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**Article**

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Journal of Banking and Financial Economics (JBFE)

**Provided in Cooperation with:**

Faculty of Management, University of Warsaw

*Suggested Citation:* Akarsu, Mahmut Zeki (2021) : The impact of the Turkish presidential system on the Turkish Lira, Journal of Banking and Financial Economics (JBFE), ISSN 2353-6845, University of Warsaw, Faculty of Management, Warsaw, Iss. 15, pp. 14-24, <https://doi.org/10.7172/2353-6845.jbfe.2021.1.2>

This Version is available at:

<https://hdl.handle.net/10419/313443>

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# The Impact of the Turkish Presidential System on the Turkish Lira

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Received: 23 March 2021 / Revised: 23 April 2021 / Accepted: 26 April 2021 / Published online: 11 May 2021

## ABSTRACT

The political system always has a significant impact on economic indicators. Currency exchange is one of the indicators, which is influenced directly or indirectly by political developments. Investors and economic agents make investment decisions by not only economic outcomes but also political developments. Turkey is one of the countries, which can be an example of a domestic currency losing value significantly due to undemocratic political actions since the 2017 referendum. Therefore, in this study, the impact of the new presidential system on the Turkish Lira is investigated using the Bayesian structural time-series model in R software.

According to the literature search, this study is the first article that analyzes how much the Turkish Lira decoupled negatively from peers and how badly the Turkish presidential system harms the Turkish Lira.

According to the result, the undemocratic and unorthodox economic and political implementations cause the Turkish Lira to have dropped sharply and have decoupled negatively from other currencies significantly.

*JEL Classification:* E00, F50, F31, P16

*Keywords:* Turkish Lira, Currency, Democracy, Bayesian structural time-series model

## 1. INTRODUCTION

Currency is one of the most significant economic indicators for countries. Many developing countries are heavily oriented with the currency rate since they import and export goods and services by using foreign currency, mostly the American dollar. Therefore, shock and any sharp changes in the currency exchange rate might lead to an economic recession and devastate the economies. For instance, the 1994 Mexican, 1998 Russian, 1999 Brazilian, and 2001 Argentinean and Turkish currency crises caused economic, social, and political unrest (Frieden, 2014, p. 8).

The currency exchange rate has many significant impacts on economic factors. Rapid climb in the currency rate wreak damage on countries' import and export markets. Many economies import many raw materials and intermediate goods from other countries by using reserve currencies<sup>1</sup>. When the reserve currencies appreciate against the local currencies, many developing countries

<sup>1</sup> Reserve Currencies: the British Pound, the Chinese Renminbi, the Euro, the Japanese Yen, and the U.S. dollar (Tovar & Nor, 2018, p. 5).

are dragged into the inflationary and slow-economic-growth environment due to the fact that goods that local companies produce by using the imported raw materials or intermediate goods that are more expensive than before. And those imported more costly raw materials and intermediate goods drive the output price up. Hereat, as a result of the appreciated foreign currency rate, inflation occurs, and people's purchasing power fall, which causes the economic slow-down (Ha, Stocker, & Yilmazkuday, 2019, p. 4).

Political instability, political issues, and the system of government impact the currency rate. The undemocratic governmental policies frighten the investors and cause instability in the currency exchange rate. Autocratic regimes or dictatorships might have undemocratic applications that depreciate the local currency. The reason for depreciation is that investors and economic agents mostly want to be in a democratic environment where the judicial system protects property rights and any other rights (Salhi & Bolle, 2007, p. 4).

Freeman et al. (2000) asserted that politics have a more negligible effect on the currency market in a country in which the electoral system is proportional representation. Politics have more impact on the currency market, where the electoral system is the majority-plurality system. It means that in the majority-plurality system, more autocratic executives have more interventionist actions and tend to repress the currency rate. Turkey transferred its political system from a parliamentary (the *proportional* system) into a presidential system (the *majority-plurality* system) in 2017 and carried into practice in 2018 with the first presidential election. The new presidential system gave enormous power to the Turkish president, who used its power to intervene in the currency exchange rate in order to appreciate the Turkish Lira (Tumturk, 2019; Strohecker, 2020).

As mentioned above, Turkey replaced the parliamentary system with the Turkish-style presidential system, which equipt the Turkish president with strong executive power. This undemocratization development caused destabilization in the economy. Therefore, in this study, the effect of the new Turkish presidential system on the Turkish Lira will be investigated using the Bayesian Structural time-series model in R software. The weekly data covers between the 1<sup>st</sup> of January 2013 and the 15<sup>th</sup> of January 2021, with the treatment date of the 24<sup>th</sup> of June 2018 (the presidential election). This research will provide whether the Turkish Lira dissociates adversely from other currencies since the new system in practice.

This study and the study result will contribute to academia since this is a unique research subject that I could not find any similar paper. In Turkish and English, no scholar and researcher has examined the impact of the new Turkish presidential system on the Turkish Lira.

## 2. LITERATURE

Kutan and Zhou (1995) investigated the Polish exchange market and reached a result that sociopolitical unrest cause volatility in the exchange market. Freeman et al. (2000) scrutinize the nexus between democracy, election results, and the currency market. They affirmed that the undemocratic political system and the uncertain election results induce instability in the currency market. Crowley and Loviscek (2002) elaborated on the exchange returns of Latin American countries and remarked that the politically unstable environment has a significant impact on the currency returns in a negative way. Chau et al. (2014) examined MENA countries and revealed that political uncertainty and conflict increase the currency market's unpredictability. Bouraoui and Hammami (2017) analyzed five Arab spring countries (Tunisia, Egypt, Libya, Syria, and Yemen) in terms of the exchange rate movement during the political conflict period. The result shows that political instability impacts the local currencies negatively. Bahmani-Oskooee et al. (2019) remarked that the unstable political system depreciates the exchange rate in developing countries. They suggested that developing countries focus more on stabilizing the political factors in order to have a stable exchange rate.

Mishkin (1998) propounded that in democratic countries, central banks are fully independent and accountable. Therefore, the exchange rate policies are not placed under the pressure of the government. Broz (2002) articulated that democratic regimes tend to apply a floating exchange rate system on the currency market, while opaque autocratic regimes are more likely to use a fixed exchange rate regime. Furlan et al. (2012) found by conducting empirical research that democratic implementations appreciate the real exchange rate. They also asserted that undemocratic regimes cause depreciation in the real exchange rate.

Steinberg and Walter (2013) wrote in their research papers that there is no significant political variable that influences the exchange rate all the time.

### 3. DEMOCRACY IN TURKEY

Turkey was founded in 1923 as a republic state. The governmental system was a parliamentary system managed by a prime minister and ministers whom voters elected. Except for the military junta period, democracy was always functioning somehow (Arslan, 2015, pp. 133, 134, 135). In 2017, Turkey held a referendum to ballot the new governmental system by reforming the constitutional law (Marszalek-Kawa & Burak, 2018, p. 104).

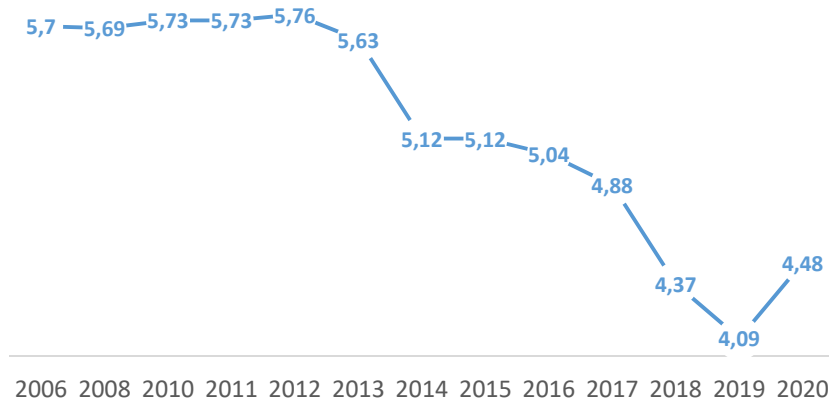
With the new system, the Turkish presidential position attained more sweeping power that is abuse-labile. The Turkish president has enormous control over institutions and judicial systems, making the president an authoritarian figure (Kirisci & Toygur, 2019, p. 5). The Turkish political power over institutions and financial markets startled local and international investors and economic agents. Especially in 2018, with the political transition process, economic agents and investors' expectations<sup>2</sup> turned negative. Economic actors had negative expectations as to the future of Turkish economics because, since the failed coup attempt in 2016, the Turkish government has been imposing oppressive regime power on citizens and institutions (Freedom House, 2020).

As seen in Figure 1, Turkey has fallen sharply in the democracy index. Since 2016 when the new governmental system's discussion took place, Turkey dropped from 5.04 to 4.09, which means Turkey undemocratized its governmental structure and plunged into a more repressive regime with the new presidential system that intervenes in the currency exchange market using unorthodox economic instruments. The head of the ruling party, for instance, claimed that the high-interest rate tends to increase the inflation rate (Koc, 2021). As a result of that belief, the government pressured the Turkish central bank to cut the policy rate. Due to the fact that the central bank governors disobeyed what the head of the government requested, the Turkish president dismissed several Turkish central bank governors in a short period of time, even if it is illegitimate. (Bilgic & Koc, 2020). Briefly stated, the unorthodox and undemocratic economic and political developments dragged investors and economic actors into negative expectations making the Turkish Lira unstable and fragile.

<sup>2</sup> Present expectations predestine the future value of economic activities. Economic agents by looking at current developments try to size up the a country's economic direction (Carter & Maddock, 1984). The Political unrest or democratic development also acts upon the investors and economic agents decisions. Therefore, the current news and events could change expectations and influence the economic factors such as currency exchange rate.

**Figure 1**

Democracy Index of Turkey



Source: The Economist Intelligence Unit, 2021.

In short, Turkey lost ground in the democratic area. Replacing the parliamentary system with the presidential system moved Turkey down in the democracy index. Democratic or undemocratic applications shape the decision of investors and economic agents. Doces (2010) uncovered that democracy and democratic application attracts investors. That means that undemocratic implementations could cause investors to withdraw their investment (depreciate the domestic currency) from the market where the repressive regime in charge. Therefore, examine Turkey's democracy index is essential to understand the econometric result more frankly. This finding will interpret in the conclusion part by blending with the result of the empirical research.

#### 4. METHODOLOGY

In this research, Bayesian Structural Time Series Model is used. Equations (1) and (2) define the state space and observed data, respectively. Using the Bayesian model, the time series model for the short-run and long-run forecasting can be built.

$$y_t = Z_t^T \alpha_t + \varepsilon_t \quad (1)$$

$$\alpha_{t+1} = T_t \alpha_t + R_t \mu_t \quad (2)$$

$\varepsilon_t \sim N(0, \sigma_t^2)$  and  $\mu_t \sim N(0, \theta_t^2)$  are independent of all other unknowns. Equation (1) is the *observation equation*, which related to observed data  $y_t$  to a latent dimensional state vector  $\alpha_t$ , and  $Z_t$  is a vector of model parameters. Equation (2) is the *state equation*.  $T_t$  denotes transition matrix, and  $R_t$  denotes structural parameter.  $Z_t$ ,  $T_t$ ,  $R_t$  have values between 0 and 1, which represent the relevance for structural computation (Brodersen, Gallusser, Koehler, Remy, & Scott, 2015; Jun, 2019).

Forex data is used to investigate the currency movement of the Turkish Lira. It is weekly data and between the 1<sup>st</sup> of January 2013 and the 15<sup>th</sup> of January 2021. The econometric model focuses on the treatment year, which is the 24<sup>th</sup> of June 2018, when the Turkish presidential election was held. The data was collected from Yahoo Finance by using a coding program in R software.

All of the data is collected in the nominal value. However, Turkey, Brazil, India, South Africa, and Argentina had a high and similar inflation rate between the years 2013 and 2021. As a consequence of the inflationary economy, the domestic currency will tumble down by the rate

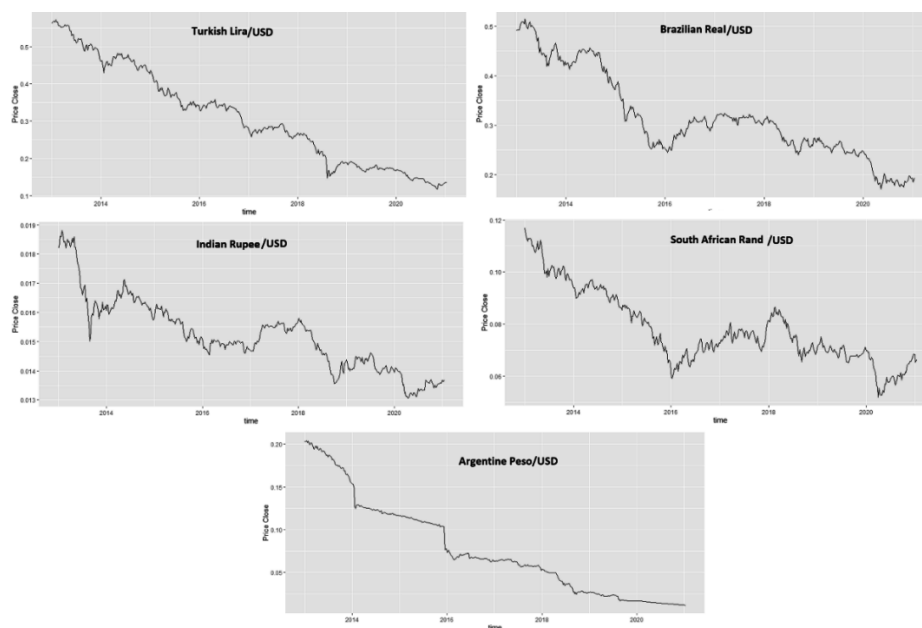
of inflation (Siddaiah, 2009, p. 279). Therefore, the nominal value breaks no squares in the result of this research.

The forex data of the Turkish Lira, Brazilian Real, Indian Rupee, South African Rand, and Argentine Peso against the American dollar<sup>3</sup> is examined in the research so as to find a causal impact of the new Turkish presidential system on the Turkish Lira. Firstly, a correlation matrix is implemented to observe the relationship among the currencies. The strong correlation between variables strengthens the correctness of the result because the Bayesian model forecast and predict the impact by using other variables. Therefore, the strong correlation among variables is of paramount importance. Subsequently, the Bayesian structural time series model is applied to analyze whether the new presidential system positively or negatively affects the Turkish Lira.

As has been seen below in Figure 2, since 2013, all currencies, as well as the Turkish Lira, fell aggressively against the American dollar. Many factors caused the fall, such as the Fed stopped the monetary supply, which was initiated right after the 2008 global crisis. The money supply, the enormous amount of capital that flowed into emerging economies, appreciated the local currencies against the American dollar (Frankel, 2011). However, after Fed had suspended the money expansion policy and started to raise the interest rate, the currencies of emerging markets began to tumble down.

**Figure 2**

The chart of five currencies between the year 2013 and 2021



Source: Author, using R Studio.

Fifty countries' exchange rate data were scrutinized in order to find the strongly correlated countries with the Turkish Lira. As a result of scrutinizing the variables, the outcome was that the Turkish Lira and other currencies, seen in Table 1, are positively and highly correlated. It means that all of those five currencies have a comparable character and akin market trend in the exchange market. This strong correlation helps us find exact results on how the Turkish Lira moved in the exchange (forex) market after the 24<sup>th</sup> of June 2018 (the beginning of the new governmental system).

<sup>3</sup> Parity Code:

*Turkish Lira/USD* – TRYUSD = X

*Brazilian Real/USD* – BRLUSD = X

*Indian Rupee/USD* – INRUSD = X

*South African Rand/USD* – ZARUSD = X

*Argentine Peso/USD* – ARSUSD = X



**Table 1**  
Correlation Matrix of the Currencies.

Turkish Lira	1.0000000
Brazilian Real	0.8899827
South African Rand	0.8328260
Argentine Peso	0.9553548
Indian Rupee	0.8213122

Source: Author, using R Studio

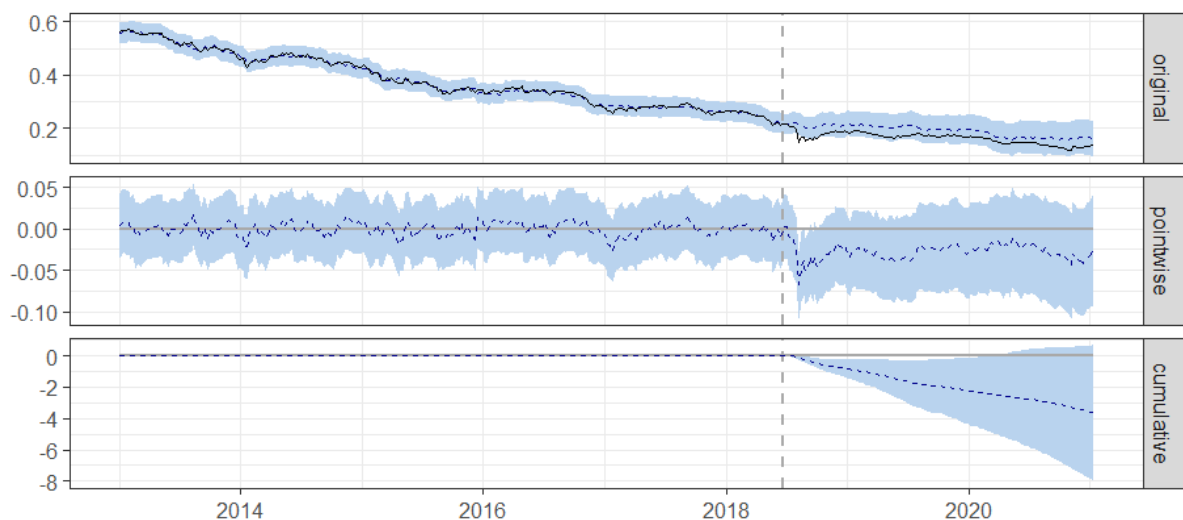
After finding the strong correlation between the Turkish Lira and other variables, the Bayesian structural time-series model is implemented in the treatment period of the 24<sup>th</sup> of June 2018. The Bayesian model enlightens how the Turkish Lira could have been if there had not been a governmental system referendum and how the Turkish Lira is now.

Before conducting the Bayesian model, the seasonality was adjusted for all the variables (currencies) by 52 weeks because they are under the seasonality effect. People in some specific time period (i.e., summer season) can demand foreign currencies more than usual. Besides, normality is checked, and no normality problem is detected.

*Original* simulates the original statistic and a counterfactual prediction with an intervention beginning on the 24<sup>th</sup> of June 2018 (the vertical grey dashed line). *Pointwise* illustrates the observed data and counterfactual prediction. *Cumulative* shows add up the pointwise contributions from the second panel, resulting in a plot of the cumulative effect of the intervention (Brodersen, Gallusser, Koehler, Remy, & Scott, 2015, p. 249).

As shown in Figure 3, in *Original*, the Turkish Lira after the 24<sup>th</sup> of June 2018 fell under the horizontal dashed line, which is the prediction value of how much Turkish Lira should have been if there had no change in the governmental system. The model draws the dashed line (prediction line) by observing and measuring the movements of Brazilian Real, South African Rand, Argentine Peso, and Indian Rupee. The Turkish Lira, right after the 24<sup>th</sup> of June 2018, lost value and decoupled negatively from the peers.

**Figure 3**  
Inferring causal impact through counterfactual predictions



Source: Author, using R Studio

In *Pointwise*, as can be seen, right after the 24<sup>th</sup> of June 2018, the Turkish Lira tumbled down sharply by the effect of the new governmental system. Investors and economic agents were more likely to have negative expectations about the future of the Turkish economy due to the new system.

*Cumulative* demonstrates that since the 24<sup>th</sup> of June 2018, the Turkish Lira has negatively unmingled against those four currencies. It is clearly seen that the new governmental system hurts the Turkish Lira.

The posterior inference causal impact table (Table 2) also backs up our result. The Turkish Lira is 16% drossier than it should have been. The Turkish Lira, against the American dollar, is under its value. 1 Turkish Lira could have been 0.19 cents, but it was 0.16 cents on the 15<sup>th</sup> of January 2021. All econometric results are statistically significant (prob: 0.04849).

Three cents might be seen as a small amount, but three cents could have a significant economic burden on the economies when a country imports billions of dollars worth of goods and services. Therefore, imported-oriented countries might get negatively affected by any alteration of the currency exchange.

## 5. RESULT

The first finding is that since 2017, the Turkish Lira has been unstable and has had up-and-down trends, but anyhow, no scholar and academic have searched about the reason for the fluctuations of the Turkish Lira and the effect of the new presidential system on the Turkish Lira. Moreover, in academia, the study of the relationship between the governmental system and the currency market is rarely analyzed. Thence, this paper has the potential to contribute the academia.

Another finding is that the 2017 referendum transferred the Turkish governmental system from the *proportional* system to the *majority-plurality* system. As Freeman et al. (2000) mentioned in their article, the majority-plurality system brought undemocratic political developments that have a momentous wallop on the domestic currency. The new Turkish presidential system turned Turkey into an undemocratic country. Undemocratization and governmental press on the Turkish Lira induced the depreciation. As a result that, the Turkish Lira had an average value of approx. 0.16, as seen in Table 2. In the absence of an intervention, it would have been expected an average response of 0.19. The 95% interval of this counterfactual prediction is between 0.16 and 0.22. Subtracting this prediction from the observed response yields an estimate of the intervention's causal effect on the response variable. This effect is -0.028 with a 95% interval of between -0.061 and 0.005. The results are given in terms of absolute numbers. In relative terms, the response variable showed a decrease of -14%. The 95% interval of this percentage is between -32% and +3%. The probability of obtaining this effect by chance is very small (Bayesian one-sided tail-area probability  $p = 0.048$ ). That means the causal effect can be considered statistically significant.



**Table 2**  
Posterior Inference Causal Impact

Posterior inference causal impact Average	
<b>Actual</b>	0.16
<b>Prediction (s.d.)</b> <b>95% CI</b>	0.19 (0.017) [0.16, 0.22]
<b>Absolute effect (s.d.)</b> <b>95% CI</b>	-0.028 (0.017) [-0.061, 0.005]
<b>Relative effect (s.d.)</b> <b>95% CI</b>	-16% (9.6%) [-35%, 3.6%]
<b>Posterior tail-area probability p: 0.04849</b>	
<b>Posterior prob. of a causal effect: 95.151%</b>	

Note: Mean = 0.157528645327103, SD = 0.146719088969315

According to the R result of visualizing the sample with estimated Gaussian distribution, it is normally distributed.

Source: Author, using R Studio.

As has been seen above, the new Turkish presidential system has had an aggressively negative impact on the Turkish Lira since the 24<sup>th</sup> of June 2018, and the Turkish Lira has been negatively decoupled from other currencies. This negative decoupling brings a negative impact on the economy. The weak Turkish Lira pushes Turkey's economy into trouble because Turkey imports many essential goods, such as energy (oil and natural gas), intermediate goods (see Table 3), from other countries by mainly using American dollars or Euro. Turkey produces electricity by using imported natural gas (Ozturk, Yilanci, & Atalay, 2007, p. 207). When the Turkish Lira loses its value, Turkey spends more Turkish Lira to import the same amount of natural gas, and the electricity producers reflect the cost to the price and the price of electricity increases. Turkey needs to import raw materials or intermediate goods to produce capital goods. Namely, Turkey should import goods so as to produce goods for the domestic market. Thence, the relatively more expensive imported products cause to rise in price, which induces to cut down on people's purchasing power and trigger inflation.

**Table 3**  
Turkey's Top 9 Imports (2019)

Machinery including computers	\$ 41.7 billion
Mineral fuels, including oil	\$ 22.1 billion
Gems, precious metals	\$ 15.4 billion
Vehicles	\$ 15.1 billion
Iron, steel	\$ 13.3 billion
Plastics, plastic articles	\$ 11.8 billion
Organic chemicals	\$ 6 billion
Pharmaceuticals	\$ 4.9 billion
Optical, technical, medical apparatus	\$ 4.5 billion
<b>Total</b>	<b>\$ 134.8 billion</b>

Source: Ministry of Trade of Republic of Turkey, 2021.

In short, the undemocratic implementations and developments cause to increase in the risk premium, which depreciates the exchange rate. Due to the non-democratic presidential regime and its non-democratic and unorthodox economic and political applications, the Turkish Lira fell sharply in the global exchange market. The findings in this study paper match the conclusion of Bahmani-Oskooee et al. (2019), and other research articles, which claimed that undemocratic regimes and implementations trigger the shrinkage of the currency.

## 6. CONCLUSION

In this research, Bayesian Structural Time Series Econometric Model is employed so as to find the economic impact of the new Turkish presidential system on the Turkish Lira. Many different currencies were analyzed to obtain the strongly correlated currencies to implement the models. As has been mentioned in previous chapters, Brazilian Real, Indian Rupee, South African Rand, and Argentine Peso have a strong correlation with Turkish Lira, which means that in the currency market, all of those currencies have an akin market trend and investors put all those currencies in the same currency basket.

In 2017, Turkey went to a referendum and changed its parliamentary system with the presidential system. With the 24<sup>th</sup> of June 2018 election, Turkey began to apply the new governmental system in practice. The new system created an undemocratic habitat. The Economist Intelligent Unit exhibited that Turkey fell sharply in the democracy index and became the hybrid regime after the new system had come into effect. An undemocratic atmosphere causes the investors to slip away from the market, which depreciates the domestic currency. Because the countries where autocratic regimes rule are unpredictable. Thence, investors and economic agents have mostly negative expectations about the undemocratic countries' economies.

After the 2018 election, the international investors and economic agents withdrew their investment and left Turkey. The local investors invested in the foreign currencies against the Turkish Lira, and dollarization occurred. That has been found using the Bayesian time-series model that the Turkish Lira tumbled down dramatically right after the presidential election, and since then, the Turkish Lira has been losing its value. The Turkish Lira is 16% shoddier than it could have been. It is clearly seen that the Turkish Lira has decoupled negatively from peers (Brazilian Real, Indian Rupee, South African Rand, and Argentine Peso) and still has been depreciating as the new governmental system brings uncertainty. The weak Turkish Lira increased the inflation rate, which diminished people's purchasing power.

To sum up, Turkey should democratize its regime and governmental system to stabilize the Turkish Lira and should renovate the law of the Turkish central bank. Otherwise, the Turkish Lira will keep decoupling negatively against the Reserve currencies. As a result of the decoupling, Turkey's economy might have more issues, such as high inflation, economic shrinkage, and a high unemployment rate. To avoid economic problems, the Turkish government should apply democratic implementations and take its hands off the market and the central bank so that Turkey could attract international investors and economic actors to draw investments and stabilize its currency.

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