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Original Research Article

The Impact of Exchange Rate on Stock Price in Iran: A Quantile Regression Approach

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Iranian stock market, as a reflection of the real sector of the economy, has experienced many uncertainties and challenges in recent years. One macroeconomic factor that vaguely affects stock market is exchange rate, which has a significant volatile pattern with several overshoots during recent years. As a result, analyzing the impact of the exchange rate on stock price has become important as always. Bearing the restrictions on Iran's trade and spectacular role of exchange rate in Iranian economy along with monetary expansion and fiscal dominance in mind, stock market reacts to exchange rate fluctuations in asymmetric ways. In order to prevent the impact of outliers and parametrical failures, this study seeks to examine the impact of exchange rate fluctuations on the stock price using quantile regression. Based on daily data between 2020/10/12 till 2024/12/20 and using first difference of both stock price logarithm and exchange rate logarithm, it became vivid that the impact of the exchange rate on the stock price is different in estimated quantiles and it is U shaped. In other words, when stock market is on a stable track, without sharp falls or rises in prices, exchange rate could not statistically affect stock price. While, when facing bearish or bullish situation in market, exchange rate has a significant impact on the stock price and may lead overall status of the market. Statistically speaking, around median, exchange rate has a poor influence, but in both tails strong impact is visible which is positive which complies with evidence in the sample period.

Keywords: Stock Market, Exchange Rate, Quantile Regression, Iran
JEL Classification: E6, G10, G17

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1 Introduction

The stock market is considered one of the crucial factors for economic performance of a country. As stated by Demir (2019), the stock market is influenced by the macroeconomic environment and represents the real sector of an economy. Several macroeconomic and market determinants affect the stock market both endogenously and exogenously. Among macroeconomic variables, exchange rate plays an important role both in real sector which companies are performing and also in the whole monetary dimension. As commodities hold a big stake of Iranian stock market such as petrochemicals, refineries, metal and iron industries, copper and so on, both their revenues and costs are affected with exchange rate which displays itself on the stock price. On the other hand, rapid and persistent growth of liquidity along with sanctions and oil export cut, has caused several overshoots of exchange rate in recent years. Capital market has not responded to these dynamics in a stable pattern. As a result, examining the impact of exchange rate fluctuations on the stock price has always been interesting to both policymakers and investors.

While there are no restrictions such as sanctions, it is expected blooming stock market gains capital flows from foreign investors and hence causes an increase in the demand of a country's currency, this holds true from opposite perspective as well. Consequently, rising stock prices are related to an appreciation in exchange rates. Furthermore, movements in stock prices may influence exchange rates since investors' wealth and money demand may depend on the performance of the stock market (Gavin ,1989). Bearing the relation between exchange rate and stock market in mind and taking Iranian features such as sanctions into the account, stock market may not explain exchange rate as it is dependent to monetary variables in long run while oil revenues could have a significant impact in some episodes.

Despite of significant effect of exchange rate on the stock price and investor’s expectations shown by Mohamadi et al. (2024), a different dimension which has to be addressed is the impact of exchange rate fluctuations on the cash flow and financial statements of listed companies and, consequently, on investors’ sentiment. Exchange rate in Iran, practically affects the cost of production and decisions regarding sales. On the other hand, due to this overall impact, it would change earnings and as most common valuation methods carried out among investors depends on this prominent factor such as P/EPS, stock prices tend to alter. As Mohagheq Nia et al. (2022) found, sometimes there is not any better strategy or action plan

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for companies to increase net profit or generate cash flow. It is just because of cheaper raw materials and energy price that cause a lower cost, and exchange rate fluctuation and consequently higher price levels that increases nominal profit. Ultimately, profit margin stays constant or decreases but this would cause some rise or falls in prices. Several studies[1] so far, examined the relation between exchange rate and the stock price, but comprehensively they addressed that impacts are consistent and symmetric, while an overall trace says otherwise. This is mostly because of the frequency of the data and obtained approaches which shows mentioned results. However, some studies indicate there is no definite impact as well[2]. Also, some research[3] have shown the asymmetric impact of exchange rate on stock market in high and low volatile regimes which is something needs to be tested for Iran which present study aims to.

The exchange rate in Iran has been highly dependent on political climate, oil revenues, and other macroeconomic factors in the short run (Eyvazi et al., 2020), and in recent years, uncertainties in the exchange rate trend have totally altered. As a result, the possibility of occurrence of outliers' data and structural failures explaining the impact of the exchange rate on the capital market is inevitable. As an example, a sharp increase in US dollar to Iranian Rial in three working days. This study seeks to analyze the impact of exchange rate fluctuations on the Stock price by using the quantile regression approach in order to present accurate dynamics of the analysis. Daily data starting 2020/10/12 till 2024/12/20 for both stock price index and exchange rate is going to be taken into account. The main reason for considering this period is the existence of high and stable inflation along with high interest rates and exchange rate fluctuation. In recent years, the stock price index has not grown in a linear pattern, collineated with the significant increase of exchange rate. The quantile regression is obtained by present research to examine the impact of the exchange rate on stock price.

The remaining sections of the paper are as follows: In the second section, the main literature and previous studies of domestic and international will be reviewed. Then the research data is presented and the methodology will be covered, and after that the quantile regressions will be reported and its result will be described and final section, concludes.

[1] Bakhshani (2015), Heidari and Dadashzadehrishekani (2024)
[2] Gokmenoglu et al. (2021)
[3] Ahmed (2020), Salisu et al. (2022), Chkili and Nguyen (2014)

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2 Literature Review

The impact of exchange rate fluctuations on financial market performance is a complicated concept that many researchers tried to explain it in various ways. The impact varies across financial market types, countries, time periods, and market conditions. This review synthesizes findings from variant studies from different countries, identifying areas of agreement and disagreement, and highlighting research gaps. Also, there will be a coverage of main studies on Iranian stock market as well.

The impact of exchange rates on stock markets is multifaceted, influencing sectoral performance across different economies, stock prices and investor's portfolio. Therefore, it can be examined based on two directions: the international flow-oriented approach (Aggarwal, 1981) and the stock-oriented approach (Efuntade, and Efuntade, 2023). Some researchers represent the stock-oriented approach as the portfolio balanced approach (Bahmani-Oskooee and Sohrabian, 1992). The flow-oriented approach was explained in detail by Dornbusch and Fischer (1980). In this model, operational profit of companies depends on exchange rates and international transactions and their cash flow is affected as well. As a result, the valuation will alter depending on cash flow models, like DDM[1]. In this case, investor's strategies need to be revisited. This approach emphasizes the impact of exchange rate fluctuations on a country's trade balance and international competitiveness (Singh, 2019). It means that a depreciating currency can boost exports and improve the profitability of export-oriented firms and cause increasing operational income which leads to higher returns on stock prices. Conversely, an appreciating currency can harm exporters and negatively affect stock market performance (Jeon et al., 2017). This approach has two basic factors. First one is the possibility of exports by companies and the absence of significant export bans, as well as international transactions to supply goods and products in the global market. The second factor is considered for some countries that researchers point out is the comparison of foreign assets and liabilities of companies, which, by converting them into the domestic currency, allows the company to identify profit or loss, and this directly affects the value of the company and the behavior of its shares in the market (Ali et al., 2013). The latter factor is considered for countries like Iran that are experiencing high exchange rate fluctuations and companies are required to disclose profit and loss amounts

[1] Discounted Dividend Method

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in their domestic currency in their financial statements. In this case, exchange rate fluctuations may also affect the profitability of companies and consequently affect the behavior of stock prices (Musai et al., 2010).

The stock-oriented approach focuses on the impact of exchange rate modifications on the wealth of domestic investors (Ali et al., 2014). A depreciating currency reduces the value of foreign assets held by domestic investors, leading to a decline in domestic wealth and potentially depressing stock prices. This effect is particularly relevant in countries with significant foreign investment. Considering the portfolio balanced approach, it is assumed that investors' asset portfolios consist of domestic and foreign assets, and that change in demand for each of them persuade the investor to balance his portfolio based on new conditions. Therefore, the exchange rate is affected by the foreign asset portion of the investor's portfolio. There is a condition that domestic and foreign assets are not a complete substitute for each other and both must necessarily be considered in the portfolio (Isard, 1995). The following will review the results of the research on the impact of exchange rates on the stock market. Some researchers have obtained the international flow-oriented approach in their studies and some have used the stock-oriented one, which can be attributed to the size of the economy, economic growth, international transactions, the possibility of capital inflow and outflow, and other factors (Zivkov et al., 2014). However, in this section, regardless of the researchers' approach, the results and methodology of the research will be reviewed.

A stable and favorable exchange rate attracts foreign investors, driving their capital into stock market and causing its growth (Haider et al., 2016). El-Diftar (2023) studied the relationship between exchange rate fluctuations and stock market returns of the seven highest economic performing emerging countries (E7) and the main finding is the existence of a long-run positive relationship. It means that although any changes in exchange rate would deliver the impact on stock market in the short time, it would also has an influence in long run as well. Perera (2016) has found out the volatility of Euro exchange rate has a positive and significant impact on ASPI return volatility. However, many studies are showing a negative impact of exchange rate on stocks. Javangwe and Takawira (2022) have find out a long-run negative relationship between exchange rate and stock index in south Africa. Similarly, Özbey (2016) shows decreasing expected return in Istanbul Stock Exchange, because of a consistent increase in exchange rate (USD-TRY). These contrasting findings highlight the importance of

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considering country-specific factors and the limitations of generalizing results across different markets or using a different methodology.

Some researchers believe that the exchange rates impact on stock market is not always the same and point to an asymmetric relationship. Le et al. (2017) has demonstrated that exchange rate exposure is asymmetric in Southeast Asian countries, with currency depreciation having a faster negative impact on stock returns than the positive of currency appreciation. Similarly, Mohamed and Elmahgop (2020) have shown asymmetric effects of exchange rate changes on stock price; such that the behavior was so different in short time and long time periods. Moussa and Delhoumi (2022) have confirmed the asymmetry in the short run in the MENA region, while Ahmed (2020) has revealed the impact of currency depreciation on stock prices was stronger than appreciation in Egypt's stock market, particularly during periods of a soft peg regime. Salisu et al. (2022) has studied about a firm-level analysis of U.S. stock returns and has confirmed the presence of asymmetry, with exchange rate appreciation generating primarily positive effects and depreciation leading to primarily negative impact. This asymmetric effect may manifest itself in other ways. For example, in a study conducted on BRICS countries, two regimes with low and high volatility were considered, and the effect of the exchange rate on the stock market was different in both, but after using the Markov switching model, the effect of the stock market on the exchange rate was observed to be greater in times of high volatility (Chkili and Nguyen, 2014).

Contrary to the positive and negative effects mentioned in most studies, there are some articles indicating that exchange rate fluctuations do not have a definite and significant effect on stock prices. Gokmenoglu et al. (2021) has demonstrated that stock market performances are not affected by the exchange rate fluctuations in emerging countries unless certain market conditions are established and suggest that the exchange rate fluctuations has a crucial role in determining the market returns depending on the bearish or bullish conditions. Clearly, it is very important to note that in crisis where all macroeconomic variables and financial markets are affected, fluctuations in variables can have an impact beyond previous forecasts. Economic crises, such as the 2008 financial crisis or the COVID-19 pandemic, have shown that volatile exchange rates can lead to stock market instability and investor panic, causing massive sell-offs and market downturns (Yaser et al., 2022). The relationship between exchange rates and stock prices is also evident in the performance of specific sectors. For instance, during oil price shocks, the

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stock prices of petroleum companies were heavily influenced by exchange rate fluctuations (Weijermars and Bocardo, 2016).

After reviewing the articles on the impact of exchange rate on the stock market, it is important to note how researchers have investigated the relationship between these two variables. Some of the methods used in the research are as follows: Gbadebo (2023) has used a simple regression model of stock market indicators with autoregressive adjustment component which conducted by autocorrelation based on annual data (1985-2020) on the Nigerian evidence, to show a negative impact. While others have employed techniques such as ARDL to show both long run and the short run. Anusha et al., (2022) has examined the long-run relationship between the variables using data from Central Bank of Sri Lanka over the period of 1985–2018. Krishnan and Dagar (2022) have used ordinary least square model and generalized autoregressive conditional heteroskedasticity model to analyze the volatility to address comprehensive insight into the effects of exchange rate in the USA, China and Indian stock market. Duruechi et al. (2023) has employed vector error correction mechanism and the Pairwise Granger Causality tests to reveal the existence of long run relationship between foreign exchange rate dynamics and stock market performances with an insignificant impact. A Markov regime-switching model is developed by Thi (2021) to see what happens on stock market in Vietnam when its currency depreciates. Thi (2021) has found out that there are different regimes and patterns that exchange rate can behave differently in each one. Tsai (2012) has used a quantile regression approach to show various relationships between stock and foreign exchange market of six Asian countries. Fourier analysis, have been employed to capture the cyclical nature of exchange rate impacts on stock prices, revealing long-term relationships and structural breaks that traditional models may overlook (Burjaliyeva, 2024). The choice of methodology influences the ability to capture the dynamics and potential non-linear relationships between exchange rates and stock price.

Understanding the impact of exchange rates on stock markets using different methods and approaches has significant implications for policymakers and investors. Policymakers may benefit from this knowledge to design effective monetary and fiscal policies aimed at stabilizing the economy and promoting sustainable growth (Rady et al., 2024). For example, managing exchange rate volatility may be useful to mitigate risks to the financial system and prevent crises (Singh, 2019). However, the effectiveness of policy interventions depends on the specific context and the nature of the exchange rate-stock market relationship. Intervention may be

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more effective in countries with strong export sectors or those where exchange rate fluctuations significantly affect investor sentiment (Jeon et al., 2017). Rady et al (2024) argue that policymakers need to consider interest rate as an important variable to make a better decision for exchange rate and stock market. As Moore and Wang (2014) have studied, interest rate could be a driving force for exchange rate affecting stock market, especially for developed markets. Investors can use insights from research on exchange rate-stock market dynamics to improve their portfolio allocation and risk management strategies. Mlambo et al. (2013) found that although sometimes there could be a weak relationship between exchange rate and stock market in South Africa, Policymakers still need to use exchange rate to attract foreign investors and capital flows into stock market and at the same time, it will encourage domestic investors to invest.

Like any other country, Iran's capital market has its own features and characteristics, and by reviewing articles about it, the relationships between variables and complexities will be revealed. Lotfalipour and Karimi (2019) have shown that there is a formal exchange rate that is determined by a system created by Central Bank of Iran and a market exchange rate that is determined by matching demand and supply. They believe that two exchange rates can affect stock market as well as companies' operations, cash flow and their stock prices. This multi-rate nature of the currency makes it difficult for companies to operate, and some researchers prefer to examine the challenges of the impact of exchange rate on the stock market with a concept called the exchange rate gap (Maghsoudi et al., 2023). The asymmetric effect of exchange rates on Iran's capital market persists. Taghavi et al. (2020) examined asymmetric effect of exchange rate shocks on investment growth in the Iranian industry and mining sector in the short and long term. The behavior of Iranian investors, based on the country's specific macroeconomic conditions, has caused herd behavior in the stock market with exchange rate fluctuations (Mohamadi et al., 2024). The special conditions that exist in Iran due to exchange rate gap affecting profitability of companies, as well as various factors that cause severe exchange rate fluctuations in Iran, make it more difficult to examine the impact. It seems that Tehran Stock Exchange is affected differently by the exchange rate in different situations. As a result, exchange rate studies should also move towards examining different exchange rate situations and the possible behavior of the stock index in return, which is what this study has followed.

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3 Methodology and Data

This paper uses the daily data of the stock price index and exchange rate for the last four years starting November 2020. The main reason for chosen period is after a boom and rapid growth in stock market in 2020, in late August of that year, market acted bearish for almost three months and then regain the stability. Furthermore, in the given period inflation and several overshoots of exchange rate are vivid.

Table 1
Descriptive statistics

Variable	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis
Exchange rate	410236	360000	773000	206370	147960	0.36	1.73
Stock price index	1714253	1559899	2652093	1119178	390358	0.25	1.58

Source: Research findings

As shown in Table 1, descriptive statistics are presented for both Exchange rate (Iranian Rial/US dollar) and stock market index (TEPIX[1]). Time period for the sample is between 2020/10/12 till 2024/12/20. Both variables have high variances along with significant fluctuations toward upper levels. Figure 1 also indicates how both the exchange rate and stock market increased in the mentioned time period.

[1] Price index of Tehran Stock Exchange Market

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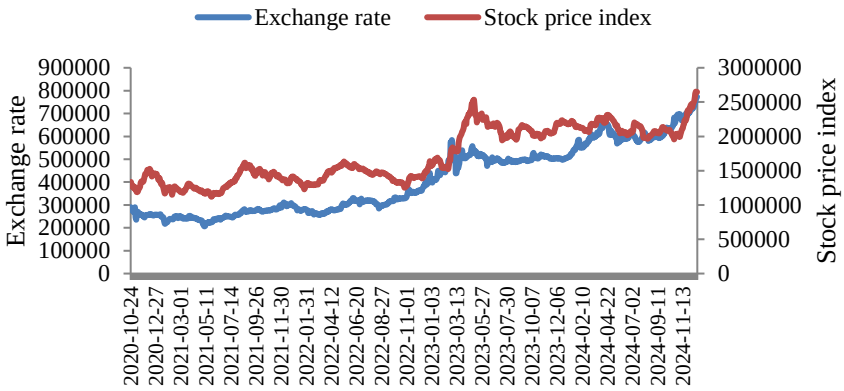

Figure 1. Time series of data
Source: Research findings

The exchange rate plays a prominent role in inflationary expectations shaped with economic agents. Due to continuous and progressive growth of liquidity, mostly driven by fiscal dominance, high rates of inflation are visible in Iranian Economy in recent years. Also, sanctions and international relations have faced export, especially Iranian oil trade, with difficulties causing low levels of reserves and depreciations in domestic currency. The overall macroeconomic environment being accompanied with high growth of liquidity and political distress, has ended up with high rates of inflation in recent years which generates uncertainties. Stock price would directly and indirectly get influenced by these nominal changes. Both financial statements of listed companies due to increase in costs and also revenues would alter and also overall sentiment of capital market and its relations with alternative markets would differ. This always act as a crucial factor of fund inflow and how market reacts to fundamental progress.

In order to run a time-series estimate, first unit root test should be taken into account. A unit root is a feature of some stochastic processes to check whether a time series model where a single shock could have a persistent impact or not which also labelled as idea of stationarity in a time series. A time series with a unit root is known as a non-stationary process and its mean and variance can change over time. To avoid problems of spurious regression, prior to estimating the empirical model it is a must to test that the series are stationary.

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Table 2
Unit root tests

Test	Exchange rate		Stock price index	
	Levels	**Differences**	**Levels**	**Differences**
PP test	-2.928572(8)	-27.78546(6)***	-2.381898(12)	-21.96914(5)***
ADF test	-2.984694(1)	-11.80990(12)***	-2.465834(3)	-14.15562(2)***

Entry in parenthesis for PP test stands for the optimal bandwidth chosen by the Newey-West using Bartlett kernel.
Entry in parenthesis for ADF test stands for the optimal lag length chosen by the SIC with the maximum lag set to be 21.
**Significance at the 5% level
***Significance at the 1% level
Source: Research findings

As said, testing for unit roots is a crucial step in time series analysis. If unit root is detected, the related series has to be transformed to stationarity before conducting further analysis. One way to achieve so is to use differences and as presented, by using differences for the time series, no unit root is obtained both with ADF[1] and PP[2] Test. As shown in Table 2, first differences of both variables are stationary and in the other words, both series are integrated at degree one.

Table 3
Results of linear cointegration tests

Null hypothesis: no cointegration		
	Value	***p*-Value[3]**
Exchange rate		
Engle-Granger tau-statistic	-2.673214	0.2102
Engle-Granger z-statistic	-14.67993	0.1579
Stock price index		
Engle-Granger tau-statistic	-2.611636	0.2337
Engle-Granger z-statistic	-14.95757	0.1498

Note: lags specification based on Schwarz criterion (maxlag=21)
Source: Research findings

As displayed in Table 3, linear cointegration test[4] is conducted to check if the deviations from the long-run equilibrium exhibit a mean-reverting

[1] Augmented Dickey-Fuller test
[2] Phillips-Perron test
[3] Mackinnon (1996) *p*-value
[4] Engle and Granger (1987)

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behavior or not. In other words, whether long-run equilibrium exists and is there a long run relationship between stock price index and exchange rate or not. Based on table 3 and Engle–Granger test's output, both tau-statistic and z-statistics, at the 5% significance level fail to reject the null hypothesis of no cointegration. Meaning there is no long run relation between main variables, stock price and exchange rate. Therefore, this paper uses the returns of stock price and exchange rate in the regressions to prevent the non-stationary problem shown in Table 2.

Paper benefits from quantile regression, to describe the distribution of the dependent variable as well. As presented above in the figure 1, stock price experienced lots of fluctuations using daily data. Quantile regression enables the model to present better dynamics. The best-known quantile is the median and the standard Ordinary Least Squares models the relationship between one or more. While quantile regression models the relationship between explanatory variables and the conditional quantiles of dependent variable rather than just the conditional mean of its. This would help quantile regression to give more comprehensive picture of the effect of the independent variables on the dependent one. Following equation describes the quantile regression,

$$y_i = x_i'\beta_q + e_i \quad (1)$$

Where β_q is the vector of unknown parameters associated with q^{th}quantile.

4 Empirical Model

Here Figure 2[1] presents the results of the estimations based on nine quantiles, where stock price is the dependent variable and exchange rate is the explanatory one and c represents constant. As shown, it is obvious the difference of coefficients obtained from different quantile functions. When the distribution is heterogeneous, using quantile regression would be helpful and this may give a better insight to find out the relationship.

[1] Table 5 represents the coefficients.

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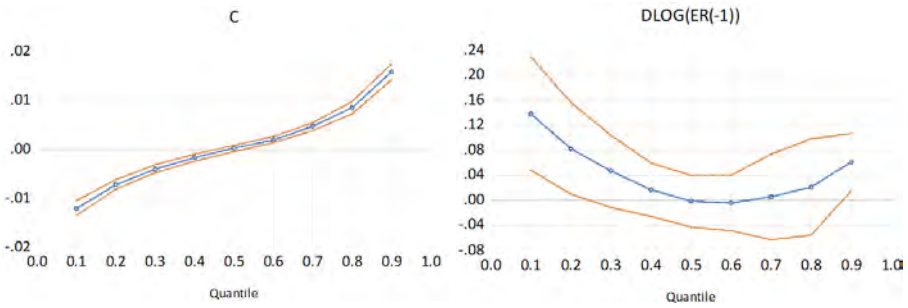

Figure 2. Estimation of coefficient based on the quantile function
Source: Research findings

As figure shows, the impact of exchange rate on stock price is U shaped. Meaning in low growth of stock price index, exchange rate could highly stimulate the market, while as it moves further to more stable growth, exchange rate tends to have a much slighter impact. However, in higher quantiles, where the return of stock price index is high, exchange rate again could play an important role.

If the exchange rate is not that volatile, and if the impact of its fluctuations is not collineated with capital market, then stock price will move on its fundamental course. Therefore, during normal times (no obvious exchange rate volatilities, meaning without any extreme high or low volatiles), only the general condition and macroeconomic variables along with listed firm's activities will shape the stock market. However, during exchange rate crisis or possible bubbles in capital market, meaning both tails of high volatility or low one, stock prices will follow the exchange rate pattern as well and causes the considerable fall or rise in stock price. To have a better understanding of the above description, it is better to check the estimation using ordinary least square presented at Table 4 and compare it with quantile regression.

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Table 4
Estimated results of ordinary least squares model: $\Delta \ ln\, S_t = \propto_0 + \propto_1 \Delta\, ln\, ER_t + \varepsilon_t$

	Coefficient	***t*-Statistic**
Variable		
$\propto_0$	0.000640	1.654366
$\propto_1$	0.047734	1.783899
Adjusted R^2	0.002197	
Akaike info criterion	-5.978403	
Schwarz criterion	-5.968524	
Hannan-Quinn criterion	-5.974647	

Note: S_t is the stock price index; ER_t is the exchange rate.
Source: Research findings

In order to trust results, it is prerequisite to check that some assumptions are satisfied or not. One crucial is that the residuals are normally distributed for regression analysis. Figure 3 shows the normality test[1] conducted to check one of main assumptions.

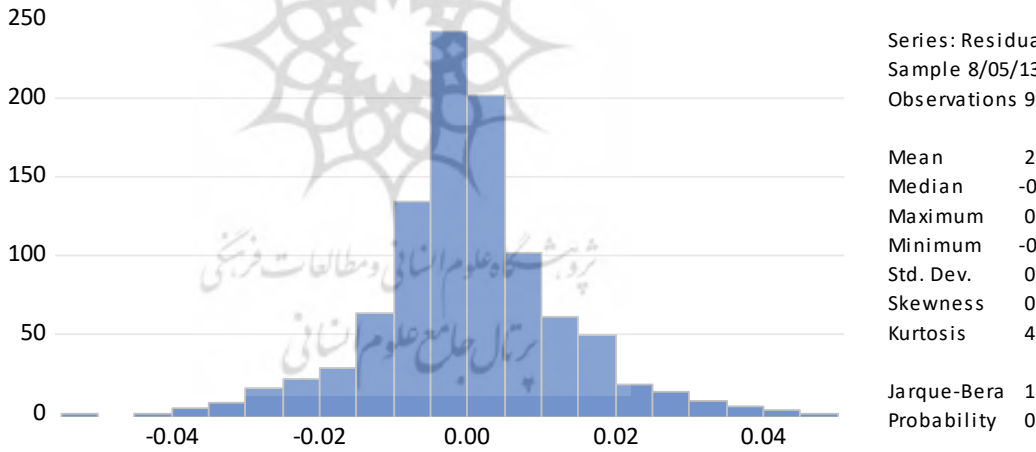

Figure 3. Residual normality test of OLS estimation
Source: Research findings

[1] Jarque Bera statistics = 127

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OLS estimation declares that there is a significant and positive impact of exchange rate return on stock price index. Also based on figure 3, as Jarque-Bera presents, residuals of the OLS estimation is well-behaved and satisfying. Interpretation of the estimated parameter is considered to be true in overall analysis due to nominal anchor role of exchange rate, inflationary expectations shaped by its movement and other fundamental factors. However, regarding exchange rate volatilities in Iran, there are quiet some times in the sample that in one-year period, domestic currency depreciates more than 40 percent and this could not be dealt with like normal time horizon. This may cause some financial crisis, strengthen the aggregate instability and make capital market as one of the riskiest investments to address. Therefore, quantile approach may present much more precision and enable the policymaker and economic agents to see how in recent years, stock price reacted to exchange rate fluctuations.

Table 5 presents the results of quantile estimation in figure 2 and to check the differences with OLS estimated parameters.

Table 5
Estimated results of quantile regression: $\Delta\ ln\, S_t = \propto_{0\tau} + \propto_{1\tau} \Delta\, ln\, ER_t + \varepsilon_{t\tau}$

Quantile	Variable	Coefficient	*t*-Statistic	Prob. (Quasi-LR statistic)
0.10	$\propto_0$	-0.012014	-15.57988	0.003378
	$\propto_1$	0.138810	3.011887	
0.20	$\propto_0$	-0.007183	-14.80017	0.017399
	$\propto_1$	0.083536	2.219712	
0.30	$\propto_0$	-0.003963	-10.10443	0.171692
	$\propto_1$	0.046702	2.594748	
0.40	$\propto_0$	-0.001693	-5.133870	0.289406
	$\propto_1$	0.016986	1.781064	
0.50	$\propto_0$	0.000193	0.595893	0.925424
	$\propto_1$	-0.000841	-1.039888	
0.60	$\propto_0$	0.001932	5.704575	0.840845
	$\propto_1$	-0.003787	-1.168470	
0.70	$\propto_0$	0.004645	10.49359	0.798376
	$\propto_1$	0.006147	1.176786	
0.80	$\propto_0$	0.008412	13.07145	0.512283
	$\propto_1$	0.021756	2.556297	
0.90	$\propto_0$	0.015818	19.44303	0.132066
	$\propto_1$	0.061496	2.629691	

Note: S_t is the stock price index; ER_t is the exchange rate.
Source: Research findings

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Again, as presented in Table 5, dynamics of the effect of exchange rate on stock prices are asymmetric. When stock prices are facing lower amount of return or goes bearish, exchange rate could affect in a significant manner and stimulate the capital market. This impact decreases as market is on a stable mode and it tends to its median, 50% quantile, where exchange rate could not explain the stock price behavior significantly. However, as market goes bullish, again exchange rate has a crucial positive impact on capital market. This U-shaped effect based on quantile approach indicates that without volatilities, stock price will follow overall market condition like money flows into shares, performance of listed companies and other fundamental variables. While, in high or low volatile regimes, meaning tails of the distribution, exchange rate is a prominent variable to affect stock price. Like when stock market performs extremely, like 10%, 20%, 80% and 90% quantile, exchange rate has a dominant influence. In contrast, most likely in 50% quantile, exchange rate could not explain statistically meaningful.

5 Conclusion

Stock market is one of the most important financial markets in any country, as it provides financing, transparency, and other facilities. Macroeconomic and fundamental factors affect this market and their fluctuations may alter the behavior of the stock price. Exchange rate is one important determinant of Iranian economy while widely acts as a nominal anchor in some periods and all the nominal variables may fall or rise due to its condition. Based on data, this collineation is not always persistent and there is a clear asymmetric influence towards stock price is vivid in recent years. On the other hand, the exchange rate has fluctuated significantly in last four years, due to which alternative markets have grown in line with the exchange rate, but the stock market has grown less than aggregate nominal growth. This study analyzes the effect of exchange rate fluctuations on the return of the Tehran Stock Exchange index and uses the quantile regression approach for daily data from 2020/10/12 to 2024/12/20; because the ordinary least squares method only provides the estimation of the mean of depending variable, while it does not consider problems related to outliers and structural failures. As a result, quantile regression examines how the exchange rate explains stock price in each quantile. In other words, to address high and low volatile impact when market goes bullish or bearish aside from condition which market is more likely to follow the fundamental factors, quantile regression could create a better setup for this purpose.

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The empirical results of this study show that if stock market conditions are stable, more likely around median, specially 40%, 50% and 60% quantile, exchange rate could not explain the stock price behavior. In these regimes, it is more probable that market and prices are reacting on general fundamental determinants than exchange rate. Even exchange rate has negligible impact on stock price. However, considering low or high volatile conditions, meaning stock market goes bearish or bullish, exchange rate has a significant positive effect on stock returns. As the stock price index reaches its lowest or highest value in the period examined in this study, the effect of the exchange rate on the stock price increases. As a result, the exchange rate coefficient increases in the lower and higher quantiles. The results of present paper is consistent with findings of several paper which their countries also suffer from exchange rate overshoots such as Özbey (2016) and Gokmenoglu et al., (2021) in Türkiye. It is prominent to acknowledge when market is on its extreme conditions, exchange rate may vaguely affect the stock market which could cause financial crash as well.

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