Quarterly Journal of Quantitative Economics(JQE) **22(4) 127-151**

Shahid Chamran University of Ahvaz

Quarterly Journal of Quantitative Economics

Journal Homepage: www.jqe.scu.ac.ir
Print ISSN: 2008-5850
Online ISSN: 2717-4271



Investigating the spillover effect of stock, currency and coin market fluctuations on social unrest in Iran: an approach of the TVP-QVAR model

*Amir Jamshidi *, vahid Omidi ** Naeges Alikaramzadeh****

** Phd Student of Economics, Department of Economics, Faculty of Economics and Social Sciences, Shahid Chamran University of Ahvaz, Ahvaz, Iran (Corresponding Author).*

***Email**: amirjamshidi.eco@gmail.com*

***Postal address**: Hamedan khajeh Rashid Blvd, the Alley Goharian, Mousavi Dead End, Rose Building, Number 3. Postal code: 6516665139*

0009-0006-6022-3582

*** Assistant Professor of Economics, Department of Economics, Faculty of Economics and administrative science, Qom University, Qom, Iran.*
***Email**: V.omidi@qom.ac.ir*

**** MA Student in Economics, Faculty of Economics and Social Science, Alzahra University, Tehran, Iran.*
***Email**: Narges.karamzade96@gmail.com*

ARTICLE HISTORY	JEL CLASSIFICATION	KEYWORDS
Received: 11 June 2023 ***Revision: 24 September 2023*** ***Acceptance: 26 April 2024***	***E44 ,G19 ,F31 ,D39***	***Social unrest, volatility, stock market, currency market, coin market.***

Acknowledgments: Acknowledgments may be made to individuals or institutions that have made an important contribution.
Conflict of Interest: The authors declare no conflict of interest.
Funding: The authors received no financial support for the research, authorship, and publication of this article.

Shahid Chamran University of Ahvaz
Quarterly Journal of Quantitative Economics
(former Economic Studies)

How to Cite:
Jamshidi, Amir., Omidi, vahid & Alikaramzadeh, Naeges. (2026). Investigating the spillover effect of stock, currency and coin market fluctuations on social unrest in Iran: an approach of the TVP-QVAR model, *Quarterly Journal of Quantitative Economics(JQE)*, 22(4), 127-151.
10.22055/jqe.2024.44036.2562

© 2026 Shahid Chamran University of Ahvaz, Ahvaz, Iran. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0 license) (http://creativecommons.org/licenses/by-nc/4.0/)

EXTENDED ABSTRACT

INTRODUCTION

Providing an accurate quantitative and qualitative definition of a crisis is difficult, and researchers usually rely on crisis indicators. Social crises are hazards that seriously threaten the balance, security, and social well-being. Crises have both a social nature and origin and can manifest as social unrest, disruptive political pressures, riots, and strikes for economic demands. Social unrest refers to public dissatisfaction and unconventional behaviors and sometimes violent actions by individuals in society. Social unrest has been widespread in recent decades in most countries, including Iran, with different causes and factors contributing to its occurrence. Extensive theoretical and empirical studies have been conducted to examine the relationships between economic factors and the emergence of social unrest. Economic factors such as inequality, unemployment, inflation, and poverty, which are the result of different economic policies, have led to public dissatisfaction and, consequently, macroeconomic instability, ultimately resulting in social unrest. In economic theories, investment is referred to as the driving force behind economic growth. Therefore, studying the subject of investment and the influential factors on it is of particular importance. Among all the variables affecting investment, exchange rates, gold, and stocks can be mentioned as important fundamental variables. Considering the bilateral and negative relationship between investment and social unrest, as well as the impact of the aforementioned factors on investment, examining the effect of fluctuations in the markets of gold, currency, and stocks on social unrest

would be justifiable. Therefore, the present study aims to examine the spillover effect of fluctuations in the gold, currency, and stock markets on social unrest from October 1, 1999, to April 10, 2019.

METHODOLOGY

In this study, the Quantile TVP-VAR method proposed by Chibueze and colleagues (2021) has been used. To calculate all the correlation values, the following QVAR(P) equation is first estimated:

(1) $$x_t = \mu_t(\tau) + \varphi_1(\tau)x_{t-1} + \varphi_2(\tau)x_{t-2} + \cdots + \varphi_p(\tau)x_{t-p} + u_t(\tau)$$

In which x_t and x_{t-1} are N×1-dimensional endogenous vectors. τ ranges from zero to one and represents the desired quantile. Moreover, p determines the length of the QVAR model breakpoint. $\mu_t(\tau)$ represents the conditional mean vector, and $\varphi_j(\tau)$is the coefficient matrix. Finally, $u_t(\tau)$ denotes the disturbance component.

Subsequently, the Generalized Forecast Error Variance Decomposition (GFEVD) has been calculated, which is an important component of the connectivity approach. GFEVD can be interpreted as the representation of the shock effect from variable j on variable i in terms of the forecast error variance. It is calculated as follows:

(2) $$\theta_{ij}(H) = \frac{(\Sigma(\tau)_{jj}^{-1}\sum_{h=0}^{H}((\psi_h(\tau)\Sigma(\tau))_{ij})^2}{\sum_{h=0}^{H}(\psi_h(\tau)\Sigma(\tau)\psi_h'(\tau))_{ij}}$$

(3) $$\tilde{\theta}_{ij}(H) = \frac{\theta_{ij}(H)}{\sum_{k=1}^{N}\theta_{ij}(H)}$$

In the above equations, $\tilde{\theta}_{ij}(H)$ represents the contribution of series j to the forecast error variance of series i at horizon H.

According to equation (3), the net pairwise relationship between variables will be derived from the following expression:

(4) $$NPDC_{ij}(H) = \tilde{\theta}_{ij}(H) - \tilde{\theta}_{ji}(H)$$

If $NPDC_{ij}(H) > 0$, it means that series j has a greater impact on series i, and vice versa.

(5) $$TO_i(H) = \sum_{i=1,i\neq j}^{N}\tilde{\theta}_{ji}(H)$$

The overall effect of each variable from the other variables is obtained from the following relationship:

(6) $$FROM_i(H) = \sum_{i=1,i\neq j}^{N}\tilde{\theta}_{ij}(H)$$

The net effect of each variable on the other variables is obtained from the following relationship, based on equations ((5) and (6)):

(7) $$NET_i(H) = TO_i(H) - FROM_i(H)$$

As evident, if $NET_i(H) > 0$, it means that variable i has a net effect on the other variables and serves as a net shock transmitter.

Now, using the following equation, the overall correlation index of the variables can be calculated:

(8) $$TCI(H) = N^{-1} \sum_{i=1}^{N} TO_i(H) = N^{-1} \sum_{i=1}^{N} FROM_i(H)$$

This index reflects the average impact of a shock from one series on other series. The higher the index, the higher the market risk, and vice versa.

FINDINGS

The relationship and impact between the variables used in the study indicate that in the short term, social unrest is influenced by approximately 13.21% of the stock market, currency market, and gold market. Furthermore, on average, in the short term, social unrest is influenced by 5.23% of the stock market, 8.45% of the gold market, and 8.84% of the currency market. In the medium term, social unrest is influenced by approximately 1.2% of the stock market, 3.89% of the gold market, and 4.22% of the currency market, indicating a decrease in the impact of these three markets on social unrest compared to the short term. In the long term, the impact of social unrest has increased from the three markets, surpassing its level in the previous short term. Specifically, the influence of the stock market is approximately 13.92%, the gold market is 1.64%, and the currency market is 5.54%, indicating a significant increase compared to the medium term.

In **Figure 1**, the total relationships between the variables over time are depicted for the short term (red), medium term (green), long term (blue), and overall effect (black). As observed, from the beginning of the period until 2018, the short-term relationship has been dominant. In 2018, with the United States' withdrawal from the Joint Comprehensive Plan of Action (JCPOA), the long-term relationship between the variables increased. However, even after the introduced shock, the short-term relationship remains observable during the given time period.

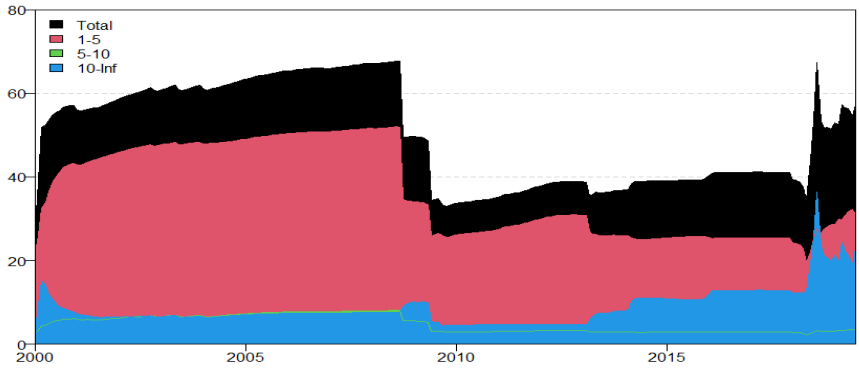


Figure 1. The Trend of Total Relationship index in Short term, Medium term, Long term and Total.
Source**:**Research Findings

CONCLUSION

In recent years, the emergence of social unrest has raised the question of which economic variables are affected by these developments. Considering that the Iranian economy has been facing chronic inflation of nearly 20% over the past 50 years, it is expected that individuals would convert their wealth into other assets to preserve its value. Indeed, this has occurred, and due to inflationary expectations, people consistently engage in activities in various markets such as gold, currency, and stocks to protect the value of their assets against the depreciation of the Iranian rial.

Another aspect is uncertainty or instability, which arises from inflationary expectations and has led to fluctuations in the Iranian economy, particularly in macroeconomic terms. Different asset markets are also affected by this uncertainty and experience volatility. Therefore, it is expected that increased volatility and uncertainty in other asset markets, due to the higher likelihood of losses, would facilitate the occurrence of social unrest.

The results indicate that during the examined time period, the volatility of the stock market had long-term effects on the social unrest index. Additionally, the impact of stock market volatility was stronger than that of other markets. Although in the short term, the effects of all three markets on the social unrest index were relatively equal, in the medium and long term, the volatility of the stock market had a greater impact.

Based on the obtained results, the following policy recommendations can be suggested for policymakers:

1. Focus on reducing volatility in the stock market: Since the stock market has a greater and more persistent impact on social unrest in the long run,

policymakers should pay special attention to reducing volatility in this market.

2. Although fluctuations in the coin and currency markets also have an impact on social unrest, this impact diminishes in the short term. Therefore, when prioritizing market controls, policymakers should consider this factor.

Reference

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American economic review, 91(5), 1369-1401.*

Agrawalla, R. K., & Tuteja, S. K. (2007). Causality Between Stock Market Development and Economic Growth. Journal of Management Research, 7(3), 158-168.

Asgari, M., & Hosseini, S. H. (2021). Explaining the Process and Introducing the Causes of Social Turmoil in I. R. of Iran. *Defence Studies*, *19*(2), 145-178. *Dor:* 20.1001.1.17351723.1400.19.74.5.8 (in persian)

Asteriou, D., & Siriopoulos, C. (2000). "The Role of Political Instability in Stock Market Development and Economic Growth: The Case of Greece," *Economic Notes, 29(3), 355-374.*

Barrett, P., Chen, S., Chivakul, M., & Igan, D. O. (2021). Pricing protest: the response of financial markets to social unrest. *IMF Working Papers, 2021(079).*

Baruník, J., & Křehlík, T. (2018). Measuring the frequency dynamics of financial connectedness and systemic risk. *Journal of Financial Econometrics, 16(2), 271-296.*

Bellemare, M. F. (2015). Rising food prices, food price volatility, and social unrest. *American Journal of agricultural economics, 97(1), 1-21.*

Chatziantoniou, I., Gabauer, D., & Gupta, R. (2023). Integration and risk transmission in the market for crude oil: New evidence from a time-

varying parameter frequency connectedness approach. *Resources Policy, 84, 103729.*

Cucinelli, D., & Soana, M. G. (2023). Systemic risk in non-financial companies: Does governance matter?. *International Review of Financial Analysis, 87, 102601.*

Dadgar, Y., & Mahmoodvand, H. (2022). Analyzing the relationship between inequality and social unrest: Iran and the selected countries. *The Journal of Economic Studies and Policies, 9(1), 116-141.*

Doojav, G. O. (2009). Exchange rate pass-through to inflation in Mongolia. *Monetary Policy and Research Department of the Bank of Mongolia. 1-10*

Edwards, F. R. (1988). Policies to curb stock market volatility. *In Proceedings-Economic Policy Symposium-Jackson Hole (pp. 141-184). Federal Reserve Bank of Kansas City.*

Emam Jome Zade, S. J., Rostam Jabri, S., & Mohammad Zade Ebrahimi, F. (2014). Arab Spring Developments Domino in the Globalization and Development of Communications, and Farzad Mohammad Zade Ebrahimi. *Political Science Quarterly*, *10*(28), 141-162. (in Persian).

Fukuyama, F. (2013). What is governance?. *Governance, 26(3), 347-368.*

Hoseynizadeh arani, S. S., moradi, A., vosoghi asl, A., & mehtari, M. (2022). An Analysis of the Social Roots of the Formation and Occurrence of Social Dissatisfaction in Iran (Case Study: Tehran Citizens). *National Security, 12(43), 227-260.* Dor:20.1001.1.33292538.1401.12.43.8.7(in Persian).

Houle, Ch., Ruck, D. J., Bentley R. A. and Gavrilets S. (2022) Inequality between identity groups and social unrest. *Journal of the Royal society Interface, 188(19).*

Hove, S., Tchana, F. T., & Mama, A. T. (2017). Do monetary, fiscal and financial institutions really matter for inflation targeting in emerging

market economies?. *Research in International Business and Finance, 39, 128-149.*

Howells, P. G., & Bain, K. (2008). *The economics of money, banking and finance: a European text. Pearson Education.*

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica, 47(2), 263-291*.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: Methodology and analytical issues1. *Hague journal on the rule of law, 3(2), 220-246.*

Lagi, M., Bertrand, K. Z., & Bar-Yam, Y. (2011). The food crises and political instability in North Africa and the Middle East. *arXiv preprint arXiv:1108.2455.*

Levine, R., & Zervos, S. (1996). Stock market development and long-run growth. *The world bank economic review, 10(2), 323-339.*

Mckinnon, R. I. (1973), "Money and Capital in Economic Development", *The*

Brookings Institution, Washington, DC.

Mishkin, F. S. & S. G. Eakins (2011), *Financial Markets and Institutions, Seventh Edition.*

Mohammadzadeh, S., shahiki tash, M. N., & zinati, K. (2021). Investigation Time–frequency co-movement between the Tehran Stock Price Index and prices of oil and gold using Multiple Wavelet Coherence. *Quarterly Journal of Quantitative Economics*, 18(2), 57-70. doi: 10.22055/jqe.2020.14340.1942(in Persian).

Rabiei M. The Study of ICT and Income Distribution Effects on Social Unrest in Iran. QJER 2022; 22 (1) : 7. Dor:20.1001.1.17356768.1401.22.1.2.7.(in Persian)

Raghfar, H., SangariMohazab, K., & Amini Abchoieh, M. (2022). Simulation of The Impact of Income Distribution on Social Unrest Using Agent-based Modeling Approach. *Journal of Economic Research and Policies, 30(101), 57-84.* Dor: 10.52547/qjerp.30.101.57. (in Persian).

Saadia - Sedik, T., & Xu, R., (2020). A Vicious Cycle: How Pandemics Lead to Economic Despair and Social Unrest. *IMF Working Paper. No. 2020/216.*

Schumpeter, J. A. (1932), The Theory of Economic Development, Trans. *R. Opie, Harvard University Press, Cambridge, MA.*

Shahabadi, A., Kazem Naziri, M., & Jamshidi, A. (2020). The Effect Doing Business on Investment in the Selected Countries MENA. *Journal of International Business Administration, 3(2), 61-80.* Doi:10.22034/jiba.2020.10747 (in Persian).

Shakeri, A. (2013). *Theories and policies*. Tehran: Rafee Publications (in Persian).

Torki, L., Noshadi, E., & Rezaei, A. (2016). The effect of stock price index on foreign exchange rate markets in the selected countries (D-8) : use of Quantile Regression. *Quarterly Journal of Quantitative Economics*, 13(2), 1-19. doi: 10.22055/jqe.2016.12367(in Persian).

Tuladhar, A. (2005). Governance structures and decision-making roles in inflation targeting central banks. *International Monetary Fund. Working Paper No. 2005/183.*

Yin, J., & Song, H. (2023). Does the perception of smart governance enhance commercial investments? *Evidence from Beijing, Shanghai, Guangzhou, and Hangzhou. Heliyon, 9(8).*