Journal of Money and Economy
Vol. 19, No. 3, Fall 2024
pp. 479-498

**Original Research Article**

# Does Trade Volume Really Affect Market Capitalization in Iran?

**Mohsen Behzadi Soufiani***

Received: 03 May 2025 Approved: 01 Jun 2025

Regarding high persistent inflation in Iran, there is a serious concern which macroeconomic variables more accurately exchange rate and interest rate are the leading determinants of market capitalization in Iran. This assumption ignores some crucial factors dealing with investor's expectations such as value of trade volume and takes inflationary expectation as the dominant one which is controlling all other aspects. In order to test whether trade volume representing reactions of investors to whole dynamics of market could affect the aggregate capital market, market capitalization or not, paper follows two logics. First, it would take market capitalization both in domestic currency and US dollar to exclude inflationary impact and second it would use ARDL model to have the estimates in two time-horizons, short run and long run. Results indicate that value of trade volume is a significant determinant of market capitalization. Interest rate could not explain the long run dynamics and could just carry short-run influence. Exchange rate growth along with trade volume are leading factors of market capitalization in Iranian Rial, while this holds true for Dollar capitalization as well. Ultimately, also macroeconomic factors are vividly prominent to postulate the impacts, value of trade volume is also important in every matter to shape the market aggregate value.

**Keywords:** Market Capitalization, ARDL, Iran, Trade Volume
**JEL Classification***:* G20, G40, C13

## 1 Introduction

The past decade has seen several pronounced changes in the Iranian corporate sector and the also even broader, the whole macroeconomy. There was a certain marked increase in stock prices, market capitalization, and corporate profits, trade volume played a vague role in shaping market cycles. While, Rajan and Zingales (2003) have shown that stock market cycles can last for a long time, but implying real terms in some variables, could address the other way. In other words, when analyzing the impact of trade volume on market

* Assistant Professor of Economics, Faculty of Economics, University of Tehran, Iran; m.behzadi71@ut.ac.ir

capitalization, one excludes the monetary aggregate effect, still finds a strong significant relation among value of trades and growth in market? Market capitalization (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded from this calculation. Various factors affect stock market performance (Abbas et al., 2022), and each researcher has examined one or more factors simultaneously. Trading volume, as a determining variable in the stock market performance trend, causes changes in market price trends and changes in liquidity, and this directly affects market value (Sun, 2003). As Gul and Javed (2009) show, regardless of the direction of price changes and shocks, trading volume has a positive impact on stock exchange performance. On the other hand, changes in stock market prices and returns will lead to changes in market capital, because there is a positive relationship between them. Nurhayati (2022) believes that every individual stocks and sub-sectors influence the market capital. Therefore, trading volume concludes the information that investors and market policymakers need for their decisions.

According to various theories, trading volume can affect market performance (Laffont & Maskin, 1990) and ultimately market capital. Regardless of whether a market is efficient or not, when the trading volume changes, it contains information that indicates whether the price trend of the assets in the market is changing significantly or not (Troster et al., 2021). This causes emotional behavior in investors and in turn causes changes in market liquidity (Bouattour & Miloudi, 2024). For example, when the trading volume of assets increases after good news, the attention of investors is attracted and the demand for the assets increases. As a result, the price of the assets increases and the market value increases.

Since Tehran Stock Exchange index return has been dependent on trading volume (Kalantari & Khalil Pak Tinat, 2014), it is important for investors, financial institutions, and market policymakers to examine this relationship more closely and how it affects them in the short and long term. But still, is it really the trade volume itself as a significant explanatory determinant or it is the deviation from its real term? This is the question that present study wants to tackle. This study seeks to analyze the impact of trade volume on the return of the Tehran Stock Exchange capital by using ARDL model in order to break down the impact of trade value on market capitalization into short-run dynamics and long-run equilibrium. Daily data between 2014/03/24 till 2025/04/09 is considered. The main reason for considering this period is

capturing short-term and long-term dynamics and avoiding the effect of any shocks to the market that had temporary effect.

Remaining sections of the paper are as follows: Second section will cover the theoretical framework and previous domestic and international studies. Then, the research data will be presented and the methodology will be explained. Section four represents estimations and results will be described and presents final section presents conclusion.

## 2 Literature Review

The effect of trade volume on stock market capitalization is a complex phenomenon that has been explored through various theoretical aspects, including the Efficient Market Hypothesis (EMH) and Market Microstructure Theory. These frameworks, along with some basic factors, provide a comprehensive understanding of how trade volume influences stock market capitalization.

Efficient Market Hypothesis (EMH) indicates that asset prices reflect all available information at any given time and trading volume should not consistently predict future price movements because all relevant information is already incorporated into prices (Choi, 2021). However, empirical evidence suggests that trading volume can still provide insights into market dynamics, even in efficient markets. As Sierimo (2022) shows, increasing trading volume is a sign for more demand on an asset. Even historical stock returns can predict current trading volume and if it was interesting for investors, it would lead to an increase in trading volume and a change in asset returns (Zeren & Konuk, 2016). Despite of considering EMH as an important theory for trade volume, it does not explain the complexities of volume-price relationships. Chen and Liu (2015) believe that other theories may explain the trading volume effect on markets, like Mixture Distribution Hypothesis (MDH). MDH indicates the relationship between volume and return arises from their common dependence on a hidden factor, namely the intensity of the flow of information entering the market (Clark, 1973). Because of this mutual dependence, trading volume and stock returns should be positively related to each other. Accordingly, both price and volume change simultaneously and in unison in response to new information (Assogbavi & Osagi, 2006).

Market Microstructure Theory (MMT) is another theory that focuses on the mechanics of how markets operate, including the role of trading volume in price formation and market efficiency. As Pham (2018) shows, MMT highlights the importance of order flow and liquidity in determining price movements. Trading volume is a key indicator of liquidity, and changes in

volume can signal shifts in market sentiment or the arrival of new information. Gabaix et al. (2007) indicate that large institutional traders may moderate their trades to reduce price impact, leading to fat-tailed distributions of returns and volumes. Therefore, it shows that trading volume can serve as a proxy for information asymmetry in markets (Lof & van Bommel, 2023).

In addition to the theories, some factors also influence the impact of trading volume on market value. The first very important factor is information-based. Lin (2013) believes positive news flow into the stock market can encourage investors. Troster et al. (2021) also shows that positive news can increase liquidity flow to the market and the trading volume will be higher than before. In that case, increasing demand will make the market bullish. Aboualhasan et al. (2024) also confirm the opposite point by the negative news impact on the market's downtrend. Habib (2011) and Troster et al. (2021) indicate that the effect is indirect, such that, higher transactions volume causes liquidity inflow to market, due to the motivation of investment. This will ultimately lead to an increasing demand situation and probably a bullish market. The second factor is behavioral-based. This factor states that investor sentiment can lead to an increase or decrease in trading volume and ultimately determine the trend of market returns (Lee et al., 2016). Bouattour and Miloudi (2024) demonstrate a behavioral bias that usually occurs in markets with different sizes. They studied large capitalizations and listed SMEs and found out that people behave differently and this could lead to increased or decreased trade value and market returns. Trading volume also can reflect disagreement among investors, as different interpretations of information lead to divergent trading decisions. This disagreement is a key driver of volume-induced momentum spreads in stock markets (Jin et al., 2024).

The studies reviewed so far have considered theories and factors related to trading volume and market value. The following studies are about to examine the positive or negative effect of trading volume on stock market capitalization in various regions.

A study in Nepal by Kadel and Patodiya (2023) shows a positive relationship between trading volume and stock returns in the short term. Data is related to Nepal Stock Exchange from mid December 2018 to mid-January 2023, used for the ARDL model. Shrestha (2018) confirms the short-term relationship for 2005 to 2017 of NEPSE index. There are similar studies in other countries that show a positive short-term relationship. Mallikarjunappa el al. (2024) said that there is a positive short-term impact on the Indian stock market over the period 2005-2022, and it is mostly because of news signals. There is another study by Çıralı (2022) about the effect of trading volume on

stock market in 25 countries for 2016 to 2020 and the findings are the same with previous ones. However it motions that some information release in market could help investors to trade accurately and this can cause a change in price returns. Conversely, some studies have identified a negative relationship between trading volume and stock returns in the short term. Aboualhasan et al. (2024) focus on the S&P 500 index observed a negative relationship between high trading volume and returns, particularly after the 2008 financial crisis. Their study suggests that in times of crisis, increasing trading volume could be a sign of increasing uncertainty among investors, resulting in selling pressure and a negative relationship between trading volume and the price index. Habib (2011) also states that the negative effect of trading volume on the stock market is a sign of investor over activity, and examined the effect in relation to the Egyptian Securities Exchange between 1998 and 2005.

Several previous studies have shown that the relationship between trading volume and the stock market is often due to a specific event in short-term, such as the occurrence of a crisis or investor emotions. However, some studies suggest that a stable relationship could be found between the two variables in long-term, regardless of any specific event. Jiranyakul (2015) studied a very important relationship in Thailand. The study is about trade openness and economic growth for 1993-2013 and examines the relationship between trade volume and economic growth in short-term and long-term. The results of the study show that in the short term, trading volume does not have a stable effect on the economy; however, increasing trading volume in the stock market leads to economic growth and real GDP, which in turn will increase the value of the stock market in the long term. Even uncertainty and information asymmetry effect on relationship between trade volume and stock market trend (Wu and Guo, 2004). There is another study by Lin (2013) that examines the dynamic stock return–volume relations for six emerging Asian markets and the findings show a bi-directional relationship between those two variables. Along with other researchers, Troster et al. (2021) states that increased trading volume leads to higher liquidity in the market, which reduces transaction costs and encourages investors to trade and demand.

The methodological approach of using statistical and econometric models is another important point that should be considered. The following are the key methodologies identified in the previous related studies. One of the approaches is regression. The study by Antônio et al. (2018) employs an unbalanced panel data regression strategy to analyze the effect of trade volume on analysts' stock recommendations. The strength of this approach is to control the firm-specific characteristics and time effects, providing a robust

framework to assess the impact of trading volume on market perceptions and recommendations. Chuang et al. (2009) use quantile regressions to investigate the causal relations between stock return and volume, and show that causal effects of volume on return are usually heterogeneous across quantiles and those of return on volume are more stable. Another approach is using time-varying models. Xu et al. (2006) used a time-consistent VAR model to test the dynamic return volatility–volume relationship, and find that volatility and volume are persistent and highly correlated with past volatility and volume. This model captures the dynamic nature of the relationship and allows for the examination of contemporaneous and causal relationships through quantile regression and asymmetric causality tests (Büberkökü, 2016).

Like any other country, the trade volume and its effect on stock market capitalization has always been of interest to researchers. The following is a review of some studies related to examining the relationship between trading volume and the Tehran stock exchange (TSE). By examining the detrended cross-correlation index between TSE index return and trading volume in different time periods using data from 2009 to 2019, Shahrazi et al. (2023) states that the correlation between the two variables is not constant; however, the correlation gets higher in long-term. Using Tehran Stock Exchange data from 1998 to 2006, and considering econometric models including GARCH and causality, Khajavi et al. (2009) found a relationship between the two variables of Tehran stock exchange returns and trading volume, and stated that changing in returns will have a direct impact on future trading volume and future returns. Kashi et al. (2014) used an autoregressive model for data from 2005 to 2012 on the Tehran Stock Exchange and found a bidirectional relationship between the two variables of trading volume and stock index returns. Researchers tried to examine the relationship even in market boom and bust. Kalantari and Khalil Pak Tinat (2014) use a Markov switching model and show that TSE return strongly depends on trading volume in market boom and bust. On the opposite side, Eslami Bidgoli and Shaabanpour Fard (2016) demonstrate a negative impact of trading volume on TSE return volatility. Abbasi et al. (2016) even consider that there is no relationship between trading volume and TSE return. According to these studies, it is necessary to study more details on the dependence of the Tehran Stock Exchange index return and its trading volume based on recent data, and if there is a correlation, the relationship between these two variables in the short and long term should be determined.

## 3 Methodology and Data

In order to examine whether trade volume could affect market capitalization or not, set of certain variables which could be categorized in market and macroeconomic rates. There will be also two points of view to address market capitalization, one will consider the value of whole market in Iranian Rial and the other would consider US Dollar. Also to show better insights, dynamics should be taken into account and this paper would present both short run and long run analysis. Next section would test following hypothesis:

1) Market capitalization in dollar is influenced mainly by macroeconomic rates (interest rate and exchange rate) in Iran.
2) Value of trade volume does not have a significant impact on Market capitalization in dollar in Iran.
3) Market capitalization in Iranian Rial is influenced mainly by both market and macroeconomic variables in Iran.

Modelling would be based on ARDL[1] model to present both short run and long run estimates. Equations would be:

$$Market\ Cap\ in\ IRR = F(Free\ risk\ rate, \frac{Iranian\ Rial}{US\ Dollar}, {}^{P}/_{E_{TTM}}, Trade\ Value) \quad (1)$$

$$Market\ Cap\ in\ US\ Dollar = F(Free\ risk\ rate, \frac{Iranian\ Rial}{US\ Dollar}, {}^{P}/_{E_{TTM}}, Trade\ Value) \quad (2)$$

Table 1 shows variables mentioned in equations 1 and 2 providing descriptive statistics and also their explanations.

[1] Auto Regressive with distributed lags

Table 1
*Descriptive statistics*

| Variable | Explanation | Mean | Median | Max. | Min. | Std. Dev. | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|
| Dollar | Market rate of Dollar in Iranian Rial terms | 254408 | 208910 | 1058000 | 33800 | 221058 | 1.0526 | 3.4604 |
| MVD | Iran's Market capitalization in Dollar | 1.49e+11 | 1.27e+11 | 4.34e+11 | 4.34e+10 | 6.92e+10 | 0.9649 | 3.7904 |
| MVR | Iran's Market capitalization in Iranian Rial | 4.17e+16 | 5.43e+16 | 1.07e+17 | 3.17e+15 | 3.48e+16 | 0.1407 | 1.3792 |
| P/E | P/Eps Ratio (ttm) | 10.36 | 8.7173 | 41.3318 | 5.8408 | 5.5897 | 3.3406 | 15.3008 |
| TV | Value of Trade Volume | 3.40e+13 | 2.06e+13 | 2.73e+14 | 4.97e+11 | 4.36e+13 | 2.3354 | 9.3577 |
| IR | Free risk rate | 0.2344 | 0.2292 | 0.4106 | 0.0467 | 0.0452 | 0.3292 | 3.8335 |

*Source:* Research findings

Estimation will be conducted through ARDL model. This is a linear time series model in which both the dependent and independent variables are related not only contemporaneously, but across historical (lagged) values as well. Although there is a long history of ARDL applications, again when it comes for cointegration, they can provide features[1]. The clear point is when inherent robustness to misspecification of integration orders of variables is the case, ARDL could bring serious advantages comparing to traditional cointegration methodologies[2]. Previous approaches where all variables need to have identical orders of integration[3], typically fail. Pre-testing for the presence of a unit root in each of the variables is required, which is clearly subject to misclassification, particularly since unit root tests are known to suffer size and power problems[4]. As trade volume could affect market capitalization through several mechanisms, applying ARDL would enable to clarify both dynamics in short run and long run which could develop insight to this matter.

Figure 1 presents hot market capitalization in Iranian Rial and Us dollar in Tehran exchange market varies starting 2014-2024. Prominent determinants such as inflation and exchange rate played a significant role. IPOs, regulations

[1] Pesaran and Shin (1998) and Pesaran et al. (2001)
[2] Engle-Granger (1987), Phillips and Ouliaris (1990) or Johansen (1995)
[3] Usually integrated at degree one
[4] Perron and Ng (1996)

and governmental policy such as financing through selling bonds could be taken into account and as more than 70 percent of Iranian capital market is consisted by commodities, megatrends in that pattern shall affect as well.

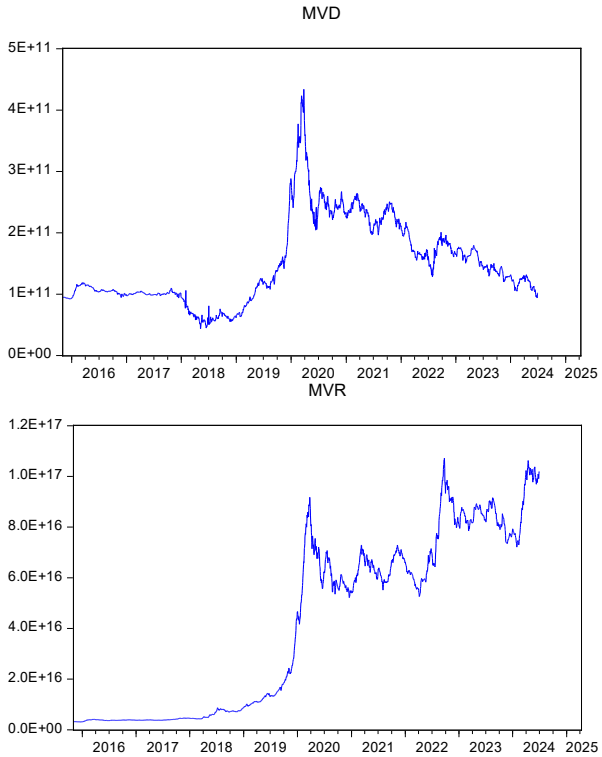



*Figure 1.* Market Capitalization in US Dollar (up) and Iranian Rial (down)
*Source:* Research findings

In time series analysis, unit root test is a vivid part to be considered in order to prevent spurious regression, Also, as in this study the long run is a matter of question, cointegration through ARDL would be the case, therefore, Table 2 indicates the result of unit root test.

Table 2
*Unit root tests*

| Variables | ADF test | Variables | ADF test |
|---|---|---|---|
| IR | -2.6(7)* | P/E | -2.14(5)* |
| D(IR) | -26.57(6)*** | D(P/E) | -15.21(4)*** |
| MVD | -1.58(5) | TV | -3.15(10)** |
| D(MVD) | -18.37(4)*** | D(TV) | -18.12(9)*** |
| MVR | -0.22(3) | Dollar | 4.5(10) |
| D(MVR) | -20.88(2)*** | D(Dollar) | -50.24(0)*** |

Entry in parenthesis for ADF test stands for the optimal lag length chosen by the SIC with the maximum lag set to be 26.
*Significance at the 10% level
**Significance at the 5% level
***Significance at the 1% level
*Source:* Research findings

In order to test mentioned hypothesis, with data discussed in this section, next the estimation results will be presented and examine whether trade volume could explain market capitalization in Iran or not?

## 4 Empirical Model

As mentioned in previous section, in order to check how value of trade volume affect market capitalization, paper would consider dependent variable both in domestic currency and US dollar. Due to nominal anchoring role in exchange rate and correlation between inflation and exchange rate, by doing so, it would enable the model to decompose the impact. In other words, as market capitalization based on performance of industries which depends on two main factors, how firms are operating and how their sale prices are behaving. Capital market in Iran, a country with persistent high inflation in the sample period, is going to probably identify capital gain through this mechanism and this would lead a misinterpretation in how value of trade volume would affect total market value. Therefore, it would be helpful if both market capitalization in Rial and US Dollar would be addressed. Table 3 presents how market and macroeconomic rates would affect market capitalization in domestic currency.

Table 3
*Estimation in Short run - Dependent Variable: Market Capitalization in Iranian Rial*

| Variables | Coefficient | t-Statistic | Prob |
|---|---|---|---|
| DLOG(MVR(-2)) | 0.184549 | 8.664386 | 0.0000 |
| DLOG(MVR(-3)) | -0.051166 | -2.365029 | 0.0181 |
| DLOG(MVR(-4)) | 0.103705 | 4.957707 | 0.0000 |
| IR | -0.009379 | -2.373800 | 0.0177 |
| DLOG(TV(-1)) | 0.007071 | 10.05066 | 0.0000 |
| DLOG(TV(-2)) | 0.003851 | 4.958842 | 0.0000 |
| DLOG(TV(-3)) | 0.001985 | 2.557407 | 0.0106 |
| DLOG(TV(-4)) | 0.001497 | 2.094841 | 0.0363 |
| DLOG(DOLLAR(-1)) | 0.006127 | 0.747987 | 0.4545 |
| DLOG(DOLLAR(-2)) | 0.007923 | 0.969434 | 0.3324 |
| DLOG(DOLLAR(-3)) | 0.017438 | 2.129772 | 0.0333 |
| PE | 0.027395 | 36.22373 | 0.0000 |
| PE(-1) | -0.028276 | -20.40440 | 0.0000 |
| PE(-2) | 0.000768 | 0.500095 | 0.6171 |
| PE(-3) | -0.001762 | -1.163106 | 0.2449 |
| PE(-4) | 0.002013 | 2.106919 | 0.0352 |
| C | 0.001727 | 1.700297 | 0.0892 |
| R-squared | 0.81 | Adjusted R | 0.80 |
| F-statistic | 150.97 | Log likelihood | 7560.17 |

*Source:* Research findings

As shown in Table 3, dependent variable is market capitalization in Iranian rial and the overall effect of lags of the dependent variable has a positive impact on market capitalization by 23 percent. Free-risk interest rate as supposed has a negative and significant on total market value. Value of trade volume has a significant 0.14 percent impact on dependent variable. Growth of exchange rate increase market capitalization in Rial by 0.15 percent. P/E has a positive impact on market value by negligible amount. As data is five working days, the short run estimates are presented and by bearing cointegration and long run relations into account, Table 6 would present the long run. But first it is better to see how exact explanatory variables, P/Eps Ratio (TTM[1]), Value of Trade Volume, Free risk rate and exchange rate growth would explain market capitalization in US Dollar presented in Table 4.

[1] Trailing 12 months

Table 4
*Estimation in Short run - Dependent Variable: Market Capitalization in US Dollar*

| Variables | Coefficient | t-Statistic | Prob |
|---|---|---|---|
| DLOG(MVD(-2)) | -0.130602 | -6.069237 | 0.0000 |
| DLOG(MVD(-3)) | -0.166911 | -7.765971 | 0.0000 |
| DLOG(MVD(-4)) | -0.095581 | -4.422017 | 0.0000 |
| IR | -0.010819 | -0.953792 | 0.3403 |
| DLOG(TV(-1)) | 0.008862 | 4.447555 | 0.0000 |
| DLOG(TV(-2)) | 0.007828 | 3.617923 | 0.0003 |
| DLOG(TV(-3)) | 0.006765 | 3.120137 | 0.0018 |
| DLOG(TV(-4)) | 0.006250 | 3.109820 | 0.0019 |
| DLOG(DOLLAR(-1)) | -0.005042 | -0.216456 | 0.8287 |
| DLOG(PE(-1)) | 0.189083 | 5.772119 | 0.0000 |
| DLOG(PE(-2)) | 0.035664 | 1.075840 | 0.2821 |
| DLOG(PE(-3)) | 0.067761 | 2.048569 | 0.0406 |
| DLOG(PE(-4)) | 0.063035 | 2.009990 | 0.0446 |
| C | 0.002529 | 0.933877 | 0.3505 |
| R-squared | 0.71 | Adjusted R | 0.65 |
| F-statistic | 13.21 | Log likelihood | 5171.43 |

*Source:* Research findings

Lags of dependent variable have a significant negative impact on market value in dollar. When it comes to market capitalization in dollar, interest rate is statistically insignificant. The value of trading volume has a 0.27 percent significant positive impact on market value. P/E ratio is having a positive impact on market capitalization which is a crucial factor to address. Also, crucial issue to tackle is like interest rate, exchange rate does not explain market value in Dollar in short run.

Table 5
*Estimation in Long run - Dependent Variable: Market Capitalization in Iranian Rial and US Dollar*

| | Market Capitalization in Iranian Rial | | Market Capitalization in US Dollar | |
|---|---|---|---|---|
| Variables | Coefficient | t-Statistic | Coefficient | t-Statistic |
| $DLOG(TV(-1))$ | 0.0170 | 6.1460 | 0.0169 | 6.1297 |
| $DLOG(DOLLAR(-1))$ | 0.0215 | 2.2085 | -0.9371 | -39.7948 |
| $IR$ | -0.0011 | -0.1994 | -0.0017 | -0.3058 |
| $P/E$ | 0.0002 | 3.3612 | 0.0002 | 3.2494 |
| $C$ | 0 | 0.0553 | 0.0002 | 0.1408 |

$$EC = DLOG(MVR(-1)) - (0.0170 \times DLOG(TV(-1)) + 0.0215 \times DLOG(Dollar(-1)) - 0.0011 \times IR + 0.0002 \times P + 0.0001)$$

$$EC = DLOG(MVD(-1)) - (0.0169 \times DLOG(TV(-1)) - 0.9371 \times DLOG(Dollar(-1)) - 0.0017 \times IR + 0.0002 \times P + 0.0002)$$

*Source:* Research findings

As presented in long run estimates, P/E and value of trade volume considered as market variables, have a similar impact on market capitalization both in domestic currency or dollar. By construction, as market capitalization in Dollar is generated via market value in domestic currency divided by Dollar, has a negative and significant impact. In long run, interest rate could not explain market value in any matter but when it comes to value in Rial, growth of exchange rate has 2 percent influence.

With having short run and long run discussed and even going one step further and having market capitalization in dollar, value of trade volume which can represents the expectations of investors, has a positive impact on exchange rate regardless to macroeconomic condition. Even after excluding inflation and monetary determinants in market capitalization, again value of trade volume could explain the increase of aggregate value both in short run and long run. So, the answer to aroused question is yes and indeed it affects market cap. Table 6 would summarize the hypothesis discussed earlier in Section 3.

Table 6
*Summary of hypothesis testing*

| Hypothesis | Result |
|---|---|
| Market capitalization in dollar is influenced mainly by macroeconomic rates in Iran. | Rejected, interest rate is insignificant and exchange rate explains by construction. |
| Value of trade volume does not have a significant impact on Market capitalization in dollar in Iran. | Rejected, both in short run and long run as a representative of investors expectations has a positive and significant impact. |
| Market capitalization in Iranian Rial is influenced mainly by both market and macroeconomic variables in Iran. | Not rejected. |

*Source:* Research findings

Finally, the results of bound tests are presented in Table 7. Bound testing as an extension of ARDL modelling presented by Pesaran et al. (2001), uses F and t-statistics to test the significance of the lagged levels of the variables in a univariate equilibrium correction system when it is unclear if the data generating process underlying a time series is trend or first difference stationary.

Table 7
*Bounds Tests*

| **Market Capitalization in Iranian Rial** | | | | |
|---|---|---|---|---|
| Test Statistic | Value | SIGNIF | I(0) | I(1) |
| | | | Asymptotic: n=1000 | |
| F-statistic | 139.5173 | 10% | 2.2 | 3.09 |
| k | 4 | 5% | 2.56 | 3.49 |
| | | 2.5% | 2.88 | 3.87 |
| | | 1% | 3.29 | 4.37 |
| Actual Sample Size | 2244 | | Finite Sample: n=80 | |
| | | 10% | 2.303 | 3.22 |
| | | 5% | 2.688 | 3.698 |
| | | 1% | 3.602 | 4.787 |
| **Market Capitalization in US Dollar** | | | | |
| Test Statistic | Value | Signif | I(0) | I(1) |
| | | | Asymptotic: n=1000 | |
| F-statistic | 139.1068 | 10% | 2.2 | 3.09 |
| k | 4 | 5% | 2.56 | 3.49 |
| | | 2.5% | 2.88 | 3.87 |
| | | 1% | 3.29 | 4.37 |
| z | 2244 | | Finite Sample: n=80 | |
| | | 10% | 2.303 | 3.22 |
| | | 5% | 2.688 | 3.698 |
| | | 1% | 3.602 | 4.787 |

*Source:* Research findings

Ultimately, the results indicate overall estimates are reliable. When discussing parameter constancy in linear regressions, CUSUM and CUSUM-of-squares are two of the most frequently employed tests. Figure 2 presents the results of parameter constancy test for both estimations.

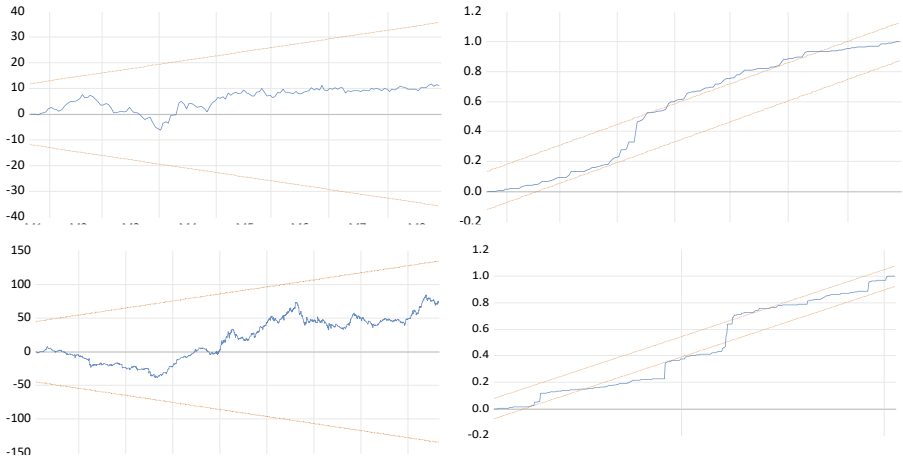



*Figure 2.* CUSUM and CUSUM_Squared for estimations
*Source:* Research findings

Regarding Figure 2, the estimations are well behaved from the stability point of view as well.

## 5 Conclusion

Market capitalization is a leading determinant on how overall status of a capital market is. There are several categories affecting this crucial index. Some are monetary ones, like inflation, exchange rate and interest rate. The others are connected with real sector like business cycles, recessions and sanctions. On the other hand, there are market variables such as value of trade volume, P/E and industry-specific ones. Due to high inflation rates in Iran in recent decade, there are some arguments addressing that value of trade volume in a working day is not an important factor to follow and macroeconomic rates such as interest rate and exchange rate are dominant in explaining market capitalization.

There exists a vivid relation between trade volume and investors' expectations. There is strong conviction behind price movements when it comes to heavy trading, while light volume delivers uncertainty or lack of commitment by market participants. Also, trend confirmation, reversal and breakouts could be extracted from volume. Therefore, if the dominance of macroeconomic rates holds true, this means in high inflation environment, volume trade could not explain market capitalization. To test this latter

statement, by using five working day data from 2014-2024 in Iranian capital market, ARDL model is taken into account by this study to enable showing short run and long run dynamics. One more thing, paper address market capitalization in domestic currency and in US dollar to exclude the inflation and exchange rate influence. Previous studies are confirmed by the estimations provided by present study when only domestic currency is the case. When dealing with real terms, some insights on how trade volume may affect market and its cycles are worthy to follow, especially in the long run.

Results indicated, both in short run and long run, whether the dependent variable is market capitalization in US dollar or Iranian Rial, trade volume has a significant impact on aggregate value of market. Interest rate could not explain market value in long run and the effects of P/E and trade volume are similar whether market capitalization is in dollar or Rial. By construction, exchange rate growth has a negative impact on market value in US dollar, but it could increase market capitalization in Rial by 2 percent. This means that investor sentiment is crucial in any pattern, regardless of how macroeconomic rates are. In other words, it is clear that due to rates fluctuations, investors will react in different positions, but there is no over controlling upon trade volume and it may solely shape the market.

## References

Abbas, D. S., Zulaecha, H. E., Rachmania, D., Hakim, M. Z., & Rachmi, D. A. (2022). Analysis of determinant factors in influencing stock return: Panel data analysis approach. Daengku. *Journal of Humanities and Social Sciences Innovation, 2(5), 645-655.*

Abbasi, E., Dehghan nayeri, L. & Poordadash Mehrabani, N. (2016). Surveying the Relation among Volume, Stock Return and Return Volatility in the Tehran Stock Exchange: A Wavelet Analysis. *Journal of Asset Management and Financing, 4(4), 99-114.* doi: 10.22108/amf.2016.21115. [In Persian]

Aboualhasan, H. S., Alali, M. S., Alaskar, I. T., & Alsaifi, K. (2024). The volume-return relationship: Do crises influence their rise and fall? *International Journal of Research in Commerce and Management Studies*. 6(6), 118-131.

Assogbavi, T., & Osagi, J.E. (2006). Equity valuation process and price volume relationship on emerging stock markets. *International Business and Economics Research Journal, 5(9), 7-18.*

Antônio, R. M., Rathke, A. A. T., Moraes, M. B. da C., & Ambrozini, M. A. (2018). Efeito do Volume de Negócios nas Escolhas de Recomendações de Ações dos Analistas. *Brazilian Review of Finance, 15(2), 287–311.*

Bouattour, M., & Miloudi, A. (2024). Another look at the asymmetric relationship between stock returns and trading volume: Evidence from the Markov-switching model. *Review of Accounting and Finance, 23(2), 256-279*.

Chen, S. W., & Liu, T. C. (2015). On Asymmetric Causality Between Stock Prices and Trading Volume for Some Developed and Emerging Stock Markets: A Preliminary Analysis. *International Review of Accounting, Banking & Finance, 7(1), 3-26.*

Choi, S. Y. (2021). Analysis of stock market efficiency during crisis periods in the US stock market: Differences between the global financial crisis and COVID-19 pandemic. *Physica A: Statistical Mechanics and Its Applications, 574, 125988*.

Chuang, C. C., Kuan, C. M., & Lin, H. Y. (2009). Causality in quantiles and dynamic stock return–volume relations. *Journal of Banking & Finance, 33(7), 1351-1360*.

Çıralı, S. (2022). A comparison of international market indices for measuring market efficiency based on price-volume relationship. *Journal of Capital Markets Studies, 6(1), 90-105.*

Engle, R. F. & Granger, C. W. (1987). Co-integration and error correction: Representation, estimation, and testing. Econometrica. *Econometric Society, 251-276.*

Eslami Bidgoli, S., & Shaabanpour Fard, P. (2016). The relationship between trading volume and its components and returns; A case study in the Tehran Stock Exchange focusing on intraday trading and eliminating the U-shaped effect. *Financial Management Perspective, 6(14), 45-63*. [In Persian]

Büberkökü, Ö. (2016). Beta katsayılarındaki değişimin açıklanmasında işlem hacminin etkisinin incelenmesi: Banka hisselerine dayalı bir analiz. *İşletme Bilimi Dergisi, 4(1), 1-28*.

Gabaix, X., Gopikrishnan, P., Plerou, V., & Stanley, H. E. (2007). A theory of limited liquidity and large investors causing spikes in stock market volatility and trading volume. *Journal of the European Economic Association, 5, 564–573*.

Gul, F., & Javed, T. (2009). Relationship between trading volume and stock exchange performance: A case from Karachi stock exchange. *International business & economics research journal (IBER), 8(8), 13-20*.

Habib, N. M. (2011). Trade volume and returns in emerging stock markets an empirical study: The Egyptian market. *International Journal of Humanities and Social Science, 1(19), 302-312.*

Jin, J., Zhang, Q., & Wang, X. (2024). Decoding High-Volume Stock Momentum: Disagreement or Disposition? *Journal of Behavioral Finance, 1-31*. https://doi.org/10.1080/15427560.2024.2441703

Jiranyakul, K. (2015). Temporal causal relationship between stock market capitalization, trade openness and real GDP: Evidence from Thailand. *International Journal of Applied Business and Economic Research, 13(4), 1525-1534*.

Johansen, S. (1995). Likelihood-based inference in cointegrated vector autoregressive models. Oxford University Press.

Kadel, D. R., & Patodiya, P. K. (2023). Dynamic Relationship of the Stock Index with the Trading Volume of the Nepal Stock Exchange: An Empirical Analysis. *Shanti Journal, 3(1-2), 47-64.*

Kalantari, A., & Khalil Pak Tinat, N. (2014). Examining the Effect of Trading Volume on the Total Index of Tehran Stock Exchange in boom and bust Periods: Application of Markov regime transition model. *Iranian economic research. 19(58), 183-204*. [In Persian]

Kashi, M., Roshan, R., & Donyaei, M. (2014). Investigate the causal and contemporaneous relations of stock returns, trading volume and Tehran Stock Exchange return volatility: Application of Var-GrjGarch and Grj-Garchdcc multivariate models. *Financial Engineering and Protfolio Management, 17(4), 61-86*. https://www.sid.ir/paper/197766/en. [In Persian]

Khajavi, Sh., Ghasemi, M., & Alhari Abhari, H. (2009). Examining the relationships between stock returns, return change, and trading volume in the Tehran Stock Exchange using ARCH and GARCH models. *Journal of Accounting Advances, 1(1), 25-68.* doi: 10.22099/jaa.2009.3442. [In Persian]

Laffont, J. J., & Maskin, E. S. (1990). The efficient market hypothesis and insider trading on the stock market. *Journal of Political Economy, 98(1), 70-93*.

Lee, D. H., Kim, M. K., & Kim, T. S. (2016). Abnormal trading volume and the cross-section of stock returns. *KAIST College of Business Working Paper Series*, (2016-008).

Lin, H. Y. (2013). Dynamic stock return–volume relation: Evidence from emerging Asian markets. *Bulletin of economic research, 65(2), 178-193*.

Lof, M., & van Bommel, J. (2023). Asymmetric information and the distribution of trading volume. *Journal of Corporate Finance, 82, 102464*.

Mallikarjunappa, T., Saldanha, D., & Hawaldar, I. T. (2024). The dynamics of the relationship between stock returns and trading volumes: An emerging markets perspective during varying market conditions. *Journal of Open Innovation: Technology, Market, and Complexity, 10(1), 100202*.

Nurhayati, I. (2022). The effect of trading volume, frequency and market capitalization on stock return of chemical sub sector. *Jurnal Manajemen (Edisi Elektronik), 13(2), 283-296.*

Perron, P. & Ng, S. (1996). Useful modifications to some unit root tests with dependent errors and their local asymptotic properties. *The Review of Economic Studies, 63(3):435-463*.

Pesaran, M. H. & Shin, Y. (1998). An autoregressive distributed-lag modelling approach to cointegration analysis. *Econometric Society Monographs, 31:371-413.*

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics, 16(3):289-326*.

Pham, M. C. (2018). Modeling Returns, Volatility, Volume, and Trade Durations using High Frequency Data (Doctoral dissertation, Monash University).

Rajan, R. G., & Zingales, L. (2003). The great reversals: The politics of financial development in the twentieth century. *Journal of Financial Economics, 69(1), 5-50.*

Shahrazi, M., & Shahrazi, M. (2023). Application of econophysics in examining the relationship between stock returns and trading volume in Tehran Stock Exchange. *Quarterly Scientific Research Journal of Quantitative Economics*. https://doi.org/10.22055/jqe.2023.42398.2529. [In Persian]

Shrestha, S. R. (2018). Stock return and trading volume relation in Nepalese stock market: An ARDL approach. *Journal of Poverty, Investment, and Development, 46, 47-56.*

Sierimo, C. (2002). Testing the efficient market hypothesis of the Helsinki stock exchange: Further empirical evidence based on nonlinear models (Doctoral dissertation, Helsingin yliopisto).

Sun, W. (2003). Relationship between trading volume and security prices and returns. Area Exam Report, Technical Report, MIT Laboratory for Information and Decision Systems.

Troster, V., Marques, A. M., & Shahbaz, M. (2021). New insights on the trading volume–return relationship: Evidence from the three largest stock exchanges. *Economic growth and financial development: Effects of capital flight in emerging economies, 179-204*.

Wu, H. M., & Guo, W. C. (2004). Asset price volatility and trading volume with rational beliefs. *Economic Theory, 23(4), 795-829*.

Xu, X. E., Chen, P., & Wu, C. (2006). Time and dynamic volume–volatility relation. *Journal of Banking & Finance, 30(5), 1535-1558*.

Zeren, F., & Konuk, F. (2016). The Nexus between Trading Volume and Stock Prices: Panel Evidence from OECD Countries. *Business and Economics Research Journal, 7(1), 21.*