The effects of the Russia–Ukraine war and the Wagner Group coup on defense stocks in Europe: an event study analysis

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Abstract

Purpose – This study aims to examine the impact of the beginning of the Russia–Ukraine war and the Wagner Group's attempted military coup against Putin's regime on the European defense sector, consisting of weapons manufacturers.

Design/methodology/approach – The authors use the event study methodology to quantify the impact. That is, the authors assume that markets are efficient, and abnormal stock returns around the event dates capture the magnitudes of the impacts of the two events studied on European defense sector companies. The authors use the capital asset pricing model and two different multifactor models to estimate expected stock returns, which serve as the benchmark necessary to obtain abnormal returns.

Findings – The start of the war on February 24, 2022, when the Russian forces invaded Ukraine, was followed by high positive abnormal returns of up to 12% in the next few days. The results are particularly strong if multiple factors are used to control for the risk of the defense stocks. Conversely, the authors find a negative impact of the rebellion initiated by the mercenary Wagner Group's chief, Yevgeny Prigozhin, on June 23, 2023, on the abnormal returns of defense industry stocks on the first trading day after the event.

Originality/value – To the best of the authors' knowledge, this is the first study of the impact of the Russia–Ukraine war on the defense sector. Furthermore, this is the first study to measure the financial implications of the military coup initiated by the Wagner Group. The findings contribute to a rapidly growing literature on the financial implications of military conflicts around the world.

Keywords Event study, Russia–Ukraine war, Civil war, Defense sector, Equity

Paper type Research paper

1. Introduction

On February 24, 2022, Russia started its "Special Military Operation" against Ukraine. Although the Russia–Ukraine war started on that particular day, there were serious signs earlier showing that Russia was planning a war against Ukraine. On Monday, the 21st of February, President Putin acknowledged the Ukrainian separatist regions, and on Tuesday,

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the 22nd of February, Russian troops arrived in the ex-Ukrainian Donetsk and Luhansk regions. The tangible proximity of the war already affected the markets: the futures prices of several raw materials – mainly wheat, corn and sunflower oil, which were the main items exported by both Russia and Ukraine. Furthermore, the price of crude oil rose spectacularly (Basdekis *et al.*, 2022; Vasileiou, 2022). In addition to these effects, the war atmosphere increased investors' uncertainty, which caused higher volatility in stock prices (Lo *et al.*, 2022).

The war on Ukraine has caused a huge loss in lives. The two parties have each lost more than 100,000 soldiers as of November 2022, according to official US Government estimates (Cooper *et al.*, 2023). The war has affected the financial markets as well as the global economy, according to numerous recent studies (Mahlstein *et al.*, 2022; Guénette *et al.*, 2022; Batten *et al.*, 2023). Government defense spending increased – mainly, but not only, in the two given countries, while other sectors faced very different effects. Therefore, we believe that this sector merits to be studied separately.

While several papers have analyzed the effect of the Ukrainian war on different financial markets, all of the papers so far have examined only the first year of the war. More precisely, all of the event studies so far used February 24, 2022, the start of the war, as the event date. However, several significant events have occurred since that day. Arguably, the most significant of these events is the Yevgeny Prigozhin coup attempt. As leader of the mercenary Wagner Group, Prigozhin openly criticized Russian military leadership in the war for ineffectiveness and lying to the public in a video released on the evening of June 23, 2023 [1]. The next morning, the Wagner Group entered the southern city of Rostov-on-Don, 1,100 km from Moscow, and started to march toward Moscow [2]. In the evening, Prigozhin turned back his forces after he reached a deal with the Belarus Government to halt the advance [3]. At that point, they were 200 km from Moscow, and the rebellion was over. Nonetheless, this was the first major organized resistance to the war from a Russian military group, which challenged both Putin's authority and the continuation of the war. Our study, to the best of our knowledge, is the first to examine the impact of the Yevgeny Prigozhin coup attempt. Furthermore, this event also represents a brief civil war episode. Thus, our study also provides insight into the impact of civil unrest during wartime on financial markets.

We find that European defense stocks delivered superior performance in the days immediately before and after the start of the war. According to our results, investors in the European defense sector could have profited from up to 12% cumulative average abnormal return (CAAR) over the first 20 days of the war. Conversely, investors perceived the Yevgeny Prigozhin coup attempt as negative news for the defense sector despite its failure. The average abnormal return (AAR) on the first trading day after the event, June 26, 2023, was approximately −1%. While this coup attempt was unsuccessful and the war continued, investors seem to have interpreted this event as detrimental to Putin's power and, therefore, to Russia's future war prospects. Our results show that financial markets, and defense sector stocks in particular, could be used by policymakers as barometers of the tensions between countries in a region.

2. Literature review

From February 2022 onward, numerous papers analyzed the effect of the Russian invasion on the global economy. More precisely, dozens of papers examined the reactions of the financial markets to the Ukrainian war. The three main directions in the literature discussed in the following subsections are:

(1) examining the comovements between different financial markets, analyzing the cointegration and conducting causality analysis;

(2) analyzing the impact of the higher geopolitical risk on the performance of different markets; and

(3) conducting an event study analysis by testing the abnormal returns around the 1st days of the war.

2.1 Comovements between different markets

The war made a big rearrangement in the energy sector. Basdekis *et al.* (2022) analyzed the impact of the war on energy markets and on stocks. They used a coherence analysis between different stock indices, exchange rates and the price of crude oil.

Deng *et al.* (2022) also conducted an energy-focused analysis: they focused on stocks from the energy industry both in Europe and in the USA. They found that during the Ukraine war period both the renewable and the classical energy sectors outperformed in the USA, while in Europe the whole energy sector suffered significant losses.

The conflict also had a major impact on oil prices. Adekoya *et al.* (2023) analyzed the connection between oil prices and stock prices in European and prominent non-European countries. They found that in the war period there is a strong multifractal behavior and stronger correlation between the oil price and stock markets' returns.

The markets for other commodities, of which Russia and Ukraine were among the biggest exporters, such as wheat, corn and sunflower, also became much more volatile. Lo *et al.* (2022) examined the influence of the Russo–Ukrainian war on the financial markets of 73 countries. Their results show that the dependence of the countries on Russian's commodities increased market volatility and lowered asset prices.

Vasileiou (2022) examined the effect of the war on the futures markets of commodities, such as oil, wheat and natural gas. They found the existence of antileverage effects on the wheat and natural gas markets and the existence of leverage effects on the Brent market.

2.2 Geopolitical risk and the performance of different markets

The global financial crisis, triggered by the war, increased the geopolitical risk, particularly in Europe. Izzeldin *et al.* (2023) used a Markov-switching Heterogeneous AutoRegressive (HAR) model to examine the response of the stock markets to global financial crises. Umar *et al.* (2023) analyzed the comovements between geopolitical risks, and the volatility and returns of short stocks from different sectors. Similarly, Adeosun *et al.* (2023) assessed the connectedness between oil prices and geopolitical risk in Russia and the other Brazil, Russia, India, China and South Africa (BRICS) countries, with the start of the war representing the highest peak of geopolitical risk in Russia.

Będowska-Sójka *et al.* (2022) analyzed the hedging possibilities with very different asset categories during the Russian invasion. They found that green bonds, real estate, gold, silver and the CHF currency were the most resistant assets to the geopolitical changes, while the market shock was more pronounced for stocks on the developed markets and long- and short-term bonds.

Hassan *et al.* (2022) tested the comovements between geopolitical risk and African stocks. Their results showed that some African stocks positively reacted to the increased geopolitical risk so they could have served as hedging assets.

Agyei (2023) examined the top seven (E7) emerging markets' reactions to the Russian–Ukrainian war. Using a time-varying parameter autoregressive model, he found that there was comovement between the higher geopolitical risk and the E7 markets' stock returns.

Bossman *et al.* (2023) examined sectoral stocks amid geopolitical risk, investment sentiment and crude oil volatility in the period of the Russia–Ukraine war. With quantile regression, they found that European Union (EU) sectoral stocks can hedge against geopolitical risk in bearish market periods while the implied volatility of crude oil can hedge and can be a safe-haven asset against EU stocks.

Sun *et al.* (2022) analyzed the impact of the war on global stock markets. They found that the Russian invasion had a negative impact on stockholders' wealth globally. However, European stocks suffered the highest negative abnormal returns, since the war affected mainly Europe. In particular, the finance and services sectors incurred the largest losses, followed by the manufacturing sector. Conversely, non-European oil and gas companies gained from the war.

Of course, the war was a big shock to the global financial markets. Najaf *et al.* (2023), using seeming unrelated autoregression and Exponential Generalized Auto Regressive Conditional Heteroscedastic (EGARCH) models, found that stock indices declined all over the world but mainly in two countries, Ukraine and Russia. The negative effect was stronger in Russia due to the sanctions against the Russian economy.

Bougias *et al.* (2022) inferred the asset values of European firms. Using the Merton model with high-frequency stock price data, they found that the asset prices had fallen by 2% on average.

Bossman and Gubareva (2023) used a nonparametric quantile-to-quantile regression model. They analyzed the stock markets in the top seven emerging countries (E7) and in the G7 countries in the first five months of the war. They found that all these markets – except China and Russia – responded positively to the increase in geopolitical risk induced by the conflict.

In the currency markets mainly the Russian ruble was affected. Lyócsa and Plíhal (2022) examined the volatility of the Russian ruble against major currencies in the first period of the Russian invasion. They were modeling with Google searches and with implied volatility data the intraday behavior of the ruble.

2.3 Event studies

Several studies examined the effects of the Russian–Ukrainian war using the event study method. All of them chose the day of the invasion – 24th of February, as the event day. Most of the event study papers analyzed the effects on the stock markets.

Boubaker *et al.* (2022) examined the effect of the Russian invasion in Ukraine on global stock market indices. They found a negative abnormal return on the event day and a negative cumulative abnormal return (CAR) during the event window for global indices. However, in the postevent period, they found a positive impact on the stock markets of the North Atlantic Treaty Organization (NATO)-member countries.

Boubaker *et al.* (2023) found that on the event day, the bank stocks globally declined by 1.5% on average. The biggest drop was in Europe at 4% on average. Furthermore, global bank stock returns decreased by 1% after controlling for their exposure to the whole market.

Boungoue and Yatié (2022) analyzed the effect of the war on the global stock market. Using a daily data sample of 94 countries, they found a significant negative effect on the stock prices.

Pandey *et al.* (2023) examined the Indian stock market. Choosing a sample of 1,422 listed Indian stocks, they found that the preinvasion and invasion days exhibited significant negative abnormal returns while the postinvasion day had a significant positive abnormal return. They concluded that the Russian invasion had positively affected the Indian stock market.

Yousaf *et al.* (2022) analyzed the stock markets of the G20 countries and of some Eastern European countries. Their results showed that the Eastern European countries, such as

Hungary, Slovakia, Russia and Poland, had a negative CAR on both the preevent and postevent days, while Western European stock markets showed significant negative CAR and CAAR only on the postevent days. They also recognized that investors had chosen the North American, Latin American, Middle East and African markets instead.

Within the stock market the energy sector behaved in a different way. Mohammed *et al.* (2023) investigated the response of the renewable energy sector to the war. They found that it exhibited a positive CAR as a result of the start of the war.

Umar *et al.* (2022) also used the event study methodology. They examined the effect of the war on metals, conventional energy and renewable energy markets. They found that although the global financial markets had abnormal negative returns, the renewable energy sector benefited.

Within the currency market not only the Russian ruble was affected in a negative way. The higher geopolitical risk had a negative effect on the cryptocurrency markets as well.

Ayed *et al.* (2023) analyzed the cryptocurrency markets' response to the Russian invasion. They studied the 10 cryptocurrencies with the highest market capitalizations. They found that nine out of the 10 cryptocurrencies had a negative CAR on February 24, 2022 event day.

3. Data

We covered 30 European defense stocks in our study. Table 1 shows their names and tickers, and the exchanges on which they are traded. We obtained adjusted for splits and dividends daily closing prices data from Yahoo Finance to calculate total daily returns [4]. Our data sample period is from January 2, 2019, to August 8, 2023, to obtain the full distribution of stock returns around the events of the Ukraine war. We winsorize the returns at the 0.5% and 99.5% levels to deal with outliers. The three factors of Fama and French (1993), the five factors of Fama and French (2015), the momentum factor of Carhart (1997) and the risk-free rate for Europe were obtained from the Kenneth French online data library [5].

4. Methodology

We rely on the efficient market hypothesis (EMH) to examine the impact of the Russia–Ukraine war on European defense companies. According to the semistrong form of the EMH, stock prices reflect all publicly available information (Fama, 1970). Thus, unexpected stock price changes can be used to measure the economic impact of news on companies. Studies that use this approach are commonly referred to as event studies.

In our event study, we use the following event windows as in Boubaker *et al.* (2023): (−10,−1), (−3−1), (0,0), (0,3), (0,5), (0,10) and (0,20), where the negative (positive) numbers represent the number of trading days before (after) the event. We also use the (−1,−1) and (1,1) event windows to study the trading days immediately before and after the events, respectively. Our first stock performance measure is the difference between realized returns and the risk-free rate, also known as excess returns. This measure implicitly assumes that all expected returns are equal to the risk-free rate. However, expected returns vary according to the risk levels of different stocks. Therefore, we compute abnormal returns by subtracting expected returns from realized returns to control for the variation in risk across different stocks. We use the standard factor model framework to obtain expected returns:

$$E(R_{i,t}) = \alpha_{i,t} + \sum_{k=1}^{K} \beta_{k,i,t} X_{k,t}, \tag{1}$$

Name	Ticker	Exchange
Airbus SE	AIR.PA	Paris
Thales SA	HO.PA	Paris
Safran SA	SAF.PA	Paris
Dassault Aviation SA	AM.PA	Paris
Sogeclair SA	ALSOG.PA	Paris
Exail Technologies	EXA.PA	Paris
Figeac Aero SA	FGA.PA	Paris
Lisi SA	FII.PA	Paris
Latécoère SA	LAT.PA	Paris
Azorean Aquatic Technologies SA	MLAAT.PA	Paris
Leonardo S.p.A.	LDO.MI	Milan
Avio S.p.A.	AVIO.MI	Milan
Fincantieri S.p.A.	FCT.MI	Milan
Rolls-Royce Holdings plc	RR.L	London Stock Exchange
Melrose Industries plc	MRO.L	London Stock Exchange
QinetiQ Group plc	QQ.L	London Stock Exchange
Serco Group plc	SRP.L	London Stock Exchange
Babcock International Group plc	BAB.L	London Stock Exchange
Senior plc	SNR.L	London Stock Exchange
Cohort plc	CHRT.L	London Stock Exchange
Chemring Group plc	CHG.L	London Stock Exchange
BAE Systems plc	BA.L	London Stock Exchange
Rheinmetall AG	RHM.DE	Xetra
MTU Aero Engines AG	MTX.DE	Xetra
OHB SE	OHB.DE	Xetra
thyssenkrupp AG	TKA.DE	Xetra
Colt CZ Group SE	CZG.PR	Prague
Creotech Instruments SA	CRI.WA	Warsaw
Montana Aerospace AG	AERO.SW	Swiss
Saab AB (publ)	SAAB-B.ST	Stockholm

Table 1. European defense stocks

Notes: This table lists the European defense stocks included in this study; We provide the name of each stock, its ticker and the exchange on which it is listed**Source:** Authors' own creation

where $\alpha_{i,t}$ is the alpha of stock i at time t, $\beta_{k,i,t}$ is the exposure of stock i to the kth risk factor at time t and $X_{k,t}$ is the value of the kth factor at time t. More precisely, we use three different models:

(1) the capital asset pricing model (CAPM) consisting of only the market factor;

(2) a four-factor model consisting of the market, size and value factors of Fama and French (1993) and the momentum factor of Carhart (1997); and

(3) a six-factor model consisting of the market, size, value, profitability and investment factors of Fama and French (2015) and the momentum factor of Carhart (1997).

The five-factor model of Fama and French (2015) can capture many well-documented stock market anomalies, however, it is incapable of explaining momentum effects (Fama and French, 2016). Thus, we add the momentum factor of Carhart (1997) to the model. Another issue with the five-factor model is that it does not adequately explain the returns of a subset of small stocks (Fama and French, 2015). However, our sample of stocks does not have a strong tilt toward small stocks. Therefore, we believe that the chosen six-factor model is

sufficiently potent to capture the effects of well-known anomalies on stock returns that may otherwise contaminate our results. We also use less potent models with fewer factors for comparison purposes and for consistency with numerous previous event studies.

The betas are estimated with time series regressions of stock returns on factors over rolling windows from 120 trading days prior to the event to 10 trading days prior to the event. Only betas estimated with at least 50 trading days of valid data are used.

We then average the abnormal returns by trading day to obtain AARs. Finally, CAARs are calculated by simply adding the AARs over each of the event windows used in this study.

5. Results

5.1 Start of war – February 24, 2022

We present the CAARs of European defense stocks around the beginning of the Ukraine war in Table 2. We observe strong evidence of positive CAARs for the event windows (−10,−1) and (−1,−1) when using the four-factor and six-factor models. It seems that there was some anticipation of a military conflict in the days before the war officially started, consistent with the rising tensions between Russia and Ukraine at the time. Focusing on the first day of the war, February 24, 2022, it is apparent that the average excess return of the defense stocks is negative, which is consistent with a widespread negative shock to the European stock market. Nonetheless, the magnitude of the estimate is only about half of the 4% average decline estimated by Boubaker *et al.* (2023) for European bank stocks. Furthermore, the AAR is positive and statistically significant according to the four-factor and six-factor models, which is evidence of a very strong performance relative to other stocks. Therefore, the investors who reacted to the beginning of the war by placing bets on the defense stocks that were hedged against exposures to well-known systematic risk factors profited on the first day. Interestingly, the CAPM-based CAAR is not statistically significant for any event window up to and including the day of the event. It seems that

Event window	Excess	CAPM	Four-factor	Six-factor
(−10,−1)	−2.66* (−1.95)	1.08 (0.82)	3.63*** (2.87)	3.22** (2.55)
(−3,−1)	−2.01*** (−2.69)	−0.68 (−0.94)	1.08 (1.57)	1.01 (1.46)
(−1,−1)	0.11 (0.26)	0.49 (1.17)	1.00** (2.51)	0.97** (2.46)
(0,0)	−2.12*** (−4.91)	0.30 (0.68)	1.92*** (4.56)	1.73*** (4.12)
(1,1)	4.04*** (9.33)	1.62*** (3.67)	1.00** (2.38)	0.98** (2.32)
(0,3)	5.48*** (6.33)	8.01*** (9.49)	11.65*** (14.46)	11.17*** (13.90)
(0,5)	4.07*** (3.85)	7.72*** (7.43)	12.22*** (12.32)	11.42*** (11.55)
(0,10)	0.50 (0.35)	5.95*** (4.23)	10.39*** (7.73)	9.37*** (6.99)
(0,20)	5.82*** (2.94)	7.09*** (3.70)	12.39*** (6.77)	11.21*** (6.15)

Notes: This table presents cumulative average abnormal returns (CAAR) of European defense stocks around the start of the Ukraine war on February 24, 2022; Abnormal returns are calculated as realized returns minus expected returns; Expected returns are equal to the risk-free rate in the case of excess returns and the expected returns according to factor models in the remaining columns. The CAPM is based on the market factor; the four-factor model contains the three factors of Fama and French (1993) and the momentum factor of Carhart (1997); and the six-factor model contains the five factors of Fama and French (2015) and the momentum factor. The factor exposures of the stocks (betas) are estimated using rolling window time series regressions over the 110 trading days prior to the start of the first event window, where at least 50 trading days of valid data are available; The *t*-statistics are provided in parentheses; *, ** and ***stands for statistically significant at the 10, 5 and 1% levels of significance; respectively

Source: Authors' own creation

Table 2. CAAR of European defense stocks around the start of the Ukraine war

factors other than the market return play a larger role in the determination of the expected return of defense stocks, consistent with the well-known low market beta of the defense industry. However, CAARs are significantly positive for all event windows studied that include one or more of the trading days after the start of the war, regardless of which model is used to obtain expected returns. The CAARs over these windows are also economically significant, with estimates ranging from about 6% to about 12% over just a few trading days. We conclude that the commencement of a major military conflict can represent a highly profitable short-term investment opportunity that can be exploited by increasing the exposures of investment portfolios to the defense sector.

Our results contrast with a large part of the literature analyzing the stock market impact of the war in Ukraine. Most event studies exhibit negative abnormal returns across various economic sectors. However, the defense sector benefits from the war in a unique way, as previously mentioned. Furthermore, other nontypical sectors also exhibited positive abnormal returns: such as the renewable energy sector, according to the results of Mohammed *et al.* (2023) and Umar *et al.* (2022). Our results are also consistent with the conclusion of Boubaker *et al.* (2022) that the war had a positive impact on the NATO members' stock markets in the days after the initial invasion.

5.2 Yevgeny Prigozhin coup attempt – June 23, 2023

We report the CAARs of European defense stocks around the Yevgeny Prigozhin coup attempt in Table 3. Unlike the start of the war, which was announced in the morning, the coup attempt was announced in the evening of June 23, 2023 after trading hours. Therefore, we did not expect to see a market reaction on that day. Furthermore, the European equity markets remained closed for the weekend until Monday, the 26th of June. Thus, we consider this date as day 0 of the event and the 23rd of June as day −1. Surprisingly, we find some evidence of a positive AAR on the 23rd of June, but the

Event window	Excess	CAPM	Four-factor	Six-factor
(−10,−1)	−0.71 (−0.66)	−0.68 (−0.65)	−0.75 (−0.74)	−0.74 (−0.72)
(−3,−1)	−0.50 (−0.83)	0.34 (0.60)	0.32 (0.57)	0.37 (0.64)
(−1,−1)	0.03 (0.08)	0.52 (1.58)	0.57* (1.72)	0.62* (1.87)
(0,0)	−1.14*** (−3.28)	−1.13*** (−3.41)	−1.16*** (−3.53)	−1.17*** (−3.57)
(1,1)	0.22 (0.64)	−0.14 (−0.42)	−0.17 (−0.53)	−0.21 (−0.63)
(0,3)	0.07 (0.10)	−0.34 (−0.51)	−0.48 (−0.73)	−0.54 (−0.82)
(0,5)	0.49 (0.57)	−0.70 (−0.86)	−0.98 (−1.22)	−1.05 (−1.30)
(0,10)	−1.11 (−0.97)	−1.49 (−1.35)	−2.00* (−1.83)	−2.02* (−1.85)
(0,20)	1.32 (0.83)	−1.38 (−0.90)	−1.94 (−1.28)	−2.05 (−1.35)

Notes: This table presents cumulative average abnormal returns (CAAR) of European defense stocks around the Yevgeny Prigozhin coup attempt that started on June 23, 2023, after European trading hours; The event window (0,0) represents the first trading day after the event; which is June 26, 2023; Abnormal returns are calculated as realized returns minus expected returns; Expected returns are equal to the risk-free rate in the case of excess returns and the expected returns according to factor models in the remaining columns. The CAPM is based on the market factor; the four-factor model contains the three factors of Fama and French (1993) and the momentum factor of Carhart (1997), and the six-factor model contains the five factors of Fama and French (2015) and the momentum factor; The factor exposures of the stocks (betas) are estimated using rolling window time series regressions over the 110 trading days prior to the start of the first event window, where at least 50 trading days of valid data are available; The *t*-statistics are provided in parentheses; * and ***stands for statistically significant at the 10 and 1% levels of significance; respectively

Source: Authors' own creation

Table 3. CAAR of European defense stocks around Yevgeny Prigozhin coup attempt

limited statistical and economic significance of our estimates is not inconsistent with market participants not anticipating the event. Conversely, both the average excess return and the AAR are negative and statistically significant at the 1% level on event day 0, the first trading day after the event. While it was already clear that the coup attempt had failed as of the beginning of that trading day, investors seem to have perceived the failed coup attempt as destabilizing for the Putin regime and his war ambitions and, thus, as bad news for the future economic prospects of European defense companies. More precisely, the AAR estimates for this day range from −1.13% to −1.17%, and therefore, they are economically significant. Finally, there is some evidence that the negative AAR persists for up to 10 trading days after the event as CAAR estimates for the (0,10) event window are all below −1% and are statistically significant at the 10% level in the case of the four-factor and six-factor models. Our results show that the possible easing of war tensions can lead to stock prices declining in the defense sector, which can potentially be exploited with short positions in the sector. We conclude that an increase in the uncertainty of the continuation of a war can be a profitable trading opportunity, but such opportunities tend to be smaller and disappear quicker than the start of a war opportunities.

6. Conclusion

We find that the start of a war is positive news for the defense industry. Our study shows that investors could have profited from up to 12% CAAR in the days following the announcement of the Russia–Ukraine war. Furthermore, we find positive CAARs before the event date, which indicates that even the escalation of a tense regional conflict is interpreted by investors as an improvement in the prospects of the defense sector on the continent. Our results are not as strong according to the CAPM as according to standard multifactor models, arguably due to the inherent weakness of the model in pricing defense sector stocks.

We also find that any sign of the possible termination of a war is negative news for this industry. The AAR of European defense stocks on the first trading day after the failed Yevgeny Prigozhin takeover attempt was approximately −1%, in line with this event signaling that the end of the war may have been closer than previously expected. Furthermore, we do not find strong evidence that investors anticipated the coup attempt. In contrast to the start of a war, it seems that the possible end of a war is quite often an unexpected event. As far as financial markets react quickly and accurately, the abnormal returns of defense stocks are useful indicators of potential future war escalations and de-escalations. Therefore, policymakers should closely monitor financial markets, and the defense sector in particular, to better understand the severity of ongoing and potential conflicts. In addition, portfolio managers should closely follow existing and potential military conflicts and increase (decrease) their allocations to the defense sector when tensions escalate (de-escalate).

Our research was limited to the start of the Russian–Ukrainian war and the Yevgeny Prigozhin coup attempt, and the responses of European defense stocks to those events. Further research could show the connection between regional military conflicts, including civil wars and the performance of the defense industry on other continents. Recent examples of military conflicts include the coups in West and Central Africa and the war between Israel and Hamas. In addition, we have not been able to study the impact of the actual conclusion of the Russia–Ukraine war due to the fact that it is still ongoing. Future research could examine the impact of peace treaties, ceasefire agreements and the

de-escalation of military conflicts on local and global financial markets, including the defense sectors of different countries.

Notes

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