Clinical Cancer Investigation Journal-ISSN: 2278-0513

Impact of Retail Investors' Transactions on the Studied Stock Market Liquidity: Car Industry of Tehran Stock Exchange

Abstract

The extant study aimed to examine the impact of retail investors' transactions on the stock market liquidity in the car industry listed on the Tehran Stock Exchange. The present research was applied in terms of objective and descriptive-correlational study in terms of method. The statistical population comprised car companies listed on Tehran Stock Exchange. Systematic screening sampling was used to select the sample. This study was carried out within the time interval between 2011 and 2020. According to determinant indicators, 15 companies were chosen as the sample size. In this study, data were analyzed using panel data, multivariate regression, and EViews Software. The results indicated the significant impact of the market value of retail investors' transactions on the stock market liquidity of the car industry on the Tehran Stock Exchange. Moreover, retail investors' transaction volume had a significant impact on the stock market liquidity of the car industry on the Tehran Stock Exchange. The market value percent of retail investors' transactions had a significant effect on the stock market liquidity of the car industry on the Tehran Stock Exchange.

Keywords: *Retail Investors, Market Liquidity, Car Industry, Stock Exchange*

Amir Rastegar[1*], Dr. AbuTorab Alirezaei[2]

[1]MA, Department of Industrial management & financial orientation, Faculty of Management, South Tehran branch, Islamic Azad University, Tehran, Iran

** Correspondent author Email: amir.rastegar60@ gmail .com*

[2]Faculty member, Department of Industrial management, financial orientation, South Tehran branch, Islamic Azad University, Tehran, Iran

Introduction

Liquidity is an important factor for pricing an asset. Liquidity studies indeed focused on individual financial assets. However, it was gradually understood that liquidity (along with additional determinants of market microstructure) could show common points affecting the asset classification. This contributed to discovering the effect and determinants of total stock market liquidity, and the integration of the total liquidity effect (known as extensive market liquidity) in assets pricing.

Liquidity has a considerable impact on the price discovery process and is an index for market efficiency, especially in terms of information efficiency (Amihud, 2005). Increased liquidity encourages the investors' motivation for transaction decisions, but also shares financial risk by reducing the portfolio management costs (Lesmond et al., 1992). There has been increasing evidence about the effect of retail investors' involvement in transactions. The literature review has addressed whether retail investors' participation includes information about future stock price flows causing combined results. In addition, it has investigated the transaction contribution of retail investors' participation in individual stock liquidity. However, the share of retail investors' participation has not existed in total stock market liquidity.

The literature pertained to transactions of retail investors' participation examines some research questions. The most critical question asks about the information content of this investor group addressing whether transactions of retail investors participation consist of information about future prices. Empirical evidence on this research question provides mixed results. Kelley and Tetlock (2013) examined the transaction records of some retail brokers in the USA and found that they predicted return rates and stock news. A database on a large online broker in Europe was investigated. They found that customers of this broker predicted the next day's return rate but carry some losses on the transaction day. On contrary, Barbera and Odean (2000) studied the long-term performance of a broker's customers in 1991 and 1996. They reported considerable losses for these investors. The literature also assesses the relationship between transactions of retail investors' participation and individual stock liquidity. To do this, this study reviews the effects of investor attention. It means studying whether changes in investors' attention change the stock liquidity. In this case, Owadi et al. (2013) discover that retail investor attention can improve stock liquidity.

Long-term economic growth in a country requires optimal resource allocation and mobilization at the national level. This achievement is available only in financial markets, particularly in extensive and efficient capital markets, such as stock exchanges. On the other hand, investors may make mistakes when forming their expectations due to ambiguous conditions and cognitive faults that are rooted in human psychology and the external environment. The mentioned reasons make investors show specific behaviors when investing in financial markets. Therefore, the present study aims to examine the impact of retail investors' transactions on the stock market liquidity of the car industry on the Tehran Stock Exchange.

Theoretical Foundations

Investors' Transactions

Investor sentiment- the belief of investors about expected cash flows or interest rates- is against the fundamental analysis principles (Baker & Wurgler, 2006). Two pieces of literature are ruling the investor sentiments: 1) it is possible to identify a

logical index of investor sentiment, and 2) sentiments have traceable and regular effects on the stock market. The efficient market theory does not confirm the effect of investor sentiments on the stock price. This theory assumes that competition between logical investors who invest their assets optimally in diverse stocks creates an equilibrium in which, prices logically equal the present value of expected cash flows. At this equilibrium, the expected return on each stock at each time section depends on the systematic risk related to that specific time section for that stock. Even if some investors perform illogically, their demands will be neutralized by arbitrage and will have no significant impact on the price.

Results of some studies indicate the relationship between stock price and changed human sentiments of investors. Retail investors are more likely influenced by sentiments compared to major investors. Greenwood and Nagel (2006) found that young investors are more likely to buy the stock at the maximum price rather than older investors. Kumar and Lee (2006) concluded that retail investors have consistent investment techniques, i.e., they form buy/sell queues. Therefore, we can claim that there is a relationship between investors' sentiment and retail investors' buy/sell orders.

Stock Market Liquidity

Liquidity is the criteria measured by assets' marketability, and transaction cost is one of the important features used to calculate the expected return on the stock. Amihud and Mendelson (1986) formalized the important relationship between market structure and assessment pricing. This study provided the field for a mutual connection between asset liquidity and return premium (Marozva, 2019). Rösch and Kaserer (2013) studied market liquidity during the financial crisis. Their findings supported the positive correlation between market risk and liquidity risk indicating that a reduction in markets led to a decrease in liquidity (Altay & Çalgıcı, 2019). Amihud and Mendelson (1986) tested the effects of liquidity on stock return and found a positive relationship between high liquidity rate and expected return. The standard CAPM model is adjusted or amplified by liquidation risk factors, and a new CAPM version is derived along with the evidence from the relationship between asset price and liquidation. Lee (2011) found the considerable effect of liquidation risk on the asset return in international markets. Liquidation aspects are highly important in emerging markets. Kelly and Jiang (2014), Chabi-Yu et al. (2019), and Challet and Lu (2011) studied the effect of stock return decline risk and return risk domain on the cross-sectional expected stock return. They found that investors consider a surplus return for the stork that is at risk of fall (Ruenzi et al., 2020).

Research Background

Forooghnezhad et al. (2014) studied the relationship between risk and return by comparing the traditional capital asset pricing model with the consumption-based capital asset pricing model. The results indicated that the traditional capital asset pricing model had a higher potential for describing the relationship between risk and return compared to the consumption-based capital asset pricing model.

Jadorian and Abbasi (2014) analyzed the structural model of financial investors' behavior in the capital market using structural equation modeling (SEM). This study identified the factors affecting the investors' behaviors firstly and then tested the research hypotheses. Findings showed that independent variables were factors affecting the investors' behavior and decision. The results obtained from structural model fit indicators showed the model fit.

Salimi et al. (2014) studied the group behavior of investors in the Tehran Stock exchange. This study examined the group behavior of investors in financial markets from 2006 to 2011 regarding the importance of group behavior in these markets and initial evidence from this behavior in the Tehran Stock Exchange. This study used the model designed by Chang, Cheng, and Khorana (2000). Robust regression was used to estimate this model. The results indicated that investors show group behaviors on Tehran Stock Exchange, and this behavior is observed in ascending markets more than in descending ones.

Emam et al. (2018) carried out a study on the relationship between stock illiquidity and expected return on the stock. The results showed a positive relationship between illiquidity and expected return on the stock.

Mehrani et al. (2018) tested the effect of investor trading behavior and investors' sentiments on the excess return on the Tehran Stock Exchange. The results indicated that after adding the investor sentiment index to Fama and French Three-Factor Model, the model was improved, and excess return was increased. Finally, the results showed that sentiment indicators were more practical in developing investment models compared to trading indicators.

Hojat Aleslami et al. (2019) studied the impact of investors' emotions on the stock price. The results obtained from hypothesis testing showed that investor emotions and liquidity had a significant impact on the stock price of companies listed on the stock exchange.

Foucault et al. (2011) studied the behavior of retail investors and volatilities. The results indicated that a decline in the volatilities of stock will be expected if trades of retail investors have a positive effect on the stock volatilities.

Nathalie Del et al. (2014) investigated the strategic response to new institutional pressures in the French case of institutional investor activism. This study indicated that institutional investors may use their commercial relations when confronting

different pressures while investors influence the investment performance of firms by using pressure, influence strategies, and key actors' control when responding to pressure.

Fresard (2015) studied the financial strength and product market behavior considering the real effects of cash holdings. This research used 150 companies as sample size and extracted the required data from their financial statements. According to the results, large cash reserves led to future market share gains. In addition, this analysis revealed that the competitive effect of cash flow ad a considerably different effect on the product market outcomes. This effect is stronger when rivals faced righter financing constraints and when the number of interactions between competitors was large.

Wu et al. (2017) studied asset pricing with extreme liquidity risk. This study was conducted on the stock with extreme liquidity risk (Beta) in the U.S. between 1973 and 2014. The results suggested that extreme liquidity risk could provide an advanced warning about extreme liquidity events, and it reliably outperformed aggregate liquidity measures in predicting future market returns.

Crewo and Sutten (2018) studied those who (institutional or retail investors) influence the stock market of an emerging country. This study analyzed the dynamic behavior of institutional and retail investors in the stock market of Indonesia's busing trades (more than 250 million observations). The results showed that those who play a vital role compared to other individuals in the market had different trade behaviors and strategies. In particular, previous trade activities done by individual (institutional) investors had a significant effect on the current trade behaviors and strategies of individual investors (both types of investors). Furthermore, retail investors are more likely to adopt strategies against the market flow and frequently trade with low volumes within short-term periods, while institutional investors do trades consistent with the market flow and rarely do trades with high volumes within the long term.

Blau (2019) studied price clustering and investor sentiment. This study examined how investor sentiment influenced the degree of price clustering. This study used a multivariate test, and contemporaneous correlation between price clustering, and investor sentiment. The results showed that price clustering was markedly higher in technological sectors compared to non-technological stocks.

Lutfur & Shamsuddin (2019) studied the investor sentiment and the price-earnings ratio in the G7 stock markets. This study was conducted in seven countries (the USA, The UK, Canada, France, Germany, Italy, and Japan) between 1998 and 2014. The results revealed that after controlling for the effects of fundamental factors, the P/E ratio generally increased with an improvement in investor sentiment.

Altay and Çalgıcı (2019) studied the liquidity-adjusted capital asset pricing model in an emerging market and liquidity risk in Istanbul Stock Exchange. The results suggested that including liquidity beta in the CAPM model contributed to the explanation power of systematic risks on asset returns. The results about the significance of the assets' liquidity commonality with the market and the covariance between assets' illiquidity and market returns present the importance of these illiquidity betas as significant risk factors on asset returns.

Ruenzi et al. (2020) studied the effects of joint extreme events on equity returns and liquidity and their cross-sectional pricing implications. They merged the literature on downside return risk and liquidity risk and introduced the concept of extreme downside liquidity (EDL). The cross-section of stock returns reflects a premium if a stock's return (liquidity) is lowest at the same time when the market liquidity (return) is lowest. This effect is not directed by linear or downside liquidity risk or extreme downside return risk and is mainly directed by more recent years.

Koesrindartoto et al. (2020) studied those who (institutional or retail investors) move the stock market in an emerging country. This study analyzed the dynamic behavior of institutional and retail investors in the Indonesia Stock Exchange using their completed transactions (comprising over 250 million observations). This study indicated that their trading strategies and behavior, in which institutions played a more important role than individuals in the market, were indeed different.

Method

The present study was applied in terms of objective and was a descriptive-correlational study in terms of method. The statistical population comprised car companies listed on Tehran Stock Exchange. Systematic screening sampling was used to select the sample. This study was carried out between 2011 and 2020. According to determinant indicators, 15 companies were chosen as the sample size.

Research Variables

This study addressed the equations based on the model designed by Abudy (2020). As the direction of causality between retail investors' trading and liquidity is unknown, this study examines the direction of the causality between these variables. The causality is examined based on the Granger (1969) causality test. The liquidity is measured using the average of the daily half bid-ask spreads (BAS) over the stocks consisting in the measurement index. The retail investor (RIs) trading activity is measured using their proportion in the daily trading activity, measured as retail investors' daily trading volume out of the total trading volume in the market that is

represented by PROP-RI. The unrestricted model in the Granger causality test is:

$$\Delta BAS_t = \alpha_1 + \sum_{i=1}^{2} \beta_i \cdot \Delta BAS_{t-i} + \sum_{i=1}^{2} \lambda_i \cdot \Delta \mathrm{PROP}_R I_{t-i} + u_t$$

and the restricted model is:

$$\Delta BAS_t = \alpha_1 + \sum_{i=1}^{2} \beta_i \cdot \Delta BAS_{t-i} + e_t$$

where

$$\Delta BAS_t = BAS_t - BAS_{t-1} \text{ and } \Delta PROP_R I_t = PROP_R I_t - PROP_R I_t$$

To complete the causality examination, a Granger causality test was used to examine causality in the opposite direction (where ΔPROPRIt is the dependent variable).

LOG_BASj is the dependent variable. The difference between the bid and ask divided by average bid-ask spreads is measured for each stock. PROP_RIj indicates the RIs' trading volume out of the whole trading volume. STDj indicates the standard deviation of daily return on stock j. LOG_SIZEj represents the stock market value.

Stock Market Liquidity: it has been defined as the ratio of absolute daily return on stock to trading volumes. The research has normalized variables and reduced the severe effects of economic values regarding the research literature (Al-Jaifi, 2017).

$$IllIQ_{it} = \frac{1}{dayst} \sum_{d=1}^{dayst} \frac{|Rid|}{priced * volumed)}$$

$R_{i,d}$: the absolute daily return of stock i in day d

$Price_{i,d}$: the price of stock i in day d

$Volume_{i,d}$: number of stock i traded in the market on day d

$Days_{i,d}$: number of days in month t when stock i can be traded in the market.

Stock Return: the regression below is processed using daily data for each stock i:

$R_t - RF_t = \alpha_t + \beta_i (Rm_t - Rf_t) + s_i Rsmb_t + h_i Rhml_t + \varepsilon_t$

where R_t and RF_t represent daily return (R) on stock i and risk-free rate for the daily time frame, respectively.

Research Model

$$BASt_{it} = \alpha_0 + \beta_1 PROP\_RI_{it} + \beta_2 BAS_{it-1} + \beta_3 PROP\_RI_{it-1} + \beta_4 LOG\_BAS_{ij} + \beta_5 PROP\_RI_{ij} + \beta_6 STD_{ij} + \beta_7 LOG\_SIZE_{ij} + \beta_8 R_{it} + \beta_9 ILLQ_{it} + \varepsilon_i$$

The extant study analyzed the data using panel data, multivariate regression, and EViews software.

Results

Data analysis was done in this step by measuring central indicators, including mean, med, and dispersion indicators such as standard deviation (SD), maximum, and minimum values of variables.

Table 1. Descriptive Statistics of variables

Variable	Mean	Max	Min	SD	Skewness	Kurtosis
BAST	0.438485	1.506045	-0.5367	0.296376	0.014764	4.916614
BAST_1	0.438034	1.506045	-0.5367	0.296734	0.016385	4.896106
ILLQ	4.983049	6.228511	2.397895	0.855639	-0.96973	3.303101
LOG_BASJ	11.93198	13.61114	10.58588	0.670543	0.212218	2.431999
LOG_SIZEJ	3.300104	3.803798	2.781037	0.203322	0.157543	3.233667
PROP_RI_T	8.229896	9.414973	6.946943	0.592262	0.272605	2.410675
PROP_RI_T_1	8.245816	10.16621	6.946943	0.611811	0.385140	2.748583
PROP_RIJ	3.708016	4.628869	2.877371	0.342096	0.191629	2.741377
RT	0.285348	1.247650	-0.21907	0.423558	0.841364	2.791883
STDJ	0.824076	3.656640	-0.15206	0.537270	1.543557	7.938561

This study used Jarque–Bera statistics to test normality. The significance Jarque–Bera value of the dependent variable was smaller than the significance level of 0.05; hence, this variable is not normal.

Table 2. Phillips–Perron test of variables' stationery

Variable	Phillips–Perron test		Test result
	Statistic	Significance	
BAST	112.209	0.0000	Stationary
BAST_1	102.072	0.0000	Stationary

ILLQ	91.7083	0.0000	Stationary
LOG_BASJ	106.843	0.0000	Stationary
LOG_SIZEJ	115.561	0.0000	Stationary
PROP_RI_T	71.4385	0.0000	Stationary
PROP_RI_T_1	72.5607	0.0000	Stationary
PROP_RIJ	165.764	0.0000	Stationary
RT	91.8404	0.0000	Stationary
STDJ	106.403	0.0000	Stationary

According to Table 2, the significance value of variables was less than the error level of 0.05; hence, variables are stationary at level mode.

Table 3. The absolute value of the correlation coefficient of explanatory variables

	BAST_1	ILLQ	LOG_BASJ	LOG_SIZEJ	PROP_RI_T	PROP_RI_T_1	PROP_RIJ	RT	STDJ
BAST_1	1.000								
ILLQ	0.094	1.000							
LOG_BASJ	0.502	0.101	1.000						
LOG_SIZEJ	0.068	0.212	0.077	1.000					
PROP_RI_T	0.066	0.430	0.017	0.431	1.000				
PROP_RI_T_1	0.375	0.099	0.489	0.020	0.043	1.000			
PROP_RIJ	0.074	0.084	0.257	0.115	0.063	0.113	1.000		
RT	0.100	0.080	0.079	0.042	0.004	0.013	0.183	1.000	
STDJ	0.000	0.027	0.042	0.082	0.041	0.029	0.086	0.481	1.000

As seen in Table 3, the diagonal arrays equal 1 because the correlation coefficient of each variable with itself will equal 1. Other arrays indicate coefficients of correlation between independent variables. The highest absolute value of the coefficient of correlation between explanatory variables equals 0.502 indicating no considerable collinearity between explanatory variables.

Table 4. Estimating research models

Variable	**Y=BAST**		
	Coefficient	**T-value**	**Sig.**
BAST_1	-0.003008	-0.036092	0.9713
ILLQ	0.038521	1.399857	0.1640
LOG_BASJ	-0.019312	-0.323756	0.7467
LOG_SIZEJ	0.603812	5.009718	0.0000
PROP_RI_T	0.142991	3.228802	0.0016
PROP_RI_T_1	-0.023347	-0.405518	0.6858
PROP_RIJ	0.166073	2.465270	0.0150
RT	0.006248	0.076739	0.9390
STDJ	-0.003324	-0.052909	0.9579
C	-3.113494	-4.119438	0.0001
Overall model fit	R^2 =0.424466		
	F= 4.040307		

	prob(F)= 0.000
	D.W=2.048381

Table 4 reports the results of the estimated regression model. According to the results of model estimation, the significance level of the F value is smaller than 0.05 indicating that input variables, including control and independent variables, are significant at the confidence level of 95%. Therefore, the model has an appropriate fit.

According to Table 4, the coefficient of the impact of the independent variable (retail investors' trading volume (PROP_RI_T)) on the dependent variable of stock market liquidity (BAST) equaled 0.142991, and the t-value of the test equaled 3.228802. The absolute value of the t-test was greater than the critical t-value at an error level of 5% (1.96) indicating the significance of the observed coefficient. The significance value equaled 0.0016, which was smaller than the error level of 0.05 indicating significance. Therefore, retail investors' trading volume could significantly affect the stock market liquidity of the car industry on Tehran Stock Exchange with a 95% probability.

According to Table 4, the coefficient of the impact of the independent variable (market value of retail investors' trading (LOG_SIZEJ)) on the dependent variable of stock market liquidity (BAST) equaled 0.603812, and the t-value of the test equaled 5.009718. The absolute value of the t-test was greater than the critical t-value at an error level of 5% (1.96) indicating the significance of the observed coefficient. The significance value equaled 0.0000, which was smaller than the error level of 0.05 indicating significance. Therefore, the market value of retail investors' trading could significantly affect the stock market liquidity of the car industry on Tehran Stock Exchange with a 95% probability.

Conclusion

The present study aims to examine the impact of retail investors' trading on the studied stock market liquidity: the car industry of the Tehran Stock Exchange.

According to research results, the market value of retail investors' trading can affect the stock market liquidity of the car industry on Tehran Stock Exchange. In this regard, Yahyazadefar et al. (2011) found a positive and significant relationship between the turnover rate coefficient and stock return owing to increased attractiveness of and demand for the negotiable stock. Heydari et al. (2011) concluded that the P/E ratio, firm size-to-liquidation risk, and book value-to-market value of a stock are important pricing issues on Tehran Stock Exchange. Mozaffari et al. (2012) confirmed the herding behavior of managers in investment companies that employ the model used in the extant study. Forooghnezhad et al. (2014) concluded that the traditional capital asset pricing model was more capable of describing the relationship between risk and return rather than the consumption-based capital asset pricing model. Nathalie Del et al. (2014) found that institutional investors may use their commercial relations when confronting different pressures while investors influence the investment performance of firms by using pressure, influence strategies, and key actors' control when responding to pressure. Wu et al. (2017) concluded that extreme liquidity risk could provide an advanced warning about extreme liquidity events, and it reliably outperformed aggregate liquidity measures in predicting future market returns. Blau (2019) showed that price clustering was markedly higher in technological sectors compared to non-technological stocks. Lutfur & Shamsuddin (2019) found that after controlling for the effects of fundamental factors, the P/E ratio generally increased with an improvement in investor sentiment. Altay and Çalgıcı (2019) found that the sensitivity of asset return to market liquidity has a positive and significant effect on the asset return although the theory considers this effect is negative. Ruenzi et al. (2020) concluded that a cross-section of stock returns reflects a premium if a stock's return (liquidity) is lowest at the same time when the market liquidity (return) is lowest. This effect is not directed by linear or downside liquidity risk or extreme downside return risk and is mainly directed by more recent years.

According to the results of the present study, the impact factor of the independent variable (retail investors' trading volume (PROP_RI_T)) on the dependent variable of stock market liquidity (BAST) equaled 0.142991. The t-test value equaled 3.228802, and its absolute value was greater than the critical value of t at an error level of 5% (1.96) indicating the significance. Therefore, retail investors' trading volume could significantly affect the stock market liquidity of the car industry on Tehran Stock Exchange with a 95% probability. In this lieu, Gord et al. (2018) concluded that increased illiquidity rises risk and decreases stock demand finally confronting the decline in price and stock return of exchange firms. In other words, increased illiquidity increases a firm's proxy costs, which leads to lower returns. Mehrani et al. (2018) concluded that sentiment indicators are more practical than trading indicators in developing an investment model. Hojat Aleslami et al. (2019) found that investors' sentiment and liquidity could significantly affect the stock price of companies listed on the stock exchange. Doskar (2006) concluded that risk premiums will increase when there are high fluctuations in the market, while market illiquidity and risk-free return on assets occur when asset return declines. Illiquidity may strengthen the

supply shock in some way. Foucault et al. (2011) indicated that a decline in the volatilities of stock will be expected if trades of retail investors have a positive effect on the stock volatilities.

According to the results, the impact coefficient of the dependent variable (market value of retail investors' trading (LOG_SIZEJ)) on the dependent variable (stock market liquidity (BAST)) equaled 0.603812. The t-value obtained to 5.009718 that its absolute value was greater than the critical value of t at an error level of 5% (1.96) indicating the significance of the observed coefficient. The significance value equaled 0.0000 which was smaller than the error level of 0.05 indicating the significance. Therefore, the market value of retail investors' trading could significantly affect the stock market liquidity of the car industry on Tehran Stock Exchange with a 95% probability. Consistent with this result, Salimi et al. (2014) concluded that investors in Tehran Stock Exchange show herding behavior occurring in ascending markets more than in descending markets. Dgahbandan et al. (2015) found that managers possibly increase the investment rate in the firm when investment increases under the influence of investor sentiment. Pre-investment of resources in low-profit projects causes a persistent decline in firm value.

Inflation was the most important constraint of extant study because it could mislead the information contained in financial statements, so they could not reveal the financial situation and achievements of companies properly. Hence, it is suggested to consider suitable training courses for investors to prevent market fluctuations caused by stakeholders' excess sentiment. The market fluctuations and oscillations must become clear and transparent. Stakeholders can pay attention to the financial ratios of firms and set their expected returns consistent with the firm conditions when reviewing market returns.

Acknowledgments

None.

Conflict of interest

None.

Financial support

None.

Ethics statement

None.

Resources

- Emam, S.M., Sadeghi, H. (2018). Study on the relationship between illiquidity and expected stock return, International Conference of Management, Accounting, Banking, and Economics in 2025 Outlook of Iran, Mashhad, Komavash Knowledge-Based Cooperative Institution.
- Jadorian Gilan, H., Abbasi, I. (2014). Analysis of a structural model of financial investors' behavior in the capital market using structural equation modeling (SEM), Second National Conference of Applied Research in Management and Accounting Sciences, Tehran, 382030.
- Hojat Aleslami, M., Adibpoor Zaegar, S. M. (2019). Impact of investor sentiment on stock price, Third International Conference on Modern Research in Management, Economics, Accounting, and Banking, Georgia, Permanent Conference Secretariate.
- Dgahbandan, A., Najafi, A.A., Taskhiri, A. (2015). Effect of investor sentiment on investment decisions made in companies listed on Tehran Stock Exchange, Third International Conference on Accounting and Management, Tehran, Institute for Mehr Eshragh Researchers
- Salimi, M.J., Jahangiri Rad, M., Marfou, M. (2012). Investigation of herding behavior in Tehran stock exchange, Journal of Empirical Accounting Studies, Vol. 11, Issue 42(42), Summer 2013, 139-156.
- Forooghnezhad, H., Khoshnood, M. (2014). Portfolio management, Stock Press associated with Stock Information and Service Company, First edition: 2014.
- Gord, A., Miri Poodeh, M., Salehi, A. A. (2018). Stock fluctuations, liquidity, and stock return, Second International Conference on Modern Changes in Management, Economics, and Accounting, Tehran, Higher Education Institute of Allameh Khoee, Koosh International Company.
- Mozaffari, M. (2012). Examination of herding behavior of investment company in Tehran stock exchange using Lakonishuk Model, Financial Knowledge of Securities Analysis (Financial Studies): Vol. 5, Issue 15, 69-81.
- Mehrani, K., Madanchi Zaj, M. (2018). The test of the effect of investor trading behavior and investors` sentiment on excess return in Tehran stock exchange, Journal of Financial Strategy, 6(2).
- Yahyazadeh Far, M., Shams, Sh., Larimi, S.J. (2011). The relationship between liquidity and stock return in Tehran Stock Exchange, Financial Studies, Vol. 12, Issue 29, 2010, 111-128.
- Al-Jaifi, Hamdan Amer, (2017) "Ownership Concentration, Earnings Management, and Stock Market Liquidity: Evidence from Malaysia", Corporate Governance: The International Journal of Business in Society, Vol. 17 Issue: 3, pp. -, DOI: 10.1108/ CG-06-2016-0139.
- Altay Erdinç, Çalgıcı Seda.(2019). Liquidity adjusted capital asset pricing model in an emerging market: Liquidity risk in Borsa Istanbul Review20 June 2019...
- Amihud, Y., Mendelson, H., and L. H. Pedersen, (2005), " Liquidity and asset price ", Foundations and Trends in Finance,1, 4, pages 269-364.
- Baker, M., Wurgler, J., 2007. Investor sentiment in the stock market. J. Econ. Perspect. 21 (2), 129–151.
- Blau Benjamin M. (2019) Price Clustering and Investor Sentiment, Journal of Behavioral Finance, 20:1, 19-30, DOI: 10.1080/15427560.2018.1431887
- Clyde P.Stickney, (2007), “Financial Accounting; an Introduction to Concepts, Methods, and Uses", South-Western Can gage Learning, Canada.
- Koesrindartoto Deddy P. ,Aurelius Aarona ,Inka Yusgiantoro , Wirata A. Dharma, Abdurrohman Arroisi(2020). Who moves the stock market in an emerging country – Institutional or retail investors? Research in International Business and Finance Volume 51, January 2020, 101061.
- Lee, Wen-Shiung, Tu, Wei-Shan.(2011). Combined MCDM techniques for exploring company value based on Modigliani–Miller theorem, Expert Systems with Applications, Volume 38, Issue 7, July 2011, Pages 8037-8044.
- Lesmond, D. A., J. P Ogden, and C.A. Terzcinka, (1992), " A new estimate of transaction costs ", Review of Financial Studies.

Madhavan, A., 1992, "Trading mechanisms in securities market", Journal of Finance, 47(2):607-641, June.

- Marozva Godfrey. (2019). Liquidity and Stock Returns: New Evidence from Johannesburg Stock Exchange the Journal of Developing Areas, Volume 53, Number 2, Spring 2019, (Article).
- Ruenzi Stefan a , Michael Ungeheuer b , Florian Weigert .(2020).Joint Extreme events in equity returns and liquidity and their cross-sectional pricing implications, Journal of Banking and Finance 115 (2020) 105809.
- Wu, Ying, Asset Pricing with Extreme Liquidity Risk (June 21, 2017). Stevens Institute of Technology School of Business Research Paper No. 2850278, Available at SSRN: https://ssrn.com/abstract=2850278 or http://dx.doi.org/10.2139/ssrn.2850278