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STOCK MARKET UNCERTAINTY AND MONETARY POLICY REACTION FUNCTION: EVIDENCE FROM TURKEY

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Abstract

In this paper we examine whether the Central Bank of Republic of Turkey (CBRT) compensates for enhanced stock market uncertainty by cutting the policy rates in the post-2002 period when inflation targeting regime was applied. By this way, it is demonstrated that whether CBRT considered financial stability while determining policy rates. In this paper we extend the standard Taylor rule in order to assess whether the CBRT responds to stock market uncertainty. To describe the behavior of the CBRT augmented forward-looking Taylor rule, we used the Generalized Methods of Moments (GMM) estimator. We find that the parameters in the monetary policy rule are statistically significant. We show that, given a certain level of inflation and output, Turkish central bank rates are lower when stock market uncertainty is high and vice versa. However, the degree of this relationship is very low. According to study results, the CBRT does not use as key factor the stock market uncertainty to determine policy rates.

Keywords: *Stock market uncertainty, monetary policy, augmented Taylor rule.*

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Hisse Senedi Belirsizliği ve Para Politikası Reaksiyon Fonksiyonu: Türkiye Örneği

Özet

Bu çalışmada, Türkiye Cumhuriyeti Merkez Bankası'nın (TCMB) enflasyon hedeflemesi rejimi uyguladığı 2002 sonrası dönemde, hisse senedi piyasası belirsizliğine para politikası faizleriyle reaksiyon gösterip göstermediği tespit edilecektir. Bu çerçevede TCMB'nin politika faiz oranlarını finansal istikrarı sağlamak için kullanıp kullanmadığı ortaya konulacaktır. Çalışmada TCMB'nin hisse senedi belirsizliğine tepki verip vermediğini belirlemek için ileriye dönük genişletilmiş Taylor kuralı kullanılmaktadır. Tahmin edilen para politikası kuralı parametreleri istatistiksel olarak anlamlıdır. Buna göre hisse senedi piyasası belirsizliği arttığında TCMB faiz oranları düşmektedir. Fakat bu ilişkinin derecesi oldukça düşüktür. Çalışma sonuçlarına göre, TCMB politika faizlerini belirlemek için hisse senedi piyasası belirsizliğini anahtar faktör olarak kullanmamaktadır.

Anahtar Kelimeler: *Hisse senedi belirsizliği, para politikası, genişletilmiş Taylor kuralı.*

1. INTRODUCTION

The most significant change in the world economy is related to inflation rates and output variability. During the 1990s, inflation rates in many developed and developing countries fell, and output variability decreased. During this period, a decrease in nominal interest rates occurred. Credit expansion and asset price bubbles were other characteristics of economic structure in this period. Despite the low inflation rates and a decrease in output variability, there have been important changes in the policies of central banks associated with stock price changes. Establishing price stability in this period couldn't prevent the fluctuations of financial instability in the same period.

The housing market crisis is the latest reminder that asset prices can have negative effects on real economic activity. This has created a debate over whether central banks should respond to asset price bubbles. Stock prices are among the most closely watched asset prices in the economy and are viewed as being highly sensitive to economic conditions. Changes in stock prices and returns lead to the changes in economic behavior.

In the last decade, Turkish authorities have increased their focus on inflation control. However, after the global crisis, events have led some to consider the possibility that the monetary authority should respond to other variables such as stock market uncertainty.

The outline of the paper is as follows: Section II provides a review of the existing literature on this topic. Section III contains a brief review of the Turkish economy. In section IV, the data used in the study and the methodology employed are described. Conclusions are presented in the last section.

2. LITERATURE REVIEW

Financial instability has monetary and non-monetary causes. According to the monetarists, financial crises begin with a sudden withdrawal of deposits from the banking sector, causing liquidity contraction (Friedman and Schwartz, 1963). According to another approach, financial stability is directly defined as part of the business cycle. According to this approach, financial crises are the inevitable result of the expansion process. Following Fisher (1932, 1933 and 1982), the debt–deflation school during the 1970s emphasized the role of financial factors in business cycles. The main difference between the monetarist and the financial fragility approach the role of monetary policies. According to monetarist approach, crises stem from external monetary shocks. In the financial fragility approach, the financial system is intrinsically unstable[1].

According to "financial instability hypothesis", capitalist economies are inherently vulnerable to financial crises. As stated by Mishkin (2008), there are forces that lead capitalist economies to engage in Ponzi schemes and in speculative financial strategies during cyclical boom/bust periods. The inclination of economic units toward these financial strategies results in financial crises and recession.

The new consensus approach has significant effects on conducting monetary policy. This approach is mainly based on New Keynesian and New Classical economists' views. In the new consensus approach, because inflation is a monetary phenomenon controlled only by changes in interest rates, price instability is caused by monetary policies. Therefore, it is widely agreed that monetary policies are more effective in controlling the inflation. This effect was observed in monetary policy choices, including monetary aggregates, until the 1990s. In the same period, there have been contributions affecting the new consensus approach at both the theoretical and the empirical level. For example, the Taylor rule was a focus of monetary-policy-related models. As economies develop, the Taylor rule is widened to include exchange rates and housing and stock prices.

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1 "Euphoria" is the main variable in the formation of financial system instability. As a result of this euphoria, there is an expansion in credit supply, and stock price bubbles form.

When central banks determine interest rates only according to inflation and the output level, financial instabilities increase. Excess financial market uncertainty can spill over into broader macroeconomic uncertainty in terms of output and inflation fluctuations. Central banks might try to compensate for this by lowering the costs of credits. Monetary policy conducted during Greenspan's chairmanship of the Federal Reserve of the United States is an example of this situation. However, the side effects of policies based on liquidity expansion were criticized by prominent economists like Taylor.

According to Taylor (2007), when central banks inject extreme liquidity into markets, low interest rates stimulate economic activity and encourage borrowing. During this economic expansion period, asset prices reach unsustainable levels. Taylor states that, despite high inflation rates in countries where low interest rate policies are implemented, stock market volatility increases. As stated by Buttimer (2011), liquidity expansion was a primary motivation for creating the secondary mortgage market structure in the USA.

According to Fatas et al. (2009), loose monetary policy was not the main cause of the recent boom and subsequent bust. Rather, the main cause was acting too narrowly and not reacting strongly enough to indicators of growing financial vulnerability.

Bernanke, Gertler and Gilchrist (1999) and Bernanke and Gertler (1989, 1999) show that the magnitude of the effects of asset price fluctuations on the economy strongly depend on the state of household and firm balance sheets. As stated by Mishkin and White (2002), if the balance sheets of financial and non-financial institutions are initially strong, a market crash is unlikely to lead to systemic instability. In this case, the decline of stock prices will affect real output through the wealth and cost of capital channels, requiring the monetary policymakers only to respond directly to the decline on aggregate demand. However, central banks may see the need to respond directly to a stock market crash when asset price declines put stress on the financial system.

Asset price misalignments create difficult problems for monetary policymakers; no consensus has emerged on the appropriate strategy for monetary policymakers in the presence of misalignments. Some authors point out that including asset prices, including stock prices, in the central bank's policy rule may be optimal, and central banks can react significantly to stock market movements by changing the short-term interest rate (Cecchetti et al., 2002; Crocket and Andrews, 1997; Rigobon and Sack, 2003). The housing market crisis is the latest reminder that asset prices can have negative effects on real economic activity. This has created a debate over whether central banks should respond to asset price bubbles. According to this view "Raising interest rates modestly as asset prices rise above what are estimated to be warranted levels, and lowering interest rates modestly when asset prices fall below warranted levels, will tend to offset the impact on output and inflation of these bubbles, thereby enhancing overall macroeconomic stability" (Cecchett et al., 2002:3).

For an activist policymaker, two countervailing goals of monetary policy occur when bubbles arise. The first is to conduct tight monetary policy in order to eliminate expansionary effects that cause asset price bubbles in the future. The latter is to conduct expansionary monetary policies in order to prepare the economy for the conditions after the asset price bubble bursts. The main determining factor during this period is related to the extent of asset price misalignments. When the asset price misalignment from fundamentals is high, the effects of this misalignment are likely to be high. Therefore, tight monetary policies should be implemented. On the other hand, if the misalignment from fundamentals is not high enough, more expansionary monetary policies should be implemented (Gruen, Plumb, and Stone 2005).

Other studies argue that central banks should not respond directly to asset price changes (Bernanke and Gertler, 1999 and 2001). They say that monetary policy should be focused exclusively on stabilizing inflation and output. According to this view, policy should only respond to observed changes in asset prices to the extent that they signal current or future changes to inflation or the output gap. According to Bernanke and Gertler (1999), adding asset prices to the reaction function usually creates highly volatile interest rate rules.

Within the framework of an inflation targeting regime, the main objective of central banks is to determine and maintain price stability. To this end, and in line with the classic Taylor rule (1993), central banks use the policy rate as the primary instrument. The rule helps in determining the interest rate necessary to reach the inflation target. Nevertheless, interest rates are also the primary determinants for other factors such as credit growth, asset prices and the current account deficit. These factors are also important for financial stability. As a result, using the Taylor rule, which estimates the interest rate necessary for price stability, can also be used to determine the interest rate necessary for financial stability. However, the interest rate necessary for price stability in the economy may not always be compatible with the interest rate necessary for financial stability (Financial Stability Report December, 2010:45).

Borio and Lowe (2002) focused on asset prices, investment volume and credit availability as leading indicators for financial distress in some industrial and emerging countries since the 1960s. For each of these indicators (credit gap, asset price gap and investment gap), they define a threshold value that, when exceeded, would signal a financial crisis. The paper also investigates the relationship between financial stability and monetary policy. Gerdesmeier and Roffia (2009) produced a similar result. Like Borio and Lowe (2002), Gerdesmeier and Roffia (2009) present empirical evidence on how booms in credit, asset prices and investment have predictive power for banking crises and asset price busts.

As emphasized by Jovanovic and Zimmerman (2008), because significantly high asset price changes cause liquidity and solvency problems in an economy, central banks are often urged to intervene in the price fluctuations of stock markets. Significant and large scale fluctuations in financial markets damage the functioning of the financial system, affecting resource distribution negatively. Extreme volatility in financial markets has caused economic agents to fall into uncertainty and economic downswing. Therefore, central banks should make decisions to compensate for these changes in economic activity.

Along with studies on interest rate decision making, a significant literature has developed studying whether central banks in developed countries take measures to provide financial stability (see Chadra, Sarno and Valente, 2003; Kontonikas and Ionnidis, 2004; and Jovanovic and Zimmerman, 2008). The results of the above-mentioned studies show that central banks in developed countries intervene in price changes causing instability in stock markets.

3. AN OVERVIEW OF THE TURKISH FINANCIAL SYSTEM

Until 2002, when the inflation targeting regime began, Turkey’s economic environment was characterized by high and volatile inflation, massive dollarization with instability in the financial sector, high public debt, and low and unstable economic growth. Furthermore, the crises in the second half of the 1990s (monetary crisis in 1994, Asian crisis in 1997, Russian crisis in 1998, and financial crisis in 2001) contributed to an increase in economic vulnerability (CBRT, 2005). In Turkey, the main underlying reason for inflation was that the money supply exceeded the money demand. The main reason for monetary expansion was that the resources of the central bank were used to finance budget deficits. A new finance law passed in April 2001 required the central bank to consider inflation rates in money supply decisions. According to Akyüz (1973) excess money supply was the main cause of inflation during 1950 to 1968. The same view was attained by Özatay (2000) for 1977-1996.

Turkey entered 2000 with an exchange rate based on a stabilization program prompted by the fear of hyperinflation. The main target of the program was to reduce inflation through tight monetary and fiscal policies. Increases in the base money supply were tied to net foreign asset increases. However, this program couldn't be successfully conducted because of certain factors, including structural problems in the banking sector and high current account and budget deficits. Following February 22, 2001, a floating exchange rate system was put into effect. Until 2005, implicit inflation targeting was implemented with the transition into the Powerful Economy program on April 14, 2001. The CBRT has been implementing a full-fledged inflation targeting regime as its monetary policy strategy since the beginning of 2006. With this program, short-term interest rates became the most important monetary policy tool in dealing with liquidity control and inflationary pressures.

However, after 2006, inflation was higher than targeted level. During this period, CBRT was obliged to increase interest rates in order to encourage foreign investors to stay and invest in Turkey. According to Özatay (2009), the factors causing the inflation to appear above the targeted level since 2006 can be summarized as follows: 1. the loss of credibility of the CBRT during the process of appointing a new head of CBRT, 2. the increase in credit risk, 3. the increasing political tension during the Turkish presidential elections, 4. the loosening of financial discipline due to early general elections, 5. the increases in energy prices and 6. The effects of the global financial crisis beginning to appear in the USA.

In 2007, the financial crisis began in the USA, following world conjuncture positive from 2002-2006, happened contrary to expectations. During this period economic growth slowed down and the primary budget deficit, targeted at 6.5% of GDP, diverged from its target in Turkey. External trade and the trade deficit rose. The period of 2002-2006 was when price stability was generally established. Conversely, after 2006, price stability deteriorated. During this period, as well as the effect of situations of Turkey global crisis was also effective. The global financial crisis deepened in September 2008 and began to have a global effect in 2009, especially in developed countries. In this period, significant differences were present in the economic growth rates of developed and developing countries. While developing countries were growing rapidly, growth rates slowed down in developed countries. The decline of growth rates in developed countries caused central banks to conduct loose monetary policies. As a result, global capital flowed to developing countries with the hope of getting high returns.

In the above-mentioned period, due to the positive conditions in the Turkish economy, capital inflows increased in Turkey, which subsequently increased worries about financial stability due to the rapid credit expansion. Therefore, the CBRT was inclined to take measures consistent with ensuring price stability. As a result, the CBRT used short-term interest rates and alternative policy tools like reserve requirements.

4. MODEL

4.1. A Measure of Stock Market Uncertainty

The aim of this paper is the empirical validation of the assumption that the CBRT responds to uncertainty in the stock market by means of interest rate adjustments. Engle (1982) introduced autoregressive conditional heteroscedasticity (ARCH) models, which are specifically designed to model and forecast conditional variances. These models were generalized as GARCH (generalized ARCH) by Bollerslev (1986).

We apply this framework in our analysis because it allows for modeling leverage effects in financial markets. In our context, this univariate time series model contains a mean and a variance equation as follows:

$$\Delta sp_t = \alpha_0 + \alpha_1 \Delta sp_{t-1} + e_t \tag{1}$$

and

$$h_t = \emptyset_0 + \emptyset_1 e_{t-1}^2 + \varphi_1 h_{t-1} \tag{2}$$

Where sp_t is the closing values of Istanbul Stock Exchange series 100 (ISE 100) and e_t is an error term, which follows by assumption a generalized error distribution. The left-hand side of Eq. (2) is conditional variance on past variances h_{t-1} and past errors. In order to provide stationarity, the first difference of ISE 100 was taken and was determined as ARMA (2,2) in view of the best model Box-Jenkins (1976). The ARCH-LM test, which was calculated for the residuals of this model, was found to be statistically significant. Although many ARCH and GARCH models were estimated, in accordance with the literature, GARCH (1,1) was the best model[2]. The variance model estimation results in Table 1 are achieved through maximum-likelihood estimation upon the assumption that e_t follows a generalized error distribution.

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[2] Tests results can be given upon request.

Table 1. Estimation Results of the Stock Market Volatility

	$\emptyset_0$	$\emptyset_1$	φ_1
Parameters	1312184.0	0.458669	0.417205
Standard errors	(904989.4)	(0.250931)	(0.186841)
p-values	[0.1471]	[0.0676]	[0.0256]

The estimated GARCH (1,1) model provides two restrictions over the GARCH model. These restrictions are as follows: (1) the parameters must be greater than zero ($\emptyset_1 > 0$, $\varphi_1 > 0$) and (2) the sum of parameters must be smaller than 1, ($\emptyset_1 + \varphi_1 < 1$)[3]. The compatibility test results of the model are given in Table 2.

Table 2. Compatibility Tests for Conditional Heteroscedastic Model Residuals

Lags	LM	p-values	LB	p-values
5	1.4619	0.917	1.0002	0.317
10	9.3655	0.498	7.7105	0.260
20	21.7084	0.356	17.715	0.341
30	27.9915	0.571	22.739	0.648
40	33.2895	0.765	24.061	0.936

The Ljung-Box (LB) statistic of the standardized residuals is not significant at any lag to the conclusion of a correctly specified mean equation owing to the absence of serial correlation. The same is true for the standardized residuals squared and the p-values of the ARCH LM test. Hence, the variance equation seems to be correctly specified. Figure 1 shows estimated stock market uncertainty, in this case represented by the volatility series for the ISE 100. Note that stock market uncertainty has been high, especially after the year 2006, and the two highest volatilities were realized in the 2008:1 and 2008:10 periods. In addition to Turkey's own problems (inflation deviated from the target, and growth estimates were not realized), the tension in international markets caused by mortgage-related losses in the USA had adverse effects on the ISE in 2008. Due to the global crisis, there were significant value losses in ISE during the early months of 2008. In the later periods of 2008 there were considerable developments that caused increasing uncertainty, which included the following: the legal case against the ruling party (AKP), the tension between Russia and Georgia, the collapse

[3] Engle (1982) and Bollerslev (1986).

of Lehman Brothers and the apparently imminent collapse of General Motors directly influenced the ISE.

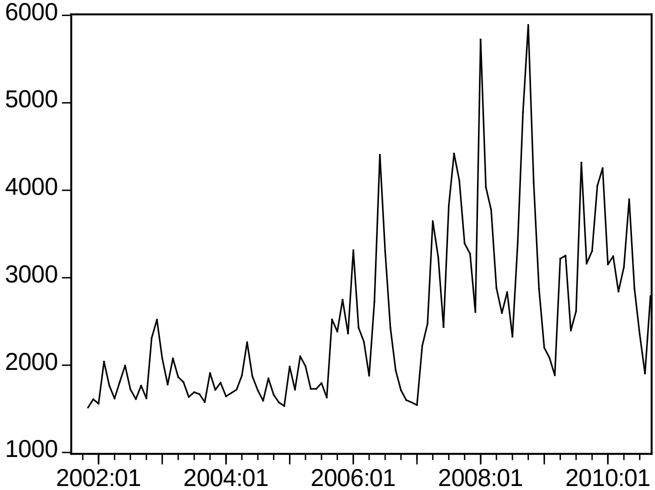

Figure 1.
Estimated Stock Market Uncertainty (Volatility)

In Table 3, the correlation matrix between the interbank interest rates and volatility series are given. If Table 3 is examined, it can be seen that a significant and negative relationship at the 1% level was found between the interbank interest rate and stock market volatility.

Table 3. Correlation Matrix between Interest Rate and Volatility

	Volatility (t)	Volatility (t-1)
Interest Rate (t)	-0.32	-0.31
(p-values)	(0.0007)	(0.0014)
Interest Rate (t-1)	-0.34	-0.32
(p-values)	(0.0004)	(0.0007)

Although the calculated correlation coefficient is low, CBRT responded meaningfully to the increase in uncertainty. Although the above-mentioned correlation doesn’t reflect causality, volatility increases lower interest rates.

4.2. Standard and Augmented Monetary Policy Reaction Functions

Our specification and estimation of an augmented Taylor rule follows Clarida et al. (1998, 1999, and 2000). In the Taylor rule, we model the nominal target rate regarding the long-run nominal interest rate, the inflation gap, the output gap and a measure of stock market uncertainty in each period. We begin with a standard version of the reduced form version of the Taylor rule, written in regression form as[4],

$$i_t = \bar{i} + \beta\tilde{\pi}_t + \gamma\tilde{x}_t + \rho i_{t-1} + \upsilon_t \tag{3}$$

The following variables were used: i_t is the interbank rate and $\tilde{\pi}_t$ is the departure of inflation from the target (π) measured by CPI accumulated from the annual inflation target (π*) that is (π- π*). If the reaction function is forward looking, the inflation gap is simply the difference between expected and targeted inflation rates, i.e., $\left(E(\pi_{t+k}) - \pi^*\right)$. $\tilde{x}_t$ is the output gap, which is the departure of the natural log of seasonally adjusted industrial production series (IPS) from potential industrial production series. ρ is the interest rate persistence or smoothing term, and υ_t is a residual term.

Augmenting the Taylor rule by a measure of stock market uncertainty ($\tilde{s}_t$) yields:

$$i_t = \bar{i} + \beta\tilde{\pi}_t + \gamma\tilde{x}_t + \theta\tilde{s}_t + \rho i_{t-1} + \upsilon_t \tag{4}$$

4.3. Data and Empirical Results

The data were collected from the CBRT and International Financial Statistics for the period 2002:01-2010:09, which corresponds to the time of implicit and explicit inflation targeting. The output gap is a detrended IPS by Hodrick-Prescott (HP) filtering. In order to estimate a forward-looking reaction function, we used expected inflation data instead of actual inflation data, as in Clarida et al. (1998, 1999, 2000). The expected inflation variables were obtained from CBRT's expectations surveys that present expected inflation figures for the next 12 months. For the transformation of inflation

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4 The detail of the simple and augmented forward looking reaction functions can be seen in Jovanovic and Zimmermann (2008).

targets released as yearly data into monthly data, the method of Yazgan and Yılmazkuday (2007) was used. The variable of stock market uncertainty is the volatility series obtained from the GARCH (1,1) model.

Before going on to look at the results two points must be emphasized. First, for the estimations of rules (standard-augmented), the Generalized Method of Moments (GMM) estimation method was adopted. GMM is used because, when OLS estimations have problems of serial autocorrelation, heteroskedasticity, or nonlinearity, which is typical in a macroeconomic time series, it implies consistent estimators for the regressions (Hansen, 1982). We chose the instruments to be used in a model that we estimated by the GMM. Accordingly, the instruments used were as follows: lags of interest rate, lags of inflation rate, lags of output gap, and lags of stock market uncertainty. The estimation results are presented in Tables 5 and 6, and the standard errors were corrected for heteroscedasticity and serial correlation using the Newey–West procedure. Second, the GMM requires that all the variables used in the estimation are stationary. Therefore, Table 5 gives Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root test results.

Table 5. Unit Root Tests Results

	ADF (k)	Prob.	PP (k)	Prob
Levels				
Policy rates	-1.0361 (1)	0.7383	-1.6306 (5)	0.4636
Inflation gap	-3.6378 (1)	0.0065	-2.3595 (5)	0.1678
Output gap	-2.8688 (1)	0.0524	-6.3035 (7)	0.0000
Volatility	-4.1465 (0)	0.0013	-3.9989 (3)	0.0021
First Differences				
Policy rates	-7.5262 (0)	0.0000	-7.6970 (4)	0.0000
Inflation gap	-7.7098 (0)	0.0000	-7.6205 (4)	0.0000
Output gap	-11.352 (1)	0.0000	-21.403 (1)	0.0000
Volatility	-	-	-	-

Note: We use only intercept term in unit root test model as exogenous regressors.

If both ADF and PP unit root test results are examined in Table 5, it is shown that only for a volatility series is rejected at 1% significance level. In other words, the volatility series is stationary. However, the policy rate only for a series of two tests can not reject the null hypothesis. Thus, policy rate series was found to be non-stationary. When we take the first difference of policy rate series, it is reached to stationary. In addition, we found different results in both inflation gap and output gap series. That is, the PP unit root test for inflation gap and the ADF unit root test for output gap are show that the series are non-stationary. The first differences of both series are found stationary. Therefore, we used the first difference of all variables, other than stock market uncertainty.

In the empirical application first, the CBRT's forward-looking reaction function was estimated within the framework of the standard Taylor rule. The estimated standard reaction function results are shown in Table 6.

Table 6. Estimation Results of Eq. (3)

	$\bar{i}$	β	γ	ρ
Parameters	-0.1702	1.0737	0.0114	0.2231
standard errors	(0.0106)	(0.0238)	(0.0017)	(0.0094)
p-values	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Durbin-Watson	2.1271			
Adjusted $\bar{R}^2$	0.5654			
J-statistic	0.1247			

Note: The Durbin-Watson non-autocorrelation lower bound and upper bound are 1.736 and 2.264 respectively, for 5% significance levels. Probability value of J-statistics is given on last row.

It is shown that a standard rule, which does not account for stock market uncertainty, yields plausible and significant results for all coefficients. The estimated monetary policy reaction function features a coefficient for expected inflation of $\beta > 1$ and a coefficient for the output gap of $\gamma > 0$; thus the Taylor principle is fulfilled. These coefficients are statistically significant at the 1% level. Hansen’s (1982) J statistic, which tests the overidentification restrictions, appears to be satisfactory. Hence, the overidentifying restrictions cannot be rejected.

Second, the CBRT's forward-looking reaction function was estimated within the framework of the augmented Taylor rule, and results are given in Table 7. The results are very similar to those in Table 6.

Where stock market uncertainty is included in the estimation, not only as an instrument but also as an explanatory variable for the real interest rate, all coefficients have plausible values and are statistically significant at the 5% level. The coefficient for stock market uncertainty is negative, i.e., given certain levels of output and inflation expectations, the real interest rate is significantly lower when stock market uncertainty is high and vice versa. However, this effect is not strong. Hansen's (1982) J statistic, which tests the overidentification restrictions, appears to be satisfactory. Hence, the overidentifying restrictions cannot be rejected.

Table 7. Estimation Results of Eq. (4)

	$\bar{i}$	β	γ	θ	ρ
Parameters	-0.1280	1.0919	0.0062	-1.48E-05	0.1568
standard errors	(0.0172)	(0.0074)	(0.0012)	(7.20E-06)	(0.0083)
p-values	[0.0000]	[0.0000]	[0.0000]	[0.0431]	[0.0000]
Durbin-Watson	1.9691				
Adjusted $\overline{\mathbf{R}}^2$	0.5574				
J-statistic	0.1464				

Note: The Durbin-Watson non-autocorrelation lower bound and upper bound are 1.758 and 2.242 respectively, for 5% significance levels. Probability value of J-statistics is given on last row.

5. CONCLUSION

Sudden and serious changes in asset prices are among the elements affecting the success of an inflation targeting regime. Hence, changes in asset prices in should be taken into account when conducting monetary policy. Not doing so can cause extreme demand expansion and the elevation of inflationary pressures in periods when accommodative monetary policies are conducted. This situation implies that a tightening of monetary policy should be conducted in the later periods of a crisis.

In accordance with its main objective of achieving price stability since 2002, the CBRT monitors the stability of the financial system. We find that the parameters of the monetary policy rule are statistically significant. We show that, given a certain level of inflation and output, Turkish central bank rates are lower when stock market uncertainty is high and vice versa. According to study results, the CBRT does not use as key factor the stock market uncertainty to determine policy rates.

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