study, we use the monthly data covers the period from February 1998 and December 2019 of EPU indexes of seven countries and their currencies relative to the Turkish Lira. In the first step of the paper, we calculate the changes in the EPU indexes and the returns of the Turkish exchange rates. In the second stage of the paper, we investigate the stationary status of the change and return series with the ADF unit root test and find that the change and return series are stationary. In the third step, we examine the causality running from changes in EPUs to Turkish changes in exchange rates with the linear Granger causality test and find that the EPUs of the US and the UK affect the USD/TRY and GBP/TRY changes in exchange rates, respectively. In the fourth stage of the paper, we investigate the linearity of the Turkish changes in exchange rates with the BDS test and find that there are nonlinear structures in the whole return series. In the last stage of the paper, we apply the test of Balcilar et al. (2018) to determine the effects of changes in each EPU index on relative Turkish changes in exchange rates and volatility.

The results of the causality in mean demonstrate that the AU's EPU, EU's EPU and JPN's EPU have a predictive effect on the AUD/TRY, EU/TRY, and JPY/TRY changes in exchange rates in different quantiles, respectively. The same effect is not found for other countries' EPUs. These results show that the EPUs of AU, EU, and JPN can be used to predict returns of Turkish exchange rates relative to these countries' currencies. The results of the causality in variance, on the other hand, show that there is causality running from the changes in the EPUs of all mentioned countries to the volatility of the related Turkish exchange rates. The results obtained from the causality in variance charts reveal that EPUs are an important indicator to predict the Turkish Exchange rates volatility. These results help investors, firms, policy makers in their decisions. This study, as in the studies of Krol (2014), Balcilar et al. (2016), Kido (2016), Beckmann and Czudaj (2017), Dai et. al. (2017), Bartsch (2018), Juhro and Phan (2018), Liming et al. (2019), Olanipekun et al. (2019), reveals that EPUs can be an important indicator to forecast both changes in exchange rates and volatility. Future studies to be performed for the creation of EPU index showing continuity and easily accessible to everyone for Türkiye. Also, some studies can be carried out on the effects of the EPU index that will be created to Türkiye on the Turkish exchange rates or the other Turkish financial assets.

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ETİK ve BİLİMSEL İLKELER SORUMLULUK BEYANI

Bu çalışmanın tüm hazırlanma süreçlerinde etik kurallara ve bilimsel atıf gösterme ilkelerine riayet edildiğini yazar(lar) beyan eder. Aksi bir durumun tespiti halinde Afyon Kocatepe Üniversitesi Sosyal Bilimler Dergisi'nin hiçbir sorumluluğu olmayıp, tüm sorumluluk makale yazarlarına aittir.