



## **Determinants of Stock Returns in Turkey under the Impacts of Capital Inflows and Global Economic Policy Uncertainty**

Ahmet TİRYAKI<sup>1</sup> & Havva Nesrin TİRYAKI<sup>2</sup>

### **Keywords**

Economic Policy  
Uncertainty, ARDL,  
Stock Returns,  
Economic Activity,  
BIST.

### **Abstract**

This article investigates the short-run and long-run macroeconomic determinants of the Turkish stock returns under the impact of capital inflows and global economic policy uncertainty by using the ARDL method and the monthly data for the period of 1997:M1 to 2018:M6. The set of macroeconomic variables utilized in the study are the stock market price indexes of Turkey's BIST100 index (BIST), BIST Financial Index (BISTFIN) and the BIST industrial index (BISTIND), industrial production index (IP), real effective exchange rate (RER), consumer price index (CPI), interest rate (INTR), capital inflows which is the sum of foreign direct and portfolio investment coming to Turkey (FDIPOINT) and the Global Economic Policy Uncertainty index (GEPU). The ARDL estimation results reveal that in the long-run the BIST stock returns are positively affected from the changes in IP, RER, CPI and FDIPOINT. The effect of the changes in GEPU on the stock returns is negative. The long-run determinants of the BIST stock returns are the changes in IPI, RER, and CPI and the EPU. The effect of the changes in the INTR on the stock returns is insignificant. The impact of the changes in RER on stock returns is significantly positive for the BIST100 and BISTFIN indexes, but has no significant effect on the BISTIND stock returns. The estimation results suggest that the capital flows and global economic policy uncertainty are essential factors for the Turkish stock returns.

### **Article History**

Received  
15 Nov, 2018  
Accepted  
30 Dec, 2018

## **1. Introduction**

One of the stylized business cycle facts about the cyclicity of the stock prices indicates that the stock prices are procyclical and a leading variable. The fact implies that the developments in stock prices reveals the future direction of the aggregate economic activity in a nation. In the same line of thought, also, the equity prices reflect the expectations of the market participants about the future profitability of the firms. According to the efficient market hypothesis, asset prices reflect all available information about the firms or the state of the economy and only the arrival of new unexpected information affects the economic agents' expectations about future economic activity (Fama, 1970). Changes in important

<sup>1</sup> Corresponding Author. ORCID: 0000-0002-9527-7736. Assoc. Prof., Anadolu University, Open Education Faculty, Department of Economics and Administrative Programs, ahmettiriyaki@anadolu.edu.tr

<sup>2</sup> ORCID: 0000-0002-0083-0827. Assistant Professor, Bilecik Şeyh Edebali University, İİBF. Department of Economics. nesrin.ozkan@bilecik.edu.tr

macroeconomic variables related to the aggregate macroeconomic activity such as the industrial production, exchange and interest rates, capital inflows and information about the global economic policy uncertainty have a significant impact on stock market performance as the literature suggest. Increases in the global economic policy uncertainty are expected to affect first the aggregate economic activity and investment via spillover effects and then the stock market returns negatively.

The effects of the changes of the different macroeconomic variables on stock returns both theoretically and empirically already investigated, but effects of these variables on the returns under the assumption of capital inflows and especially global economic policy uncertainty (GEPU) is new. Thus, this article aims to investigate the short and long-run causal relationship between selected macroeconomic variables, including industrial production index (IP), real effective exchange rate (RER), consumer price index (CPI), Turkey's short-term interest rate (INTR), capital inflows as the sum of foreign direct investment and portfolio investment (FDI<sub>PORT</sub>) and the Global Economic Policy Uncertainty index (GEPU) and the stock market prices in Turkey, represented by the stock market price indexes of Turkey's BIST100 index (BIST100), BIST Financial index (BISTFIN) and the BIST industrial index (BISTIND).

The study differs from the previous studies in terms of adding the "capital inflows" to Turkey (FDI<sub>PORT</sub>) and the "global economic policy uncertainty index" (GEPU) to the equation next to the already known macroeconomic variables in order to investigate the causal relationship between macroeconomic variables and stock returns in Turkey. The effect of capital inflows to stock returns is important in Turkey, hence, the sum of foreign direct investment and portfolio investment (FDI<sub>PORT</sub>) variable is chosen. In order to represent the effect of "global economic policy uncertainty" to the Turkish stock returns, the study benefited from the Global Economic Policy Uncertainty index (GEPU). *The index is a GDP-weighted average of national Economic Policy Uncertainty (EPU) indices for 20 countries accounting for about 70% of global output on a PPP-adjusted basis and roughly 79% at market exchange rates. Each national EPU index contains a trio of terms pertaining to the economy (E), policy (P) and uncertainty (U).* The study uses the GEPU index, since; first of all, there is no economic policy uncertainty index developed or calculated for Turkey yet. Secondly, inclusion of the index allows us to account the *global risks and uncertainties about to the global economy and policy that affects the domestic economy. In a sense that the utilization of GEPU in the model accounts all kind of adverse global supply and demand shocks that hits the domestic economy.* Thirdly, the use of GEPU also allows us not to use dummies to show the effects of financial crisis that causes breaks in the stock price indexes. Finally, the use of GEPU is important since the study aims to see the effect of external monetary policy shocks on Turkish stock returns.

The industrial production index (IP) of Turkey is used in the study as a proxy in order to gauge the effect of aggregate economic activity changes to stock returns. On theoretical grounds, a positive relationship between stock prices and industrial production index is expected. Increases in output proxied as the increases in IP may boost cash flow of the firms and hence, causes the stock prices to rise.

Empirical study results from Chen et al. (1986), Fama (1990), Abdullah & Hayworth (1993), Gallinger (1994), Apergis (1998) and Tiryaki et al. (2017 and 2018), among others, support this positive relationship.

Changes in the real effective exchange rate also can have real effects on economic activity and the stock returns. Theoretically, the effect of the changes in RER on the stock returns could be negative or positive. If exports are important for a country, the real exchange rate appreciation lowers the country's competitiveness and negatively affects domestic stock prices/returns. On the other side, a real depreciation results with a positive effect. As Choi (1995) suggest, changes in the exchange rate is one of the most significant factor among the macroeconomic variables that affects the stock returns.

Stock returns are also affected from the inflationary developments. Theoretically, the expected sign of the relationship could be negative or positive. There sign of the relationship is negative according to the Classical theory, due to the negative inflation–real activity relationship, as Fama (1981) suggests. On the other side the Keynesian approach suggest a positive relationship between economic activity and price level and hence there should be a positive relationship between economic activity and the stock returns. Like the theory, the empirical study results are also controversial about the sign of the relationship. While a negative relationship is reported by Fama (1981), Schwert (1981), Gultekin (1983), Geske & Roll (1983) and Mukherjee & Naka (1995), the study from Abdullah & Hayworth (1993) found a positive relationship.

Changes in interest rates negatively affect the future profitability of the firms by increasing the cost of borrowing for the firms. Inversely, the decreases in interest rates by reducing the cost of borrowing, encourages firms for expansion with the expectation of generating future expected returns.

Foreign capital inflows is one of the key important variable on the performance of the Turkish economy and increases or stops in capital inflows may affect the economic activity and hence asset prices. Increases in capital inflows to emerging markets; (i) may increase demand for stocks, pushing up the asset prices. (ii) may increase the liquidity in receiving country, causing asset price appreciation, (iii) may cause the relaxation of credit constraints and augmentation of investment resources in receiving countries, (iv) may bring credit, knowledge, and discipline to the host countries, (v) allows emerging market economy to access to foreign funds which enhance capital allocation efficiency and productivity in recipient countries. (vi) may increase the access to finance and reduce the cost of borrowing. As a result, it is theoretically expected that positive developments in capital inflows to emerging markets (FDI) would lead to increases in the stock prices/returns.

The uncertainties in economic policy can impact the decisions of economic units on the issues related to consumption, investment, saving, lending, etc. Theoretically, a negative or positive relationship is expected between the increases in the Global Economic Policy Uncertainty (GEPU) and stock returns. According to Li et al.

(2016), EPU does have a real negative impact on stock market performance. Since the GEPU index<sup>3</sup> is a GDP-weighted average of national Economic Policy Uncertainty (EPU) indices for 20 countries, then even more aggregated effect is expected from the changes in GEPU to the stock returns. Davis (2016) suggest that the Index rises sharply in reaction to the major crisis such as the crises of the Asian Financial Crisis, the 9/11 terrorist attacks, the U.S.-led invasion of Iraq in 2003, the Global Financial Crisis in 2008-09 that took place during the study period.

According to the Chan et al. (2017), the negative impact occurs since (i) the uncertainty about economic policies fuels market participants' pessimistic considerations about expected future profits and then leads to a decline in stock prices. (ii) Also, the economic policy uncertainty increases the cost of raising equity capital for firms, especially when the economy is weak. The changes in EPU may have a positive effect on stock prices if economic policy-induced uncertainty would increase equity risk premium and hence lead to a higher stock price as Brogaard & Detzel (2015) suggest.

Beside the above mentioned channels suggested by Chan et al. (2017), positive changes in economic policy uncertainty in large economies could have positive or negative spillover effects in emerging economies via changes in capital inflows. Increases in EPU or GEPU can have a positive spillover effect if the investors in large economies shift more of their investment abroad given the declined attractiveness of investing in the US or in the EU. If a higher policy uncertainty in large economies may decrease investors' willingness to take risks and therefore lead to a decrease in the overall size of their allocations to emerging markets, then the spillover effect might be negative.

In this study, the ARDL methodology is used for estimations. The ARDL estimation results show that main determinants of Turkish stock returns in the long run are the changes in IP, RER, CPI and FDIPORT positively and the GEPU negatively. Turkey's interest rates (INTR) has found no impact on Turkish stock returns in the long run.

This paper is organized as follows: The literature survey includes both the surveys of International and Turkish stock market theoretical and empirical studies. Then the econometric methodology and data is discussed. Empirical findings and policy implications finalize the paper.

## 2. Theory and Literature Review

Since the stock prices reflects the future profitability of the firms, changes in key macroeconomic variables affect the future macroeconomic activity and hence expected to have a significant impact on stock market performance. On the theoretical ground, both the Classical and Keynesian theories imply a positive effect from economic growth to the stock market returns (see, among others, Chen et al., 1986; Fama, 1990; Abdullah & Hayworth, 1993; Gallinger, 1994; and Mukherjee & Naka, 1995). Such positive effect occurs since the increases in

---

<sup>3</sup> The Index value for each month is computed as the GDP-weighted average of the 20 national EPU index values, using GDP data from the IMF's World Economic Outlook Database.

economic activity is expected to rise the current and future profitability of the firms and hence increases the stock prices. Various country specific empirical study such as the studies from Gjerde & Sættem, 1999; Kwon & Shin, 1999; Nasseh & Strauss, 2000; Ratanapakorn & Sharma, 2007; Vazakidis & Adamopoulos, 2009; Acikalin et al., 2008; Shahbaz, et al., 2008; Humpe & Macmillan, 2009; Yartey, 2010; Singh et al., 2011; Kumar & Padhi, 2012; Pradhan et al., 2013; Şükrüoğlu & Nalin, 2014; Tiryaki et al., 2017 and Tiryaki et al., 2018 found the same positive relationship.

Changes in real exchange rate not only affects the aggregate economic activity, but also affects the global performances of the firms which will affect their share prices. Theoretically, if exports are important for a country, the exchange rate appreciation lowers its competitiveness and negatively affects domestic stock prices. Empirical study results from Ratanapakorn & Sharma (2007) show that the stock prices are positively related to the exchange rate. In contrast, Singh et al. (2011), for Taiwan, found a negative effect for portfolios of big and medium companies. Also, Tiryaki et al. (2018) found that decreases in RER (a real depreciation) causes increases in BIST100 returns. On the other hand, Aydemir & Demirhan (2009), for Turkey, and Tripathy (2011), for the India, presented evidence of bi-directional relationship between exchange rate and stock market.

Theoretically, the impact of inflationary developments on stock market returns can be positive or negative. According to Fama (1981), the negative inflation-real activity relationship induces a negative sign. Fama (1981) suggest that the stock returns are positively related to real variables like investment expenditures and output, but negatively related to the inflation. On the other side, the Keynesian approach suggest a positive relationship since there is positive relationship exist between macroeconomic activity and price level and hence there should be a positive relationship between activity and the stock returns. While the empirical studies from Naceur et al. (2007) and Ratanapakorn & Sharma (2007) found a positive relationship, the studies from Humpe & Macmillan (2009), Singh et al. (2011), Kumar & Padhi (2012) and Şükrüoğlu & Nalin (2014) found that the stock returns are negatively related to the inflation.

About the effect of interest rates on stock returns, Ratanapakorn & Sharma (2007) and Humpe & Macmillan (2009) found that the stock prices are negatively related to the long-term interest rate, but positively related to the short-term interest rate. However, Tripathy (2011) presents evidence of bi-directional relationship between interest rate and stock market.

Theoretically, foreign capital inflows may affect asset prices in several ways. They may increase demand for stocks, pushing up the asset prices. Additionally, surge in capital inflows may increase the liquidity in receiving country, causing asset price appreciation. For the beneficial effects of capital inflows to the receiving countries, Harrison et al. (2004) suggest that capital inflows to emerging markets causes the relaxation of credit constraints, augmentation of investment resources, and hence they facilitate the growth. Tong & Wei (2011) suggest that the foreign capital brings credit, knowledge, and discipline to the host countries, which are essential for economic growth. Also, as Ahmed & Zlate (2014) indicates, access to foreign

funds can enhance capital allocation efficiency and productivity in recipient countries. Igan et al. (2016) argues that the capital inflows increase access to finance and reduce the cost of borrowing and hence, lead external finance depended industries to grow faster. All above mentioned channels suggest a positive relationship between capital inflows (FDI/PORT) and the stock prices/returns.

There are various studies confirm this positive relationship. For example, Clark & Berko (1997), Froot et al. (2001), Bekaert et al. (2002), Dahlquist & Robertsson (2004), Richards (2005), Froot & Ramadorai (2008), Feng et al. (2017) and Wu (2018) found rise of stock prices in response to a net capital inflows. Also, Olaberria (2014), using panel data for 40 countries, found that emerging countries are more likely to experience booms in asset prices during periods of large capital inflows. Igan et al. (2016) found that, over the pre-crisis period 1998–2007, private capital inflows are associated with stronger growth in industries that are more dependent on external finance. Loncan & Caldeira (2015) for Brazilian stock returns found that the partial effect of foreign portfolio capital flows on the IBOVESPA index's returns was statistically significant and positive. Foreign portfolio capitals caused increases in returns especially for sectors related to commodities, industry and cyclical consumption. For Turkey, Okuyan & Erbaykal (2011), Ülkü & İkizlerli (2012), and Avcı (2015) found positive impact of capital inflows to the stock returns.

Beside the benefits, the capital inflows can bring some economic costs to the emerging markets. Calvo & Reinhart (2000) and Gourinchas & Obstfeld (2012) notice that the episodes of large capital inflows increase the probability of a sudden stop, which hurt economic performance and may cause a transfer of economic resources from tradable to non-tradable sectors. Studies from Reis (2013), Benigno & Fornaro (2014), and Benigno et al. (2015) among others confirm these economic costs.

Different than the above mentioned theories and empirical study results, Kim & Yang (2009) based on panel data for Asian countries, concluded that the short-term international capital inflows will not have a significant impact on domestic asset price changes. However, short-term international capital inflows will cause domestic asset prices to rise.

As already said the asset prices reflect all available information about the firms and only the arrival of new unexpected information affects the economic agents' expectations about future. Whether there is evidence of a strong relationship between stock price changes and unexpected fundamental news is one of the controversial issue in the literature. For example, Niederhoffer (1971) and Cutler et al. (1989) suggest that the large changes in stock prices are substantially more likely following world events than on randomly selected days. On the other side, Roll (1988) concludes that there is little relation between stock prices and news.

Positive shocks to EPU/GEPUS first affects the economic fundamentals, then the stock market performance (Baker et al., 2016 and 2018; and Jin et al., 2017). Theoretically, the increases in the EPU and hence GEPUS can have negative or positive effects on stock returns. A negative relationship arises because *the*

*uncertainty about economic policies* (i) can make investors to be pessimist about expected future of the firms' performance and hence leads to a decline in stock prices. (ii) affect stock prices by affecting expectations of investors. This happens when a new surprise information arrive, the adjustment of investors' expectations will influence the stock prices. (iii) increase the cost of raising equity capital for firms.

The previous studies that found a negative impact from EPU to the stock returns include Sum, 2012a and 2012b; Boudoukh et al., 2012; Bhagat et al., 2013; Antonakakis et al., 2013; Kang & Ratti, 2013; Brogaard & Detzel, 2015; Davis, 2016; Demir & Ersan, 2016; Bayar & Erem Ceylan, 2017; Shin et al., 2017; and Baker et al., 2018).

Positive shocks to EPU or GEPu may have a positive effect on stock prices if economic policy-induced uncertainty would increase equity risk premium (Brogaard & Detzel, 2015). Increases in economic policy uncertainty in the large economies, such as the US and Europe, also increases the GEPu and as a result could also have positive effects on Turkish stock returns if the investors in large economies, such as the US and/or Europe, shift more of their investment abroad given the declined attractiveness of investing in the US or in the EU. The previous studies from Sum (2012c) and (2013) and Han et al. (2016) found a negative spillover effects from EPU of the US on the stock market returns in emerging market economies.

However, there exists also studies that show no linkage or no spillover effects from EPU to the stock returns including Donadelli, 2015; and Wu et al., 2016). Li et al. (2016) on the other hand finds bidirectional causal relationships between EPU and stock returns in several sub-periods rather than in the whole sample period for China and India.

### **3. Data and Econometric Methodology**

This study examines the causal relationship between selected macroeconomic variables and the stock returns in Turkey by using monthly data covering the period from 1997:M1 to 2018:M6. The monthly data obtained from the Central Bank of Turkey database<sup>4</sup>, International Financial Statistics (IFS)<sup>5</sup>, Federal Reserve Economic Data of the Federal Reserve Bank of St. Louis (FRED)<sup>6</sup>, Yahoo finance web database<sup>7</sup>, and GEPu statistics gathered from the EPU website<sup>8</sup>. The time period is selected for the reason of data availability since the data set of GEPu starts from the beginning of 1997. The set of macroeconomic variables utilized are the stock market price indexes from Turkey, namely BIST100 index (BIST100), BIST Financial Index (BISTFIN) and the BIST industrial index (BISTIND), industrial

---

<sup>4</sup> <https://evds2.tcmb.gov.tr/>

<sup>5</sup> <http://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42>

<sup>6</sup> <https://fred.stlouisfed.org/>

<sup>7</sup> <https://finance.yahoo.com/quote/web?ltr=1>

<sup>8</sup> <http://www.policyuncertainty.com/>

production index (IP), real effective exchange rate (RER), consumer price index (CPI), the domestic short term REPO interest rate (INTR), the capital inflows which is sum of foreign direct and portfolio investment coming to Turkey (FDI<sub>PORT</sub>) and the Global Economic Policy Uncertainty index (GEPU).

In order to represent the behavior of Turkish stock returns, the BIST100 index (BIST100), the BIST Financial Index (BISTFIN) and the BIST industrial index (BISTIND) are selected. All three indexes are included to the study since the prices and the returns' responses of each ones to the different macroeconomic shocks do not resemble each other as suggested by Tiryaki et al. (2017).

In this study the Autoregressive Distributed Lag (ARDL) method, developed by Pesaran & Shin (1999) and re-assessed by Pesaran et al. (2001), is used in order to analyze the short and long-run linkages between the explanatory variables and the Turkish stock market returns. The ARDL method provides several advantages in evaluation of co-integration and short and long-run linkages between the variables. The first advantage is that the ARDL method can be used in order to test for a level relationship for variables that are either  $I(0)$  or  $I(1)$  as well as for mix  $I(0)$  and  $I(1)$  variables, as Duasa (2007) and Adom et al. (2012) suggest. Secondly, the ARDL method provides more advantages relative to the use of VAR method. The VAR approach requires that the series have to be level stationary. If the data series are difference stationary  $I(1)$ , then one would have to take the first difference of the series and then apply the VAR test. However, taking the first difference of the data, the long-run relations between the series may disappear (Brooks, 2014). When the ARDL framework is used, however, the long-run relationships still remain. Thirdly, the ARDL method allows the users to assess the short-run and long-run relationship between the given variables simultaneously by integrating the short-run impact of the given variables with a long-run equilibrium using an error correction term.

In order to investigate the causal relationship between selected macroeconomic variables and stock returns because of the above mentioned advantages, the ARDL approach is utilized in this study. In order to reach to the study's aims, following Pesaran & Shin (1999) and Pesaran et al. (2001), the re-arranged ARDL form is presented in equation (1).

$$\Delta LY_t = \alpha_0 + \sum_{i=1}^{m_1} \sigma_{it} \Delta LY_{t-i} + \sum_{i=0}^{m_2} \beta_{it} \Delta LIP_{i,t-i} + \sum_{i=0}^{m_3} \phi_{it} \Delta LRER_{i,t-i} + \sum_{i=0}^{m_4} \gamma_{it} \Delta LCPI_{i,t-i} + \sum_{i=0}^{m_5} \pi_{it} \Delta INTR_{i,t-i} + \sum_{i=0}^{m_6} \mu_{it} \Delta FDI_{PORT_{i,t-i}} + \sum_{i=0}^{m_7} \lambda_{it} \Delta LGEPU_{i,t-i} + \delta_{1i} LY_{t-1} + \delta_{2i} LIP_{t-1} + \delta_{3i} LRER_{t-1} + \delta_{4i} LCPI_{t-1} + \delta_{5i} INTR_{t-1} + \delta_{6i} FDI_{PORT_{t-1}} + \delta_{7i} LGEPU_{t-1} + \varepsilon_{it} \quad (1)$$

where;  $\Delta$  is defined as the first difference of the variables.  $LY$  is defined as the log series of the index of **BIST100 (LBIST100)** or the index of **BISTFIN (LBISTFIN)** or the index of **BISTIND (LBISTIND)**.  $LIP$  is defined as the log series of industrial production index of Turkey.  $LRER$  is defined as the log series of real effective exchange rate of Turkey.  $LCPI$  is defined as the log series of consumer price index.  $INTR$  is defined as the Turkish short-term repo interest rate.  $FDI<sub>PORT</sub>$  is defined as the capital inflows which is the sum of foreign direct and portfolio investment

coming in to Turkey, and *LGEPU* is defined the global economic policy uncertainty index.  $\varepsilon$  is defined as zero mean and constant variance error term.

The presence of the long-run relationship between selected macroeconomic variables and the stock returns, first of all, the Equation (1) is estimated by using ordinary least squares (OLS). Secondly, F-test for the joint significance of the coefficients of the lagged levels of the variable is carried out. As a result, the null and alternative hypotheses of no co-integration among the variables in Equation (1) would be represented as in Equations (2) and (3):

$$H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = \delta_7 = 0 \quad (2)$$

$$H_1: \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \delta_6 \neq \delta_7 \neq 0 \quad (3)$$

Now, by using ARDL approach, the short and long-run dynamic relationships can be estimated. For this purpose, the equation (1) can be re-written as the error correction version of ARDL model, shown in equations (4) and (5):

$$LY_t = \alpha_0 + \sum_{i=1}^{s_1} \sigma_{it} LY_{t-i} + \sum_{i=0}^{s_2} \beta_{it} LIP_{i,t-i} + \sum_{i=0}^{s_3} \phi_{it} LRER_{i,t-i} + \sum_{i=0}^{s_4} \gamma_{it} LCPI_{i,t-i} + \sum_{i=0}^{s_5} \pi_{it} INTR_{i,t-i} + \sum_{i=0}^{s_6} \mu_{it} FDIPORT_{i,t-i} + \sum_{i=0}^{s_7} \lambda_{it} LGEPU_{i,t-i} + \varepsilon_{it} \quad (4)$$

$$\Delta LY_t = \alpha_0 + \sum_{i=1}^{n_1} \sigma_{it} \Delta LY_{t-i} + \sum_{i=0}^{n_2} \beta_{it} \Delta LIP_{i,t-i} + \sum_{i=0}^{n_3} \phi_{it} \Delta LRER_{i,t-i} + \sum_{i=0}^{n_4} \gamma_{it} \Delta LCPI_{i,t-i} + \sum_{i=0}^{n_5} \pi_{it} \Delta INTR_{i,t-i} + \sum_{i=0}^{n_6} \mu_{it} \Delta FDIPORT_{i,t-i} + \sum_{i=0}^{n_7} \lambda_{it} \Delta LGEPU_{i,t-i} + \delta_{1i} LY_{t-1} + \delta_{2i} LIP_{t-1} + \delta_{3i} LRER_{t-1} + \delta_{4i} LCPI_{t-1} + \delta_{5i} INTR_{t-1} + \delta_{6i} FDIPORT_{t-1} + \delta_{7i} LGEPU_{t-1} + \delta_{8i} ECT_{t-1} + \varepsilon_{it} \quad (5)$$

where  $ECT_{t-1}$  in equation (5) is the error correction term. The coefficient of the error correction term ( $ECT_{t-1}$ ) has to be negative and statistically significant which represents the speed of adjustment revert to long run equilibrium following a short run shock. After the ARDL tests, in this study, the presence of serial correlation and heteroscedasticity in the errors of model are also tested in order to check whether the model is correctly specified the functional form of the model and errors are normally distributed. Additionally, the stability of parameters were checked by using cumulative (CUSUM) and cumulative sum of squares (CUSUMSQ). All test results are reported in the following section.

## 4. Empirical Results

### 4.1. The Unit Root Tests

Table 1 reports the results of the unit root tests in order to determine the order of integration among time series data. The Breakpoint Unit Root test has been used at level and first difference under the assumption of trend and intercept. The results of Breakpoint unit root test indicates that variables of INTR, FDIPORT and LGEPU are level stationary while other variables of LBIST100, LBISTFIN, LBISTIND, LIP, LRER and LCPI are stationary at the first differences. The results provide a strong justification for ARDL as an estimation method to test the existence of long-run relationship among the variables.

**Table 1: Breakpoint Unit Root Test Results**

Variables	Breakpoint Unit Root Test ( <i>trend and intercept</i> )		
	Level	1st difference	Decision
LBIST100	-3.6287* (-5.3391)	-16.494* (-5.3391)	I(1)
LBISTFIN	-3.8508* (-5.3391)	-15.6754 (-5.3391)	I(1)
LBISTIND	-4.4731* (-5.3391)	-15.6523* (-5.3391)	I(1)
LIP	-3.0386* (-5.3391)	-18.1602* (-5.3391)	I(1)
LRER	-4.1825* (-5.3391)	-11.3146* (-5.3391)	I(1)
LCPI	-0.0839* (-5.3391)	-9.2132* (-5.3391)	I(1)
INTR	-9.7699* (-5.3391)		I(0)
FDIPOINT	-12.7717* (-5.3391)		I(0)
LGEPU	-6.2455* (-5.3391)		I(0)

Note: \* refers the rejection of the unit root at 1% level of significance.

#### 4.2. The ARDL Bounds Test

After the determination of the order of the integration of the variables, the presence of long-run relationship between selected macroeconomic variables and the stock returns in BIST100, BISTFIN and BISTIND of Turkey is tested by employing the ARDL bounds testing approach. In order to test existence of such relationship, first of all optimal lag length by using Akaike information criterion (AIC) is determined. Table 2 reveals the results of the co-integration between dependent variables (LBIST100, LBISTFIN and LBISTIND) and the independent macroeconomic variables (LIP, LRER, LCPI, INTR, FDIPOINT and LGEPU) and also the critical values of ARDL bounds test.

**Table 2: The ARDL Bounds Test**

Model: LBIST = f(LIP, LRER, LCPI, INTR, FDIPOINT, LGEPU)	Optimal lag length	F-statistics	Bound critical value		Outcome
			I(0)	I(1)	
			LBIST100	(4, 1, 2, 6, 8, 0, 1)	
LBISTFIN	(3, 1, 6, 4, 3, 0, 6)	5.630*	2.88	3.99	Cointegration
LBISTIND	(4, 1, 6, 3, 3, 0, 1)	6.164*	2.88	3.99	Cointegration

Note-1: \* refers the rejection of the unit root at 1% level of significance.

Note-2: Bounds critical values are taken from Pesaran et al. (2001) with restricted intercept and no trend.

**Table 3: Short-Run and Long-Run ARDL Estimations of LBIST100**

Dependent variable = LBIST100				
Variable	Coefficient	Std. Error	t-statistics	Prob. values
Short-run results				
D(LBIST100(-1))	0.017672	0.060283	0.293157	0.7697
D(LBIST100(-2))	0.188573	0.061007	3.090995	0.0023
D(LBIST100(-3))	0.092519	0.057232	1.616574	0.1074
D(LIP)	-0.447065	0.260490	-1.716249	0.0875
D(LRER)*	0.631155	0.218697	2.885975	0.0043
D(LRER(-1))*	-0.870395	0.231371	-3.761898	0.0002
D(LCPI)	1.111340	0.692896	1.603906	0.1102
D(LCPI(-1))	0.768599	0.788162	0.975178	0.3305
D(LCPI(-2))	1.597343	0.758547	2.105792	0.0364
D(LCPI(-3))	1.385358	0.750680	1.845472	0.0663
D(LCPI(-4))	-1.952763	0.784178	-2.490205	0.0135
D(LCPI(-5))	1.229000	0.674650	1.821685	0.0699
D(INTR)	-0.091185	0.055012	-1.657544	0.0988
D(INTR(-1))	0.064676	0.069069	0.936397	0.3501
D(INTR(-2))	0.200734	0.067472	2.975073	0.0033
D(INTR(-3))	-0.061766	0.069550	-0.888079	0.3755
D(INTR(-4))	-0.042216	0.067903	-0.621714	0.5348
D(INTR(-5))	-0.027389	0.068737	-0.398456	0.6907
D(INTR(-6))	-0.044451	0.066054	-0.672952	0.5017
D(INTR(-7))	-0.159773	0.050138	-3.186687	0.0016
D(LGEPU)*	-0.148117	0.034617	-4.278728	0.0000
CointEq(-1)*	-0.179948	0.026342	-6.831147	0.0000
Long-Run Results				
LIP*	1.077320	0.274285	3.927741	0.0001
LRER*	1.193641	0.501017	2.382437	0.0180
LCPI*	0.907575	0.132215	6.864372	0.0000
INTR	-0.287528	0.515179	-0.558114	0.5773
FDIIMPORT*	6.90E-05	2.14E-05	3.229388	0.0014
LGEPU*	-0.490172	0.141397	-3.466637	0.0006
C	-1.115079	3.020398	-0.369183	0.7123
Test Statistics				
Test	Test Statistics		Probability	
Normality**	98.01084		0.0000	
Functional form***	1.178686		0.2788	
Heteroscedasticity****	1.305578		0.1485	
Serial correlation*****	0.780249		0.6596	
CUSUM	Stable			
CUSUMSQ	Unstable			
Notes: *refers the rejection of null hypothesis at 1% level of significance. ** refers the Jarque-Bera normality test results. *** refers the Ramsey RESET test results. **** refers the Breusch-Pagan-Godfrey test results. ***** refers the Breusch-Godfrey Serial Correlation LM Test results.				

The results in Table 2 indicate that the calculated F-statistics reject the null hypothesis of no co-integration among variables, since calculated values of F-statistics for LBIST100, LBISTFIN and LBISTIND (5.653, 5.630 and 6.164

respectively) are greater than I(1) bound critical value of 3.99 at the significance level of 1%. Thus, the variables are co-integrated which implies that there is a long-run relationship among them. The short-run parameters are obtained by estimating an error correction model associated with the long-run estimates. Tables 3 and 4 reveal the results of short-run and long-run estimates.

Table 3 shows the short and long-run relations between Turkey's BIST100 index (LBIST100) and the independent variables of LIP, LRER, LCPI, INTR, FDIPOINT and LGPEU. The ARDL estimation results reveal that in the short-run the BIST100 stock returns are positively determined by the changes in LRER, and negatively determined by the changes in D(LRER(-1)) and LGPEU. The long-run determinants of the BIST100 stock returns are the changes in LIP, LRER, LCPI, FDIPOINT and the LGPEU. The changes in LIPI, LRER, FDIPOINT and LCPI have positive significant impact, but the changes in the LGPEU has negative impact on stock returns. Changes in INTR have no significant impact on Turkish BIST100 stock returns in the long-run.

The negative and statistically significant estimate of the CointEq(-1) coefficient, (-0.179948), which is another way of representing  $ECT_{t-1}$ , provides another evidence for established long-run relationship between selected macroeconomic variables and the LBIST stock returns of Turkey. According to estimated value of speed of adjustment coefficient, changes in LBIST100 are corrected by 18% in each month.

In order to check the robustness of the model, as it can be seen at the bottom of the Table 3, the presence of serial correlation and heteroscedasticity in the errors of model are tested by using the Breusch-Pagan-Godfrey Serial Correlation Lagrange Multiplier (LM) test and White heteroscedasticity test are used respectively. Also, normality test and Ramsey reset test are used to see whether the errors are normally distributed and the model is correctly specified the functional form of the model. The p-values of chi-square tests results imply that; the model is well specified, the errors are normally distributed, there is no serial correlation and there is no heteroscedasticity problem.

Table 4 below shows the short and long-run relations between Turkey's BIST Financial index (LBISTFIN) and the independent variables of LIP, LRER, LCPI, INTR, FDIPOINT and LGPEU. The ARDL estimation results reveal that in the short-run the BISTFIN stock returns are positively determined by the changes in LRER and LCPI, and negatively determined by the changes in D(LRER(-1)), D(LRER(-4)), INTR and LGPEU. The long-run determinants of the BIST100 stock returns are the changes in LIP, LRER, LCPI, FDIPOINT and the LGPEU. The changes in LIPI, LRER, FDIPOINT and LCPI have positive significant impact, but the changes in the LGPEU has negative impact on stock returns. Like the case of LBIST100 returns, the changes in INTR have no significant impact on Turkish BISTFIN stock returns in the long-run.

The negative and statistically significant estimate of the CointEq(-1) coefficient, (-0.177455), provides evidence also for established long-run relationship between selected macroeconomic variables and the LBISTFIN stock returns of Turkey.

According to estimated value of speed of adjustment coefficient, changes in LBISTFIN are corrected by 18% in each month.

**Table 4:** Short and Long-Run ARDL Estimations of LBISTFIN (BIST FINANCIAL INDEX)

Dependent variable = LBISTFIN				
Variable	Coefficient	Std. Error	t-statistics	Prob. values
Short-run results				
D(LBISTFIN(-1))	-0.025389	0.059320	-0.427993	0.6691
D(LBISTFIN(-2))	0.166248	0.061015	2.724684	0.0069
D(LIP)	-0.459102	0.291959	-1.572491	0.1173
D(LRER)	0.953372	0.237756	4.009880	0.0001
D(LRER(-1))	-0.915515	0.256711	-3.566329	0.0004
D(LRER(-2))	0.034073	0.234727	0.145161	0.8847
D(LRER(-3))	0.057767	0.234878	0.245944	0.8060
D(LRER(-4))	-0.627405	0.227834	-2.753777	0.0064
D(LRER(-5))	0.368775	0.215082	1.714576	0.0878
D(LCPI)	1.711965	0.750386	2.281446	0.0235
D(LCPI(-1))	1.150763	0.830752	1.385208	0.1674
D(LCPI(-2))	1.896422	0.789777	2.401210	0.0172
D(LCPI(-3))	0.803521	0.697322	1.152295	0.2504
D(INTR)	-0.130578	0.055463	-2.354341	0.0194
D(INTR(-1))	0.100405	0.074141	1.354247	0.1770
D(INTR(-2))	0.259645	0.061714	4.207198	0.0000
D(LGEPU)	-0.154269	0.038716	-3.984657	0.0001
D(LGEPU(-1))	-0.014247	0.042599	-0.334453	0.7384
D(LGEPU(-2))	-0.011242	0.043402	-0.259014	0.7959
D(LGEPU(-3))	-0.002047	0.040473	-0.050568	0.9597
D(LGEPU(-4))	-0.122515	0.039196	-3.125724	0.0020
D(LGEPU(-5))	-0.078516	0.039324	-1.996645	0.0471
CointEq(-1)*	-0.177455	0.026034	-6.816342	0.0000
Long-Run Results				
LIP*	0.752690	0.276206	2.725103	0.0069
LRER*	1.970738	0.520156	3.788744	0.0002
LCPI*	0.992916	0.138650	7.161315	0.0000
INTR	-0.587775	0.402682	-1.459651	0.1458
FDIIMPORT*	8.40E-05	2.47E-05	3.400515	0.0008
LGEPU*	-0.505595	0.166892	-3.029466	0.0027
C	-3.286740	2.860788	-1.148893	0.2518
Test Statistics				
Test	Test Statistics		Probability	
Normality**	62.94467		0.0000	
Functional form***	2.406800		0.1222	
Heteroscedasticity****	1.312314		0.1409	
Serial correlation*****	0.395086		0.9570	
CUSUM	Stable			
CUSUMSQ	Unstable			
Notes: *refers the rejection of null hypothesis at 1% level of significance. ** refers the Jarque-Bera normality test results. *** refers the Ramsey RESET test results. **** refers the Breusch-Pagan-Godfrey test results. ***** refers the Breusch-Godfrey Serial Correlation LM Test results.				

In order to check the robustness of the model, as it can be seen at the bottom of the Table 4, the presence of serial correlation and heteroscedasticity in the errors of model are tested by using the Breusch-Pagan-Godfrey Serial Correlation Lagrange Multiplier (LM) test and White heteroscedasticity test are used respectively. Also, normality test and Ramsey reset test are used to see whether the errors are normally distributed and the model is correctly specified the functional form of the model. The p-values of chi-square tests results imply that; the model is well specified, the errors are normally distributed, there is no serial correlation and there is no heteroscedasticity problem.

Table 5 shows the short and long-run relations between Turkey's BIST Industrial index (LBISTIND) and the selected macroeconomic variables. The ARDL estimation results show that the short-run determinants of the LBISTIND are the changes in LRER with lags, LCPI and with lag, the Turkish interest rate (INTR) and its one lag, and LGPEU. The effect is positive for the changes in  $D(LRER(-5))$ ,  $D(LCPI)$ ,  $D(LCPI(-2))$  and  $D(INTR(-2))$ . The negative effect is found for the changes in  $D(LRER(-1))$ ,  $D(LRER(-4))$ , and  $D(LGPEU)$ . In the long-run, the positive determinants of the BIST Industrial stock returns are the changes in LIP, LCPI and the FDIPORT and the negative determinant of the returns is only the changes in LGPEU. Turkey's interest rate (INTR) and real exchange rate (LRER) have no significant impact on Turkish BIST Industrial stock returns in the long run.

In the short-run, the estimated coefficient of IP and difference of IP with a lag, LRER and LCPI are statistically significant and have positive impact on LIND. But, the estimated coefficient of R and its one lag, LPEU, LGPR and the dummy variable representing the impact of the 2008 Global Financial Crisis are statistically significant and have a negative impact on LIND. In the long-run, the estimated coefficient of LIP, LCPI and FDIPORT are statistically significant and have positive impact on LBISTIND. But, the estimated coefficient of LGPEU is statistically significant and has a negative sign.

**Table 5:** Short-Run and Long-Run ARDL Estimations of LBISTIND (BIST INDUSTRIAL)

Dependent variable = LIND (BIST INDUSTRIAL)				
Variable	coefficient	Std. Error	t-statistic	Prob. values
Short-run results				
D(LBISTIND(-1))	0.051127	0.057290	0.892423	0.3731
D(LBISTIND(-2))	0.175030	0.059162	2.958493	0.0034
D(LBISTIND(-3))	0.103716	0.058868	1.761850	0.0794
D(LIP)	-0.316165	0.237122	-1.333344	0.1838
D(LRER)	0.234751	0.194027	1.209893	0.2276
D(LRER(-1))	-0.529255	0.205229	-2.578857	0.0105
D(LRER(-2))	-0.060440	0.200280	-0.301778	0.7631
D(LRER(-3))	0.140979	0.187584	0.751551	0.4531
D(LRER(-4))	-0.409114	0.184474	-2.217736	0.0276
D(LRER(-5))	0.464506	0.174622	2.660068	0.0084
D(LCPI)	1.509845	0.576879	2.617266	0.0095
D(LCPI(-1))	-0.068124	0.669832	-0.101703	0.9191
D(LCPI(-2))	1.795621	0.527231	3.405755	0.0008
D(INTR)	-0.069131	0.046617	-1.482964	0.1395
D(INTR(-1))	0.092881	0.061484	1.510645	0.1323
D(INTR(-2))	0.203570	0.050019	4.069880	0.0001
D(LGEPU)	-0.127025	0.030672	-4.141467	0.0000
CointEq(-1)*	-0.171889	0.024109	-7.129710	0.0000
Long-Run Results				
LIP*	1.097081	0.225971	4.854955	0.0000
LRER	-0.024791	0.436341	-0.056815	0.9547
LCPI*	0.931758	0.116425	8.003046	0.0000
INTR	-0.539182	0.329387	-1.636923	0.1030
FDIPOINT*	6.48E-05	2.12E-05	3.059785	0.0025
LGEPU*	-0.408524	0.137294	-2.975546	0.0032
C	3.898477	2.465414	1.581267	0.1152
Test Results				
Test	Test statistic		Probability	
Normality**	135.3281		0.00000	
Functional form***	0.609658		0.4357	
Heteroscedasticity****	1.435578		0.0921	
Serial correlation*****	0.958280		0.4857	
CUSUM	Stable			
CUSUMSQ	Unstable			
Notes: *refers the rejection of null hypothesis at 1% level of significance. ** refers the Jarque-Bera normality test results. *** refers the Ramsey RESET test results. **** refers the Breusch-Pagan-Godfrey test results. ***** refers the Breusch-Godfrey Serial Correlation LM Test results.				

The estimate of the CointEq(-1) coefficient, (**-0.171889**), has a negative sign and it is statistically significant. The estimated value of CointEq(-1) coefficient indicates that changes in LBISTIND are corrected by 17% in each month. As it can be seen from the bottom part of Table 5, according to the p-values of chi-square tests results; the model is well specified, the errors are normally distributed, there is no serial correlation and there is no heteroscedasticity problem.

The long-run ARDL estimations results indicates that the effect of selected macroeconomic variables on three different stock market indexes are different. The impact of the factors on stock returns in BIST100 and BISTFIN are same in the long-run, in both indexes the changes in LIP, LRER, LCPI and FDIPOINT have positive impact and the changes in LEPU has negative impact on these stock returns. The changes in INTR has no significant effect on these index' returns. However, when the BIST Industrial index is analyzed, it is seen that not only in the changes in INTR has no effect on the BISTIND returns, but also the changes in RER is also insignificant in the long run. The insignificant effect of INTR on the stock returns may be possible if the effect is already internalized by the use of RER, FDIPOINT and GEPU in the model. On the other hand, the insignificant effects of INTR and RER on the BISTIND returns may indicate that the physical capital investors and the financial investors in these markets are not paying attention to interest and exchange rate changes. Thus, in investment decisions there is bunching behavior that the Keynesian theory suggest.

#### **4. Conclusion**

This paper investigates the short and long-run macroeconomic determinants of the Turkish stock returns under the impact of the global economic policy uncertainty by using the ARDL method. The results of the model show that the short and long-run determinants of the Turkish stock returns are the changes in LIP, LRER, LCPI, INTR, FDIPOINT and LGEPU. The effect of the changes in LIP, LRER, LCPI and FDIPOINT are positive and the effect from the changes in INTR and LEPU are negative on the Turkish stock returns. These significant effects are expected and are in line with the theoretical and empirical studies. The important and different conclusion of this paper is that the positive developments in capital inflows and global economic policy uncertainty (GEPU) affect the Turkish stock returns positively and negatively respectively.

The positive relationship between IP and stock returns implies that increase in economic activity causes stock prices and hence returns to increase. The test results also show positive relationship between RER and the stock returns of BIST100 and BISTFIN in the long run. Since Turkey has an intermediate and final goods depended economy, overvaluation of lira makes imports cheaper and reduces input costs in production. As a result, as suggested by Özer (2015), overvaluation of lira causes firms' future profitability. The positive relationship between inflation and stock returns confirms the expectations of the Keynesian approach.

The test results presents the positive and significant impact of capital inflows on stock returns in Turkey. By looking at the long-run coefficients, one can conclude that most of the change in stock returns can be explained with the changes in capital inflows in Turkish stock market.

The important conclusion of this paper is that increases in global economic policy uncertainty (GEPU) negatively affect the Turkish stock returns. This result shows the external demand and supply shocks' have effects on the domestic stock market. As the theory suggest, increases in global economic policy uncertainty could have negative spillover effects in emerging economies from the global powers through a

decrease in capital inflows since a higher GEPU may decrease investors' willingness to take risks and therefore lead to a decrease in the overall size of capital flows to emerging markets in order to stay safe at home. Thus, the existence of trade and financial capital dependencies of the economy may enhance this negative effects and reducing these effects may require policies in order to reduce economic dependency and this requires long time periods.

Based on the empirical test results, the investors of Turkish stock markets should pay attention to both the domestic and international macroeconomic developments, especially looking at the variables of capital inflows and the GEPU.

## References

- Abdullah, D.A. & Hayworth, S.C., (1993). Macroeconomics of Stock Price Fluctuations. *Quarterly Journal of Business and Economics*, 32, 50-67.
- Acikalin, S., Aktas, R., & Unal, S., (2008). Relationships between Stock Markets and Macroeconomic Variables: An Empirical Analysis of the Istanbul Stock Exchange. *Investment Management and Financial Innovations*, 5(1), 8-16.
- Adom, P.K., Bekoe, W. & Akoena, S.K.K., (2012). Modelling Aggregate Domestic Electricity Demand in Ghana: An Autoregressive Distributed Lag Bounds Cointegration Approach. *Energy Policy*, 42, 530–537.
- Ahmed, S., & Zlate, A., (2014). Capital flows to emerging market economies: a brave new world? *Journal of International Money and Finance*, 48, 221–248.
- Antonakakis, N., Chatziantoniou, I., & Filis, G., (2013). Dynamic Co-movements of Stock Market Returns, Implied Volatility and Policy Uncertainty. *Economic Letters*, 120(1), 87–92.
- Apergis, N.T. (1998). Stock Market Volatility and Deviations from Macroeconomic Fundamentals: Evidence From GARCH And GARCH-X Models. *Kredit und Kapital*, Heft 3, 400–412.
- Avcı, Ö.B. (2015). Effect of Foreign Investor Transactions on Stock Market Returns. *Hacettepe University Journal of Economics and Administrative Sciences*, 33(4), 29-38.
- Aydemir, O., & Demirhan, E. (2009). The Relationship Between Stock Prices and Exchange Rates: Evidence From Turkey. *International Research Journal of Finance and Economics*, 23, 207-215.
- Baker, S., Bloom N., & Davis, S.J., (2016). Measuring Economic Policy Uncertainty. *Quarterly Journal of Economics*, 131(4), 1593-1636.
- Baker, S., Bloom, N., Davis, S.J., & Sammon, M., (2018). What Triggers Stock Market Jumps?. Work in progress, presented at Jan. 7th, 2018. *Chicagobooth*.
- Balcilar, M., Bonato, M., Demirer, R. & Gupta, R., (2016). Geopolitical Risks and Stock Market Dynamics of the BRICS. *Economic Systems*, DOI: 10.1016/j.ecosys.2017.05.008.

- Bayar, Y. & Erem Ceylan, I., (2017). Impact of Macroeconomic Uncertainty on Firm Profitability: A Case of BIST Nonmetallic Mineral Products Sector. *Journal of Business Economics and Finance*, 6(4), 318-327.
- Bekaert, G., C. R. Harvey, & R. L. Lumsdaine. (2002). The dynamics of emerging market equity flows. *Journal of International Money and Finance* 21 (3):295–350. doi:10.1016/S0261-5606(02)00001-3.
- Benigno, G., & Fornaro, L., (2014). The financial resource curse, *Scandinavian Journal of Economics*, 116 (1), 58-86.
- Benigno, G., Converse, N., & Fornaro, L., (2015). Large capital inflows, sectoral allocation, and economic performance, *Journal of International Money and Finance*, 55, 60-87.
- Bhagat, S., Ghosh, P., & Rangan, S.P., (2013). Economic Policy Uncertainty and Economic Growth in India, *Research Paper* No. 407. Indian Institute of Management (IIM), Bangalore, India.
- Boudoukh, J., Feldman, R., Kogan, S., & Richardson, M., (2012). Which News Moves Stock Prices? A Textual Analysis. *NBER Working Paper* No. 18725.
- Brogaard, J., & Detzel, A., (2015). The Asset-Pricing Implications of Government Economic Policy Uncertainty. *Management Science*, 61, 3–18.
- Brooks, C. (2014). *Introductory Econometrics for Finance*. Cambridge University Press, 3rd Edition.
- Caldara, D., & Iacoviello, M., (2018). Measuring Geopolitical Risk. *FRB International Finance Discussion Paper* No. 1222. Available at SSRN.
- Calvo, G., & Reinhart, C., (2000). When capital inflows come to a sudden stop: consequences and policy options, In: Kenen, P., Swoboda, A. (Eds.), *Key Issues in Reform of the International Monetary and Financial System*. *International Monetary Fund*, pp. 175-201.
- Clark, J., & Berko, E. (1997). Foreign investment fluctuations and emerging market stock returns: The case of Mexico. Staff report 24. New York: *Federal Reserve Bank of New York*.
- Chan, Y-C & Saffar, W. and Wei, John, K.C., (2017). How Economic Policy Uncertainty Affects the Cost of Raising Equity Capital: Evidence from Seasoned Equity Offerings. *Available at SSRN*: <https://ssrn.com/abstract=3017843>.
- Chen, N.-F., Roll, R. & Ross, S. A., (1986). Economics Forces and the Stock Market. *Journal of Business*, 59(3), 383–403.
- Choi, J.J. (1995). The Japanese And US Stock Prices: A Comparative Fundamental Analysis. *Japan and the World Economy*, 7(3), 347-360
- Cutler, D.M., Poterba, J.M. & Summers, L.H., (1989). What Moves Stock Prices?. *Journal of Portfolio Management*, 15(3), 4-12.
- Dahlquist, M., & G. Robertsson. (2004). A note on foreigners' trading and price effects across firms. *Journal of Banking & Finance* 28 (3):615–32.

- Davis, S.J. (2016). An Index of Global Economic Policy Uncertainty. *NBER Working Paper No. 22740*, <http://www.nber.org/papers/w22740>.
- Demir, E., & Ersan, O., (2016). The Impact of Economic Policy Uncertainty on Stock Returns of Turkish Tourism Companies. *Current Issues in Tourism*, 21(8), 847-855.
- Donadelli, M., (2015). Asian Stock Markets, US Economic Policy Uncertainty and US Macro-Shocks, *New Zealand Economic Papers*, 49(2), 103-133.
- Duasa, J. (2007). Determinants of Malaysian Trade Balance: An ARDL Bound Testing Approach. *Global Economic Review Perspectives on East Asian Economies and Industries*, 36(1), 89-102.
- Fama, E.F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work, *Journal of Finance*, 25(2), 383-417.
- Fama, E.F. (1981). Stock Returns, Real Activity, Inflation, and Money. *The American Economic Review*, 71(4), 545-565.
- Fama, E.F. (1990). Stock Returns, Expected Returns, and Real Activity. *The Journal of Finance*, 45(4), 1089-108.
- Feng, L., Lin, C-Y., & C. Wang, (2017). Do Capital Flows Matter to Stock and House Prices? Evidence from China. *Emerging Markets Finance & Trade*, (53), 2215-2232.
- Froot, K.A., O'connell, P.G.J., & Seasholes, M.S. (2001). The portfolio flows of international investors. *Journal of Financial Economics*, 59(2):151-93.
- Froot, K. A., & T. Ramadorai. (2008). Institutional portfolio flows and international investments. *Review of Financial Studies*, 21 (2):937-71.
- Gallinger, G.W., (1994). Causality Tests of the Real Stock Return-Real Activity Hypothesis. *Journal of Financial Research*, 17(2), 271-288.
- Geske, R. & Roll, R. (1983). The Fiscal and Monetary Linkage between Stock Returns and Inflation. *The Journal of Finance*, 38(1), 1-33
- Gjerde, Ø. & Sættem, F., (1999). Causal Relations among Stock Returns and Macroeconomic Variables in a Small, Open Economy. *Journal of International Financial Markets, Institutions and Money*, 9(1), 61-74.
- Gultekin, N.B. (1983). Stock Market Returns and Inflation: Evidence from Other Countries. *The Journal of Finance*, 38(1), 49-65
- Han, L., Qi, M., & Yin, L., (2016). Macroeconomic Policy Uncertainty Shocks on the Chinese Economy: a GVAR Analysis, *Applied Economics*, 48(51), 4907-4921.
- Harrison, A., Love, I., & McMillan, M., (2004). Global capital flows and financing constraints, *Journal of Development Economics*, 75 (1), 269-301.
- Humpe, A. & Macmillan, P., (2009). Can Macroeconomic Variables Explain Long-Term Stock Market Movements? A Comparison of the US and Japan. *Applied Financial Economics*, 19(2), 111-119.
- <http://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42>

<https://evds2.tcmb.gov.tr/>

<https://finance.yahoo.com/quote/web?ltr=1>

<https://fred.stlouisfed.org/>

<http://www.policyuncertainty.com/>

Gourinchas, P.-O., & Obstfeld, M., (2012). Stories of the twentieth century for the twenty-first, *American Economic Journal: Macroeconomics*, 4 (1), 226-265.

Igan, D.O., Kutan, M.A. & Mirzae, A., (2016). Real Effects of Capital Inflows in Emerging Markets, *IMF Working Papers* 16/235, International Monetary Fund, 1-50.

Jin, X., Chen, Z. & Yang, X., (2017). Economic Policy Uncertainty and Stock Price Crash Risk. Available at: [sfm.finance.nsysu.edu.tw/php/Papers/.../075-1270825538.p..](http://sfm.finance.nsysu.edu.tw/php/Papers/.../075-1270825538.p..)

Kang, W. & Ratti, R. A., (2013). Oil Shocks, Policy Uncertainty and Stock Market Returns. *Journal of International Financial Markets, Institutions and Money*, 26, 305–318.

Kim, S., & Yang, D.Y., (2009). Do Capital Inflows Matter to Asset Prices? The Case of Korea. *Asian Economic Journal*, 23(3): 323-348.

Kumar, N.P., & Padhi, P., (2012). The Impact of Macroeconomic Fundamentals on Stock Prices Revisited: An Evidence from Indian Data. *Munich Personal RePEc Archive MPRA Paper* No. 38980, 1-24.

Kwon, C.S., & Shin, T.S., (1999). Cointegration and Causality between Macroeconomic Variables and Stock Market Returns. *Global Finance Journal*, 10(1), 71-81.

Li, X., Balcilar, M., Gupta, R. & Chang, T., (2016). The Causal Relationship between Economic Policy Uncertainty and Stock Returns in China and India: Evidence from a Bootstrap Rolling Window Approach, *Emerging Markets Finance and Trade*, 52(3), 674-689.

Loncan, T.R., & Caldeira, J.F., (2015). Foreign portfolio capital flows and stock returns: a study of Brazilian listed firms, *Estudos Economicos*, 45(4), 859-895.

Mukherjee, T.K., & Naka, A., (1995). Dynamic Relations between Macroeconomic Variables and the Japanese Stock Market: An Application of a Vector Error Correction Model. *Journal of Financial Research*, 18(2), 223-237.

Naceur, S.B., Ghazouani, S. & Omran, M., (2007). The Determinants of Stock Market Development in the Middle-Eastern and North African Region. *Managerial Finance*, 33(7), 477-489.

Nasseh, A., & Strauss, J., (2000). Stock Prices and Domestic and International Macroeconomic Activity: A Cointegration Approach. *The Quarterly Review of Economics and Finance*, 40(2), 229–245.

- Niederhoffer, V., (1971). The Analysis of World Events and Stock Prices. *The Journal of Business*, 44(2), 193-219.
- Okuyan, H.A., & Erbaykal, E., (2011), İMKB'de Yabancı İşlemleri ve Hisse Senedi Getirileri İlişkisi, *Doğuş Üniversitesi Dergisi*, 12(2), 256-264.
- Olaberría, E.A., (2014). Capital Inflows and Booms in Asset Prices: Evidence from a Panel of Countries, *Central Banking, Analysis, and Economic Policies Book Series*, in: Miguel Fuentes D. & Claudio E. Raddatz & Carmen M. Reinhart (ed.), *Capital Mobility and Monetary Policy*, edition 1, 18(8), 255-290. Central Bank of Chile.
- Özer, M., (2015). Can Turkey be a Good Example for the Balkan Nations? The Story of Illusion of Well-Being. In Editon of Xavier Richet, Hasan Hanic and Zoran Grubisic, *New Economic Policy Reforms*, Belgrade Banking Academy, Belgrade, Serbia, 15-58.
- Pesaran, H. & Shin, Y., (1999). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis. In S. Strom (eds.) *Econometrics and Economic Theory in the 20<sup>th</sup> Century: The Ragnar Frisch Centennial Symposium* Cambridge University Press.
- Pesaran, M. H., Shin, Y., & Smith, R. J., (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(3), 289-326.
- Pradhan, R. P., Arvin, M. B., Samadhan, B., & Taneja, S., (2013). The Impact of Stock Market Development on Inflation and Economic Growth of 16 Asian Countries: A Panel VAR Approach. *Applied Econometrics and International Development*, 13(1), 203-220.
- Ratanapakorn, O., & Sharma, S. C., (2007). Dynamic Analysis between the US Stock Returns and the Macroeconomic Variables. *Applied Financial Economics*, 17(5), 369-377.
- Reis, R., (2013). The Portuguese Slump and Crash and the Euro-crisis, NBER Working Paper No. 19288.
- Richards, A., (2005). Big fish in small ponds: The trading behavior and price impact of foreign investors in Asian emerging equity markets. *Journal of Financial and Quantitative Analysis* 40(1), 1-27.
- Roll, R., (1988). R2. *Journal of Finance*, 43(3), 541-566.
- Schwert, G. W. (1981). The Adjustment of Stock Prices to Information About Inflation. *The Journal of Finance*, 36(1), 15-29.
- Shahbaz, M., Ahmed, N. & Ali, L. (2008). Stock Market Development and Economic Growth: ARDL Causality in Pakistan. *International Research Journal of Finance and Economics*, 14, 182-195.
- Shin, M., Zhang, B., Zhong, M., & Lee, D.J., (2017). Measuring International Uncertainty: the Case of Korea. *Finance and Economics Discussion Series*, 2017-066. Washington: Board of Governors of the Federal Reserve System.

- Singh, T., Mehta, S., & Varsha, M. S., (2011). Macroeconomic Factors and Stock Returns: Evidence from Taiwan. *Journal of Economics and International Finance*, 2(4), 217-227.
- Sum, V., (2012a). The Impulse Response Functions of Stock Market Returns to Economic Policy Uncertainty, *International Review of Applied Financial Issues and Economics* (forthcoming). Available at SSRN: <https://ssrn.com/abstract=2073184> or <http://dx.doi.org/10.2139/ssrn.2073184>
- Sum, V., (2012b). Economic Policy Uncertainty and Stock Market Performance: Evidence from the European Union, Croatia, Norway, Russia, Switzerland, Turkey and Ukraine, *Journal of Money, Investment and Banking*, 25, 99–104.
- Sum, V., (2012c). The Reaction of Stock Markets in BRIC Countries to Economic Policy Uncertainty in the United States, Working paper series (available at <http://ssrn.com/abstract=2094697>).
- Sum, V., (2013). The ASEAN Stock Market Performance and Economic Policy Uncertainty in the United States, *Economic Papers: A Journal of Applied Economics and Policy*, 32(4), 512–521.
- Şükrüoğlu, D., & Nalin, H.T. (2014). The Macroeconomic Determinants of Stock Market Development in Selected European Countries: Dynamic Panel Data Analysis. *International Journal of Economics and Finance*, 6(3), 64-71.
- Tong, H., & Wei, S.-J., 2011, The composition matters: capital inflows and liquidity crunch during a global economic crisis, *Review of Financial Studies*, 24, 2023–2052.
- Tiryaki, A., Erdogan, L. & Ceylan, R., (2017). The Causal Relationship between Selected Macroeconomic Variables and Stock Returns in Turkey. *International Journal of Economics and Administrative Studies*, 19, 299–326.
- Tiryaki, A., Ceylan, R. & Erdoğan, L., (2018) Asymmetric effects of industrial production, money supply and exchange rate changes on stock returns in Turkey, *Applied Economics*, DOI: 10.1080/00036846.2018.1540850
- Tripathy, N., (2011). Causal Relationship between Macro Economic Indicators and Stock Market in India. *Asian Journal of Finance & Accounting*, 3(1), 208-226.
- Ülkü, N., & İvizlerli, D., (2012), The Interaction Between Foreigners' Trading and Emerging Stock Returns: Evidence from Turkey, *Emerging Markets Review*, 13, 381-409.
- Vazakidis, A., & Adamopoulos, A. (2009). Stock Market Development and Economic Growth. *American Journal of Applied Sciences*, 6(11), 1932-1940.
- Wu, N., (2018). Analysis on the Impact of Short-Term International Capital Flows on Chinese Stock Market: on the Basis of VAR Model. *International Journal of Economics and Finance*, 10(8), 77-83.

- Wu, T-P., Liu, S-B., & Hsueh, S-J., (2016). The Causal Relationship between Economic Policy Uncertainty and Stock Market: A Panel Data Analysis, *International Economic Journal*, 30(1), 109-122.
- Yartey, A.C., (2010). The Institutional and Macroeconomic Determinants of Stock Market Development in Emerging Economies. *Applied Financial Economics*, 20(21), 1615-1625.

© Copyright of Journal of Current Researches on Social Science is the property of Strategic Research Academy and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.