REVEALING ADDITIONAL FINANCIAL COSTS OF WARS: THE CASE OF THE RUSSIA - UKRAINE CONFLICT

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ABSTRACT

The Russia-Ukraine war is still ongoing at full intensity, but it can already be estimated that the economic consequences of the conflict on Russian investors are staggering. From October 2021 to the end of March 2022, as geopolitical tensions intensified and the specter of war loomed large, the Russian stock market witnessed a loss exceeding 80% of its value. Despite the global trend of diminishing home bias among investors in recent decades, Russian equity investors have steadfastly maintained a predominantly local investment focus. In this study, we present evidence of the substantial escalation in the cost of home bias for Russian investors in the wake of the recent war with Ukraine. This case should serve as a warning to other countries' investors, private as well as institutional with under diversified portfolios.

Key words: Russia Ukraine war, home bias, portfolio diversification

INTRODUCTION

Home bias (HB) is the tendency of investors to invest a larger than expected proportion in local assets. A typical measure of the home bias ratio (HBR) is calculated as (Solnik and Zuo 2012):

$$(1) \qquad HBR = 1-\alpha/(M/W),$$

where HBR is the home bias ratio, α is the foreign holdings to total equity holdings of domestic investors, M is the foreign market capitalization and W is the world market value. This ratio would be zero for a portfolio with no HB and one for a portfolio with full HB.

Based on Eq. (1), we calculated the HBR of 32 countries between 2001 and 2020 using data from the World Bank and the IMF. Russia is one of the countries that exhibits a very high level of HB.

The international capital asset pricing model (I-CAPM) holds that investors should hold a well-diversified portfolio. However, despite this and other well-known financial theories supporting global portfolio diversification, as well as increasing global integration and decreasing foreign investment costs and limitations, investors still tend to overweight local assets. Research suggests several reasons for the HB phenomenon including information asymmetries, strong correlations between market returns across countries, exchange rate volatility, foreign transaction costs, and behavioral biases (Huberman 2001; Fidora et al. 2007; Karolyi and Stulz 2003; Kika and Weber 2000; Van Nieuwerburgh and Veldkamp 2009; Riff and Yagil 2021).

Levy (2017) measures the Cost of HB (CHB) by the difference between the optimal certainty equivalent (CE) of an international portfolio with no HB constraints minus the CE of an optimal portfolio derived with HB constraints, using a relative risk aversion utility function. He evaluates the optimal portfolio weight by solving for maximum expected utility

function with different level of risk aversion for a portfolio based on the MSCI return data of ten countries and emerging markets.

In this paper, we aim to estimate the CHB using Levy's (2017) CE approach, while also adding the Sharpe's ratios comparisons before and during the Russia- Ukraine war. To the best of our knowledge, this paper is the first to examine the CHB during and before a major crisis, while using two different methods for robustness of results.

METHODOLOGY

We used two methods to measure the CHB, while assuming the global index (MSCI-AC) represents the CAPM optimal ex-post portfolio. The first method uses ex-post Sharpe ratio comparisons. CHB is defined as the difference between the optimal and the home biased portfolios Sharpe ratios. Measuring the CHB by the divergences between the Sharpe ratios of the optimal and home-biased portfolios ignores the differences in higher moments of the alternative distribution such as measures of skewness and kurtosis. The second approach that uses the direct expected utility (EU) approach solves this problem. Levy (2017) calculates the difference between the CE of a portfolio with no home bias and a home-biased portfolio using a common relative risk aversion (CRRA) function.

FINDINGS

We tested our approach using monthly returns from April 2017 until the end of February 2022 with regards to two periods: Period 1 represents the period before the increased tensions (April 2017 until the end of September 2021), while Period 2 includes the months when military tensions were high (April 2017 until the end of February 2022). During Period 1, Russia's index (ERUS) yielded a higher monthly mean return (1.5%) than the MSCI (1.2%). However, the ERUS' standard deviation (7.4%) was much higher than

that of the MSCI (4.5%), resulting in a lower Sharpe ratio for the ERUS. For Period 2, the ERUS' mean return is minus 0.8% with a standard deviation of 12.5%, resulting in a negative Sharpe ratio of minus 0.08 compared with 0.19 for the MSCI. Comparing the cumulative return of the ERUS for Period 1 and Period 2, we can observe that the ERUS lost 83.4% of its value during those five months, before trading was halted by the NYSE.

Results indicate a steady increase in the absolute home bias cost (CHB) and the relative cost of home bias (dCHB), as the HBR increases. In Period 1, the CHB and the dCHB for Russia's home biased portfolio was 3.9% and 18.41%, respectively. In Period 2, the CHB and dCHB for the same portfolio increased dramatically to 26.7% and 141.26%, respectively.

Results of the CE and EU for the optimal portfolio and the Russian home-biased portfolio, as well as the CHB for different risk aversion levels (alphas) show a steady increase in the CHB across all alpha levels in both periods. Results also indicates that for Period 1, Russia's CHB was positive only for investors with a high level of risk aversion. This is due to the slightly higher local average return, lower negative skewness, and higher standard deviation. The CHB in Period 2 is positive and higher compared to Period 1 across all alphas and increases from 2.18 to 12.60 for alpha 0.5 and alpha 5, respectively.

CONCLUSIONS

Given the strong preference of Russian investors for investing in domestic stocks, the effect of the Russian-Ukraine crisis on the average Russian investor was immense. Sharpe ratio results reveal that even before the period of increased tensions between Russia and Ukraine, there was a positive cost of home bias. However, the cost increased dramatically when military tension rose. The Sharpe analysis ignores the difference in moments higher than the second-degree. The expected utility analysis resolves this

problem. The later analysis reveals that before the Russia -Ukraine turmoil there was a positive cost of a home bias only for extremely risk-averse investors. Also, expected utility analysis results show that in the period during increased tensions, the cost of home bias increases with the degree of risk-aversion and is positive and higher compared to the previous period across all risk-aversion levels. Results reveal the major cost caused by the high level of home bias, which could have been minimized substantially, by holding a well-diversified international portfolio. These findings should also be a warning signal to other highly home biased countries. An extension of this paper may include longer periods other assets, such as bonds.

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