**The price reaction and investment exposure of equity funds: evidence from the Russia–Ukraine military conflict.**

**Abstract**

**Purpose** – The purpose of this paper is to assess the impact of the Ukraine–Russia military conflict on the returns and investment flows of equity funds across multiple countries.

**Design/methodology/approach** – Using a comprehensive sample of 1,281 equity funds in 40 countries. Thecountries were segregated into conflict states, members of NATO, and those which abstained from voting on the UN resolution on March 2, 2022. The authors employ a GARCH-based event study and estimate CARs for t-5, t-3, t, t + 3, and t + 5 event windows. Further, the authors use panel estimation to assess the link between the CARs and the investment exposure of the sample funds.

**Findings** – The findings highlight an adverse reaction of mutual funds in Russia, Ukraine, and the NATO States. On the contrary, the mutual funds in the countries that abstained during the voting on the UN resolution on March 2nd posted positive abnormal returns. Similarly, the investment exposure towards the conflicted countries and NATO states is unfavorable except for the abstained countries.

**Originality/value** – This is the primary study to evaluate the impact of the recent geopolitical tensions on mutual funds domiciled across various geographical locations

**Keywords:** Russia-Ukraine conflict; impact of war on equity funds; equity funds’ performance.

**1. Introduction**

After a long political rift between Ukraine and Russia, the armed conflict began on February 24th, 2022, followed by a series of economic sanctions, causing devastating impacts on people, the economy, and financial markets. Apart from the humanitarian crisis in Ukraine, this event caused a dramatic increase in geopolitical risk and global economic uncertainty affecting the global economies worldwide. Previous literature has documented that geopolitical events impact economic factors, business dynamics, and asset classes. This includes commodity connectedness (Gong & Xu, 2022), liquidity (Jopp, 2020), entrepreneurial demarches (Luo et al., 2016), investment choices (Banerjee & Dutta, 2022), firm stability (Phan et al., 2022), and foreign exchange (Salisu et al., 2022), among others.

While there is some early evidence on how this conflict has impacted stock indices (Boungou & Yatié, 2022) and markets (Boubaker et al., 2022; Z. Umar et al., 2022), there is no assessment of the impact on mutual funds. The context of active mutual funds is different because there is a possibility of rebalancing in response to the market changes (M. Umar et al., 2022). The rebalancing can be a response to the evolution of investment styles (Mirza et al., 2022; Naqvi et al., 2021; Rizvi et al., 2021), market timing (Yarovaya et al., 2020), volatility timing (Hasnaoui et al., 2021). Therefore, our assessment of equity funds in response to the ongoing conflict fills a significant void. Our findings highlight an adverse reaction of mutual funds in Russia, Ukraine, and the NATO States. On the contrary, the mutual funds in the countries that abstained during the voting on the UN resolution on March 2nd posted positive abnormal returns. Similarly, the investment exposure towards the conflicted countries and NATO states is unfavorable except for the abstained countries. These findings have important implications for investment styles in the context of geopolitical risks.

**2. Data and Methodology**

We categorize the equity funds into three locational categories. These include direct conflict countries (Ukraine and Russia), NATO member states, and Abstained. The abstained countries are the ones that abstained from the UN vote on March 2nd, 2022. Our main criteria include all funds that have some exposure to conflict countries and NATO states, and such exposure has been persistent for at least two years. Further, we consider funds for which daily net asset value (NAV) is available. Based on this, our final sample consists of 1281 funds. Table 1 presents the sample distribution.

[Table 1 here]

The empirical analysis employs a two-step methodology. We use the GARCH-based event study methodology to evaluate the price reaction. As noted by (Mirza et al., 2020), for extreme events, a GARCH specification is better suited to estimate abnormal returns (AR). It takes the following mean-variance form

with  . . . . . (1)

. . . . . (2)

Equation 1 is a CAPM-based estimation having a dummy Dit that takes a value of 1 for the event window and 0 otherwise. Rit is the daily fund return, and Rm signifies market return based on MSCI Europe Index. For the risk-free rate (Rft), we use the five-year Euro Government benchmark yield. For the countries that are not part of the Eurozone, we adjust equation 1 by incorporating country risk premium, *hit* is the conditional variance, and *eit* represents random error. In equation 2, The estimated parameters in equation are denoted by *αi*, *βi*, *τi*, *ci*, *ai*, *bi* and *δi*. The loading ρi on the dummy Dit represents cumulative abnormal returns (CAR). We employ an estimation window of two years starting from January 1st, 2020, while we use five-event windows of t – 5, t - 3, t, t +3, and t +5, with t being the date of invasion i.e. February 24th, 2022.

The invasion of Ukraine by Russia disrupted the financial markets worldwide. Although the political tension has been mounting for some months, the actual incursion was a surprise for many. Therefore, it is vital to evaluate how funds priced the investments in direct conflict and NATO member states. For this, we estimate the following fixed effect panel regression.

. . . . . (3)

In equation 3, CAR is the fund abnormal returns for each event window, *Con* represents the proportion of investment in the conflict countries, and *NATO* donates the percentage of investing in NATO member states. We also introduce a matrix X of control variables to account for market risk (beta), assets under management (AUM), performance (alpha), the book to market (BM), and momentum (MoM). We estimate equation 3 for the whole sample and each category. The data for this research is extracted from multiple sources. This includes Morningstar for funds, public data repositories of Keneth French (for BM and MoM), Damodaran (for country risk premium), ECB, as well as websites of individual funds when the relevant information was not extractable from structured databases.

**3. Results and Discussion**

The results of the price reaction (value-weighted CARs) of funds are presented in table 2. We observe significant and negative abnormal returns for funds in Russia, Ukraine, and NATO states on the invasion day. The negative sentiment signals the perceived economic damage associated with this unfortunate event. The observation for t-5 and t-3 reveal some intriguing results with significant and negative CARs for both Ukraine and Russia. On the contrary, funds in the NATO states experienced positive abnormal returns for these event windows. The adverse reaction in the conflict countries indicates that the potential invasion was being priced. At the same time, for NATO states, the likelihood of active skirmish was minimal, and a full-fledged war was never the base-case scenario. Although, on February 21st, Russia signed the decree to recognize the sovereignty of Luhansk and Donetsk People’s Republic, the global perception was that the pressure of economic sanctions would help avoid the offensive. On t-5 and t-3, the key intercessions included sanctions on two state-owned Russian financial institutions by the US and the freezing of assets of five banks by the UK. The negative and positive abnormal returns for conflict and NATO-based funds on t-3 and t-5 are attributable to these sanctions.

During t+3 and t+5, the abnormal returns continue to be negative for both the countries in conflict. For Ukraine, the magnitude of the returns increased, while for those in Russia, it reduced, and especially for t+5, the CAR was significant only at 10%. In the case of Russia, a higher impact on t+3 is understandable because it was on February 26th that some Russian banks were removed from SWIFT. On the contrary, for NATO states, we see an increase in abnormal returns for t+3 and thereafter a reduction on t+5. This is plausible as once the improbable happened, the geopolitical risk was priced on t and t+3.

The case of funds from countries that later abstained from voting was noteworthy. For t-5 and t-3, the abnormal returns were not significant. However, we observed a positive reaction during t, t+3, and t+5. There could be two possible reasons for this. First, the markets in these countries may have anticipated that the outflows from Russia could be channeled to them, increasing their foreign portfolio investment. Second, as most of these countries have historically maintained a neutral stance between Russia and NATO, they had hoped to benefit from Russian divestments elsewhere.

[Table 2 here]

The results of panel regressions of funds CAR and investment exposure to conflict countries and NATO states are presented in Table 3. For t – 5, the investment exposure to conflict countries resulted in lower CARs for the funds. However, the exposure to NATO countries was positively associated with the abnormal returns. On t – 3 and t, the funds with higher exposure towards conflict countries continued to suffer at an increasing rate. After that, the magnitude of the coefficient reduced for post-event windows, although the relationship with CAR was still negative. The exposure toward NATO states supported abnormal returns during t – 3 but had a negative influence during t, t + 3, and t + 5. These results were net of the control variables of market risk, size, performance, the book to market, and momentum after accounting for country fixed effects.

[Table 3 here]

The results for funds from the conflict nations, NATO members, and abstained countries are presented in tables 4, 5, and 6. The funds in Ukraine and Russia penalized both the local exposure and NATO states for all dates. On the contrary, the NATO-based funds depict a drag of local investment on abnormal returns for the invasion day and t+3 and t+5. The exposure in the conflict countries was castigated throughout. We attribute the NATO-specific results to the general belief that an active war is highly improbable and the economic and social sanctions will be an effective deterrent. Consequently, the local exposure before February 24th was positively associated with the CARs, and after that, it had a negative impact.

[Table 4, 5, 6 here]

In the case of abstained countries, we have mixed observations. The investment in the conflict countries before the war resulted in higher CARs. On the day of the event, the impact is negative, which is plausible due to the geopolitical uncertainty. Finally, the relationship is insignificant for t+3 and t+5, depicting that the funds in abstained countries were not pricing the investment exposure to Ukraine and Russia. The investment in NATO states adversely influenced the CARs for the six-event windows, possibly reflecting a negative sentiment about NATO’s reaction to the situation.

**4. Conclusion**

The turbulent impact of the Russia-Ukraine war has spilled over to the asset management industry, and this paper provides premier evidence of the price reaction of the global equity funds. Our findings document the adverse impact of the war on the funds based in Russia, Ukraine, and NATO member states. Interestingly, the funds in countries that later abstained from voting on the UN resolution demonstrated positive abnormal returns in the days following the war. We also observe the negative influence of investment in conflict and NATO states on funds’ CARs just before the beginning of the war and a few days after. Our analysis has important implications for fund managers and investors to optimize investment styles and strategies.

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**Tables**

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| **Table 1: Sample Description** | | |
|  | **Country** | **No of Equity Funds** |
| **Direct Conflict Countries** | Russia | 110 |
| Ukraine | 32 |
|  | **Total** | **142** |
| **Member States of NATO** | Albania | 12 |
| Belgium | 32 |
| Bulgaria | 7 |
| Canada | 57 |
| Croatia | 14 |
| Czech Rep | 10 |
| Denmark | 21 |
| Estonia | 6 |
| France | 93 |
| Germany | 106 |
| Greece | 21 |
| Hungary | 7 |
| Iceland | 6 |
| Italy | 19 |
| Latvia | 4 |
| Lithuania | 3 |
| Luxembourg | 15 |
| Montenegro | 6 |
| Netherlands | 27 |
| North Macedonia | 2 |
| Norway | 35 |
| Poland | 21 |
| Portugal | 23 |
| Romania | 15 |
| Slovakia | 6 |
| Slovenia | 2 |
| Spain | 29 |
| Turkey | 24 |
| United Kingdom | 67 |
| United States | 132 |
|  | **Total** | **822** |
| **Countries abstained from UN vote on Ukraine (March 2, 2022)** | Algeria | 15 |
| Bangladesh | 21 |
| China | 95 |
| India | 71 |
| Pakistan | 36 |
| South Africa | 39 |
| Srilanka | 21 |
| Vietnam | 19 |
|  | **Total** | **317** |
| **Total Funds in the Sample** | | **1281** |
| Although 35 countries abstained, the relevant data was available for only eight that we included in this study | | |

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| **Table 2: CAR for Event Windows** | | | | | | | | |
|  | **Russia** | | **Ukraine** | | **NATO** | | **Abstained** | |
| t - 5 | -0.10773% | \*\* | -0.13039% | \*\* | 0.08787% | \*\* | 0.02489% |  |
| *t stats* | *-2.03678* |  | *-2.08534* |  | *2.11374* |  | *1.10967* |  |
| t - 3 | -0.19959% | \*\* | -0.26151% | \*\* | 0.16990% | \*\* | -0.02491% |  |
| *t stats* | *-1.99841* |  | *-1.99941* |  | *2.07715* |  | *-0.52785* |  |
| t | -0.21933% | \*\*\* | -0.29986% | \*\* | -0.19964% | \*\*\* | 0.06804% | \*\* |
| *t stats* | *-3.82552* |  | *-2.14787* |  | *-3.99011* |  | *2.07729* |  |
| t + 3 | -0.17798% | \*\* | -0.36279% | \*\* | -0.22925% | \*\*\* | 0.03798% | \*\*\* |
| *t stats* | *-2.17920* |  | *-2.05343* |  | *-4.97125* |  | *4.75987* |  |
| t + 5 | -0.13350% | \* | -0.40033% | \*\* | -0.12433% | \*\*\* | 0.09484% | \*\*\* |
| *t stats* | *-1.91225* |  | *-1.95920* |  | *-3.13061* |  | *3.01761* |  |
| *\*\*\* represents significance at 1%, \*\* at 5%, and \* at 10%* | | | | | | | | |

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| **Table 3: Panel Regressions of CARs and Investment Exposures** | | | | | | | | | | | |
|  | **t -5** |  | **t - 3** |  | **t** |  | **t+3** |  | **t +5** |  |
| Conflict | -0.03555 | \*\* | -0.03807 | \*\* | -0.04573 | \*\*\* | -0.04113 | \*\* | -0.03720 | \*\* |
| *t stats* | *-2.03083* |  | *-1.97567* |  | *-3.29621* |  | *-2.11487* |  | *-1.99153* |  |
| NATO | 0.01580 | \*\* | 0.01280 | \*\*\* | -0.01666 | \*\*\* | -0.02908 | \*\* | -0.03697 | \*\* |
| *t stats* | *2.19544* |  | *3.56815* |  | *-3.68266* |  | *-2.18417* |  | *-2.07893* |  |
| beta | 1.19427 | \*\* | 0.70797 | \* | -1.29004 | \*\* | -1.03977 | \*\*\* | -0.97495 | \*\*\* |
| *t stats* | *2.19830* |  | *1.81659* |  | *-2.04449* |  | *-3.44069* |  | *-2.50834* |  |
| AUM | 0.36310 | \* | 0.16016 |  | 0.57192 | \*\* | 0.50834 | \*\* | 0.76648 | \*\* |
| *t stats* | *1.81944* |  | *0.80053* |  | *2.06420* |  | *1.99914* |  | *2.18603* |  |
| alpha | 0.36489 |  | 0.29021 |  | 0.51360 | \*\* | 0.08993 | \*\* | 0.01546 |  |
| *t stats* | *0.83446* |  | *0.91761* |  | *2.16932* |  | *2.07762* |  | *1.07322* |  |
| BM | 0.17787 | \* | 0.27356 |  | 0.06848 |  | 0.16796 |  | 0.24501 |  |
| *t stats* | *1.72285* |  | *0.37769* |  | *0.66049* |  | *1.20641* |  | *0.61215* |  |
| MoM | 0.02027 |  | 0.04472 |  | 0.08317 | \*\* | 0.02454 |  | 0.07379 | \* |
| *t stats* | *0.00556* |  | *0.64482* |  | *1.98121* |  | *1.12624* |  | *1.32951* |  |
| Obs | 1281 |  | 1281 |  | 1281 |  | 1281 |  | 1281 |  |
| Adjusted R2 | 0.67446 |  | 0.62116 |  | 0.70195 |  | 0.64432 |  | 0.60516 |  |
| Country FE | YES |  | YES |  | YES |  | YES |  | YES |  |
| *\*\*\* represents significance at 1%, \*\* at 5%, and \* at 10%* | | | | | | | | | | | |

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| **Table 4: Panel Regression of CAR for Conflict Countries** | | | | | | | | | | |
|  | **t -5** |  | **t - 3** |  | **t** |  | **t+3** |  | **t +5** |  |
| Conflict | -0.03915 | \*\* | -0.04116 | \*\*\* | -0.04246 | \*\*\* | -0.04346 | \*\*\* | -0.04693 | \*\* |
| *t stats* | *-2.08263* |  | *-3.16925* |  | *-3.62458* |  | *-3.04992* |  | *-2.04484* |  |
| NATO | -0.03489 | \*\*\* | -0.03755 | \*\*\* | -0.04345 | \*\*\* | -0.04485 | \*\* | -0.04934 | \*\* |
| *t stats* | *-3.64555* |  | *-3.77758* |  | *-3.28504* |  | *-2.01540* |  | *-1.99781* |  |
| beta | -1.02210 | \*\* | -1.04622 | \*\* | -1.20233 | \*\* | -1.27516 | \*\* | -1.09719 | \*\*\* |
| *t stats* | *-1.99070* |  | *-2.18355* |  | *-2.06996* |  | *-2.19425* |  | *-3.18071* |  |
| AUM | 0.08207 |  | 0.03308 |  | 0.04399 |  | 0.02046 | \*\*\* | 0.06080 | \*\* |
| *t stats* | *1.07814* |  | *0.18537* |  | *0.69559* |  | *3.70313* |  | *2.16647* |  |
| alpha | 0.02441 | \*\* | 0.06858 | \*\* | 0.09428 | \*\* | 0.03187 | \*\*\* | 0.90566 | \*\*\* |
| *t stats* | *1.99255* |  | *2.17750* |  | *2.10201* |  | *2.78213* |  | *3.88139* |  |
| BM | 0.33947 | \* | 0.40383 |  | 0.22399 | \*\* | 0.42766 | \*\* | 0.11172 | \*\* |
| *t stats* | *1.84696* |  | *0.80842* |  | *2.06780* |  | *2.13107* |  | *2.10961* |  |
| MoM | -0.60073 |  | -0.25723 |  | -0.57103 |  | -0.52701 | \*\* | -0.28142 | \*\* |
| *t stats* | *-0.10114* |  | *-0.25726* |  | *-0.43414* |  | *-2.17786* |  | *-2.03643* |  |
| Adjusted R2 | 0.64196 |  | 0.61738 |  | 0.69974 |  | 0.63451 |  | 0.70281 |  |
| *\*\*\* represents significance at 1%, \*\* at 5%, and \* at 10%* | | | | | | | | | | |

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| **Table 5: Panel Regression of CAR for the NATO States** | | | | | | | | | | |
|  | **t -5** |  | **t - 3** |  | **t** |  | **t+3** |  | **t +5** |  |
| Conflict | -0.04313 | \*\* | -0.04450 | \*\* | -0.04713 | \*\* | -0.04874 | \*\* | -0.05076 | \*\* |
| *t stats* | *-1.97172* |  | *-2.11293* |  | *-2.17622* |  | *-2.15120* |  | *-2.08069* |  |
| NATO | 0.01662 | \*\*\* | 0.01798 | \*\* | -0.01802 | \*\* | -0.01986 | \*\* | -0.02584 | \*\*\* |
| *t stats* | *3.02199* |  | *1.98745* |  | *-2.08037* |  | *-2.07931* |  | *-3.47796* |  |
| beta | -1.12448 |  | -0.94745 |  | -1.38947 | \*\*\* | -1.35639 | \*\* | -1.41876 | \*\* |
| *t stats* | -0.91733 |  | -1.06287 |  | -3.08134 |  | -2.04227 |  | -2.16838 |  |
| AUM | 0.066132 |  | 0.096507 |  | 0.083911 | \*\* | 0.027673 | \*\* | 0.054184 | \*\* |
| *t stats* | 0.270125 |  | 1.19232 |  | 2.087209 |  | 1.987531 |  | 1.999025 |  |
| alpha | 0.052849 |  | 0.075101 |  | 0.064859 | \*\* | 0.013121 |  | 0.022351 |  |
| *t stats* | 1.167871 |  | 0.381975 |  | 2.21059 |  | 1.310622 |  | 0.972296 |  |
| BM | 0.373423 |  | 0.462116 |  | 0.844924 | \*\*\* | 0.804606 | \*\*\* | 0.283901 | \* |
| *t stats* | 0.520799 |  | 0.718078 |  | 4.163975 |  | 2.993589 |  | 1.901436 |  |
| MoM | 0.182019 |  | 0.017468 |  | -0.48853 | \*\* | -0.48525 | \*\*\* | -0.37483 |  |
| *t stats* | 0.558348 |  | 0.67405 |  | -2.07303 |  | -2681479 |  | -0.66654 |  |
| Adjusted R2 | 0.70913 |  | 0.68361 |  | 0.63154 |  | 0.62881 |  | 0.64978 |  |
| *\*\*\* represents significance at 1%, \*\* at 5%, and \* at 10%* | | | | | | | | | | |

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| **Table 6: Panel Regression of CAR for "Abstained" Countries** | | | | | | | | | | |
|  | **t -5** |  | **t - 3** |  | **t** |  | **t+3** |  | **t +5** |  |
| Conflict | 0.08552 | \*\* | 0.09488 | \*\* | -0.02192 | \*\*\* | 0.01204 |  | 0.09503 |  |
| *t stats* | *1.99101* |  | *2.10486* |  | *-3.10049* |  | *0.79522* |  | *1.07383* |  |
| NATO | -0.01090 | \*\* | -0.03953 | \*\* | -0.08968 | \*\*\* | -0.06945 | \*\*\* | -0.05339 | \*\*\* |
| *t stats* | *-2.06965* |  | *-2.16715* |  | *-3.51712* |  | *-3.17609* |  | *-2.97038* |  |
| beta | 1.38991 |  | 1.618369 |  | 0.88199 | \*\* | 0.436867 | \*\* | 0.208586 | \*\* |
| *t stats* | 0.828603 |  | 0.592996 |  | 2.041395 |  | 1.98999 |  | 2.167296 |  |
| AUM | 0.051026 |  | 0.098328 |  | 0.073522 |  | 0.033487 |  | 0.083823 | \* |
| *t stats* | 0.781734 |  | 1.099497 |  | 0.221318 |  | 1.15317 |  | 1.91608 |  |
| alpha | 0.098328 |  | 0.024016 |  | 0.038437 | \* | 0.070178 |  | 0.099167 |  |
| *t stats* | 0.818302 |  | 0.56754 |  | 1.866769 |  | 0.362262 |  | 0.123729 |  |
| BM | 0.241366 |  | 0.453213 |  | -0.13233 | \*\*\* | -0.78215 | \*\* | -0.47436 | \*\* |
| *t stats* | 1.316573 |  | 1.381458 |  | -3.42525 |  | -2.02168 |  | -1.98998 |  |
| MoM | 0.892246 |  | 0.151352 |  | -0.77609 | \*\* | -0.73552 | \*\* | -0.27355 | \*\* |
| *t stats* | 0.488803 |  | 0.223383 |  | -2.07151 |  | -2.18099 |  | -2.06162 |  |
| Adjusted R2 | 0.62706 |  | 0.65732 |  | 0.64287 |  | 0.71775 |  | 0.60783 |  |
| *\*\*\* represents significance at 1%, \*\* at 5%, and \* at 10%* | | | | | | | | | | |