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## Araştırma Makalesi • Research Article

**Effects of The Central Bank of the Republic of Türkiye (CBRT) Interest Rate Decisions on BIST Bank Share Values***Türkiye Cumhuriyet Merkez Bankası (TCMB) Faiz Kararlarının Borsa İstanbul Banka Hisse Değerleri Üzerine Etkisi*Meltem Keskin<sup>a,\*</sup><sup>a</sup> Assoc. Prof. Dr., Ankara Yıldırım Beyazıt University, Şereflikoçhisar Faculty of Applied Sciences, 06950, Ankara / Türkiye  
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## MAKALE BİLGİSİ

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## ÖZ

Çalışmada, Türkiye Cumhuriyet Merkez Bankası'nın (TCMB) sıkı ya da genişletici para politikası dönemlerinde aldığı faiz kararlarının Borsa İstanbul BIST Likit Banka (XLBNK) endeksine yaptığı etki incelenmiştir. Bu çalışmanın amacı; TCMB'nin aldığı faiz indirimi veya artırımı kararlarının XLBNK endeksinde işlem gören banka hisse senetleri fiyatları arasında ilişkinin varlığını ve boyutunu 2014:01 - 2024:03 dönemleri arasında belirlemektir. Bu amaç doğrultusunda lojistik regresyon analizi kullanılmıştır. Sonuç olarak, TCMB'nin açıkladığı, faiz oranında indirimde gidilmesi durumunda XLBNK endeksi günlük kapanışına pozitif yönde etki yaptığı, haftalık veya aylık değişim üzerinde anlamlı etkiye sahip olmadığı; faiz artırım dönemlerinde ise ilişki bulunmadığı bulgularına ulaşılmıştır.

## ABSTRACT

The study examined the impact of the interest rate decisions taken by the Central Bank of the Republic of Türkiye (CBRT) during tight or expansionary monetary policy periods on the Borsa İstanbul BIST Liquid Bank (XLBNK) index. Logistic regression analysis was used in the study. It has been found that between the periods 2014:01-2024:03, the interest rate reduction decisions announced by the CBRT positively impacted the daily closing of the XLBNK index and did not significantly affect the weekly or monthly change. It was found that there was no relationship during interest rate increase periods.

**1. Introduction**

Investors have to decide between investment instruments to evaluate their excess savings, protect their capital against inflation and generate income. Stocks are also among the investment instruments. While stocks meet the capital needs

of the offering companies, they offer investors an alternative partnership. Stock Exchanges; While they provide all investors, whether individuals or legal entities, with the opportunity to become shareholders of companies in return for a certain percentage, they also enable them to share in company profits and losses. Like other investments, stock

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investments also involve risk, and stocks are an investment instrument very sensitive to economic policy developments. Investors want to use the most suitable investment choices for themselves according to the risks they can bear, considering their profit maximization goals. One of the factors that investors take into consideration when evaluating investment decisions is the interest rate. For investors trading in the markets, the interest rate, which represents the cost of capital, represents the time value of money as the price of using money within a specified time frame. While interest is considered as the return of those who have excess funds, it is an element of investment cost for those who need funds. Based on the assumption that investors behave rationally in capital markets, a correlation is expected between changes in interest rates and financial markets (Samuelson, 1945: 16-18; Kahneman & Tversky: 1979; Harris & Raviv, 1991; Baker & Wurgler, 2002; Tufan, 2008). In financial markets, the interest rate resulting from surplus funds may cause funds to be directed to the banking system (Jaffe & Russel, 1976; Keton, 1976; Stiglitz & Weiss, 1981; Greenwald et.al., 1984:195). Especially in periods when interest rates are high, investors can avoid taking risks by changing their investment decisions (Cottrell, 1994; Sellon, 2002:7; Aklan & Nargeleçekenler 2008; Güzel, 2022). In this case, investors may prefer to invest in deposit accounts that pay high interest instead of financial instruments such as stocks. This situation causes declines in the stock markets. However, the question of how much the banks traded on the stock exchanges are affected by this situation becomes important. In this context, the impact of central banks' decisions to reduce or increase interest rates, one of the monetary policy instruments, on bank stocks is considered worth examining.

In the literature, the relationship between money transfer mechanism instruments, including interest, and stock values of companies traded on stock exchanges has been examined. In this study, the effects of central banks' monetary policy decisions on bank stock values were examined. Study; It aims to determine the existence, direction and size of the relationship between the CBRT's interest rate reduction or increase decisions and the stock prices of liquid banks.

The banking sector is different from the real sector traded in the markets. Banks can determine interest rates within certain limits given to them. Banks can also use central bank resources. For this reason, the CBRT relations of the banking sector differ from other sectors traded on BIST. In this study, examining whether banks traded on BIST, instead of real sector companies traded on stock exchanges, are affected by the decisions of the CBRT distinguishes the study from the literature.

The banks included in the XLBNK index, which is the subject of the study and traded on BIST, consist of bank shares with high market value and transaction volume of shares in actual circulation, selected from companies operating in the Stars Market. Banks traded in the index as of 2024; Akbank Incorporated company (Inc.), Albaraka

Inc., Şekerbank Inc., Garanti BBVA, Halkbank, Türkiye İşbank Inc., Vakıfbank and Yapı Kredi Bank Inc.

Logistic regression analysis was used as the study analysis method. Within the scope of the study, CBRT interest rates were included in the analysis between 01.01.2014 and 19.03.2024, and while it was found that the CBRT's interest rate reduction decisions had a positive impact on the daily closing of XLBNK, the effect of interest rate increase decisions on XLBNK could not be determined.

This entire study consists of five chapters. In addition to the theoretical framework, the study includes a literature study, an econometric application and the findings and evaluation in the last section.

## 2. Theoretical Framework

Real persons and legal entities can meet their financing or investment needs from competitive national/international markets. Banks play an active role in meeting fund needs and using financial instruments. Banks; In addition to financial intermediation, they also mediate transactions such as providing liquidity, evaluating loan requests, affecting wealth distribution, increasing the effectiveness of monetary policies, and developing national and international trade (Kartal, 2018: 6). For this reason, banks have taken their place among the basic institutions of financial systems. Like many countries, Turkey also has a bank-centered financial system. Most of the economic activities in Turkey are financed by banks. Banks, the main intermediary institutions of the Turkish financial system, also have direct relations with the CBRT. CBRT is one of the most important institutions operating to regulate, execute and supervise the functioning of the Turkish financial system. CBRT has been directing the Turkish economy since 1930 (Keskin, 2023: 5136).

Central banks, whose roles in all world markets and economies become more important day by day, use monetary policies to regulate markets in a wide range from financial stability to economic growth and determine asset prices with the policies they implement. The policy decisions implemented by central banks to achieve the goals they set affect the markets and the economy through various transmission mechanisms. In financial markets, the central bank's monetary policy decisions are important for investors as well as institutions. Predicting the direction of investors' reaction to interest rates is important in portfolio shaping and risk management because it affects the return and value prices of financial assets (Rigobon and Sack: 2004: 1554). In the targeted inflation regime, the speed and impact of changes in interest rates, which are among the basic monetary policy tools, are reflected in banks' deposit and/or loan interest rates and become an important element in the functioning of the money transfer mechanism.

Central banks, which are among the most important institutions that direct the capital markets, monitor financial national/international capital markets and manage the volume of national money and monetary policies. Central

banks use monetary transmission mechanisms through monetary policy decisions. The interest channel has a dominant place in the classical monetary transmission of central banks. Central banks also use channels such as exchange rates, asset prices, credit, wealth effects, stock prices and expectation channels. However, the interest channel, also called the standard monetary transmission channel, is the most traditional monetary transmission mechanism. Interest rates and monetary authority change the marginal cost of borrowing and thus have an impact on the total demand in the economy by affecting the consumption decisions and cash flows of consumers and the investment and spending behaviour of producers (CBRT, 2013: 2-5). In effectively functioning markets, it is expected that interest rates on capital gains will direct funds to banking system instruments such as deposits or securities.

Another element of the monetary transmission mechanism is the stock market. Stock pricing is immediately and directly affected by active monetary pricing. Companies that invest by issuing shares earn income by issuing shares according to the costs they undertake. The shares they issue mean more investment and an increase in national income (Mishkin, 1996: 6). The change in the cost of capital has the effect of changing stock prices. The cost of capital model provides a list of assets and liabilities that appear in portfolios and balance sheets, the factors that determine the supply and demand of various assets, and how asset prices and interest rates are formed. In this approach, monetary values and the commercial banking system are also necessary sectors in determining financial behaviour (Tobin, 1969: 15-16). Central banks; They implement a series of financial measures such as increasing interest rates in line with their monetary policy to reduce the high level of money supply in the market. In the opposite case; Central banks aim to turn the decline in total demand back into an increasing trend by causing a contraction in the economy with loosened monetary policy measures. It increases the money supply to achieve this goal. In this case, the central bank uses its monetary policy tools to increase the money supply. Central banks; use tools to reduce rediscount and interest rates by conducting open market operations. The impact of all these policies on stock prices is significant.

Another capital market institution that acts as a bridge between those who need funds in the capital markets and those who have excess funds, that is, investors, is the stock market. The first organized stock exchange established in Turkiye, the Dersaadet Bond Exchange in Istanbul, started operating on August 2, 1866, during the Ottoman Empire. In 1906, the name of the stock exchange was changed to Esham ve Tahvilat Borsası. However, the stock exchange was closed in the last period of the Ottoman Empire. It started to operate as the Istanbul Stock Exchange with the Securities and Exchange Law No. 1447 and Regulation No. 8172, adopted in 1929 during the Republic of Turkey. In 1938, the stock exchange moved from Istanbul to Ankara and continued its activities under the name of Esham ve Tahvilat Borsası. The stock exchange returned to Istanbul in 1941. It

was organized as the Istanbul Stock Exchange (ISE) on December 26, 1985, with the "Regulation on the Establishment and Working Principles of Securities Exchanges" published on October 6, 1984. 1986 ISE held its first session with 19 stocks. On December 30, 2012, by Capital Markets Law No. 6362, the name of the ISE was changed to Borsa Istanbul (BIST) and on April 5, 2013, BIST started its first session.

BIST calculates indices with different features to monitor capital market movements, to be the underlying asset for issued financial instruments, and to use collective investment products with comparative benchmarks. Some of the BIST indices; BIST 100 on 01.01.1986; BIST 30; BIST ALL; BIST 50 on 28.12.1999; BIST SUSTAINABILITY on 03.11.2014; 27.11.2015 BIST STAR; BIST LIQUID BANK on 04.11.2019; BIST 500 indices started to be traded on BIST on 01.11.2023.

Turkish and foreign bank shareholders investing in BIST also take into account expected returns, degree of risk-taking and deposit interest rates when evaluating their investments. Among the reasons why investors turn to bank stocks is that many of the banks listed in the XLBNK index pay dividends and provide additional returns to their investors. Another reason that attracts investors' attention is that banks have a relatively strong financial performance. Additionally, investors' desire to diversify their portfolios may cause them to prefer bank shares. Banks can be considered low-risk investment instruments because they are subject to strict regulations. This is considered an attractive element for investors who want low risk. Sharing banks' financial information and analysis with the public. It is also an element that makes it easier for investors and banks to make investment decisions using information. The fact that banks listed on BIST have relatively strong corporate governance practices increases their value creation potential for investors.

Investing in bank stocks also has some risks and disadvantages. During an economic recession, loan defaults may increase and the profitability of banks may decrease, causing a decrease in share values. Another risk factor reflected in stocks is their sensitivity to banking sector regulation changes and changes in interest rates. Additionally, sudden changes in interest rates change banks' profit margins. It may cause banks to incur losses and deteriorate their financial structures due to loan defaults. Banks are exposed to liquidity and market risk, which may negatively affect the value of banks' stocks. Technology companies and fintech firms threaten the market share of traditional banks. This competition may reduce the profitability and value of banks and is directly reflected in the share value. Again, banks are also vulnerable to operational risks due to cyber attacks. Since national, geopolitical and international risks affect the financial performance of banks, they can negatively affect the bank stock value.

### 3. Literature Review

There are studies in the literature that examine the extent to which stock returns are affected by monetary policies and also investigate the relationships between BIST returns and interest rates, as can be seen in Table 1.

Comparative examination of monetary policies and stock returns, studies on predicting stock returns in the future with money supply data, especially in the 20th century. It has been a subject of interest in the literature since the second half of the century. The common feature in these studies is that they show that changes in monetary policy delay stock returns and the Vector Autoregression (VAR) model is used in many studies. XX. Some examples of studies carried out in the century are as follows: Brunner (1961), Sprinkel (1964), Homa & Jaffee (1971), Hamburger & Kochin (1972), Dornbush & Fischer, (1980), Aggarwal (1981), Frankel, (1983), Bernanke & Blinder (1992), Lee (1992), Krueger & Kuttner (1996), Owens & Webb, Patelis (1997), Thorbecke (1997) & Conover et al (1999).

Also, XXI on the subject. Many studies conducted in the 19th century have taken their place in the literature. Analysis methods in these studies are various. Among the analysis methods; Panel/GMM and ARDL analyses, Cointegration and Causality Analysis, IS-LM model, applied autoregressive distributed lag (ARDL) and OLS regression models were used. XXI. Some of the century studies are as follows: Hatemi & Irandoust (2002), Ehrmann & Fratzscher (2004), Bernanke & Kuttner (2004), Rigobon & Sack (2004), Friedman & Schwartz (2008), Hayford & Malliaris (2008), Kashefi (2008), Grauwe (2008), Ehrmann & Fratzcher (2009), Lee & Chang (2011), Bleich et al. (2013), Zare et al. (2013), Michlian (2014), Tachibana (2018), Delgado et al. (2018), Köylü & Yücel (2019), Mroua & Trabelsi (2020), Bhutto et al. (2020), Quan (2022) & Caporale et al. (2024).

Examples of studies examining the relationships between Borsa Istanbul returns and interest rates are included in Table 1.

**Table 1:** Examples of Studies Examining the Relationship Between BIST and Central Bank Macroeconomic Indicators

Writer(s)	Subject	Period	Model	Key Findings
Zügül & Şahin (2009)	The relationship between İMKB-100 index and macroeconomic variables.	2004-2008	Linear regression analysis	It has been concluded that there is a negative relationship between ISE-100 stock return indices and exchange rates and interest rates.
Cihangir & Kandemir (2010)	The relationship between the İMKB-30 index and macroeconomic variables.	2000-2001	Arbitrage Pricing Model	As a result of the study, limited results were observed and it was observed that it affected the Consumer Price Index and all stock returns.
Aktaş & Akdağ (2013)	The relationship between economic factors and stock prices in Türkiye.	2008-2012	Granger Causality Test	Deposit interest rate, It was concluded that it has a significant effect on the BIST100 index.
Sentürk & Dücan (2014)	The relationship between exchange, interest rates and stock market return in Türkiye.	1997-2013	VAR model, Granger causality analysis	It has been concluded that as the interest rate and exchange rate increase, the return of the stock market index decreases and that there is a unidirectional causality relationship from the exchange rate to the stock market return and from the interest rate to the exchange rate.
Alper & Esen (2017)	Factors Affecting Stock Returns in Borsa Istanbul	2003-2017	Action-response analysis, Variance decomposition Analysis	Real stock returns are affected by interest rates.
Koyuncu (2018)	Relationship of BIST-100 index with macroeconomic variables.	1988-2016	DF-GLS unit root test, FMOLS and DOLS regression analyses, Cointegration test	It has been determined that there is a relationship between macroeconomic variables & BIST-100.

Çulha (2019)	The relationship between interest rates, BIST-100 and BIST sector indices.	2010- 2018	VAR model	The relationship between interest rates, BIST-100 & BIST-Sector indices.
Köylü & Yücel. (2019)	FED interest rate decisions and BIST-100 relationship.	1988-.2018	Classification, Regression	It has been found that the effect of the interest rate announced by the FED on the BIST-100 index remains limited for the next trading day, its effect becomes evident during the one-week trading period and as time progresses, this effect decreases and continues until the next FED interest rate announcement.
Ilgin & Sarı (2020)	Relationship between exchange rate and interest rate, BIST-All and BIST-Sectoral indices.	2009- 2019	ARDL limit test	It was concluded that the relationship between the data was statistically significant.
Keskin & Yücel. (2022)	CBRT interest rate decisions and BIST-100.	2010–2022	Mathematical Models	A strong relationship has been found between the CBRT's interest rate decisions and BIST 100 index value movements.
Karaca et al. (2022)	Macroeconomic variables and BIST relationship.	2009-2019	Mathematical analysis	It has a one-way relationship from the stock market index to interest rates.
Düzakin & Özekenci (2023)	Examining the relationship between selected macroeconomic variables and BIST-100.	2006-2023	Multiple linear regression model	It was concluded that there is a negative relationship between the stock market index and the interest, exchange rate.
Bash, & Al-Awadhi (2023)	Central bank independence and BIST	2018-2021	Case study	Political intervention in central banks has a strong impact on stock market outcomes.
Aydın & Özel (2024)	Yields and interest rates on government bonds provided by BIST.	2005-2019	Joslin et al. prediction model And Adrian et al. prediction model	The share of foreign investors in the bond market is decreasing. It is possible to ignore the impact of foreign investors seeking returns in emerging markets.
Mirgen (2024)	Effects of Debt Structure on the BIST Bank Index	2013-2022	Panel data analysis	No statistically significant relationship was found between the short and long-term debts of banks listed in BIST and financial success.

As can be seen in the studies in the literature, non-banking companies are affected by the changes that may occur in the central bank's interest rate decisions. The aspect of this study that differs from the literature is that the central bank's interest rate decisions are chosen from banks traded on BIST instead of real sector companies traded on stock exchanges. In this study; It is debated whether banking share values are affected by the CBRT's monetary policy. Since the banking sector's relations with the CBRT are different from the companies traded in the real markets, it

is evaluated that researching whether the banking sector's level of influence from the CBRT's monetary policies is different from the companies operating in other sectors will contribute to the literature.

#### 4. Empirical Analysis

##### 4.1. Data

In this study, two data sets were brought together as can be seen in Table 2. The first data set regarding the interest

rate decisions of the Monetary Policy Committee between January 2014 and March 2024 was taken from the official website of the Central Bank of the Republic of Turkey (CBRT, 2024). Second data set; It consists of BIST Liquid Bank data traded on BIST. The second dataset is XLBNK. Share values of the banks included in the index were taken from Investing, a financial analysis site.

**Table 2:** Explanation of Variables Used in Analysis and Their Sources

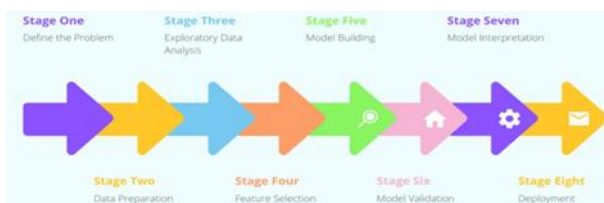
Variables	Explanations of Variables	Source
CBRT interest rate	CBRT overnight interest	CBRT
XLBNK	Borsa Istanbul Liquid Bank	BIST/ Financial Analysis Site

4.2. Analysis Method

The Logistic Regression analysis method was used in the study. This analysis takes its name from the logit transformation applied to the dependent variable. Although the use of the logistic model dates back to 1845 (Çokluk, 2010: 1398), the first examples of regression studies were made by Berkson in 1944 and Finney revealed that logistic regression was an alternative to probit analysis in 1972. Truett et al. 1967 and Halpering et al. 1971 suggested logistic regression as an alternative to discriminant analysis in cases where the normal distribution assumptions of mean 0 and variance 1 are violated.

Logistic regression; It is a statistical model that examines the log probabilities of an event model as a linear combination of one or more independent variables. In other words, it is a model that does not need to meet assumptions such as normal distribution of independent variables, linearity and equality of variance-covariance matrices. While logistic regression includes large samples to produce unbiased statistics, the mathematical model obtained from the analysis is quite easy to interpret (Poulsen and French, 2008). The main purpose of such analyses is to establish an acceptable model that can define the relationship between dependent and independent variables in a way that has the best fit with the fewest variables (Atasoy, 2001; Çokluk, 2020: 1398). The visual regarding the creation of the logistic regression model is given in Figure 1.

**Figure 1:** Building Lojistik Regression Model



Source: Jain, 2023

As can be seen in Figure 1, the logistic regression process steps consist of problem definition, data preparation, exploratory data analysis, feature selection, model creation, model validation, model interpretation, and deployment of the model to predict new data.

4.3. Empirical Findings

Table 3 has been prepared to show the frequency and percentage distribution of the change in CBRT interest rates.

**Table 3:** Distribution by CBRT Interest Rate Change

Variable	Situation	n	%
CBRT overnight interest	Interest deduction (-1)	20	40,8
	Unchanged (0)	13	26,5
	Interest rate increase (0)	16	32,7

In the period between January 2014 and March 2024, the CBRT announced 49 interest rate decisions, and in 20 of these decisions (40.8%), the interest rate was reduced, in 13 (26.5%), the interest rate remained unchanged, and in 16 (32%), the interest rate was reduced. 7) interest rate has been increased. Table 3 shows the frequency and percentage distribution of the change in CBRT overnight interest rates.

Since this study assumes that the CBRT interest rate cut will lead to a daily, weekly or monthly increase in this coding, when the regression coefficient is positive, it is understood that the interest rate reduction causes a positive change in XLBNK.

Before logistic regression, extreme values, the number of samples in categories and proportion assumptions were examined. Table 4 shows the extreme value test results for the CBRT interest rate cut variable.

**Table 4:** Extreme Value Control

Standardized error	Number of samples	%
0 with  1	34	69,4
1  with  2	13	26,5
2  with  3	2	4,1
>  3	0	0,0

According to Table 4, the standardized error in the 49 data that constitutes the research sample is >|3| It is understood that there is no such example, so we cannot talk about an extreme value. Table 5 shows the sample numbers and rates in the categories (interest did not change/increase (0), interest was reduced (-1)).

**Table 5:** Number and Ratio of Samples in Categories

Observation	Definition	N	%
Selected sample	Included in the analysis	49	100,0
	Lost data	0	0,0
	Total	49	100,0
Not included in the analysis.	Excluded	0	0,0
	Total	49	100,0

According to Table 5, it was determined that all 49 samples were included in the analysis and there was no missing data. Table 5 shows the iteration history for the initial model.

**Table 7:** Initial Classification Status

Actual/Observed situation	Predicted situation		Percentage of Correct Classification
	No interest rate reduction	There is an interest rate reduction	
No interest rate reduction	0	20	0,0
There is an interest rate reduction	0	29	100,0
Percentage of total correct classification			59,2

In Table 7, in the initial model where only the constant term is included, in line with the first classification results, it is seen that there is no correct classification in any of the cases where there is no interest rate discount (0%), and all of the cases where there is an interest rate discount are correctly classified; It can be seen that the overall correct classification rate is 59.2%. Table 8 shows the variables included in the initial model (equation).

**Table 8:** Variables Included in the Initial Model

Step 0	$\beta$	Standard Error	Wald	sd	p	Exp ( $\beta$ )
Stable	0,372	0,291	1,634	1	0,201	1,450

According to Table 8, in the initial model where only the stable term was included, the odds ratio (Exp) was found to be at 1.450, the Wald statistic was 1.634 and was not statistically significant ( $p > 0.05$ ). Table 9 shows the iteration history of the model in which predictive variables were included.

**Table 9:** Iteration Story for the Situation Where Predictor Variables Enter the Model

Iteration	-2Log Likelihood (-2LL)
Step 1	1
	2
	3
	4
	5

**Table 6:** Initial Model Iteration Story

Iteration	-2Log Likelihood (-2LL)	Coefficients Stable
	Step 0	1
	2	0,372
	3	0,372

Estimation terminated at iteration number 3 because parameter estimates changed by less than, 001.

According to Table 6, it can be seen that in the model where only the stable term is included, the -2LL value is far from 0 and quite high. With the introduction of predictor variables into the model, a decrease in the -2LL value is expected, in other words, improvements in model-data fit are expected. Table 7 shows the first classification status obtained as a result of the analysis.

Estimation terminated at iteration number 5 because parameter estimates changed by less than,001.

According to Table 9, it can be seen that the -2LL value, which was 66.266 in the initial model, decreased to 56.525 in the model where predictive variables were included. Hosmer & Lemeshow's test results regarding the model fit coefficients in line with the resulting -2LL difference ( $66.266 - 56.525 = 9.741$ ) are shown in Table 10.

**Table 10:** Omnibus Test of Model Coefficients

Step	X <sup>2</sup>	sd	p
1	8,946	8	0,347

The Hosmer & Lemeshow test, which is considered a model fit goodness test, evaluates the fit of the logistic regression model as a whole. The null hypothesis in the test is "model data fit is sufficient" and  $p > 0.05$  indicates that the null hypothesis cannot be rejected (Garson, 2008). Since the p-value of the Hosmer & Lemeshow test statistic is greater than 0.05 ( $p > 0.05$ ), the model has an acceptable fit; It was determined that the model-data fit was sufficient. Cox&Snell R<sup>2</sup> and Nagelkerke R<sup>2</sup> tests are other tests used for model fit and are given in Table 11.

**Table 11:** Summary of Intended Model

Step	-2LL	Cox&Snell R <sup>2</sup>	Nagelkerke R <sup>2</sup>
1	56,525	0,180	0,243

Cox&Snell  $R^2$  and Nagelkerke  $R^2$  tests represent the estimation of the variance explained in the dependent variable by the model in two different ways and are interpreted similarly to  $R^2$  in multiple regression. Both test results indicate the amount of variance explained by the logistic model, and the closer they are to 1, the better the model fits. Since Cox&Snell  $R^2$  never reaches 1, it is difficult to interpret, so the Nagelkerke  $R^2$  test is

calculated (Field, 2005; Hair et al., 2006). According to the Cox&Snell  $R^2$  value in Table 11, when the predictor variables were included in the analysis, it was determined that approximately 24% of the variance (Nagelkerke  $R^2 = 0.243$ ) was explained and the Nagelkerke  $R^2$  value was higher than the Cox&Snell  $R^2$  value, as expected. Table 12 shows the classification obtained as a result of the logistic regression model.

**Table 12:** Classification Table Obtained as a Result of Logistic Regression Model

Actual/Observed situation	Predicted situation		Percentage of Correct Classification
	No interest rate reduction	There is an interest rate reduction	
No interest rate reduction	9	11	45,0
There is an interest rate reduction	7	22	75,9
Percentage of total correct classification			63,3

In the first classification results (Table 7) without including the predictor variables in the model, the correct classification percentage was determined as 59.2%. As a result of the classification made according to the predictive variables in Table 12 (as a result of logistic regression analysis), the correct classification for situations where there is no interest rate reduction is 45%;

It was determined that in cases where there was an interest reduction, the correct classification rate increased to 75.9% and the total correct classification rate increased to 63.3%. Table 13 shows the coefficient estimates of the variables in the model.

**Table 13:** Variable Coefficient Estimates

	B	SH	Wald	sd	p	Exp ( $\beta$ )	%95CI	
							Bottom	Top
<b>Step 1</b>								
XLBNK daily change	0,820	0,405	4,110	1	0,043	2,271	1,028	5,018
XLBNK weekly change	-0,005	0,113	0,002	1	0,962	0,995	0,798	1,240
XLBNK monthly change	-0,011	0,050	0,045	1	0,833	0,989	0,896	1,092
XLBNK daily binary code (1)	-0,990	0,624	2,512	1	0,113	0,372	0,109	1,264
XLBNK weekly binary code (1)	-1,064	0,667	2,545	1	0,111	0,345	0,093	1,275
XLBNK monthly binary code (1)	0,122	0,584	0,044	1	0,835	1,129	0,360	3,546
Stable	0,994	0,464	4,596	1	0,032	2,703		

(1) In binary coding, 1: indicates an increase, 0: indicates a decrease.

According to Table 13, a significant relationship was found between the daily change in BIST100 and the CBRT overnight interest rate (Wald=4.11; Exp  $\beta$  =2.271;  $p < 0.05$ ). The exponential regression coefficient (Exp  $\beta$ ) represents the odds ratio calculated for each variable (the ratio of the probability of an event occurring to the probability of it not occurring) (Mertler & Vannatta, 2005). The odds ratio is calculated as a percentage by subtracting the exponential regression coefficient from 1 and multiplying the absolute value obtained by 100 (Çokluk, Şekercioğlu & Büyüköztürk, 2010). It has been determined that the probability of a CBRT interest rate cut in the case of a daily increase in XLBNK, which has a significant relationship with the CBRT overnight interest rate, is 127% higher than the probability of a CBRT interest rate cut in case there is no daily increase in XLBNK ( $[1-2,271]*100 = -127\%$ ). The ratio of the

probability of a reduction in the CBRT overnight interest in case of a daily increase in XLBNK to the probability of a reduction in the CBRT overnight interest in case of no daily change in According to the findings, the CBRT interest rate cut causes a daily increase in XLBNK and causes it to close at a higher level compared to the previous day's closing.

According to the findings in Table 13, it has been determined that weekly and monthly changes in XLBNK have no relationship with the CBRT interest rate cut (Wald  $p > 0.05$ ).

## 5. Conclusion

Central banks achieve their goals by effectively using transmission channels in monetary policies. Stock markets are also one of the effective transmission



channels. Additionally, stock prices are important indicators of changes in investors' behaviour. Monetary policy; Interest rates are very decisive in their transmission to asset prices. The interest rate represents investors' cost of capital as the price of money at a particular point in time. Central banks have an impact on consumption decisions, asset prices and investment decisions with the interest policies they implement.

The banking sector is different from the real sector. When the main differences are examined, we see the methods of obtaining funds. While long or short-term funding needs in real markets are met by financial instruments consisting of securities such as debt loans, bonds and stocks, it is possible to use central bank resources due to interbank transactions in the banking sector. In addition, while the real sector is not effective in the formation of interest rates, banks can play a decisive role in determining market interest rates within certain limits as allowed by the central bank. In addition to all these, the study focused on banks listed in Borsa Istanbul because the banking sector is the most sensitive sector to fluctuations that may occur in the markets and cause banking sector shares to differ from other sector shares.

In periods when interest rates are high, investors turn to interest instruments that they consider less risky, and when interest rates decrease, they can make more profits by using other financial instruments. The reductions in the CBRT overnight interest rates can be expected to be higher in the stock market index compared to the previous day, the previous week or the closing of the previous month. In this study, it was found that there is no relationship between the change in the CBRT overnight interest rate. It has been determined that the probability of a CBRT interest rate cut causing a change in the daily closing of XLBNK is 127% higher. If there is no change in the CBRT interest rate, it is more likely to cause a change in the daily closing of XLBNK. In the study, no significant relationship was found between the CBRT interest rate increase and XLBNK. This result is consistent with Apergis and Eleftheriou (2002), Ehrmann and Fratzscher (2003), Humpe and Macmillan (2007), Caporale et al. (2024) and Mirgen (2024) while it is parallel to the studies of Çulha (2019), Keskin and Yücel. (2022) and Düzakin and Özekenci (2023) differ from the results of their studies. The reason for this is that the studies in question; aim is to examine the effects of central bank decisions on BIST100. These different results arise from differences between banks and companies operating in real markets.

The limitation of this study is that it explains all the value changes in the XLBNK index with the CBRT interest rate increase/decrease decision. Among the studies to be carried out in the future, it is envisaged that the share values of banks can be prepared by taking into account the interest rate decisions of the Central Bank of the Republic of Turkey, as well as the interest rate decisions of the

European Central Bank and the US Federal Reserve (FED).

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