Quarterly Journal of Quantitative Economics(JQE) **(2026) 22(4) 216-249**

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



The Interactive Effect of Military Spending and Armed Conflict on Foreign Direct Investment: A Study of MENA Countries

Sahebe Mohamadian Mansour*, Abolghasem Golkhandan**

** Assistants Professor, Department of Economic, Faculty of Management, Economics and Accounting, Payame Noor University, Tehran, Iran. (Corresponding Author)*
Email: *sahebemansour@pnu.ac.ir*
Postal address*: Hamedan, Bahar, Basij Boulevard, Yas 1, Payam Noor University, Faculty of Management, Economics and Accounting, Department of Economics.*
0000-0002-6053-3293

*** Ph.D. in Public Sector Economics, Department of Economic, Faculty of Economics and Administrative Sciences, Lorestan University, Khoram Abad, Iran.*
Email: *golkhandan@gmail.com*

ARTICLE HISTORY	JEL CLASSIFICATION	KEYWORDS
Received: 04 October 2023 revision: 30 November 2023 acceptance: 03 February 2024	***C33, F21, H56, D74***	***Armed Conflict, Military Spending, Interactive Effect, Foreign Direct Investment, MENA Countries***

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:
Shahrazi, Milad & Shahrazi, Mahdi. (2026). An Application of Econophysics to Investigate the Relationship between Trading Volume and Stock Returns in Tehran Stock Exchange. *Quarterly Journal of Quantitative Economics(JQE),* 22 (3), 216-249. (in Persian)

10.22055/jqe.2023.42398.2529

© 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

Foreign Direct Investment (FDI) is seen by policy-makers as an instrument to back improvement, increment efficiency and progress innovation in developing economies. Be that as it may, to draw in a conventional stream of FDI, a nation must keep up peace and stability. A nation with higher conflict risk is more likely to get lower FDI than a nation with lower conflict risk. A common approach reaction to diminish conflict and turmoil in a nation is to extend military spending. Within the nations beneath security threats, increasing military spending to stabilize the economy makes a difference boost foreign investors certainty within the prospects of a secure investment return, driving to a higher FDI inflow to the nation (Thakur, 2021). Non-conflicting nations, foresee a lower in FDI attributable to an increase in military spending. Insufficient funding in infrastructure, human capital and R&D are a number of the elements which deter FDI in the face of an increase in military spending (Aziz & Khalid, 2017). Morever, military spending "crowds out" foreign direct investment by revealing a less-friendly business environment for investors (Acemoğlu & Robinson 2012). Based on the above description, the main purpose of this article is to investigate the cross-effect of military spending and armed conflict on foreign direct investment in the MENA region countries during the period of 2000-2021 using panel regression models. According to the reports of various statistical sources, such as UCDP/PRIO armed conflict dataset and SIPRI, the amount of armed conflicts and the share of military spending from GDP in some countries of this region are at high levels. On the other hand, the level of FDI inflows in

these countries has been very small despite having a large population and a large market, abundant energy resources and a special geographical location that is very important for foreign investors. In light of this discussion the main hypothesis of this research is as follows: The impact of military spending on the net FDI inflows in MENA countries is negative and significant; but it can be expected that this negative effect will decrease in countries facing armed conflict.

METHODOLOGY

The model of this research is taken from the experimental study of Aziz and Khalid (2017) and is as follows:

$$(fdi)_{it} = \beta_{i0} + \beta_1(mil)_{it} + \beta_2[(mil)_{it} \times conflict_{it}] + \beta_3 conflict_{it} + \sum_{k=4}^{k=6} \beta_k x_{it} + \epsilon_{it} \quad (1)$$

In the above relationship, the variables are defined as follows:
fdi: net inflow of fdi as a percentage of GDP;
mil: military spending as a percentage of GDP;
conflict: dummy variable for armed conflict;
mil×armed conflict: the interactive effect of military Spending and armed conflict;

x: control variables including: GDP growth, Gross capital formation as a percentage of GDP (capital) and trade as a percentage of GDP (trade) and ϵ_{it}: the error term. Also, in Eq. (1), countries are denoted by the subscript i (including 12 countries in the MENA region) and the subscript t denotes the time period (2000-2021). Data on military expenditure and armed conflict have been obtained from the SIPRI Military Expenditure Database and PRIO database, respectively. Data for fdi and all control variables have been obtained from the World Bank database. The estimation of the model has been done using the panel data analysis method, including cross-sectional dependence, panel unit root and panel cointegration tests and Fixed Effects (FE) estimator.

FINDINGS

Table 1 presents the estimated results. The part (A) present the estimation results of the model for all the studied countries. As expected, there is a negative effect of military expenditure on fdi, suggesting that as the country increases military expenditure, its fdi decreases. However, the interactive effect of military burden and armed conflict (mil×armed conflict) on the net fdi inflows is positive and significant at the 90% confidence level. It seems

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

that military spending by reducing armed conflict and thereby creating greater security, appears to act as an attractor for private capital and leading to an increase in the net fdi inflows. Parts (B) and (C) of **Table 1** show the estimation of the model without interaction effect and by dividing the panel countries into two categories of countries facing armed conflict and countries without armed conflict. Based on the results of part (B) of **Table 1**, the effect of military burden on the net fdi inflows in countries facing armed conflict in the MENA region is negative and significant at the 95% confidence level. A one percent increase in the military burden of these countries will reduce the net fdi inflow in these countries by about 0.05 percent. According to the results of part C of **Table 1**, the effect of military burden on the net fdi inflows in countries without armed conflict in the MENA region is negative and significant at the 99% confidence level. A one percent increase in the military burden of these countries will reduce the net fdi inflows in these countries by about 0.35 percent. Based on this, it can be said that the negative effect of military spending on the net fdi inflows in countries without armed conflict in the MENA region is greater than countries facing armed conflict in this region. Based on other results and in accordance with theoretical expectations, economic growth, gross capital formation and the degree of trade openness have a positive and significant effect, and armed conflict had a negative and significant effect on the net fdi inflows in the studied countries.

Table 1. Relationship between conflict, military spending and net fdi inflows
Source: Research results

variables	A		B		C	
	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
	All countries		Countries facing armed conflict		Countries without armed conflict	
Mil	-0.149	0.019	-0.046	0.011	-0.349	<0.001
Conflict	-1.695	0.048	-	-	-	-
mil×armed conflict	-0.099	0.075	-	-	-	-
gdp growth	0.051	0.025	0.021	0.036	0.068	0.014
Capital	0.068	<0.001	0.032	<0.001	0.081	<0.001
Trade	0.041	<0.001	0.113	<0.001	0.052	<0.001
constant	1.154	0.351	-6.118	0.005	-1.973	0.403
adjusted R^2	0.581		0.685		0.629	
observation	252		144		108	

number of countries	12	7	5

CONCLUSION

This study examines the hypothesis that military spending without a threat negatively impacts the fdi inflows, though, in the presence of a threat expanded military spending may help attract higher fdi inflows. The estimated results indicate that an increase in military spending without any armed conflict decreases fdi inflows. We posit that the results obtained are such due to the following reasons. Firstly, higher military spending diminish investment in countries' physical, economic and financial infrastructure that makes investing in the have nation an unfeasible option for foreign investors. Secondly, higher investment in military equipment in a nation transmits a negative signal to foreign investors of a risk of unsafe returns on investment due to a potential military danger. But the interactive effect of military burden and armed conflict on the net fdi inflows is positive, that shows in conflict-prone countries, increasing the share of military spending in GDP can help attract fdi through the reduction of armed conflict. The robustness of the results obtained by separating the countries of the MENA region into two categories of countries facing armed conflict and countries without armed conflict has also been confirmed. Based on this, the results show that the negative effect of the military burden on the net fdi inflows in countries facing armed conflict is much lower than in countries without armed conflict. In light of the discoveries talked about over, the study suggests policy-makers to refrain from budgeting high spending on a country's defense in the absence of a significant political threat, so that fdi flows are encouraged into the country. In case of a significant military risk, however, it is imperative that the government spends a sufficient amount on military resources in order to attract and support higher FDI inflows.

Reference

Abdel-Latif, H. (2019). FDI Response to Political Shocks: What can the Arab Spring tell us? *Journal of Behavioral and Experimental Finance*, *24*(C). https://doi.org/10.1016/j.jbef.2019.07.005

Acemoğlu, R. & Robinson, D. (2012). Why Nations Fail: The Origins of Power, Prosperity, and Poverty. Weatherhead Center for International Affairs.

Alizadeh, M., Fotros, M. H. & Golkhandan, A. (2019). Effect of Fiscal Decentralization on the Attraction of FDI in Iran. *Iranian Journal of Economic Research*, *24*(79), 67-105. doi: 10.22054/ijer.2019.10888 (in Persian)

AlShammari, N., Willoughby, J. & Behbehani, M. S. (2023). Political Unrest, the Arab Spring, and FDI Flows: A Quantitative Investigation. *Cogent Economics & Finance*, *11*(2). https://doi.org/10.1080/23322039.2023.2228092

Azami, A., Noofresti, M. & ArabMazar, A. (2024). Investigating the Asymmetric Effects of Factors Affecting Tax Revenues in Iran using Quantile Regression Approach. *Quarterly Journal of Quantitative Economics(JQE)*, *21*(3), 115-144. https://doi.org/10.22055/jqe.2022.39481.2451 (in Persian)

Aziz, N. & Khalid, U. (2017). Armed Conflict, Military Expenses and FDI Inflow to Developing Countries. *Defence and Peace Economics*, *13*(1), 238-251. doi: 10.1080/10242694.2017.1388066

Barzekar, A. & Jorjzade A. (2019). The Impact of Economic Sanctions and other Factors on Attracting Foreign Direct Investment in OPEC Countries. *Quarterly Energy Economics Review*, *15*(60), 51-75. URL: http://iiesj.ir/article-1-621-fa.html (in Persian)

Breusch, T. & Pagan, A. (1980). The LM Test and its Application to Model Specification in Econometrics, *Review of Economic Studies*, *47*(1), 239-253. https://doi.org/10.2307/2297111

Deger, S. & Sen, S. (1983). Military Expenditure, Spin-off and Economic Development. *Journal of Development Economics*, *13*(1–2), 67-83. doi: 10.1016/0304-3878(83)90050-0

Drezner, D. & Hite-Rubin, N. (2016). Does American Military Power Attract Foreign Investment? Sustainable Security: Rethinking American National Security Strategy. 51-72. https://doi.org/10.1093/acprof:oso/9780190611477.003.0003

Effiong, U, Okijie, S. & Udonwa, U. (2022). Military Spending and Influx of Foreign Direct Investment in Nigeria: A Security-Oriented Perspective. *International Journal of Academic Accounting, Finance & Management Research*, *6*(8), 24-40.

Elbadawi, I. A. & Soto, R. (2015). Resource Rents, Institutions, and Violent Civil Conflicts. *Defence and Peace Economics*, *26*(1), 89-113. https://doi.org/10.1080/10242694.2013.848579

Faruq, A. O. (2023). The Determinants of Foreign Direct Investment (FDI) A Panel Data Analysis for the Emerging Asian Economies. eprint arXiv:2307.07037. doi: 10.48550/arXiv.2307.07037

Farzanegan M. R., Lessmann, C. & Markwardt, G. (2018). Natural Resource Rents and Internal Conflicts: Can Decentralization Lift the Curse ? *Economic Systems*, *42* (2), 186-205. doi: 10.1016/j.ecosys.2017.05.009

Hassan, H. M. (2022). The Importance of Trade Openness and Inflation for Attracting Foreign Direct Investment in GCC Countries (December 31, 2022). Available at SSRN: https://ssrn.com/abstract=4315836 or doi: http://dx.doi.org/10.2139/ssrn.4315836

Hite-Rubin, N. (2015). A Corruption, Military Procurement and FDI Nexus? The Fletcher School: Tufts University. doi: https://doi.org/10.4337/9781784714703.00016

Hosseinzadeh, R., Keshavarz, H & Saadatipour, M. (2025). The Effect of Foreign Direct Investment on Employment in the Provinces of Iran: with an Emphasis on Interregional Spillovers. *Quarterly Journal of Quantitative Economics(JQE)*, *22*(3), 27-53. https://doi.org/10.22055/jqe.2023.41855.2513 (in Persian)

Hoyos, R. E. & Sarafidis, V. (2006). Testing for Cross-Sectional Dependence in Panel Data Models. *Stata Journal*, *6*(4), 484-496. doi:10.1177/1536867X0600600403

Kazemi, M. (2015). The Political Risk and Its Effect on attract Forgien Direct Investment. *Iranian Research letter of International Politics*, *3*(1), 72-92. doi: 10.22067/jipr.v3i15.31554 (in Persian)

Kentor, J., Clarc, R. & Jorgenson, A. (2023). The Hidden Cost of Global Economic Integration: How Foreign Investment Drives Military Eexpenditures. *World Development*, 161. https://doi.org/10.1016/j.worlddev.2022.106105

Khatabi, S., Komijani, A., Mohamadi, T., & MemarneJad, A. (2017). Effective Factors on Absorbing Foreign Direct Investment (FDI) in MENA Region. *Economic Modelling*, *11*(37), 63-75. (in Persian)

Kurecic, P. & Kokotovic, F. (2017). The Relevance of Political Stability on FDI: A VAR Analysis and ARDL Models for Selected Small, Developed, and Instability Threatened Economies. *Economies*, *5*(3), 22. https://doi.org/10.3390/economies5030022

Lee, H. (2017). Does Armed Conflict Reduce Foreign Direct Investment in the Petroleum Sector? *Foreign Policy Analysis*, *13*(1), 188-214. doi: 10.1111/fpa.12079

Mohseni, N. S., Mohammadi, T. & Arbab, H. (2020). The Effect of the Interaction of Political Stability and Size of the Economy on the Inflows of Foreign Direct Investment (FDI). *New Economy and Trade*, *15*(1), 61-92. DOI: 10.30465/jnet.2020.5062 (in Persian)

Mukhopadhyay, D. & Das, D. (2018). FDI Inflows and Military Expenditure: A Study Across the Emerging Market Economies. Handbook of Research on Military Expenditure on Economic and Political Resources.

Nikdel, Z., Shirafkan, M. & Jalili, Z. (2021). The Effect of Political Security and Government Stability on Attracting Foreign Direct Investment: Spatial Econometrics. *Stable Economy Journal*, *2*(2), 109-142. doi: 10.22111/sedj.2021.39453.1122 (in Persian)

Nikpey Pesyan, V., Hekmati Farid, S., Mohammadzadeh, Y, Nezaie F. (2022). Investigating the Impact of Structural Economic Vulnerability on Attracting Foreign Direct Investment in MENA Countries. *QJER*, *22*(3), 245-270. URL: http://ecor.modares.ac.ir/article-18-60858-fa.html (in Persian)

Nikpey Pesyan, V. & Shahbazi, K. (2023). Spatial Analysis of the Effect of Terrorism on Attracting Foreign Direct Investment in the Middle East. *Quarterly Journal of Quantitative Economics*, *20*(2), 129-164. doi: 10.22055/jqe.2022.37973.2392 (in Persian)

Norrlof, C. (2010). America's Global Advantage: US Hegemony and International Cooperation. *The Journal of Politics*. doi:10.1017/S0022381611000211

Pesaran, M. H. (2004). General Diagnostic Tests for Cross section Dependence in Panels. Cambridge Working Papers in Economics, No. 0435.

Pesaran, M. H. (2007). A Simple Panel Unit Root Test in The Presence of Cross – Section Dependence. *Journal of Applied Econometrics*, *22*, 265-312. doi: 10.1002/jae.951

Pesaran, M. H., Ullah, A. & Yamagata, T. (2008). A Bias-Adjusted LM test of Error Cross-Section Independence. *Econometric*, *11*, 105-127. https://doi.org/10.1111/j.1368-423X.2007.00227.x

Thakur, A. (2021). The Effect of Government Military Spending on Foreign Direct Investment. The University of Texas at Austin. doi: http://dx.doi.org/10.26153/tsw/38067

Themnér, L. & Wallensteen, P. (2012). Armed Conflict, 1946–2011. *Journal of Peace Research*, *49*(4).

Ünsal, M. E. (2020). Crowding-Out Effect: Evidence from OECD Countries. *Istanbul Journal of Economics*, *70*, 1-16. doi :10.26650/ISTJECON2020-0001

Westerlund, J. (2005). New Simple Tests for Panel Co-integration. *Econometric Reviews*, *24*(3), 297-316. https://doi.org/10.1080/07474930500243019