Shahid Chamran
University of Ahvaz

Quarterly journal of
**Quantitative
Economics**

The Effect of Financial Stress on the Stock Return of Accepted Industries in Tehran Stock Exchange

Mahdieh Rezagholizadeh *, Zahra (Mila) Elmi **, Saeid Mohammadi Majd ***

* Assistant Professor of Economics, Faculty of Economics and Administrative Sciences, University of Mazandaran, Babolsar, Iran. (Corresponding Author).
***Email:** m.gholizadeh@umz.ac.ir*
0000-0003-1172-4824
Postal address*: Faculty of Economics and Administrative Sciences, University of Mazandaran, Babolsar, Iran*
** Professor of Economics, Faculty of Economics and Administrative Sciences, University of Mazandaran, Babolsar, Iran.
 Email*: zelmila@yahoo.com*

*** Master of Economics, Faculty of Economics and Administrative Sciences, University of Mazandaran, Babolsar, Iran.
Email: saeedmohammadi4857@gmail.com

EXTENDED ABSTRACT
INTRODUCTION

Since increasing stress in financial markets is important for analysis and forecasting of economic activities and can be reflected in many variables of the financial market, recognizing the main sources of financial stress and its effects on various economic activities and sectors is one of the most important areas in the financial discussions. Considering the importance of this issue, in the present research, the financial stress index in Iran will be calculated, and then the short-term and long-term relationship between financial stress and stock returns of top industries in the Tehran Stock Exchange by using the panel method in the form of a multivariate model will be evaluated during the period of 1384-1398 using daily data. The analysis of this relationship in the long and short term will be investigated using Co integration and Panel Error Correction Model (PECM) and dynamic ordinary least squares (DOLS) methods will be used to investigate the long-term dynamic relationship between model variables. It should be noted that in order to more accurately analyze, in addition to investigation the effects of total financial stress index FSI (which is a combined index of financial stress in the capital, currency and money markets) on the stock returns of the studied industries, the financial stress index of each markets (money, capital and exchange market) has been entered into the model separately and we have investigated the effect of financial stress index in each of studied financial markets on the stock returns.

METHODOLOGY

In this research, in order to investigate the effect of financial stress, oil price and other independent variables on the stock returns of the studied industries, in the form of a multivariate panel model and the analysis of long-term and short-term coefficients, using Pedroni panel data method (Pedroni 1999&2004) and The panel error correction model (PECM) is used, and for this purpose the following is considered:

$$SR_{it} = \alpha + \beta_1 FSI_{it} + \beta_2 INF_{it} + \beta_3 INT_{it} + \beta_4 RER_{it} + \beta_5 OIL_{it} + \varepsilon_{it} \quad (1)$$

SR: stock returns of the top industries in the Tehran Stock Exchange. This variable is calculated using the following: (Maditinos., & Theriou, 2011)

$$R_{i,t} = \log(T_{i,t} / T_{i,t-1}) \tag{2}$$

Ti,t is the stock price index of industry i in period t.
FSI: Financial Stress Index
INF: inflation rate
INT: Interest rate
RER: real exchange rate

$$RER = ER \cdot \frac{CPI^*}{CPI} \tag{3}$$

  ER: Nominal exchange rate
  CPI^*: Foreign CPI
  CPI: Domestic CPI
OIL: oil price

FINDINGS

The results show that in all four estimated models, the effect of the financial stress index on the stock returns of industries is negative and statistically significant. The estimated coefficients for the oil price variable are positive in all four models, which are statistically significant in all models.The estimated coefficients for the inflation rate variable in all models have a negative sign and are statistically significant.The estimation results indicate the positive effect of the interest rate on the stock returns of the studied industries.Based on the obtained results, the exchange rate in all models will have a positive effect on the stock returns.

CONCLUSION

The results indicate that in all four estimated models, the effect of financial stress index on industry stock returns is negative and statistically significant. In other words, financial stress in the studied markets, including the capital market, money market and foreign exchange market has a negative impact on the stock returns of industries and decrease stock returns of these industries. Also, the research findings show that in all estimated models, oil prices, exchange rates and interest rates have a positive effect on stock returns of the studied industries in Iran. In addition, the findings show that the estimated coefficients for the inflation rate variable are negative in all models and are statistically significant.

Reference

Afonso, A., & Sousa, R. M. (2011). What are the effects of fiscal policy on asset markets?. *Economic Modelling*, *28*(4), 1871-1890.

Ahmadian, Azam., (2016). Analysis of banking stress index in the country's banking network. *Economic News Quarterly*, 144,33-36. Available at: https://t-e.mbri.ac.ir (in persian).

Aloui, C., Nguyen, D.K. & Njeh, H., (2012). Assessing the impacts of oil price fluctuations on stock returns in emerging markets. *Economic Modelling*, 29(6), 2686-2695.

Asadi, Z., & Yavari, K. (2022). The Effect of Sanctions on Financial Instability of Iranian Banks. *Quarterly Journal of Quantitative Economics(JQE)*, *18*(4), 1-35. doi: 10.22055/jqe.2020.30490.2131 (In Persian)

Central Bank of the Islamic Republic of Iran, different years. (In Persian) https://www.cbi.ir/

Breitung, E. M., Shu, C. F., & McMahon, R. J. (2000). Thiazole and thiophene analogues of donor− acceptor stilbenes: molecular hyperpolarizabilities and structure− property relationships. *Journal of the American Chemical Society*, *122*(6), 1154-1160.

Bollerslev, T., (1986). Generalized autoregressive conditional heteroskedasticity. *Journal of econometrics*, 31(3), 307-327.

Caprio, G. & Klingebiel, D., (1999). Bank insolvencies: cross-country experience. *The World Bank*.

Cevik, E.I., Dibooglu, S. & Kenc, T. (2013). Measuring financial stress. *Journal of Policy Modeling*, 35(2), 370-383.

Caballero, R.J. & Krishnamurthy, A., (2008). Collective risk management in a flight to quality episode. *The Journal of Finance*, 63(5), 2195-2230.

Cardarelli, R., Elekdag, S. & Lall, S., (2009). Financial stress, downturns, and recoveries (No. 2009-2100). *International Monetary Fund*.

Wallace, C. (2013). Financial stress and its impact on economic activity: evidence from Jamaica. *Bank of Jamaica*, Financial Stability

Frankel, J.A. & Rose, A.K., (1996). Currency crashes in emerging markets: An empirical treatment.

dargahi, H., & Nikjoo, F. (2013). A Financial Stress Index for the Economy of Iran and its Impacts on Economic Growth. *Journal of Economic Research (Tahghighat- E- Eghtesadi)*, *47*(4), 19-40. doi: 10.22059/jte.2013.30191. (In Persian)

Davig, T., & Hakkio, C. (2010). What is the effect of financial stress on economic activity. *Federal Reserve Bank of Kansas City, Economic Review*, *95*(2), 35-62.

Hollo, D., Kremer, M. & Lo Duca, M., (2012). CISS-a composite indicator of systemic stress in the financial system.

hamedi ، azimi ، mardi,. (2013). stress management. (In Persian) https://www.sid.ir/FileServer/SF/9451397H0538

Hakkio, C. & Keeton, W., (2009). Financial stress: what is it?. *Economic Review*, 94(2), 5-50.

Hautsch, N. & Hess, D., (2007). Bayesian learning in financial markets. *Journal of Financial and Quantitative Analysis*, 42(1), 189-208.

Illing, M. & Liu, Y., (2006). Measuring financial stress in a developed country. *Journal of Financial Stability*, 2(3), 243-265.

Im, Kyung So, M. Hashem Pesaran, and Yongcheol Shin. "Testing for unit roots in heterogeneous panels." *Journal of econometrics*, 115.1(2003): 53-74.

Philippe, J., (2001). Value at risk: the new benchmark for managing financial risk. NY: McGraw-Hill Professional.

Kao, Chihwa. "Spurious regression and residual-based tests for cointegration in panel data." *Journal of econometrics,* 90.1 (1999): 1-44.

Kordloui, Hamid Reza,. & Asian Taheri, Fatemeh (2015). Determining the index of financial stress in the banking, foreign exchange and insurance markets. *Journal of Business Management, 8(30),* 1-18. Available at: https://bmj.ctb.iau.ir/ (in persian)

Levin, A., Lin, C.F. & Chu, C.S.J., (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of econometrics*, 108(1), 1-24.

Logan, A., (2000). The early 1990s small banks crisis: leading indicators. *Bank of England Financial Stability Review*, 9, 130-45.

Maddala, G.S., Trost, R.P., Li, H. & Joutz, F., (1997). Estimation of short-run and long-run elasticities of energy demand from panel data using shrinkage estimators. *Journal of Business & Economic Statistics*, 15(1), 90-100.

Maddala, G.S. & Wu, S., (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and statistics*, 61(S1), 631-652.

Manzoor, D., Rajabi, S., & Ranjbaran, R. (2022). Modeling and Measuring the Effectiveness of Positive Shocks in the Financial Sector of Iran's Economy. *Quarterly Journal of Quantitative Economics*, *19*(2), 1-36. doi: 10.22055/jqe.2021.30929.2142 (in persian)

Mark, N.C. & Sul, D., (2002). Asymptotic Power Advantages of Long-Horizon Regression Tests. Ohio State University.

Matoufi , alireza. (2019). 'Explaining the characteristics of financial stress in the Iranian capital market', Investment Knowledge, 7 (26), 237-258.

Nelson, W.R. & Perli, R., (2007). Selected indicators of financial stability. Risk Measurement and Systemic Risk, 4, 343-372.

Oet Mikhail, V., Ryan, E., Timothy, B., Dieter, G., & Ong Stephen, J., (2011). The Financial Stress Index: Identification of Systemic Risk Conditions. Federal Reserve Bank of Cleveland, Working Paper 11-30. http://www.clevelandfed.org/research/workpaper/2011/wp1130.pdf.

Ozturk, I., (2010). A literature survey on energy–growth nexus. *Energy policy*, 38(1), 340-349.

Pedroni, P., (2000). Fully modified OLS for heterogeneous cointegrated panels. *Advances in econometrics*, 15, 93-130.

Pesaran, M.H., Shin, Y. & Smith, R.P., (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the american statistical association*, 94(446), 621-634.

Park, C. Y., & Mercado Jr, R. V. (2014). Determinants of financial stress in emerging market economies. *Journal of Banking & Finance*, 45, 199-224.

Fernandez, R.M. & Fernandez-Mateo, I., (2006). Networks, race, and hiring. *American sociological review*, 71(1), 42-71.

Reboredo, J.C. & Uddin, G.S., (2016). Do financial stress and policy uncertainty have an impact on the energy and metals markets? A quantile regression approach. *International Review of Economics & Finance*, 43, 284-298.

Shajari, Parasto., & Mohebkhah, Bita (2010). Early Warning System for Currency and Banking Crisis in Iran (KLR- Signaling Approach). *Journal of Monetary & Banking Research*, 2(4), 115- 152. Available at: https://jmbr.mbri.ac.ir/browse.php?a_id=48&sid=1&slc_lang=en (In Persian)

Salimifar, M., Razmi, M. J., & Abou - Torabi, M. (2010). The Survey of the Financial Development Indicators Causality Relationship with Economic Growth in Iran. *Quarterly Journal of Quantitative Economics*, *7*(1), 75-103. doi: 10.22055/jqe.2010.10659 (in persian)

Theriou, N., Maditinos, D., & Theriou, G. (2010). Knowledge Management Enabler Factors and Firm Performance: An empirical research of the

Mahdieh Rezagholizadeh, Zahra (Mila) Elmi, Saeid Mohammadi Majd
Quarterly Journal of Quantitative Economics(JQE) (2023) 20(1)

19

Greek medium and large firms. *Paper presented at the International Conference on Applied Business and Economics*, Technological Educational Institute of Kavala, Kavala, Greece, 1-20

Van Roye, B., (2011). Financial stress and economic activity in Germany and the Euro Area (No. 1743). Kiel Working Paper.

Sandahl, J.F., Holmfeldt, M., Rydén, A. and Strömqvist, M., (2013). An index of financial stress for Sweden. S v ER ig ESR ik S bank, p.2.

Wallace, C., (2013). Financial stress and its impact on economic activity: evidence from Jamaica. Bank of Jamaica, Financial Stability.

Vila, A., (2000), March. Asset price crises and banking crises: some empirical evidence. *BIS conference papers* (Vol. 8, No. March, 232-252).

Westerlund, J., (2007). Testing for error correction in panel data. *Oxford Bulletin of Economics and statistics*, 69(6), 709-748.