THE RELATIONSHIP BETWEEN MONETARY POLICY AND STOCK PRICES: EVIDENCE FROM BORSA ISTANBUL

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Abstract: *This study analyses the relation of monetary policy on the stock exchange prices in Türkiye using monthly data for eighteen years (2006:12-2024:2). Data are taken from the Central Bank of the Republic of Türkiye and Turkish Statistical Institute. The method of data analyses used are Ordinary Least Square (OLS). BIST100 Index is used as a indicator for stock exchange prices while the explonatory variables included the Central Bank the Republic of Türkiye monetary policy weekly repo rate, 3 months Treasury bill rate, M3 money supply, and USDTRY foreign exchange rate. The OLS regression result reveals that monetary policy weekly rate significantly explains % 0.4 changes of stock exchange prices in Türkiye. 3 months Treasury bill rate insignificantly explains % 0.1 changes of stock exchange prices. M3 money supply significantly explains % 17 changes of stock exchange prices. USDTRY foreign exchange rate insignificantly explains % 5.3 changes of stock exchange prices. The Granger causality test reveals that BIST100 index has no casual relationship with monetary policy weekly repo rate, 3 months Treasury bill rate, M3 money supply, and USDTRY foreign exchange rate.*

Key words*:* Monetary policy, stock price, T-bill rate, foreign exchange rate, money supply

JEL Classification Codes: E43, E51, E52

1. INTRODUCTION

Financial specialists and policymakers broadly analyze the link among financial approach-share costs. Share costs are crucial for a country's money related environment, they are a key component. Money related approach centers on controlling the cash supply and credit channels rather than fair altering the interest rate to oversee the generally financial action level. The cash advertise and capital showcase, in spite of their contrasts in length and other viewpoints, are interrelated. The common agreement is that macroeconomic markers, such as interest rates, money supply, and foreign exchange can affect stock prices.

The stock advertise plays a basic part within the economy by apportioning assets and directing them towards important speculations. The stock trade showcase is considered a principal component of budgetary frameworks, because it viably disperses assets among financial performing artists. A country’s situation gives a way to implementation of share trade. Monetary policy could decrease share prices even though increasing share prices could lead increasing country’s budget deficit. The share prices indices are very important indicator for a country’s financial environment. Economic administration contains leading cash and credit for giving a way to budget. Monetary policy makers use some tools such as interest rate, money supply, credit channel to succeed their objections. Monetary policy’s mission is to guarantee cost solidness. A pivotal challenge is guaranteeing the successful transmission of money related

approach to monetary frameworks. This transmission is accomplished through the intrigued rate channel, credit channel, or cost level inside the financial environment. An effective transmission mechanism can potentially enhance the return on investment.

Financial specialists utilize diverse instruments to influence the approach on the bounty of transmission channels. Intrigued rate control the financial arrangement coordinate or roundabout. Within the coordinate control, intrigued rate is connected the portfolio or adjust sheet of banks utilizing particular credit control, stabilization securities.

Elumilade and Asaolu (2006) expect that interest rate can impact the targets of money related approach. The money authorities utilize money related approach apparatuses to influence the adjust sheet of the banks. Intrigued rates and credit channels which are organized by money authorities are compromised with monetary arrangement. With regard to this framework, the money related framework does not take portion of choice for budgetary framework costs or benefits and allocation of credits. Advance, there's a certain association between roundabout financial arrangement and budgetary framework so both of them can impact each other. The deregulate of intrigued rates and backhanded financial approach instrument utilization are exceptionally important for change of monetary markets. In specific, there's a collective relationship between backhanded money related approach exchange control and completely utilized capital markets.

With regard to empirical works, financial specialists consider that financial approach and macroeconomic circumstances impact the instability of stock costs. Christopher et al. (2006) emphasize that macroeconomic factors influence speculation choices of speculators. The needed macroeconomic approaches are anticipated to influence emphatically on the stock trade showcase. Especially the change of cash related course of action in Türkiye, the subject of the portion of cash related course of action through stock promote execution has picked up much more thought from investigators and policymakers. This paper focuses to clarify the effect of cash related course of action on Istanbul Stock Exchange toward different financial approaches.

It is examined the relation between financial factors and Stock of İstanbul. Subsequently aims are considered to understand the effect of financial related arrangement factors and share implication of Türkiye and decide the impact and comes about of plenty of money related approach factors on the stock advertise execution. For this point this we have applied diverse econometric procedures in analyzing factual truths of these factors.

2. LITERATURE REVIEW

Monetary policy refers to a collection of strategies, tools, and measures aimed at impacting various economic instruments like balance of payments, investment activities, the real economy, economic growth, and other macroeconomic indicators, all within the context of a nation's monetary framework while taking into account current trends. The refinement of these policies is essential for ensuring the stability of macro economy and finance.

Monetary policy could affect companies' balance sheet via monetary policy tools. That's why it alters the liquidity situation of company's account section. This alteration can be effected credit and money channel and also effected base money, real economy, financial markets and investments. Particularly, once monetary policymaker secures financial instruments within the financial environment, it leads an increment within the saves and monetary base of the managing an account framework, subsequently increasing the money supply and bringing down short-term interest rates. In current financial surrounding, a considerable community portion cooperates with financial environment, either straightforward or not. On a daily basis, both individual and institutional investors, including mutual fund managers and insurance company representatives, invest capital in a variety of stocks. Consequently, investors give importance to assess the

expected returns on different stocks alongside the risks involved to make well-informed decisions about buying or selling these assets.

Literature's main part extensively examines the interplay between the stock market and economic activity, highlighting various macroeconomic factors. Specific channels of asset prices are integral to the transmission mechanisms of financial action. Transmission mechanism generally accepted financial action tends for exerting downward influence on stock prices, while expansionary financial action is associated with an upward influence. Under typical circumstances, a low-interest-rate environment is expected to draw greater capital into the stock market in anticipation of higher returns, whereas a high-interest-rate environment is likely to promote increased savings in financial institutions. Fama and Schwert (1977) explore the link among share yields and Treasury bill, uncovering negative slope coefficients in their regressions of stock returns against Treasury bill rates. While central banks possess the ability to influence interest rates, they also impact inflation expectations. Notably, inflation has positive relation with interest rates and has negative relation with stock prices. Booth and Booth utilize two key variables to elucidate affecting of financial action on share and T-bill yields: Fed funding rate and the rate of discount. Their research indicates a contractionary financial action is linked to a decline in yields of both tiny and enormous baskets of stocks and bonds. In a related investigation, Hasan and Tarih (2009) analyze the long-term dynamics among share prices and monetary instruments, specifically focusing on money supply and foreign exchange rates, by applying co-integration tests, Granger causality assessments, and impulse response analyses.

Financial action in any nation aims to achieve a variety of objectives can be articulated through macroeconomic indicators such as employment levels, money supply, inflation, exchange rates. Certain macroeconomic factors, including the central bank's discount rate, may exert indirect influences on the financial landscape via the action transmission mechanism. In the context of stock valuation, it is commonly posited stock prices are reflective of future expectations. Monetary policymakers play a crucial duty in establishing the recent and anticipated expected real interest rates, which impact household consumption and saving behaviors over time. The discount rate serves as a pivotal link between financial action and the stock market, particularly concerning anticipated future interest rate fluctuations. Empirical findings indicate both dovish and hawkish monetary policies have significant impacts on current and prospective stock returns. The prevailing consensus in financial literature suggests contractionary financial action correlates with declining stock prices, while expansionary action is associated with rising stock prices. A base assumption is that hiking in interest rates resulting from decrease financial action would compel investors to allocate more resources to the stock market. Research by Bernanke and Gertler (1995) highlights financial action impacts external financing beyond just interest rates, thereby reinforcing the concept of the credit channel within the monetary transmission framework. Nonetheless, banks remain the primary conduits through which financial action shocks are transmitted to the real economy. Ibrahim (2003), similar to Mukherjee, investigated the long-term relationship and dynamic relations among shares and various financial indicators. Results indicate that shares index has positive relation with economic factors. Conversely, shares index has negative relation with FX rates. Tsoukalas employed VAR to analyze the relation among share prices and financial instruments revealing a strong association among these factors. Thorbecke (1997) explored the relation among financial action and shares through various approaches, with the VAR model being a primary method incorporates financial instruments. This research demonstrated shocks in financial action significantly influence firms' access to credit. In contrast, Boschen and Mill (1995) utilized a different methodology to assess financial action's impact, indicating the VAR model suggests a substantial positive impact of financial action on monthly stock returns. Patelis (1997) focused on the role of financial action in determining stock returns, employing long-horizon regression as

the methodology, which incorporates two distinct sets of variables: financial action and financial variables. The study concluded accurate predictions of future returns can be derived from financial action indicators. Cassola and Morana (2006) conducted an analysis utilizing a VAR model focused on the euro area. This model incorporates macroeconomic tools aiming to investigate financial transaction's mechanism of transmission. Findings of Cassola and Morana (2006) align with those of Jensen and Johnson, who established a connection between financial action changes and stock returns. Their research indicates long-term stock returns resulting from reductions in the discount rate are not only higher but also exhibit less volatility compared to returns associated with increases in interest rates. Jensen and Johnson employed the discount rate as a representative measure of "financial action," given its impactiveness as an indicator of financial action shifts. Findings indicate stock returns, which exhibit predictable variations, are influenced by both financial action and prevailing business conditions, with anticipated stock returns being greater during periods of tight financial action compared to those of loose financial action. Inflation, regarded as the most critical monetary factor, reflects that money supply is related with output. Being underperformance stock market following inflationary periods has been extensively analyzed in financial literature. The U.S. Task Office identified reverse correlation among shares and inflation caused money printing. Prior to this finding, research conducted by Nelson (1976), Fama, and Schwert (1977) highlighted the adverse relation among share's yield and recent and expected inflation. Two primary perspectives have emerged to elucidate this anomaly. The first perspective, known as the tax impact, suggests the depreciation and valuation of inventories during inflationary periods, coupled with the fact stock prices do not align with inflation, results from increased corporate tax obligations, ultimately leading to a reduction in after-tax profits. In this context, inflation can be viewed as a driving force behind fluctuations in share prices. The other perspective, referred to as the proxy impact, offers different evaluation for negative relation observed among real share yields and inflation. There are two primary assumptions: the first posits a positive correlation between rotational alterations for profits and production development, while the second asserts financial action operates in a countercyclical manner. Fama (1981) suggests there exists an inverse relationship in money demand, characterized by current inflation levels and anticipated future growth in national productivity. A reduction in expected future output growth corresponds with a decrease in present stock returns, accompanied by a rise in current inflation. While Kaul arrived at conclusions similar to those of Geske and Roll regarding the stock returns-inflation relationship, his analysis did not comprehensively address the issue of debt monetization. Udegbunam and Eriki (2001) demonstrated inflation exerts a considerable adverse impact on stock prices. Their research paper presented compelling evidence of a robust correlation between stock prices and various financial signals.

Financial action measures are widely recognized for their short-term impacts on stock prices; however, many specialists argue the overarching action framework established by monetary authorities can have profound implications for asset market performance over the long term. Some specialists suggest monetary policies marked by persistent or volatile inflation can lead to instability in financial markets. In contrast, policies focused on price level stabilization are typically viewed as reducing the risk of asset price bubbles.

Research has shown both financial action and the associated uncertainty could effect on share prices. Boyle and Peterson (1995) illustrate the relationship between financial action uncertainty and asset prices by indicating, in the absence of a monetary sector and capital formation, total dividends align with real output. However, when the demand for money is considered, total real dividends begin to deviate from real output, with dividends increasingly influenced by the inflation rate. As a result, Boyle and Peterson (1995) contend stock prices are impacted by variations in macroeconomic uncertainty, not only because of changes in the share's

required return but also because of the influence of these variations on anticipated future dividends. It is essential to understand the impact of the latter is dependent on the prevailing financial action.

In the realm of international economic interactions, recent observations suggest central banks are adopting easing strategies in anticipation of forthcoming phases of diminished economic growth or recession. As a result, there is a tendency for both the expected returns and the actual returns to rise on average. Grasping the influence of financial action on financial markets, especially the equity sector, is essential for understanding its broader implications for the economy. Given the pronounced responsiveness of stock prices to economic fluctuations and their inherent volatility, this responsiveness can lead to significant variations in stock valuations, which may contribute to the formation of market bubbles and negatively impact the overall economic landscape.

Share prices and exchange rates relations are investigated by using Johansen cointegration and Granger causality tests (Rahman and Uddin, 2009). Their findings indicate an absence of both cointegration and random relationships between these financial variables. In contrast, Alam and Udder focus on the linear association between stock prices and financial action, particularly examining how fluctuations in interest rates impact share prices. Their research reveals a significantly adverse impact of financial action on stock prices. Additionally, Quadir (2013) explores the connections among macroeconomic indicators, including the T-bill yield rate, industrial output, and share returns. Utilizing ARIMA model, Quadir concludes affirmative relation exists between the T-bill yield and productional management as mediated by share yields. Furthermore, Saidjada (2013) employs the Johansen cointegration method alongside the VEC model to analyze the relation among monetary instruments-stock prices. This research incorporates reserve money and the T-bill yield rate, revealing a negative correlation among share prices and T-bill, while indicating no significant relation among share prices and the broader reserve money supply. Theoretical frameworks elucidating the relationships among interest rates, exchange rates, and stock returns are abundant. Kasman (2011) highlights interest rate risk may serve as an additional market factor within Robert C. Merton’s Theory of rational Option Pricing work. Lenders must consider the necessity for additional compensation due to the risks posed by fluctuations in interest rates. Furthermore, stock market volatility is likely to react to these interest rate changes. The theoretical framework elucidates the interplay among interest rates, exchange rates, and stock returns is supported by several models. Kasman (2011) posits interest rate risk may serve as an additional market factor within Merton's (1973) ICAPM. This assertion entails lenders need extra allowance by risks linked to interest rate variations.

Financial action shocks are acknowledged as pivotal elements shape investor sentiment. Participants in equity markets frequently display an increased responsiveness to these monetary fluctuations, which can result in varying degrees of optimism or pessimism contingent upon alterations in financial action (Bernanke and Kuttner, 2005; Kurov, 2010). Bernanke (1983) introduces the concept of real options theory, suggesting investment demand declines amid uncertainty, leading to a deterioration in investor sentiment. This situation arises as investors tend to hold onto cash while they await more advantageous investment prospects, thereby creating an atmosphere of diminished investor confidence. Lutz (2015) illustrates investors closely monitor financial action announcements, which have a profound impact on financial markets. Additionally, Lutz (2015) contends financial action shocks serve as a fundamental factor influencing investor sentiment within both traditional and non-traditional financial action contexts. In settings marked by high uncertainty, pessimistic tendencies often overshadow optimistic ones, as investors focus on maximizing their minimum utility (Schröder, 2011).

The relation between financial transaction and share prices has meaningful therefore this relation could effect economic growth and inflation. Despite ongoing discussions regarding the

appropriateness of addressing deviations in asset prices, particularly stock prices, it is evident financial action does respond by implementation, approved via Saha and Khan (2017). The relation among financial action and stock market dynamics is inherently reciprocal. For participants in the stock market, variations in financial action variables significantly influence their investment strategies and risk management practices. Conversely, it is crucial for central banks to comprehend the interplay between financial action and asset prices, a necessity underscored by year between 2008-2009. The comprehensive logic is essential for central bankers to impactively impact share prices, as well as to assess their implications for inflation and financial stability (Wang and Mayes, 2012).

Stock prices play a pivotal role in shaping financial conditions across various markets through multiple channels. The overarching aim is to extend the influence of financial action beyond traditional macroeconomic indicators. Stock prices are among the most scrutinized asset classes, often exhibiting heightened sensitivity to economic fluctuations due to their susceptibility to a wide array of factors (Wang and Mayes, 2012). The implications of these findings are vital for the formulation of financial action and the assessment of investor portfolios. The design of financial action and the strategies employed by investors are of paramount importance.

Numerous monetary indicators are utilized to elucidate the relation among alterations in financial action and the dynamics of economic markets. Key determinants include the maturity of the market under consideration and the specific instruments employed to impactuate changes in financial action. Coaction among financial transactions and share values is reciprocal. Execution the financial action holds significant implications for stock market participants, particularly concerning their investment willingness and risk appetite. For central banks, a critical aspect of comprehending the relation among financial action and share prices is the global financial crisis of 2009-2010. It is essential for central banks to grasp both the impacts on stock prices and entanglements for inflation and financial strength.

3. DATA AND METHOLODGY

Subsequent sections contribute a detailed description of the variables involved. The temporal scope of this research spans from December 2006 to February 2024, with the limitation of the data being the weekly repo figures, which commenced publication in the final month of 2006. The ensuing portion of this section introduces the econometric techniques utilized in the analysis, along with a rationale for the selection of these specific methods.

3.1.DATA SET AND PRELIMINARY TESTS

The research utilizes monthly data from Türkiye to study financial instrument’s effect on share market of İstanbul, specifically focusing on the BİST100 index. The analysis incorporates various economic indicators, including the M3 money supply, weekly repo rate, 3-months treasury bill rate, and the USDTRY FX. A regression analysis can be employed for distinguishing the relationships among these variables. Refinitiv Terminal, CBRT, and TURKSTAT are the data source of the paper. Table-1 demonstrates a comprehensive analysis of the abbreviations, definitions, frequencies, sources for all variables involved.

Table 1. Explanations of the Research Data

Abbreviation	Definition	Frequency	Source
bist	BİST100 Index	Monthly	Refinitiv
haz	Treasury 3-Month Bill Rate	Monthly	Refinitiv
m3	M3 Money supply	Monthly	CBRT
repo	Weekly Repo Rate	Monthly	CBRT
fx	Exchange Rate	Monthly	Refinitiv

The graph illustrates the BIST100 Index, which serves as a primary indicator of the Turkish economy. This index comprises companies significantly influence and reflect the financial landscape. The data presented spans from 2006 to 2024. Initially, from the start of the graph until late 2021, the index exhibited relative stability. Pandemic in 2019 prompted global response to mitigate its economic repercussions. In response to these challenges, expansionary monetary policies were implemented, leading to an increase in stock market indices. Following 2021, the BIST100 Index experienced a consistent upward trend. Although 2019 pandemic effect has diminished somewhat, index continues to rise, primarily driven by inflationary pressures.

In Türkiye, the treasury bond with the shortest maturity is the three-month bond; however, these bonds are not typically utilized in transactions or other financial activities. Instead, market participants tend to favor benchmark and long-term bonds. Throughout the period from 2006 to 2008, bond interest rates remained stable. Following 2008, there was a remarkable decrease in bond interest rates, primarily attributed to the global economic crisis of year. In response to this crisis, an expansionary financial action was implemented, leading to a general reduction in interest rates. Up until July 2018, the interest rate on three-month bonds exhibited minimal fluctuations, indicating a lack of volatility. However, a foreign exchange shock in 2018 resulted in increment in bond yields. In an effort for addressing shock, monetary policymaker promptly raised one-week repo rate, which subsequently contributed to fall in bond yields. Nevertheless, persistent high inflation brought immediate increment bond yields.

In this study, the most comprehensive measure of money supply, M3, is employed for analysis. The M3 category encompasses M2, as well as money market funds and repurchase agreements, along with negotiable instruments issued by banks. The M3 money supply exhibited a consistent linear growth until the year 2021. Notably, the banking crisis of 2001, the global economic crisis of 2008, and the foreign exchange shock of 2018 did not significantly impact the overall money supply. Nevertheless, inflation has important effect in deciding the money supply levels. As inflation rates escalated, there was a corresponding and immediate increment money supply. Following 2021, money supply experienced a rapid rise.

Following the banking crisis of 2001, the central bank raised the financial action rate, which subsequently contributed to fall inflation. This initial increment in rate was followed by further adjustments. Due to enhanced financial stability, the weekly action rate remained relatively stable. Conversely, in 2018, the action rate was raised in direct response to a foreign exchange shock. This increase in the action rate persisted until late 2021, marking the beginning of a more accommodative financial action stance. In May 2023, the implementation of a stringent financial transaction brought significant increment one-week repo.

In this study, USDTRY exchange rate is analyzed. The accompanying graph illustrates the USDTRY rate remained relatively stable until late 2021. A notable increase in the USDTRY

rate commenced in July 2018, attributed to a foreign exchange shock. Subsequently, a reduction in the financial action rate further contributed to the rise of the USDTRY. This escalation in the USDTRY rate was linked to a corresponding increase in the inflation rate. Following 2021, there was a significant and rapid increase in the foreign exchange rate.

3.1.1. MULTICOLLINEARITY TEST

To assess the existence of multicollinearity, technique which is below can be employed. Multicollinearity absence in model's elements is indicated by a Variance Inflation Factor (VIF) ratio remains below. Table-2 illustrates all centered VIF values are less than 10, confirming multicollinearity is not present in the model.

Table 2. VIF Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
dfx	4.33E-06	1.125817	1.055522
dlhaz	3.95E-07	1.165494	1.162426
dlm3	0.002770	1.675874	1.042183
drepo	7.36E-07	1.152833	1.144473
c	2.28E-06	1.624249	NA

3.1.2. UNIT ROOT TESTS

As the p value of model's elements are smaller than 5% significance level, so null hyphothesis can be rejected. Thus, all of the variables has no unit root. (see Table-3).

Table 3. Unit Root Test Results

Variable	Case	Statistics	Level	First Difference
DLBIST(-6)	Intercept	ADF t-statistic	-4.153925	-11.40415
		P value	0.0010	0.0000
		PP t-statistic	-6.590162	-61.43517
		P value	0.0000	0.00001
	Intercept&Trend	ADF t-statistic	-5.276730	-10.34917
		P value	0.0001	0.0000
		PP t-statistic	-7.575417	-66.13537
		P value	0.0000	0.0001
DLM3(-8)	Intercept	ADF t-statistic	-10.95088	-10.63866
		P value	0.0000	0.0000
		PP t-statistic	-11.66415	-52.31311
		P value	0.0000	0.0001
	Intercept&Trend	ADF t-statistic	-10.63866	-10.63321
		P value	0.0000	0.0000
		PP t-statistic	-12.21210	-60.11375
		P value	0.0000	0.0001

DREPO(-2)	Intercept	ADF t-statistic	-5.123902	-12.96274
		P value	0.0000	0.0000
		PP t-statistic	-9.790239	-28.00787
		P value	0.0000	0.0000
	Intercept&Trend	ADF t-statistic	-12.97660	-29.59214
		P value	0.0000	0.0000
		PP t-statistic	-10.07223	-29.59214
		P value	0.0000	0.000
DHAZ	Intercept	ADF t-statistic	-12.22235	-10.10586
		P value	0.0000	0.0000
		PP t-statistic	-12.23159	-95.32283
		P value	0.0000	0.0001
	Intercept&Trend	ADF t-statistic	-12.36128	-10.11101
		P value	0.0000	0.0000
		PP t-statistic	-12.31802	-94.18232
		P value	0.0000	0.0001
DUSDTRY	Intercept	ADF t-statistic	-11.68845	-8.987630
		P value	0.0000	0.0000
		PP t-statistic	-12.02757	-75.51518
		P value	0.0000	0.0001
	Intercept&Trend	ADF t-statistic	-12.80212	-9.050976
		P value	0.0000	0.0000
		PP t-statistic	-12.74310	-80.13449
		P value	0.0000	0.0001

3.1.3. RAMSEY RESET TEST

Here is the hypothesis of the Ramsey RESET test:

Null: Model is the correctly specified

Alternative: Model is misspecified

As the amount is 0.0929 that can be more than % 5 significance level, so decline to deny null hypothesis. Therefore, model is accurately stated. (see Table-4).

Table 4. Ramsey Test Results

	Value	**df**	**Probability**
t-statistic	1.688481	192	0.0929
F-statistic	2.850968	(1, 192)	0.0929
Likelihood ratio	2.918447	1	0.0876
F-test summary:			
	Sum of Sq.	**df**	**Mean Squares**
Test SSR	0.000785	1	0.000785

Restricted SSR	0.053628	193	0.000278
Unrestricted SSR	0.052843	192	0.000275
	Value		
Restricted LogL	532.2316		
Unrestricted LogL	533.6908		

3.2. METHODOLOGY

There are a lot of method to analyze the relationship between financial improvements and shares in the literature. They researched the relation among financial movement and shares applying Vector Autoregressive method (Tsoukalas, 2003; Boschen and Mills, 1995; Patelis, 1997; Cassola and Morana, 2004). Naka, Saidjada are studied these relations by using VECM (Saidjada et al., 2005; Mukherjee and Naka, 1995). Quadir used the Autoregressive Integrated Moving Average to obtain the relation among financial movement and shares (Quadir, 2012). However, approach is applied for explaining the relation among financial movement and shares in this study. The aim of using OLS is different model can be used for describing the relationship between financial action and stock exchange prices. Moreover, the data are used in the model is more suitable for Ordinary Least Square (OLS).

The emprical model is inspired by Nwakoby (2016) which is shown as follows;

bist=β_(0)+β_1repo+β_2m3+β_3haz+β_4 fx+μ

bist= BIST100 index

repo= Weekly repo rate

m3= M3 money supply

haz= 3 months Treasury bill rate

fx= USDTRY foreign exchange rate

As explained in Methodology, OLS regression analysis is chosen for estimation.

Table 5. Regression Analysis Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Drepo	0.002377	0.000858	2.771317	0.0061
dlm3	0.166902	0.052630	3.171261	0.0018
dlhaz	0.001487	0.000628	2.368111	0.0189
dfx	0.004853	0.002081	2.332556	0.0207
C	0.008737	0.001510	5.786868	0.0000
R-squared	0.191942			
Adjusted R-squared	0.175194			
S.E. of regression	0.016669			
Sum squared resid	0.053628			
Log likelihood	532.2316			
F-statistic	11.46104			
Prob(F-statistic)	0.000000			

4. EMPIRICAL RESULTS

The data are converted logarithmic form and taken difference to fit the model. Here is the adjusted formula of the model:

dLbist(-6)=dβ_0+dβ_1repo(-2)+dLβ_2m3(-8)+dβ_3haz+dβ_4fx+μ

The findings derived from the estimated model utilizing the Ordinary Least Squares (OLS) method indicate effect of various factors on share prices. The coefficient of determination (R^2) stands at 0.20, suggesting approximately 20% of the inconsistencies in the share market can

be applied to these variables. The F statistic is recorded at 11.46104, where 5% level is significant, as the F probability is below this threshold. This indicates financial action exerts a statistically significant impact on stock exchange prices, implying it accounts for a 20% impact on these prices.

The coefficient for T-bill 0.001487, accompanied by a t-value of 2.368 ($p > 0.05$). This suggests a positive relation among T-bill stock exchange prices. Specifically, 1% increment T-bill relates with a 0.1% increment share prices. Amount is less than 5% importance point, leading conclusion the void assumption stating three-month Treasury bill rate does not significantly impact stock exchange prices-cannot be rejected. Thus, T-bill is related clearly and determinately with shares. Quadir investigates interplay between macroeconomic variables, including the T-bill and manufactural element, and their impact share yields (Quadir, 2012). Utilizing model that is ARIMA, analysis reveals decisive relationship among T-bill and manufactural element as mediated by share yields. Similarly, Saidjada explores connection between financial action and stock prices through VEC, which incorporates reserve money and the T-bill (Saidjada et al., 2005). This work concludes there exists reverse relation among share prices and T-bill. Fama and Schwert (1977) explore the correlation among share yields and Treasury bill rates, revealing reverse relation in model of share yields against T-bill (Fama and Schwert, 1977). While the conclusions drawn in this study regarding Treasury bill rates differ from those of Saidjada, the findings presented here regarding Treasury bills align conceptually with the perspectives of Quadir (Saidjada et al., 2005; Quadir, 2012).

The coefficient for M3 is 0.1669, accompanied by a t-value of 3.171261 ($p > 0.05$). This indicates reasonable relation among the M3 and shares. Specifically, 1% increment the M3 money supply is accounted for a 17% increment in stock exchange prices. P-value is below the 5% importance base, bringing conclusion void assumption—stating M3 money supply significantly impacts stock exchange prices-cannot be rejected. Consequently, it can be asserted M3 is related accurately and fundamentally with shares. This assertion is further substantiated by theoretical frameworks such as q theory and wealth impact model. The q theory posits direct relation among M3 and shares. Naka (1995) explores connections among shares and various financial variables, such as M3, inflation, and exchange rates within Tokyo Stock Market. The VEC model employed for indicating clear relation with money supply. Similarly, Mukherjee investigates coaction among shares and financial variables concluding a positive relationship exists with money supply. Ibrahim Mukherjee further examines the long-term relationships and dynamic intersections among shares and various macroeconomic elements, such as aggregate price levels, M3, and FX, finding direct relation among shares index and macroeconomic elements. Tsoukalas (2003) employs VAR for analyzing relation among shares and financial elements. Research indicates significant correlation among shares and various financial factors. Jensen identifies share returns, which exhibit predictable variations, are influenced by financial action and prevailing financial circumtances anticipated share yields being greater during periods of tight monetary conditions compared to those of loose monetary conditions. Inflation, recognized as a critical monetary variable, reflects increment M3 relative to productivity. Udegbunam and Eriki (2001) demonstrate inflation exerts a considerable negative impact on stock prices. Their working paper presents compelling evidence of a robust connection between stock prices and key economic indicators such as gross domestic product (GDP), interest rates, money supply, and financial regulations. Saidjada et al. (2005) investigates the interplay between financial action and stock prices utilizing the Johansen cointegration approach and the Vector Error Correction (VEC), which incorporates reserve money and the interest rate of 91-day Treasury bills. The findings reveal reverse relation among shares and T-bills, while no significant relationship is observed among shares and M3.

Value for weekly repo rate is 0.004, accompanied by relatively different variation value of 2.77131 ($p > 0.05$). This indicates direct correlation among weekly repo rate and shares. Specifically, 1% increment for weekly repo rate is affected to 0.4% increment share exchange prices. P-value is below the 5% importance degree, bringing conclusion the void assumption - stating weekly repo rate significantly impacts stock exchange prices- cannot be rejected. Consequently, it can be asserted the weekly repo is related directly and considerably with share exchange prices. Modigliani, Mishkin contend lower interest rates contribute to rising stock prices, which subsequently encourages business investment (Poole, Mishkin, Modigliani, 1978). While central banks possess the ability to influence interest rates, they also impact inflation expectations. Naka explores coaction among shares and various financial elements, such as M3, inflation and exchange rates within Tokyo Stock Market. The VEC employed in paper indicates direct relation for all variables, with the exception of inflation, where the interaction among weekly repo and shares is inconsistent (Mukherjee, Naka, 1995). Mukherjee and Naka (1995) investigates connections among shares and various financial elements finding direct relation with all elements beside weekly repo and inflation. VAR is used by Morana and Cassola for the euro area, incorporating macroeconomic variables for assessing financial transaction's transmission mechanisms. Findings of Cassola and Morana align with those of Jensen and Johnson, who establish a connection between financial action changes and stock returns (Jensen, Mercer, Johnson, 1996, Cassola, Morana, 2004). Their research indicates long-term stock returns resulting from reductions in discount rates are not only higher but also exhibit less volatility compared to returns associated with increases in interest rates. Udegbunam and Eriki (2001) further demonstrate inflation exerts a significant adverse impact on stock prices. Their working paper presents compelling evidence of a robust correlation between stock prices and various economic indicators, including gross domestic product (GDP), interest rates, money supply, and financial regulation. Their findings reveal financial action negatively influences share prices. However, the conclusions regarding relation among weekly repo and shares that may not align with the prevailing perspectives in the existing literature.

Value USDTRY is -0.0523, accompanied by a t-value of 1.802 ($p > 0.05$). This indicates reverse relation among USDTRY and shares. Specifically, value suggests one percent increase USDTRY corresponds 5.3% decline stock market prices. Given quantity outpaces the 5 percent importance degree, void assumption stating "the USDTRY foreign exchange rate does not significantly impact stock market prices" cannot be rejected. Consequently, it can be concluded the USDTRY exchange rate exerts a negative, mathematically irrelevant impact for shares. Naka explores connections among shares and various financial elements, such as M3, inflation, exchange rate, and weekly repo within Tokyo Stock Market. The findings from VEC indicate direct relation with the foreign exchange rate. Similarly, Mukherjee investigates the interplay among shares and various financial elements concluding there exists direct relation with the exchange rate. Furthermore, Mukherjee and Ibrahim analyze the long-term relationships and dynamic relations among shares and a range of financial elements, including aggregate price levels, M3, and FX. Their research demonstrates direct correlation among shares index and financial indicators (İbrahim, 2003; Mukherjee and Naka, 1995). Research indicates reverse correlation among shares index and FX. Tsoukalas (2003) investigates the interplay among shares and various financial variables. Findings reveal a significant relation among shares and FX. From separate analysis, Uddin, Rahman examine the relation among shares, exchange rates using Johansen cointegration and Granger causality tests; however, they did not identify any cointegration or random relationship between the two variables (Rahman and Uddin, 2009). The existing literature presents diverse perspectives on the relationship between foreign exchange rates and stock prices. The conclusions drawn in this study regarding the interaction between FX

and shares align closely with the findings of Mukherjee and İbrahim, while contrasting with the results reported by Naka and Mukherjee (Ibrahim, 2003; Mukherjee and Naka, 1995).

5. CONCLUSION

The relation among financial instruments-share prices remains a significant topic of inquiry, likely to persist in relevance for the foreseeable future. There exists a considerable interest in understanding the dynamics between these two elements, as this relationship is critical for various reasons. From the perspective of financial action authorities, assessing how stock market prices respond to financial action instruments is essential for formulating impactive financial action strategies. The transmission of financial action extends beyond the effect interim interest rates for asset classes encompassing momentum of asset prices, including longstanding interest rates and shares, in turn impact renting losses and wealth changes, finally influencing current financial environment. For stakeholders' macroeconomic environments, comprehending response for shares by financial action can be of paramount importance. Financial action applies a substantial impact on financial markets, necessitating well-informed investment decisions and the development of appropriate risk management strategies account for the shares' awareness to financial action shifts. However, estimating the shares awareness to financial action presents several challenges. Primarily, alterations in shares affect concurrently short-term interest rates. Additionally, alternative factors, such as economic news, also illustrate in shaping interim interest rates, stock market prices.

Stock exchange prices exhibit sensitivity to changes in market conditions influenced by various financial action instruments. This empirical analysis aims to explore the relation among macroeconomic process, stock exchange prices in Türkiye, enclosing term from December 2006 to February 2024. A singular model is employed for this investigation. Experimental inquiry uses linear regression entrenched Ordinary Least Squares (OLS) methodology, allowing for an examination of the relationship between dependent, autonomous elements. Additionally, interim, longstanding relationships are assessed through this approach.

The result of our work is mostly proper for financial literature. According to our findings, Treasury bills have common and direct relations with share prices. Although Quadir, Saidjjada use different methods to explain the link between Treasury bill and share prices they find the same result as shown our paper (Quadir, 2012; Saidjada et al., 2005). Yet, Fama and Schwert (1977) finds that there is reverse relation between Treasury bill and share prices. Money supply is directly related with share prices as mentioned in our paper. Tobin, Naka, Mukherjee explore that money supply is positively correlated with share prices (Mukherjee and Naka, 1995; Tobin, 1969). Furthermore, Mukherjee finds the long term relation between money supply and share prices (Mukherjee, Naka, 1995). There is plenty of short term interest rate using in papers. We use weekly repo rate to explain the data term well. Weekly repo rate is accurately connected with share prices. Cassola and Morana, Jensen and Johnson use discount rate as short term rate (Jensen et al., 1996; Cassola and Morana, 2004). They find that there is a positive relation between short term rate and share prices as mentioned in our work. USDTRY is the most used foreign exchange indicator in Türkiye. Most of the companies of İstanbul Stock Exchange are used the indicator in their trading operations. Especially, the companies whose core businesses are based on export and import are used for their transactions. In our paper, USDTRY has negative effect on share prices and this indicator does not explain well share prices. Since Türkiye has current account deficit in these years. That's why share prices effect badly and going down. Despite our work, Naka finds that there is direct relation among foreign exchange and share prices (Mukherjee and Naka, 1995). In the same way, Mukherjee and Naka find the same result as seen in Tsoukalas's work (Mukherjee and Naka, 1995; Tsoukalas, 2003). Ibrahim and

Mukherjee investigate the long run relationship between foreign exchange and share prices (İbrahim, 2003; Mukherjee and Naka, 1995). They find that there is a reverse and explainable relationship between share prices and foreign exchange. Uddin and Rahman find the same result as in our paper using Johansen cointegration and Granger causality (Uddin and Rahman, 2009).

A key action implication derived from this research is financial action strategies in Türkiye should consider the dynamics of stock exchange prices. Inflation and foreign exchange have bad effect on share prices. In detail, many companies are relied on import transactions. Although high USDTRY is good for companies which make export transactions, inflation and foreign exchange cause to go down company's financial value. It is crucial for companies of İstanbul stock Exchange to solve Türkiye financial problems such as inflation and foreign exchange shocks. Overall, the findings underscore the influence of financial action and its instruments on stock exchange prices.

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