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The connections that bind: Political connectivity in the face of geopolitical disruption

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ABSTRACT

While a firm can minimize its own political risk, there are idiosyncratic and country-specific risks that are more difficult to control. In particular, home country governments pursue their own foreign policies independently of business, forging international linkages with other countries in pursuit of tangible benefits. But what happens when a government forges connectivity to a country which exhibits volatility or generates geopolitical shocks? This paper examines this question by studying the response of European stock markets to the ongoing (since 2014) Russian invasion of Ukraine. Using a variety of metrics to measure political connectivity, we distinguish between anti-Russian governments and governments which are more favorable to Russia during this period, combining this connectivity data with a new database of sanctions and war-related events. Applying asymmetric GARCH, panel estimations, and event study methods, we find that the uncertainty caused by Russian aggression in Ukraine has harmed financial markets in countries such as Serbia and Hungary, countries which have willingly forged connections with Russia during this time. Consistently, our empirical results show that, by tying a country to another one via political means, politicians also have tied the fortunes of their capital markets to the success or failure of this partner.

1. Introduction

The existing body of literature on political risk has extensively explored the "hard" connections through which conflict and risk propagate among nations (Munoz, 2013). Numerous studies have examined how direct trade (Balli et al., 2022; Sweidan, 2023) or investment (Ratten, 2023) linkages can be a good predictor of the consequences of war. However, a far less explored avenue of connectivity is the "softer" or more indirect linkages across nations and, in particular, the political connections created as a result of the political affinity between various countries and their governments. This paper seeks to fill a large gap in the international business and political science literature in understanding the ramifications of political connectivity - from formal alliances all the way down to mere diplomatic support - during a crisis. Our theory is that the building political connections in normal times may allow governments to create an environment which minimizes the "liability of foreignness" for firms (Lu et al., 2021), either directly (through securing favorable treatment) or indirectly (through reducing institutional distance (Kostova, 1996) between countries). However, we conjecture that this connectivity would be upended in a time of crises, especially one of war, where sanctions are imposed and where

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the connections themselves may become a liability if the country has forged connections to the "wrong" country. Our research proposition is thus that firms based in countries with a stronger political connection towards the aggressor in a war will face larger short-run negative effects than firms in countries which either are neutral or have been actively against the would-be aggressor.

We examine this theory in the context of the ongoing Russian invasion of Ukraine, focusing on the financial effects of the invasion globally and how they are dependent on the political and governmental connections between parties to the conflict and, in particular, with Russia. Compiling a timeline of war-related events, broken out by military milestones, diplomatic decisions, and sanctions, and using event studies, panel estimation techniques, and asymmetric volatility modeling (EGARCH, APGARCH, and GJR-GARCH) on daily European stock market data, this paper finds that this "liability of connections" was indeed the case during the nine-year Russian invasion of Ukraine. Utilizing data going back to 2013 and before the annexation of Crimea, our results show that stock markets in countries that were more favorable to Russia politically saw no benefit from their connectivity, while specific war-related events affected countries connected to Russia to the same extent or worse than countries which were politically connected to Ukraine. These results are even stronger during the period of Russia's full-scale invasion (February 2022 to the present), with only political events showing a positive effect for countries politically connected to Russia. Perhaps most importantly, we show that some countries connected to Russia politically but with little business or geographic linkages have apparently imported volatility, generating a liability of connections which did not exist previously.

In many ways, this paper is unlike others which deal with connectivity, as it focuses on the environment in which firms operate rather than focusing on the specific decisions of the firm, its management, or the interconnectivity enabled by technology (Castellani et al., 2022); in that sense, it is more about the "international" in international management than the "management" side. However, it has immense interest for scholars in management and international business. In the first instance, as political relations are one of the most common forms of human connectivity internationally, geopolitical events are crucial to understanding the form of connectivity that firms face (Ciravegna et al., 2023; De Villa, 2023). Indeed, while much of the international business literature focuses on firm agency in connectivity (see, for example, Luo (2022)), we argue that political relations are a reality of connectivity that is determined outside of the firm, creating a path dependence for both managerial decisions and, the subject of this paper, effects on firm performance (Pringpong et al., 2023). The consequence of this reality is that, in a world of heightened geopolitical tensions and friction between countries, political connections between governments can create involuntary political risk for a firm. Instead of a multinational enterprise (MNE) seeking out a good risk-reward matrix, they will be saddled with idiosyncratic risk stemming from the action of governments. Such risk may also remain latent for years until triggered by a geopolitical event, making planning for such a risk much more difficult.

The rest of the paper proceeds as follows: the next section lays out a brief theory for how political connections between countries should matter for financial market responses during peace and in wartime, while Section 3 provides some background on the Russian invasion of Ukraine and where European countries have set themselves on this divide. Section 4 describes the models to test our hypothesis regarding political connections to Russia, while Section 5 provides the results and Section 6 offers some brief concluding remarks.

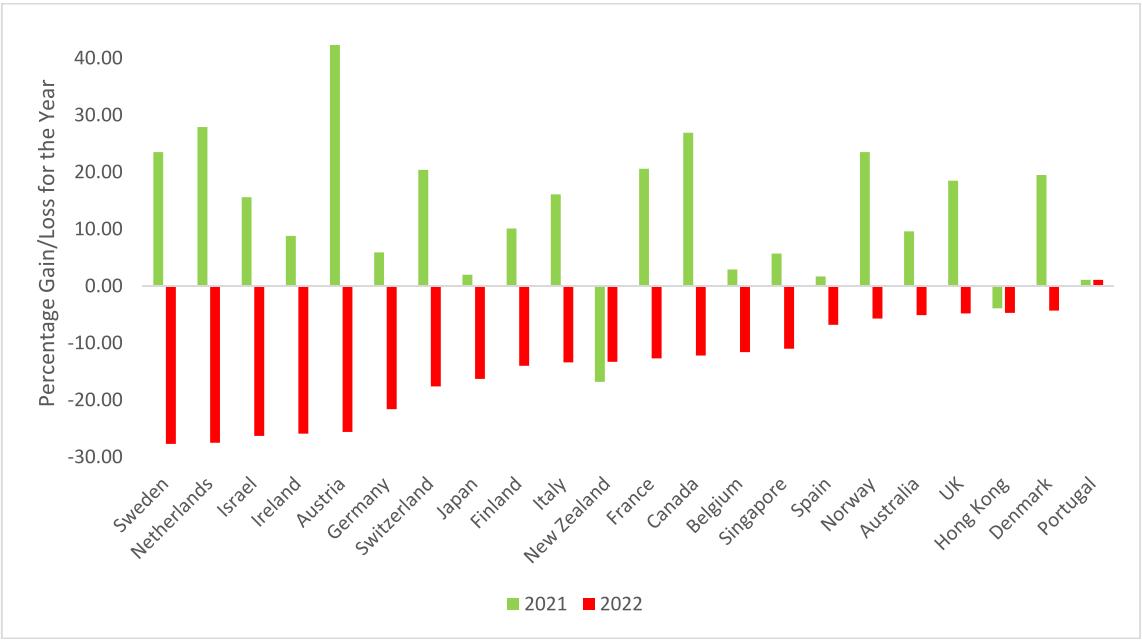

Fig. 1. Country stock market performance in %, 2021 v. 2022.
(*Source:* Qontigo STOXX Europe 600 Index; NovelInvestor (2023).)

2. Political connectivity in peace and war

The Russian Federation invaded Ukraine for the first time this century in February 2014. The dramatic events of the Maidan revolution, resulting in the abdication and flight of Ukrainian President Viktor Yanukovych to Russia, was followed with the internationally unrecognized annexation of Crimea by the Russian Federation, a military incursion into the Donbas (Malyarenko and Wolff, 2018), the downing of Malaysian Airlines flight MH17 by Russian troops (Tsybulenko and Francis, 2018), and eventually a frozen-but-persistent conflict in Ukraine's east (Grossman, 2018). After Ukraine held two successful democratic elections and embarked on a series of reforms to bring it closer to European Union standards and institutions, Russia launched a full-scale invasion of the rest of the country on February 24, 2022, claiming it was undertaking a "special military operation" to "de-Nazify and de-militarize" its neighbor. At the time of this writing (March 2024), the war was still ongoing, but the Ukrainian army had successfully defeated the Russian invasion outside Kyiv and had recaptured large parts of occupied territory outside Kharkiv, with the focus shifting to the Donbas region.

As a major land war in Europe heretofore thought unthinkable (Giles et al., 2015), the effects of the invasion on international business have been profound (Ratten, 2023), especially for a world which was only beginning to emerge from the Covid-19 pandemic and the affiliated government responses to it (in particular, lockdowns and its associated de-coupling (Witt et al., 2023)). Ukraine itself was of course hardest hit, with its economy contracting by approximately 29 % in 2022, while the belligerent country, buffeted by sanctions, saw a 2.1 % decline (according to the World Bank). The ramifications have spread far beyond Russia and Ukraine, with global growth halved from 2021 to 2022 (from 6 % to 3.4 %, according to the International Monetary Fund) and a further decline projected in 2023. Disruptions have been felt in nearly every area of international commerce, from energy (Korosteleva, 2022) to commodities (Alam et al., 2022; Lo et al., 2022), global trade (Borin et al., 2022), supply chains (Farrell and Newman, 2022), and financial connectivity (Umar et al., 2022). In a similar vein, echoing these broad-based effects, international financial markets have also been deleteriously affected (Boubaker et al., 2022; Boungou and Yatié, 2022; Kumari et al., 2023), with the fragile capital market recovery globally after the Covid-19 pandemic (Goldstein et al., 2021) evaporating in nearly every jurisdiction as Russia drove its tanks into Ukraine (Fig. 1).

The spatial distribution of these effects on the financial markets of specific countries and, by extension, firms residing in these countries, has differed, conditioned on the levels of connectivity of firms and countries with the afflicted markets. At the simplest level of analysis, proximity or other geographic factors can be seen as the driving force behind market responses to this invasion (Boungou and Yatié, 2022; Federle et al., 2022), with geography proving the link which transmits economic impact. But while proximity to war is a key determinant of the strength of its possible effects, there are other linkages which may act as the transmission route for the uncertainty arising from a conflict. In particular, international connectivity may also act as a conduit for transferring the effects of global disruptions to every corner of the globe, operating through both "hard" and "soft" connections. Hard connections have already been amply identified in the economics and affiliated literatures with regard to conflict, focusing on the direct channels via which disruptions may be transmitted, such as trade or investment. From the literature in political science, as well, papers have focused on the effects of trade integration in either preventing conflict in the first place (Lee and Pyun, 2016) or in amplifying the effects of a conflict (Glick and Taylor, 2010).

2.1. To connect or not to connect

As noted in the introduction, there has been little work done on the soft connections between countries, embodied in diplomatic relations or the work of governments to forge linkages with countries that share a "political affinity." The concept of political affinity comes, quite logically, from the political science literature, and has been described as a bilateral relationship where there is a congruence of national interests in global affairs (Gartzke, 1998), with the higher the congruence, the higher the affinity. The concept of affinity has been utilized to underpin theories of the "democratic peace" (Ibid.), the empirical regularity that democracies may go to war, but they very rarely fight each other. Political research in this vein has also posited that countries which have more affinity for each other but are not necessarily democracies also tend not to fight with each other (Gartzke, 2007), are viewed more positively in each other's media (Neureiter, 2017), and are more likely to unite against countries without such an affinity (Gartzke and Weisiger, 2013).

As national interests are a difficult concept to quantify, political scientists have attempted to observe political affinity through country behavior in international organizations, focusing on how countries vote and if they vote in a similar manner to other countries: Gartzke (2000, 2007), in some of the most cited examples in this vein, used United Nations General Assembly (UNGA) voting data to show policy preference similarity and this has remained the key proxy for country affinity. International business in recent years has also adopted this approach from political science, with papers such as Bertrand et al. (2016) and Hasija et al. (2020) empirically testing the effects of political affinity on various firm outcomes, including internationalization, using UNGA voting patterns.

The drivers of political affinity have been somewhat more difficult to discern, however, with the assumption behind the political idea of affinity attributed mainly to similar political currents and structures across countries. In the words of Huth and Allee (2002:43), "The logical premise is that common political institutions and ideologies between states should help to produce shared political interests among those state's incumbent leaders. Therefore, leaders whose states share common political ties are more likely to view each

other as political allies." This idea has tracked neatly with the concept of "institutional distance" (Kostova, 1996; Xu and Shenkar, 2002) in international business, which would appear to be a tidier way to quantify which countries are likely to share affinities than merely using voting patterns in one international organization.[1] Asserting that "essentially, international management is management of distance" (Zaheer et al., 2012:19), institutional distance has been framed as providing "a broader view of national contexts, encompassing not only cultural but also regulatory and cognitive elements…Institutional distance also allows the capturing of the dynamic aspects of context, reflecting important institutional changes in countries throughout the world" (Kostova et al., 2020:468). More importantly institutional distance can also signal the "foreignness" of a firm and whether or not that is a liability or a plus (Lu et al., 2021), as well as forming a basis for examining different modes of entry (James et al., 2020) or then creating tensions across subsidiaries of the same firm in different countries (Kostova and Zaheer, 1999).

However, we argue that this work in both political science and IB misses a crucial component, namely the way in which potential affinities are translated into actual policy. While one country's government may have an affinity for another country due to any number of reasons, they have to undertake active policies to create *political connectivity* between the two countries. For example, countries which may have low institutional distance (e.g. Muslim countries in the Middle East and North Africa) have no guarantee that their affinities will lead to policies which actually bring the countries closer. It is only through concerted efforts in foreign policy (encompassing trade and commercial policies) that political connectivity can be created, an operationalization of these affinities across the entire spectrum of interests. The shape these policies take can run on a continuum (Fig. 2) from full political integration (the strongest connectivity) through to formal alliances and international treaties (medium connectivity) and then finally to support in international organizations (the weakest) – as in the political science and IB literature, voting in favor of a particular country in the UN is slightly more than just a political affinity, as it requires a country's government to take an active stand. But such a vote is a low-cost, low-investment endeavor, whereas more active policies can help to construct a more durable connectivity, translating political affinity into policy and forging a connectivity that was not necessarily present beforehand.

At the firm level, there may be inherent benefits in a country's government seeking to increase political connectivity with another country. In the first instance, the explicit goal of connectivity may be to drive greater economic ties (Umana Dajud, 2013), and home governments may actively encourage commercial linkages with countries with which there is a pre-existing affinity or, crucially, an opportunity to build an affinity (Holtbrügge and Berning, 2018). As Li et al. (2018) note, diplomatic relations may help to grease the wheels of commerce and shape firm location decisions, diverting business to a more friendly locale; Lavallée and Lochard (2022) find that French diplomatic trips abroad send signals to the business community, resulting on average in 8 % greater French exports than before the trip. Such active connectivity may also come in handy in a world of increasing protectionism and economic nationalism, where government assistance is necessary to break into a particular market (Rammal et al., 2022).

It is also possible that a more powerful government will attempt to redirect businesses towards like-minded countries, with political pressure on firms to align themselves with the ruling party, a trait that Hartwell and Devinney (2022) have called "corporate political obligations." An example of this is the Eurasian Economic Union (EaEU), a geopolitical integration project originally suggested by Kazakhstan in the 1990s but pushed ahead by Vladimir Putin in Russia starting in 2010, which took hold just as trade among the five nations of the soon-to-be Union was at a nadir: before the first step to the EaEU, the Eurasian Customs Union, trade among Kazakhstan, Belarus, and Russia was at an all-time low and was trending lower (Kassenova, 2013). The entrance into the EaEU reversed this path, however, bringing Russian firms into Kazakhstan due to their newly found competitiveness (the Customs Union forced a highly uncompetitive external tariff on Kazakhstan), and aligning Kazakh, Belarusian, and Russian firms more closely together than they otherwise would have been.

Political connectivity may also encourage country linkages beyond mere trade or business-to-business partnerships, instead creating cultural and social goodwill and forging stronger bonds than through commerce alone (Moodysson and Jonsson, 2007). These more subtle channels may provide legitimacy for foreign firms and reduce the liability of foreignness (Li et al., 2013; Meyer et al., 2014) and create cognitive links between countries, perhaps aided by pre-existing links such as language or the experience of having been together in a country already (Annushkina and Colonel (2013) show this in the context of internationalization decisions of Russian firms). In this sense, active government policies may have actually taken care of a firm's nonmarket policies for them (Adarkwah and Benito, 2023), allowing them to overcome liability of foreignness at little cost.

The sum total of the effect of political connectivity may be to bind businesses closer to a country that they might not have a natural relationship with but where transaction costs or barriers have been lowered or support given by their own government to forge such linkages. In some instances, this may help businesses to overcome difficult external conditions by providing ready-made markets (and, perhaps, subsidies) and/or increasing volume in countries where "natural" affinities exist. At the same time, goodwill towards one country may result in ill will towards other countries perceived as not being politically connected. Duanmu and Urdinez (2018), studying China's Belt and Road Initiative, find that Chinese firms tend to invest more in countries with weak political proximity to the United States, forming what has been termed a "soft balance" to a perceived geopolitical rival. Even if money does flow to countries of different affinity, there can be a cost, as Dreher et al. (2015) find that foreign aid is less effective when it goes to countries which are not politically proximate (measured by ideology), mainly through increased transaction costs and reduced trust. Fuchs and Gehring (2017) back up this result by showing that cultural and political affinity results in higher sovereign debt ratings and thus lower costs of borrowing, meaning that less proximity represents a penalty for firms.

Such advantages conferred by political connectivity should be reflected in several channels, with the extant literature focusing on

[1] Empirically, this distance is often measured using a combination of regulatory, cognitive, and normative traits (Kostova et al., 2020) of a country in isolation, which is then compared to another country.

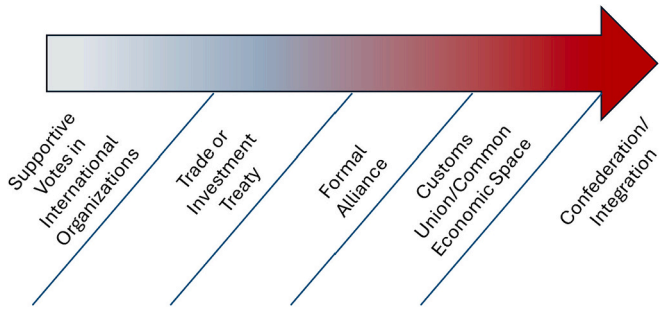

Fig. 2. The continuum of connectivity.

the performance of cross-border acquisitions (Bertrand et al., 2016; Fieberg et al., 2021; Bilgili et al., 2023). We argue that such benefits would also appear over the long run in a firm's valuation (Hasija et al., 2020; Lavallée and Lochard, 2022): while political connections are a favorite topic in the political economy of finance literature, especially with regard to political uncertainty, they are often focused on firms or individuals with ties to government, but the political connectivity forged by a home country's government should have a similar effect on stock returns due to access to resources and barriers to competition (Boubakri et al., 2012). Indeed, given an affinity which has been operationalized into a strong measure of connectivity, the cumulative effect of such connectivity could give a boost to a country's entire capital market, a rising tide which can raise all boats. In fact, an increase in connectivity need not be actualized in order to offer such an increase in stock market returns, so long as investors believe that the specific mode of connectivity will provide more business opportunities in the future, an effect which has been seen empirically with international treaties and trade agreements (Rodriguez, 2003; Eichler and Nauerth, 2023).

2.2. Life during wartime

These benefits of political connectivity are predicated on and have been tested in "normal" times, but little work has been done on what effect connectivity has when a crisis erupts, such as a war. Do the same benefits of political connectivity accrue or does the connection contain the potential to transmit – rather than mitigate – volatility?

A large number of papers across business, finance, economics, and economic history have established that conflict, in general, is bad for business (although not always, see Schneider and Troeger (2006)), and it can be especially bad for publicly traded firms in particular and financial markets in general (Brune et al., 2015). The reasons behind this effect move through various channels, including, and most importantly, uncertainty (Alesina et al., 1996): investors in financial markets thrive on certainty, and conflict often takes on a life of its own in generating uncertainty about outcomes, destruction, and disruptions in commerce (Brune et al., 2015). While the outbreak of war and its characteristics play a role in determining firm and capital market reactions, the course of war is as – if not more – important. For example, Hudson and Urquhart (2015), using event study and GARCH methods, show that critical inflection points during the Second World War were reflected in UK stock markets, with negative events in particular having an adverse effect in London on the day following the event, a similar result to Frey and Kucher (2000), who observed this effect in bond markets. On the other hand, the famous "war puzzle" has been observed in the US during the two World Wars, where stock volatility was far lower during the conflicts than in peacetime (Cortes et al., 2022). Even the end of a conflict can be perceived as a negative for some firms, as the circumstances surrounding a conflict can put in place barriers to entry which favor incumbents, and when the conflict ends, those barriers are likely to end as well (Guidolin and La Ferrara, 2007).

Thus, the effects of conflict on firms and filtering through to the stock market are by no means uniform and are often contingent on several attributes of the conflict, including if we are examining the stock market of a combatant (as in the Hudson and Urquhart (2015) work and in Abdelbaki (2013)), if the war was anticipated or not (Li and Sacko, 2002), and, perhaps most important for our examination, the extent of linkages between the country at war and the country of interest. The literature examining the linkages between countries, and how these contribute to or mitigate the effect of conflict, can be broadly placed into one of three categories: physical linkages (i.e., geographic proximity), hard linkages (business and trade connections), and, our area of interest, soft linkages (political proximity and affinities).

Physical proximity to a conflict is far and away one of the most examined transmission mechanisms of the business effect of war, as it represents the simplest linkage (geographic contiguity). The reasoning behind this linkage is at its heart a tale of gravity models, in that countries and firms tend to trade more with closer countries; thus, any political instability or conflict occurring closer to one's borders should have a more disruptive effect. Empirical evidence has borne out this assertion: for example, Federle et al. (2022) analyzed the ongoing Russian invasion of Ukraine and found proximity to be a significant negative for equity returns, with each thousand kilometers closer to the conflict resulting in a drop of 1.1 % in returns in the four weeks after the start of the conflict. Similarly, Boungou and Yatié (2022) found that countries more proximate to Ukraine saw a drop in their equity markets 8.6 times larger than those more distant. Historically as well, Verdickt (2020) found that proximity to conflict was a key negative determinant of equity movements in pre-World War I Europe.

Beyond the reality of being physically joined to "thy neighbor's curse" (Ades and Chua, 1997), other facets of international connectivity may spread the uncertainty connected with conflict. So-called "hard" linkages such as trade, financial flows, and/or value

chains and business connections, are an obvious way via which uncertainty can be transmitted to businesses (Schneider and Troeger, 2006). While small-scale political disputes may not deter businesses from changing their international linkages (Davis and Meunier, 2011), the institutional breakdown that is open warfare can indeed have larger ramifications for firm operations and prospects. Physical destruction or closure of shipping and other transport lanes between two close trading partners can grind commerce to a halt (Anderton and Carter, 2001; Glick and Taylor, 2010), while Blomberg and Hess (2006), considering terrorism as well as external conflict, find that the presence of violence acts effectively as a 30 % tariff on trade in terms of its impact, a substantial and across-the-board disruption for exporting firms. Trade and investment linkages need not necessarily be between a country and a combatant for there to be substantial business disruption, especially in the case of smaller countries more reliant on larger, developed countries; as Zhang and Hamori (2022) show for major emerging markets, geopolitical risks can filter across economies due specifically to non-country-specific global interconnections, and Zadorozhna et al. (2023) also make the point that conflict can have impacts on firms in unaffiliated countries through the disruption of institutions crucial to commerce. Indeed, the policies accompanying war (i.e., sanctions) can also disrupt global supply chains and make it harder to conduct business (Crozet and Hinz, 2020).

However, to answer the question posed at the beginning of this section, political connectivity may also function as a transmission belt of conflict-related uncertainty. The political science/international relations literature also is rather silent on the effect of country-to-country political connections on business or capital markets during a war, but we posit that firms moving towards markets solely because of political affinity may create additional problems, including subjecting them to shocks and/or geopolitical risk which may not have existed before. In this scenario, capital markets would thus be importing idiosyncratic risk from another market, substituting it for (or adding to) home market risks. Gartzke et al. (2001:402) noted this vulnerability of capital markets to political shocks in proximate countries, stating "the more interdependent states become, the greater the effect on capital markets of small changes in political risk." Similarly, as Fishlow (1985) observed about the interwar period, political considerations could begin to expand until they become the greatest determinant of capital market integration, with "the foreign investments of their citizens [seen] not as private financial transactions, but as one of the instruments through which national destiny was achieved" (Feis, 1930: xxvi). An example of this is the aforementioned EaEU, where other routes for business were closed off (i.e., to the European Union), creating a decided lack of resilience within the non-Russian members (as Russian policies were adopted at the Union level, including the external tariff rates, see Hartwell (2023)). The effects of this somewhat forced integration have been seen during Russia's long war with Ukraine, where Kazakhstan has been hit by a series of unnecessary shocks due to its association with Russia and unrelated to economic fundamentals (Dabrowski, 2016; Gharleghi, 2019). In any event, the focus on politically determined routes would force firms away from following profit, arbitrage, returns, or any of the other traits which should drive investment.

Naturally, the exact effect on a country's capital markets would thus depend on to whom the affinity is shown and to whom the connections are created: are countries voting with, and encouraging business in, a relatively anodyne country such as Denmark or a higher-risk country like Iran? And more important for our purposes, what would the effect be if the politically connected partner entered into a conflict or was conflict prone? Under such an eventuality, we believe that the effects would also be conditioned on how the war was going: for Country X, politically connected to Country Y, capital markets would cheer when Country Y did well and/or good war-related news was revealed. On the other hand, capital markets in Country X (as well as in Country Y) would be harmed if bad war-related news concerning Country Y – battlefield reversals, loss of important equipment or territory, harsh sanctions imposed – were reported. Simply put, by tying a country and its business environment to another via political means, politicians will also have tied the fortunes of their capital markets to the success or failure of another country in a conflict.

3. Choosing sides in Eastern Europe

As hinted at in the last section, the roots of the Russian war on Ukraine go back to before the fall of the Soviet Union but its latest manifestation began in 2013, as the Maidan revolution was sparked by then-President of Ukraine Viktor Yanukovych suddenly abandoning a plan to sign an Association Agreement with the European Union (Götz, 2015) and instead announcing that Ukraine was joining the Russian-led Eurasian Economic Union. Feeling betrayed by this last-minute switch (and with a pervasive feeling in Kyiv that Putin had bribed Yanukovych to do it, see Svoboda (2019)), demonstrations erupted on Maidan Square in Kyiv, lasting every day for months until Yanukovych's police forces fired on unarmed protestors in February 2014 (Kudelia, 2014); despite a last-minute agreement brokered by the EU, Yanukovych fled Ukraine for Russia and the Ukrainian Parliament voted to remove him from office (McDougal, 2015).

Russia's response to this alleged "coup" was swift, setting in motion plans long formulated to "reclaim" Crimea (Solchanyk, 1996) with the appearance of "little green men" (Russian regular forces not wearing insignias) and an eventual mobilization and annexation of the peninsula. Similarly, Russia attempted to infiltrate the Donbas in the southeast of the country and even take Odesa, but regular Russian forces (aided by some locals) were eventually ground to a halt in Donetsk and Luhansk (Mitrokhin, 2015) after achieving some of their aims (Fox, 2022). A stalemate ensued but not without an enormous toll on human life: for example, the downing of Malaysian Airlines flight MH17 by Russians in July 2014 by Russian troops who mistakenly took it for a Ukrainian airplane (Tsybulenko and Francis, 2018). Over 2014 to January 2022, repeated incursions by Russian and Russian-backed troops resulted in a death toll of over 14,000 people, according to the United Nations, with the bulk of these occurring in 2014 and 2015 but fighting erupted sporadically along the line of contact. The so-called "Minsk Agreements" froze the conflict in place but did not stop the fighting, as Russia poured in military support in Donetsk and Luhansk.

On the morning of February 24, 2022, the forces of the Russian invasion swept aside any agreements and breached the Ukrainian frontier, launching a full-scale land war and taking the conflict to a new level. Meant to overwhelm the country's defenses and secure Kyiv in three days, the Russian military was held back by Ukrainian forces and Russia failed to capture Kyiv, Kharkiv, and other

objectives it appeared to have set out from the onset. While success was made in the south, using Crimea as a bridgehead, prizes such as Odesa remained out of reach. As the war passed its one-year anniversary and beyond, Ukrainian counter offensives reclaimed territory in the north and around the southern city of Kherson and were slowly making gains in the Donbas, while Russia expended men and material for months to capture the (now-destroyed) town of Bakhmut. Clearly the war was not unfurling as Russia had anticipated, as antiquated Soviet tactics and Western military support for Ukraine had forced several humiliating defeats for the Russian army (Dalsjö et al., 2022).

Throughout the long eight-year conflict, attempts to influence Russian behavior resulted in a series of sanctions from the West, as well as countersanctions from Russia, which increased volatility substantially in the Russian stock market (Ankudinov et al., 2017) and hastened the isolation of Russian stock markets from global equity trends in general (Nivorozhkin and Castagneto-Gissey, 2016). More importantly for our purposes, as a counterbalance to what Putin saw as a Western-dominated global system (Ziegler, 2018), Russia also sought to build international networks of support from politicians, parties, and particular countries, hoping to also sow division in the West (Larrabee et al., 2017). Outright funding and courting of far-right, far-left, and populist movements in Europe became *de rigueur* for the Kremlin (Conley et al., 2016; Weiss, 2020), while other individuals and parties went along with the projected image of Russia as an "international conservative power" holding firm against rising secularism in Europe (Diesen, 2020). This attempt to buy influence paid off handsomely, as projects like Nord Stream 2, of dubious economic value but of immense political value to Russia, were approved and even encouraged, while other efforts (such as pressure to lift sanctions) had less success (Karlsen, 2019).

The question of political proximity to Russia grew more important after the full-scale invasion of Ukraine, as it forced many countries to choose which side they were on. In Hungary, an EU Member State, populist authoritarian Viktor Orban had long been seen as a reliable ally for Russia (Orenstein and Kelemen, 2017), with even the invasion of Ukraine not shaking this view (Richardson, 2022). Serbia also has played a balancing act with the EU (as well as China and the US, see Hartwell and Sidlo (2017)) but has been much more likely to express pro-Russian sentiments, court Russian investment, and express disapproval of EU policies (Metodieva, 2019). Throughout Western Europe (and elsewhere), specific politicians have also expressed pro-Putin views, although their representativeness is questionable (e.g., Le Pen in France or Lorenzo Fontana in Italy). In general populist left- and right-wing parties have expressed support for or even admiration of Putin, including in the United States (Butt and Byman, 2020), and even in the EU, the business linkages between countries such as Cyprus and Russia have made it difficult for Cypriot politicians to come outright and condemn the invasion.

Undoubtedly, the geopolitical moves of Russia over the past decade have resulted in higher economic volatility, higher financial volatility, and massive disruptions for business in the area and globally. What we seek to understand is if markets which were associated with governments that allied with (or supported) the source of this volatility, the Russian Federation, gained or lost from their support. We eschew traditional hypotheses at this point to let the data do the talking because, theoretically, the effect could go in either direction: in terms of potential positives, closer linkages with Russia could cushion any losses resulting from volatility or closing of other markets in the West, especially through sanctions. On the other hand, being closely affiliated with a country with a high level of idiosyncratic risk could have generated transmission mechanisms which would not otherwise have been present, basically importing additional volatility because of Russia's own erratic behavior.

4. Model and data

4.1. Model

In order to study the business effects of political connectivity to Russia during the Russian invasion of Ukraine, we utilize several different estimation strategies. Our first approach is an event study, described by Campbell et al. (1997) and widely used in economics and finance (see, for example, MacKinlay, 1997; Guidolin and La Ferrara, 2010; Hudson and Urquhart, 2015; Abadie and Gardeazabal, 2003). Focusing on the broad-based stock market index of a country as a proxy for the effects of connectivity on firms, we estimate a standard market model, the most commonly used event study method. The market model compares an individual security or, in our case, a country's stock index against a benchmark index, attempting to isolate the effect of the particular event on the returns of the particular security (Armitage, 1995):

$$r_{it} = \alpha + \beta r_t^M + \varepsilon_{it} \tag{1}$$

where r_{it} is the logarithmic stock returns of index i on day t, and r_t^M is the return on the US S&P 500 index on day t, chosen as the main reference market index for the countries in our sample. Model parameters α and β are derived from the data and then used to predict abnormal returns, ε_{it}, over a specified event window relative to an estimation window set from 270 to 20 trading days before an event date. Several lengths of the event windows are used in this estimation, including (0;0), reflecting the event itself only, and (−1; +1), (−2; +2), (−5; +5), and (−10; +10) days relative to the event date. While shorter event windows are usually optimal for high frequency events that are unexpected (such as, missile strikes), the longer event windows capture investors' reactions if events are somewhat expected (such as the announcement of sanctions). Moreover, the longer event windows allow us to understand the dynamics of market reactions over a longer timeframe.

As a robustness check on this standard market model, we also use the constant mean model to derive abnormal returns, using the following specification:

$$r_{it} = \overline{r_i} + \varepsilon_{it} \tag{2}$$

where $\overline{r_i}$ are mean returns on index i. We use this model as a robustness check to make sure our results are not led by the exigencies of the S&P index and can be attributed to the effects of political connectivity. The constant mean model is also commonly used in event study modeling but, as it covers the entirety of a stock index's history in the estimation window, may give undue weighting to outliers and/or show higher variance (Wörtche and Nguyen, 2011). The results of the constant mean model are shown in the Appendices as additional information.

Daily stock market data to calculate returns for both models is taken from the Refinitiv database, covering the main stock indices of 34 countries from January 2, 2012, to August 19, 2022, plus the S&P 500 as a baseline. The sample includes all countries located in mainland Europe plus Turkey and Russia. Turkey has been included into the study as it is Ukraine's neighbor across the Black Sea and has close trade and political ties with both Russia and Ukraine. Moreover, it is an interesting case for our analysis as, even though Turkish President Erdogan condemned Russia's full-scale invasion and has supplied military aid to Ukraine, the country still keeps close trade connections with Russia. The list of countries along with the description of their stock indices may be found in Table A1 in the Appendices.

Both Models 1 and 2 are estimated with ordinary least squares (OLS) and generalized autocorrelated conditional heteroskedastic (GARCH), as a robustness check. The rationale for employing GARCH estimation is rooted in the potential presence of volatility clustering in stock market data. GARCH models may offer greater precision compared to OLS as they take into account this phenomenon. The results of these estimations are the same, however, and only OLS results are reported. GARCH results are available upon request.

Once we have the abnormal returns (AR), we calculate the cumulative abnormal returns (CAR) and the cumulative average abnormal returns (CAAR) over the various event windows:

$$CAR_{it} = \sum_{j=t_0}^{t} \varepsilon_{it} \text{ and } CAAR_t = \frac{1}{n}\sum_{i=1}^{n} CAR_{it} \tag{3}$$

While CAR measures the total impact of an event over the event window, CAAR captures the average impact of similar events related to the Russian invasion (described below). We test the significance of CAARs with an array of parametric and non-parametric tests including the t-test, Patell (following Patell (1976)), Boehmer (Boehmer et al., 1991), the generalized sign (following Cowan, 1992), and Wilcoxon (1945) tests. We do not, however, report the Corrado rank (Corrado and Zivney (1992)) and sign (Cowan (1992)) tests as they show inferior performance in the longer event windows like (−10; +10). Not all tests traditionally used in event studies offer the same precisions and performance, therefore, we use several of them to make sure our results hold true and are independent of the tests we perform.

As the second step in our estimation strategy, we perform a fixed effects panel regression with standard errors clustered at the country/index level of the following type:

$$\varepsilon_{it} = \gamma I_t + \delta Y_{it} + \theta_t + \lambda_i + \epsilon_{it} \tag{4}$$

where ε_{it} are abnormal returns for country/index i at time t.

The vector I_t is our variable of interest. In order to study the reaction of stock markets to war-related events, we created a timeline of the most important events connected to the Russian invasion of Ukraine from November 2013 until August 2022. These events are grouped into several discrete categories, which may have a different effect for countries depending on their political connectivity in our taxonomy. We classify war-related events following the taxonomy in Table 1.

A series of dummy variables are generated based on these event categories taking the value of one on the dates the specific events in each category have taken place, and zero otherwise. The dating of the events is taken from a number of sources, including the House of Commons (2023), ukraine.ua (2023), European Council (2023), and the US Department of the Treasury (2023). A detailed description of events and their categories may be found in Table A5 in the Appendices.

To control for other variables apart from the war which could plausibly affect stock markets, we include the vector Y_{it} in Eq. (4): this vector contains returns on US dollar exchange rates of national currencies for the countries in our sample (as a proxy for country risk and economic conditions) and an equally weighted index of returns on the main commodity futures such as wheat, corn, soybeans, natural gas, brent crude oil, Urals oil, and palladium (both exchange rates and commodities are taken from the Refinitiv database). These commodities are chosen as they are mostly traded by Russia and/or Ukraine, and therefore, are affected by the war the most. By controlling for them here, we strip out the trade-dependence channel which might be driving investor responses.[2] Finally, θ_t are time fixed effects. λ_i are country/index fixed effects, while ϵ_{it} is an error term.

The final step in our estimation strategy includes a series of country specific GARCH-type regressions to measure the impact on longer-term volatility and returns in financial markets surrounding the events connected to the Russian war on Ukraine. As in Model 4, the dependent variable is abnormal returns, but the model is utilized to generate volatility metrics to understand the behavior of investors surrounding Russian aggression. While the precise form of the model is dictated by the data, we utilize asymmetric EGARCH, GJR-GARCH, or APARCH specifications, which model volatility as a function of previous period (log squared) variance forecasts (the GARCH term, i.e. $log(\sigma_{i,t-1})^2$) and previous innovations (the ARCH term, i.e. $z_{i,t-j}$). The base model for volatility is thus:

[2] Summary statistics for the control variables can be found in Tables A2–A4 in the Appendices.

Table 1
War-related events, 2013–2022.

Type of event	Description	Expected effect
Sanctions	Announcement of any sanctions on Russia	Positive for Ukraine, negative for Russia
Positive news for Ukraine	Any news that can be construed as aiding Ukraine, including events related to Ukraine's integration with the EU or NATO or major Ukrainian military successes (such as the withdrawal of Russian troops from Northern Ukraine in Spring 2022).	Positive for Ukraine, negative for Russia
Negative news for Ukraine	Any news that can be construed as hindering Ukraine, for example, the occupation/annexation of Crimea and parts of the Luhansk and Donetsk regions, the opening of the Kerch Straits bridge to Crimea, the full-scale invasion of Ukraine, or the rejection of the no-fly zone over Ukraine by NATO.	Negative for Ukraine, positive for Russia
Political events	The signing of the Minsk agreements had a two-sided nature: on one hand, it led to less intensive frontline fighting, but on the other hand it also gave Russia time to prepare for the full-scale invasion.	Either positive or negative impact expected
Coverage of Russian missile strikes	Missile attacks by Russia including the ones that lead to civilian deaths.	Negative for Ukraine, positive for Russia
Coverage of Ukrainian missile strikes	Retaliatory or counter-offensive missile attacks by Ukraine of high visibility or success.	Positive for Ukraine, negative for Russia

$$ln\left(\sigma_{it}^2\right) = \omega_0 + \sum_{i=1}^{p} \zeta_i log\left(\sigma_{i,t-1}\right)^2 + \rho_{ij}\left(\sum_{j=1}^{q}\left(|z_{i,t-1}| + E|z_{i,t-j}|\right] + \varsigma z_{i,t-j}\right) + \gamma I_t + \eta Y_{it} \quad (5)$$

The advantage of these forms of GARCH modeling is that not only do they allow for the presence of additional control variables (shown above as the vector Y_{it}), but they also allow for a leverage effect, where bad news affects financial markets more than good news. This effect, found for all manner of macroeconomic news and events, is bound to be present in the geopolitical events we examine here (Smales, 2021). Based on the idiosyncrasies of this particular data and given the similarity in the various models noted above in their treatment of volatility shocks, post-estimation statistics such as the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) is used to determine which approach models the conditional volatility more effectively.

4.2. Measuring political connectivity

As noted above, the innovation in this paper comes from examining political connectivity, and thus it is crucial to define how such a concept of political "closeness" between a country and either Russia or Ukraine will be measured. While UN General Assembly voting is the preferred method for understanding political affinity, as noted above, we believe this to only be a first step in connectivity, and thus we fashion connectivity metrics from further along the continuum shown in Fig. 2. In line with the theory outlined above, we use several different methods to determine if a country is "pro-Ukraine" or "pro-Russia" during the timespan of our sample. Our first step is to analyze the Kiel Institute's "Ukraine Support Tracker" data (Trebesch et al., 2023) to distinguish between the countries that have helped Ukraine with extensive military and financial aid, and the countries that have pledged relatively less aid (or none at all). We then combine this data with recent Eurobarometer (2023) survey results to understand public opinion regarding support to Ukraine by each country and whether it is aligned with the actions of the government in that particular country. This work thus results in the creation of a Public Support Index that measures an average share of people that totally agree or tend to agree with the military, financial, and humanitarian support provided by their governments to Ukraine, as well as with imposing sanctions on Russia and agreeing that Russia is a security threat for their respective countries.

According to Fig. 3, the Baltic States and Poland are the top supporters of Ukraine, followed by the Nordic countries. For the countries least supportive of Ukraine we see Serbia, Turkey, Cyprus, Ireland, Hungary, Romania, Switzerland, France, Spain, and Italy - countries with strong pro-Russian voices in their political systems. Interestingly, Serbia, Macedonia, Cyprus, Bulgaria, Austria, Slovakia, Romania, Greece, Hungary, and Slovenia have the lowest values of the Public Support Index. These results are supported by a recent Pew Research Center (2023) survey on the share of people with favorable views of Russia in some of the countries in our sample. Not only there are big shares of people with a positive view of Russia in France, Hungary, Italy, and Greece (top red values in Fig. 3), but these shares have even increased in 2023 compared to 2022 (bottom red values in brackets in Fig. 3) when the war is still ongoing and there are almost daily reports of civilian deaths attributable to Russia. Turkey is an interesting case here as it has not pledged much official financial, military, or humanitarian support to Ukraine, but it has been helpful to Ukraine politically, securing the "Grain Deal" (i.e., lifting of the Russian blockade in 2022), and assisting in the release of Ukrainian defenders of the Azovstal plant in Mariupol.

As a further examination, we also look at the IMF (2023) trade statistics on exports and imports from/to Russia as well as at Russian outward FDI from (Bank of Russia (2023)) over time to see if business follows politics. Fig. 4 plots data for the countries that have pledged the most (Estonia, Latvia, Lithuania, and Poland) and those who have pledged the least (Cyprus, Hungary, Serbia, and Turkey) amount of support to Ukraine. We observe that there is a significant decrease in trade flows between Russia and "pro-Ukraine" countries (Poland, Baltic States, and, interestingly enough, Turkey) after 2014, when the war first started. There was a slight increase in both exports and imports in 2022 for the pro-Ukraine countries, but this may mainly be due to the expansion of demand following the end of the Covid pandemic. On the other hand, for more pro-Russian countries (Cyprus, Hungary, and Serbia), trade flows are rather constant over time.

Regarding Russian outward FDI flows, there is no Russian investment in the Baltic States and Poland, while they fluctuate between 35 and 50 % for Cyprus ("pro-Russian"), 7–11 % for Austria, and 7–18 % for the Netherlands ("neutral"). This data is supported by the

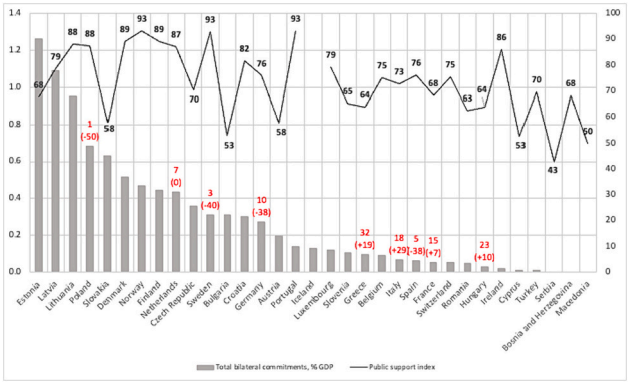

Fig. 3. Total bilateral commitments to Ukraine vs. public support, by country.
Notes: The figure displays bilateral commitments between January 24, 2022 and May 31, 2023 (the bars). The 2021 GDP level is used as a reference. The commitments include financial, military, and humanitarian support. The total bilateral commitments values are displayed on the left vertical axis. The numbers in red reflect the share of people who have a favorable view of Russia as of 2023 (the top value) and the 2022/2023 change of this variable (the bottom number in brackets), in %, according to the recent Pew Research Center (2023) survey. The data is available only for a subsample of countries. The public support index is an average share of "Total agree" answers to the following Eurobarometer (2023) questions: (1) To what extent do you agree or disagree with the EU financing the purchase and supply of military equipment to Ukraine as the response to Russia's invasion of Ukraine? (2) To what extent do you agree or disagree with the EU providing humanitarian support to the people affected by the war? (3) To what extent do you agree or disagree with the EU providing financial support to Ukraine as the response to Russia's invasion of Ukraine? (4) To what extent do you agree or disagree with the EU imposing economic sanctions on the Russian Government, companies, and individuals? (5) To what extent do you agree or disagree with the statement that Russia's invasion of Ukraine is a threat to the security of your country? The public support index values are displayed on the right vertical axis. The Eurobarometer (2023) data for Iceland is not available. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)
(Source: Trebesch et al. (2023), Eurobarometer (2023), and Pew Research Center (2023).)

ideal point distance measure (Bailey et al., 2017) that has been widely used in political science literature to measure the divergence in foreign policies between a pair of countries. The higher the difference, the more divergent political agendas those countries have. According to Fig. 4, Serbia, Turkey, Cyprus, and Macedonia have the most similar foreign policies with Russia, while Poland and the Baltic States tend to have the most divergent ones. Despite an increase in the ideal point distance with Russia in 2022 for all the countries, the general trend in cross-country comparison remains the same. Summary statistics of the trade and political connectivity variables may be found in Table A6 in the Appendices.

In general, the above analysis suggests that business does indeed follow politics in the sense that countries that have pledged more help to Ukraine against Russia tend to have less trade and a more divergent foreign policy with Russia. The countries that have not pledged any assistance or have only given marginal support to Ukraine tend to have closer trade and economic ties - as well as a similar foreign policy - with the Russian Federation. Considering the data displayed in Figs. 3 and 4, we thus split our database into the following subsamples based on their political connectivity to either Russia or Ukraine:

- "Most support to Ukraine" includes countries that have pledged at least 0.2 % of their GDP to Ukraine. These are Estonia, Latvia, Lithuania, Poland, Slovakia, Denmark, Norway, Finland, the Netherlands, Czech Republic, Sweden, Bulgaria, Croatia, and Germany. Cumulatively, these countries have pledged 82 % of all the military, financial, and humanitarian support to Ukraine among countries in our sample.
- "Least support to Ukraine" includes the remaining countries that cumulatively have pledged 18 % of total support to Ukraine among countries in our sample, with their individual contributions at <0.2 % of their GDP. Some of them, however, have not provided any support to Ukraine so far (e.g., Serbia).
- "Pro-Ukraine" countries include Estonia, Latvia, Lithuania, and Poland, the most vocal supporters of Ukraine on the international arena and which are at the top-end of the distribution of the support to Ukraine variable. These four countries alone are responsible for 16 % of the total support to Ukraine among countries in our sample.
- "Pro-Russia" countries include Hungary, Cyprus, and Serbia, which have cumulatively pledged only 0.14 % of total support to Ukraine among countries in our sample and have been in various ways supporting Russia openly even after the start of the invasion. These countries are located at the bottom-end of the distribution of the support to Ukraine variable.

This classification system will allow us to understand the differential impact of war-related events due to political connectivity.

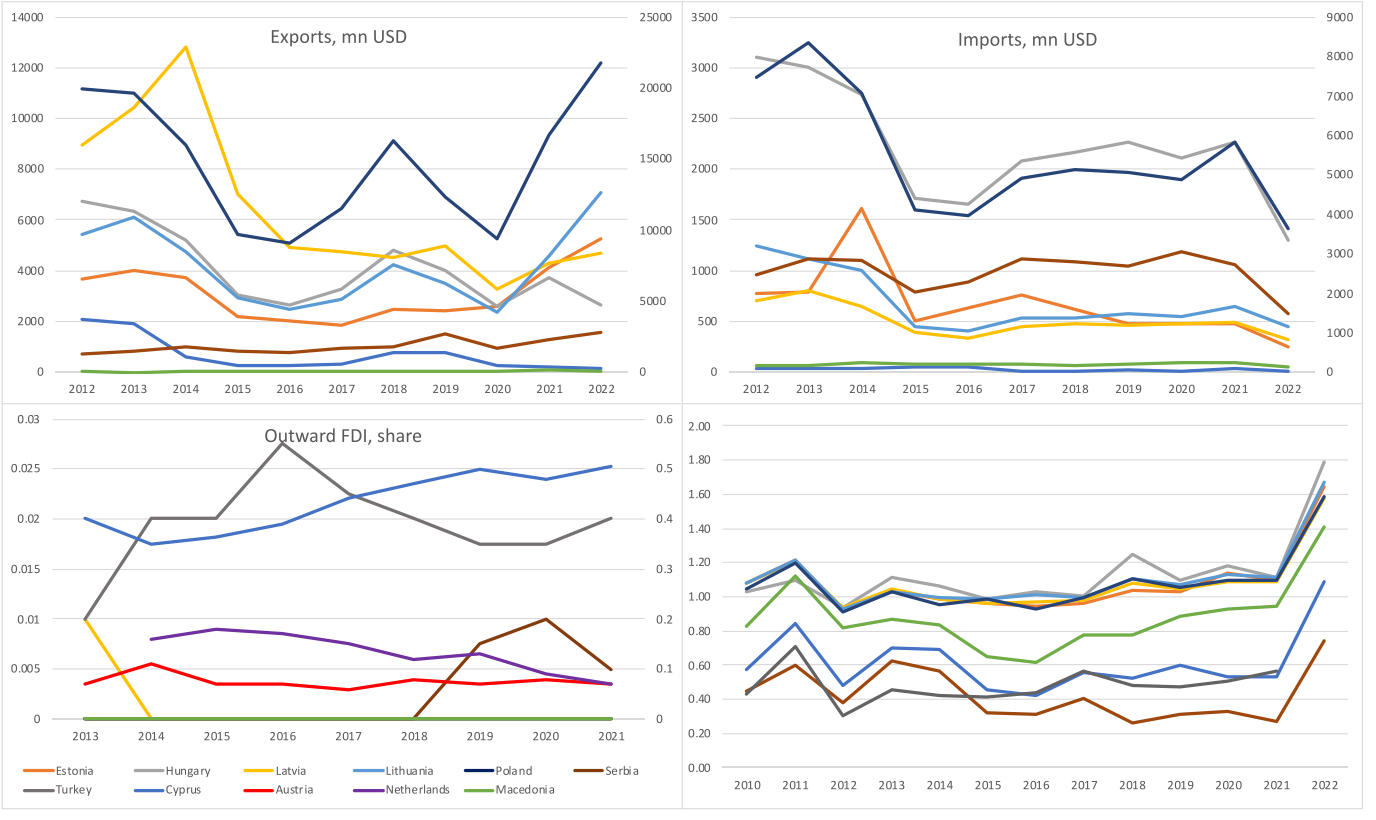

Fig. 4. Trade and political connectivity.
Notes: Exports and imports are from/to Russia. The series for Poland are plotted on the right-hand side vertical axis on the "Exports" and "Imports" plots, while the series for the rest of the countries are plotted on the left axis. The Outward FDI series for Cyprus, Netherlands, and Austria are plotted on the right-hand side axis, while the series for the rest of the countries are plotted on the left-hand side axis. "The Ideal Point Distance" plot shows the divergence in foreign policies between Russia and the countries in our sample. The higher the ideal point distance, the more divergent foreign policies between countries are. The Ideal Point Distance for Turkey in 2022 is not available.
(Source: IMF (2023), Bailey et al. (2017), Bank of Russia (2023).)

Table 2
CAAR of countries pledging at least 0.2 % GDP to Ukraine (most support to Ukraine) vs. the rest (least support to Ukraine).

Event	Event window	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox
		Most support to Ukraine						**Least support to Ukraine**					
Sanctions	(0;0)	-0.0013	0.018	0.001	0.037	0.130	0.257	-0.0020	0.000	0.000	0.000	0.092	0.036
Sanctions	(-1;1)	-0.0020	0.037	0.169	0.412	0.322	0.810	-0.0026	0.004	0.000	0.052	0.088	0.553
Sanctions	(-2;2)	-0.0046	0.000	0.000	0.067	0.030	0.167	-0.0065	0.000	0.000	0.001	0.000	0.016
Sanctions	(-5;5)	-0.0072	0.000	0.000	0.000	0.016	0.049	-0.0116	0.000	0.000	0.000	0.000	0.000
Sanctions	(-10;10)	-0.0058	0.022	0.094	0.365	0.011	0.102	-0.0073	0.003	0.733	0.861	0.044	0.200
Positive	(0;0)	-0.0002	0.661	0.443	0.519	0.332	0.705	-0.0008	0.112	0.015	0.051	0.207	0.234
Positive	(-1;1)	0.0000	0.997	0.417	0.597	0.662	0.906	-0.0005	0.564	0.692	0.820	0.743	0.721
Positive	(-2;2)	-0.0022	0.062	0.033	0.212	0.126	0.165	-0.0026	0.018	0.000	0.027	0.018	0.089
Positive	(-5;5)	-0.0073	0.000	0.000	0.000	0.008	0.001	-0.0096	0.000	0.000	0.000	0.000	0.000
Positive	(-10;10)	-0.0056	0.020	0.000	0.013	0.031	0.003	-0.0056	0.016	0.001	0.080	0.009	0.015
Negative	(0;0)	-0.0023	0.001	0.001	0.025	0.677	0.347	-0.0019	0.006	0.002	0.044	0.969	0.293
Negative	(-1;1)	-0.0002	0.878	0.204	0.397	0.510	0.537	0.0001	0.932	0.126	0.310	0.434	0.469
Negative	(-2;2)	-0.0043	0.007	0.000	0.006	0.032	0.192	-0.0040	0.008	0.000	0.037	0.054	0.478
Negative	(-5;5)	-0.0058	0.015	0.000	0.002	0.069	0.014	-0.0049	0.032	0.000	0.015	0.203	0.096
Negative	(-10;10)	-0.0137	0.000	0.000	0.000	0.000	0.000	-0.0092	0.004	0.000	0.002	0.008	0.043
Political	(0;0)	-0.0011	0.022	0.002	0.027	0.124	0.218	-0.0018	0.000	0.000	0.000	0.051	0.016
Political	(-1;1)	-0.0011	0.162	0.329	0.534	0.163	0.631	-0.0013	0.088	0.053	0.272	0.160	0.653
Political	(-2;2)	-0.0044	0.000	0.000	0.003	0.001	0.016	-0.0052	0.000	0.000	0.000	0.000	0.007
Political	(-5;5)	-0.0087	0.000	0.000	0.000	0.000	0.000	-0.0113	0.000	0.000	0.000	0.000	0.000
Political	(-10;10)	-0.0092	0.000	0.000	0.000	0.000	0.000	-0.0088	0.000	0.000	0.001	0.000	0.001
RU airstrikes	(0;0)	-0.0075	0.000	0.000	0.012	0.543	0.071	-0.0071	0.000	0.000	0.010	0.745	0.070
RU airstrikes	(-1;1)	-0.0092	0.000	0.000	0.000	0.034	0.043	-0.0103	0.000	0.000	0.000	0.003	0.021
RU airstrikes	(-2;2)	-0.0086	0.009	0.002	0.034	0.393	0.228	-0.0145	0.000	0.000	0.001	0.001	0.016
RU airstrikes	(-5;5)	-0.0127	0.014	0.003	0.023	0.153	0.087	-0.0159	0.001	0.000	0.006	0.351	0.028
RU airstrikes	(-10;10)	-0.0074	0.261	0.009	0.196	0.476	0.381	-0.0089	0.169	0.003	0.150	0.668	0.496
UA airstrikes	(0;0)	-0.0050	0.032	0.017	0.007	0.193	0.041	-0.0067	0.002	0.001	0.000	0.000	0.000
UA airstrikes	(-1;1)	0.0075	0.068	0.000	0.000	0.181	0.068	0.0059	0.106	0.000	0.000	0.010	0.113
UA airstrikes	(-2;2)	0.0077	0.250	0.010	0.001	0.196	0.142	0.0126	0.013	0.000	0.000	0.105	0.003
UA airstrikes	(-5;5)	-0.0122	0.106	0.018	0.108	0.193	0.150	-0.0097	0.179	0.016	0.133	0.047	0.236
UA airstrikes	(-10;10)	0.0037	0.769	0.011	0.262	0.673	0.803	0.0141	0.248	0.000	0.062	0.222	0.220

Notes: The table presents CAAR estimated with market adjusted Model 1 and calculated using Eq. (3). Color coding legend: red = negative CAARs; green = positive CAARs; darkest blue = p-values of the tests is below 0.01; medium blue = p-values of the tests is between 0.01 and 0.05; light blue = p-values of the tests is between 0.05 and 0.1. The significance tests are *t*-test, Patell, Boehmer, generalized sign, and Wilcox tests. The null hypothesis in all of them is CAAR = 0. Values in the test columns are p-values. The "Most support to Ukraine" sample includes countries that have pledged at least 0.2 % of their GDP to Ukraine according to Trebesch et al. (2023) data displayed on Fig. 2. These are Estonia, Latvia, Lithuania, Poland, Slovakia, Denmark, Norway, Finland, the Netherlands, Czech Republic, Sweden, Bulgaria, Croatia, and Germany. The "Least support to Ukraine" sample includes the remaining countries, except for Russia itself. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

5. Results

5.1. Event studies

With a sense of which countries have the most and least political connectivity to Russia (or Ukraine), we turn now to our estimations. As noted above, the first results come from the event study models, and Tables 2 and 3 present the CAARs and their statistical significance based on a variety of both parametric and non-parametric tests (CAARs are calculated using the market adjusted Model 1 as shown in Eq. (3)).[3] We present the results using our taxonomy of war-related events outlined in Table 1 over different lengths of the event windows for different sub-samples of countries based on the political connectivity to Russia and Ukraine. As just noted, the country samples are also split into the classification of "most supportive" and "least supportive" of Ukraine, and the results (shown in Table 2) suggest that the stock markets react to the Russian war in Ukraine events exactly the same in both sets of countries. That is, countries which made themselves closer to Russia had little to no benefit from their political connectivity; the only difference can be found in the ±1 day window for negative news for Ukraine, where Russian-connected countries see an increase in market values but at

[3] CAARs calculated based on the constant mean model are similar and may be found in Tables A7–A8 in the Appendices.

Table 3
CAAR of countries in "pro-Ukraine" vs. "pro-Russia" camp.

Event	Event window	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox
		Pro-Ukraine						**Pro-Russia**						**Russia**					
Sanctions	(0;0)	-0.0010	0.297	0.134	0.422	0.300	0.785	-0.0014	0.293	0.110	0.355	0.787	0.686	-0.0108	0.014	0.000	0.490	0.355	0.334
Sanctions	(-1;1)	-0.0031	0.063	0.084	0.329	0.675	0.918	-0.0029	0.212	0.074	0.353	0.647	0.594	-0.0288	0.000	0.000	0.103	0.264	0.279
Sanctions	(-2;2)	-0.0080	0.001	0.000	0.027	0.022	0.511	-0.0088	0.005	0.000	0.077	0.024	0.388	-0.0374	0.000	0.000	0.120	0.247	0.112
Sanctions	(-5;5)	-0.0113	0.001	0.000	0.001	0.002	0.124	-0.0175	0.000	0.000	0.001	0.069	0.170	-0.0308	0.079	0.235	0.360	0.016	0.013
Sanctions	(-10;10)	-0.0067	0.130	0.016	0.230	0.024	0.784	-0.0017	0.794	0.206	0.514	0.546	0.293	-0.0017	0.943	0.356	0.652	0.763	0.639
Positive	(0;0)	0.0014	0.103	0.163	0.277	0.948	0.307	0.0003	0.801	0.980	0.986	0.984	0.785	0.0053	0.215	0.204	0.572	0.515	0.712
Positive	(-1;1)	-0.0001	0.931	0.709	0.817	0.497	0.549	-0.0004	0.854	0.987	0.993	0.301	0.442	-0.0124	0.099	0.015	0.378	0.256	0.457
Positive	(-2;2)	-0.0054	0.014	0.000	0.059	0.087	0.278	-0.0044	0.136	0.004	0.191	0.231	0.717	-0.0165	0.104	0.006	0.215	0.134	0.169
Positive	(-5;5)	-0.0105	0.001	0.000	0.000	0.001	0.010	-0.0146	0.001	0.000	0.001	0.007	0.051	-0.0346	0.027	0.052	0.211	0.016	0.005
Positive	(-10;10)	-0.0076	0.066	0.000	0.044	0.014	0.085	-0.0007	0.916	0.947	0.971	0.796	0.647	-0.0040	0.858	0.682	0.843	0.903	0.439
Negative	(0;0)	-0.0054	0.000	0.000	0.020	0.480	0.148	-0.0015	0.431	0.173	0.392	0.646	0.760	-0.0344	0.000	0.000	0.159	0.324	0.156
Negative	(-1;1)	-0.0033	0.113	0.007	0.102	0.789	0.717	0.0006	0.851	0.439	0.642	0.591	0.842	-0.0255	0.004	0.000	0.130	0.109	0.258
Negative	(-2;2)	-0.0078	0.005	0.000	0.003	0.114	0.362	-0.0037	0.384	0.102	0.384	0.604	0.845	-0.0431	0.000	0.000	0.080	0.467	0.050
Negative	(-5;5)	-0.0123	0.003	0.000	0.003	0.003	0.046	-0.0062	0.332	0.003	0.243	0.301	0.464	-0.0219	0.256	0.318	0.657	0.545	0.146
Negative	(-10;10)	-0.0264	0.000	0.000	0.000	0.000	0.000	-0.0077	0.403	0.002	0.118	0.277	0.462	-0.0507	0.033	0.003	0.225	0.423	0.065
Political	(0;0)	-0.0011	0.163	0.048	0.252	0.367	0.715	-0.0011	0.360	0.114	0.316	0.645	0.715	-0.0102	0.003	0.000	0.323	0.389	0.307
Political	(-1;1)	-0.0026	0.061	0.067	0.276	0.711	0.754	-0.0017	0.402	0.431	0.663	0.742	0.729	-0.0210	0.000	0.000	0.134	0.147	0.385
Political	(-2;2)	-0.0091	0.000	0.000	0.001	0.001	0.062	-0.0063	0.023	0.000	0.086	0.147	0.496	-0.0294	0.000	0.000	0.088	0.650	0.158
Political	(-5;5)	-0.0139	0.000	0.000	0.000	0.000	0.001	-0.0167	0.000	0.000	0.000	0.004	0.027	-0.0253	0.054	0.062	0.306	0.047	0.016
Political	(-10;10)	-0.0139	0.000	0.000	0.000	0.000	0.003	-0.0041	0.497	0.072	0.330	0.346	0.981	-0.0212	0.242	0.036	0.370	0.592	0.067
RU airstrikes	(0;0)	-0.0117	0.000	0.000	0.145	0.634	0.911	-0.0059	0.123	0.019	0.362	0.121	0.605	-0.1303	0.000	0.000	0.285	0.367	0.273
RU airstrikes	(-1;1)	-0.0104	0.020	0.000	0.016	0.134	0.512	-0.0086	0.191	0.000	0.066	0.342	0.782	-0.0807	0.009	0.000	0.242	0.367	0.754
RU airstrikes	(-2;2)	-0.0045	0.434	0.550	0.620	0.691	0.758	-0.0191	0.022	0.000	0.038	0.014	0.358	-0.0231	0.554	0.125	0.348	0.367	0.286
RU airstrikes	(-5;5)	-0.0159	0.099	0.222	0.226	0.140	0.617	-0.0204	0.110	0.000	0.077	0.214	0.694	-0.0969	0.097	0.019	0.092	0.057	0.029
RU airstrikes	(-10;10)	-0.0055	0.636	0.143	0.507	0.153	0.731	-0.0039	0.829	0.855	0.942	0.834	0.865	0.0098	0.903	0.054	0.007	0.921	0.886
UA airstrikes	(0;0)	-0.0021	0.645	0.533	0.486	0.956	0.875	-0.0063	0.273	0.252	0.165	0.282	0.173	-0.0068	0.812	0.752	0.701	0.518	0.593
UA airstrikes	(-1;1)	0.0143	0.070	0.002	0.012	0.271	0.055	0.0093	0.350	0.055	0.031	0.355	0.387	-0.0256	0.609	0.669	0.634	0.518	0.441
UA airstrikes	(-2;2)	0.0183	0.297	0.134	0.004	0.191	0.166	0.0104	0.447	0.027	0.011	0.525	0.354	-0.0799	0.217	0.056	0.103	0.072	0.088
UA airstrikes	(-5;5)	-0.0078	0.587	0.484	0.544	0.527	0.639	-0.0299	0.138	0.023	0.084	0.137	0.208	-0.0943	0.326	0.318	0.315	0.072	0.166
UA airstrikes	(-10;10)	-0.0013	0.956	0.118	0.506	0.461	0.999	0.0151	0.698	0.356	0.470	0.049	0.527	0.2291	0.377	0.005	-	0.331	0.434

Notes: The table presents CAAR estimated with market adjusted Model 1 and calculated using Eq. (3). Color coding legend: red = negative CAARs; green = positive CAARs; darkest blue = p-values of the tests is below 0.01; medium blue = p-values of the tests is between 0.01 and 0.05; light blue = p-values of the tests is between 0.05 and 0.1. The significance tests are t-test, Patell, Boehmer, generalized sign, and Wilcox tests. The null hypothesis in all of them is CAAR = 0. Values in the test columns are p-values. The "Pro-Ukraine" sample includes Estonia, Latvia, Lithuania, and Poland. The "Pro-Russia" sample includes Hungary, Serbia, and Cyprus. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

a level of statistical insignificance.

Table 3 shows results over the same event windows and with the same events but with using our other metric to classify the connectivity of countries, focusing on the tail ends of the distribution. We also include in this Table results for Russia itself, the most pro-Russia and anti-Ukraine of the countries in our sample. Again, there seems to be no difference in investor reactions to Russian war events between the "pro-Ukraine" and "pro-Russia" samples. However, the magnitude of reaction of Russian investors is (perhaps not surprisingly) more than ten times as high as the reaction of the participants of other stock markets. For example, on the days when sanctions are announced or when Russian airstrikes take place, the Russian CAARs are 11 times as low as the CAARs in either "pro-Ukraine" or "pro-Russia" samples, suggesting that Russian investors do perceive these events more negatively than investors of other markets.

In order to account for the intensity of the war before and after the full-scale invasion of Ukraine, we also split the sample into before/after February 24, 2022. These results are presented in Tables 4–7, while the results for CAAR calculated based on the constant mean model may be found in Tables A9–A12 in the Appendices. While results for the most/least support to Ukraine samples in Tables 4 and 6 show that investors' reactions to the war events was fairly similar, we find many differences in market reactions in the "pro-Ukraine" vs. "pro-Russia" samples in Table 5, i.e., before the full-scale invasion. In the "pro-Ukraine" sample, CAARs tend to be negative and significant in the longer event windows ((−5; +5) and (−10; +10)) for almost all events. In the "pro-Russia" sample we see more positive CAARs related to Russian military action and/or negative news for Ukraine, but these are uniformly insignificant. Russian investors tend to have negative and significant reactions to the war events in the shorter event windows and their reaction, again, has a larger magnitude when compared to either "pro-Russia" or "pro-Ukraine" samples. In the pre-invasion era, it does appear that connectivity to Russia afforded some modicum of cushioning, as markets connected to Ukraine saw significant negative returns while pro-Russia countries saw no negative consequences. However, an interesting observation is that in all countries (except for Russia) after the full-scale invasion, presented in Tables 6 and 7, markets have a positive and significant reaction to Ukrainian

Table 4
CAAR of countries pledging at least 0.2 % GDP to Ukraine (most support to Ukraine) vs. the rest (least support to Ukraine). Sample **before** February 24, 2022.

Event	Event window	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox
		Most support to Ukraine						**Least support to Ukraine**					
Sanctions	(0;0)	0.0003	0.660	0.569	0.552	0.762	0.804	0.0001	0.865	0.948	0.952	0.581	0.429
Sanctions	(-1;1)	-0.0004	0.731	0.046	0.136	0.573	0.428	0.0004	0.765	0.028	0.159	0.567	0.535
Sanctions	(-2;2)	-0.0013	0.438	0.010	0.067	0.633	0.462	-0.0012	0.438	0.046	0.192	0.147	0.809
Sanctions	(-5;5)	-0.0021	0.376	0.002	0.073	0.189	0.655	-0.0036	0.109	0.001	0.101	0.322	0.877
Sanctions	(-10;10)	-0.0069	0.036	0.000	0.014	0.010	0.322	-0.0065	0.039	0.058	0.303	0.102	0.234
Positive	(0;0)	-0.0005	0.456	0.642	0.603	0.072	0.154	-0.0004	0.467	0.504	0.512	0.201	0.067
Positive	(-1;1)	0.0003	0.781	0.101	0.204	0.443	0.938	0.0011	0.333	0.029	0.146	0.601	0.879
Positive	(-2;2)	-0.0018	0.237	0.704	0.772	0.131	0.306	-0.0008	0.561	0.989	0.993	0.027	0.174
Positive	(-5;5)	-0.0024	0.282	0.000	0.028	0.206	0.381	-0.0034	0.098	0.000	0.037	0.107	0.098
Positive	(-10;10)	-0.0071	0.020	0.000	0.001	0.016	0.014	-0.0068	0.020	0.000	0.008	0.003	0.003
Negative	(0;0)	0.0015	0.059	0.049	0.052	0.001	0.005	0.0015	0.064	0.021	0.032	0.009	0.024
Negative	(-1;1)	0.0028	0.044	0.032	0.105	0.761	0.059	0.0026	0.055	0.023	0.107	0.746	0.132
Negative	(-2;2)	-0.0035	0.055	0.026	0.065	0.038	0.190	-0.0013	0.458	0.993	0.995	0.347	0.990
Negative	(-5;5)	-0.0034	0.205	0.119	0.295	0.410	0.105	-0.0001	0.979	0.400	0.631	0.756	0.964
Negative	(-10;10)	-0.0117	0.003	0.000	0.000	0.000	0.000	-0.0057	0.136	0.000	0.018	0.121	0.179
Political	(0;0)	-0.0007	0.225	0.286	0.263	0.124	0.135	-0.0011	0.046	0.036	0.040	0.028	0.003
Political	(-1;1)	0.0010	0.303	0.016	0.065	0.742	0.347	0.0017	0.075	0.001	0.020	0.779	0.259
Political	(-2;2)	-0.0022	0.088	0.755	0.815	0.037	0.380	-0.0010	0.429	0.747	0.824	0.072	0.635
Political	(-5;5)	-0.0050	0.007	0.000	0.000	0.003	0.022	-0.0053	0.003	0.000	0.000	0.023	0.013
Political	(-10;10)	-0.0103	0.000	0.000	0.000	0.000	0.000	-0.0079	0.002	0.000	0.000	0.001	0.001
RU airstrikes	(0;0)	0.0051	0.025	0.015	0.000	0.016	0.003	0.0046	0.060	0.018	0.013	0.009	0.015
RU airstrikes	(-1;1)	-0.0039	0.323	0.388	0.336	0.064	0.451	-0.0062	0.129	0.016	0.023	0.102	0.036
RU airstrikes	(-2;2)	-0.0014	0.796	0.286	0.210	0.918	0.880	-0.0004	0.949	0.747	0.774	0.317	0.841
RU airstrikes	(-5;5)	-0.0017	0.827	0.655	0.699	0.915	0.673	0.0085	0.281	0.055	0.034	0.457	0.075
RU airstrikes	(-10;10)	0.0079	0.462	0.500	0.673	0.589	0.408	0.0131	0.253	0.421	0.611	0.457	0.145

Notes: The table presents CAAR estimated with market adjusted Model 1 and calculated using Eq. (3). Color coding legend: red = negative CAARs; green = positive CAARs; darkest blue = p-values of the tests is below 0.01; medium blue = p-values of the tests is between 0.01 and 0.05; light blue = p-values of the tests is between 0.05 and 0.1. The significance tests are *t*-test, Patell, Boehmer, generalized sign, and Wilcox tests. The null hypothesis in all of them is CAAR = 0. Values in the test columns are p-values. The "Most support to Ukraine" sample includes countries that have pledged at least 0.2 % of their GDP to Ukraine according to Trebesch et al. (2023) data displayed on Fig. 2. These are Estonia, Latvia, Lithuania, Poland, Slovakia, Denmark, Norway, Finland, the Netherlands, Czech Republic, Sweden, Bulgaria, Croatia, and Germany. The "Least support to Ukraine" sample includes the remaining countries, except for Russia itself. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

airstrikes, such as the sinking of the flagship Moskva or other retaliatory counterstrikes. In general, the geopolitical threshold crossed by Moscow on February 24, 2022, appears to have removed any insurance that connectivity to Russia conferred, as pro-Russian countries were just as negatively affected by war-related news as pro-Ukraine countries.

5.2. *Panel estimations*

These event studies allowed us to obtain abnormal returns for each country market in our sample, allowing us to move on to the panel modeling as shown in Eq. (4); the results of this specification is shown first in Tables 8 and 9, using our two different measures of connectivity to Russia (results for abnormal returns estimated using the constant mean Model 2 are similar and may be found in Tables A13–A14 in the Appendices). In Table 8, we have the countries which have given the most support to Ukraine in Columns 1 through 5 versus those who have given the least (Columns 6 through 10). Using our taxonomy of events over five event windows (day of the event and up to 10 days before and after), a few notable results stand out immediately. In the first instance, sanctions are not welcomed by investors whether or not they are tied to Russia or not, suggesting again that the insurance element of connectivity to Russia is not present (indeed, countries which support Ukraine least see a more persistent statistically significant effect [coefficient of

Table 5
CAAR of countries in "pro-Ukraine" vs. "pro-Russia" camp. Sample **before** February 24, 2022.

Event	Event window	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox
		Pro-Ukraine						**Pro-Russia**						**Russia**					
Sanctions	(0;0)	0.0001	0.914	0.833	0.827	0.446	0.784	-0.0007	0.693	0.781	0.803	0.514	0.530	-0.0254	0.049	0.000	0.626	0.916	0.799
Sanctions	(-1;1)	-0.0011	0.579	0.312	0.393	0.712	0.830	-0.0006	0.850	0.661	0.735	0.684	0.587	-0.0375	0.127	0.000	0.283	0.271	0.829
Sanctions	(-2;2)	-0.0034	0.218	0.818	0.862	0.490	0.923	-0.0018	0.666	0.901	0.933	0.340	0.887	-0.0273	0.444	0.443	0.410	0.131	0.259
Sanctions	(-5;5)	-0.0072	0.056	0.000	0.002	0.027	0.323	-0.0063	0.297	0.107	0.377	0.491	0.702	-0.0704	0.184	0.389	0.587	0.027	0.067
Sanctions	(-10;10)	-0.0046	0.385	0.018	0.256	0.067	0.995	0.0082	0.350	0.042	0.267	0.730	0.361	0.0029	0.971	0.083	0.186	0.641	0.718
Positive	(0;0)	-0.0007	0.508	0.660	0.622	0.110	0.222	-0.0008	0.644	0.698	0.709	0.453	0.458	0.0274	0.022	0.000	0.204	0.488	0.152
Positive	(-1;1)	-0.0015	0.408	0.555	0.615	0.778	0.651	0.0004	0.882	0.470	0.567	0.742	0.787	0.0078	0.726	0.498	0.603	0.197	0.789
Positive	(-2;2)	-0.0033	0.194	0.590	0.674	0.319	0.229	-0.0007	0.850	0.671	0.750	0.423	0.631	-0.0145	0.615	0.591	0.673	0.062	0.361
Positive	(-5;5)	-0.0068	0.052	0.000	0.001	0.037	0.046	-0.0040	0.477	0.139	0.336	0.178	0.393	-0.0745	0.100	0.142	0.303	0.004	0.022
Positive	(-10;10)	-0.0067	0.165	0.001	0.096	0.022	0.116	0.0030	0.705	0.727	0.851	0.423	0.698	-0.0004	0.996	0.178	0.269	0.917	0.595
Negative	(0;0)	-0.0007	0.579	0.480	0.597	0.486	0.774	0.0023	0.317	0.357	0.405	0.389	0.391	-0.1019	0.000	0.000	0.314	0.599	0.500
Negative	(-1;1)	-0.0008	0.719	0.430	0.615	0.937	0.977	0.0029	0.467	0.674	0.774	0.864	0.833	-0.0632	0.053	0.000	0.311	0.155	0.733
Negative	(-2;2)	-0.0102	0.001	0.000	0.001	0.061	0.101	0.0009	0.868	0.819	0.887	0.781	0.842	0.0194	0.713	0.183	0.299	0.944	0.794
Negative	(-5;5)	-0.0142	0.002	0.000	0.001	0.004	0.011	0.0027	0.731	0.820	0.930	0.640	0.738	-0.0320	0.684	0.912	0.954	0.284	0.407
Negative	(-10;10)	-0.0309	0.000	0.000	0.000	0.000	0.000	-0.0028	0.803	0.000	0.041	0.507	0.366	-0.0132	0.920	0.460	0.510	0.523	0.592
Political	(0;0)	-0.0013	0.135	0.168	0.205	0.127	0.170	-0.0015	0.312	0.254	0.271	0.243	0.196	-0.0202	0.121	0.000	0.652	0.603	0.508
Political	(-1;1)	-0.0011	0.495	0.703	0.764	0.782	0.905	0.0000	0.991	0.469	0.580	0.943	0.907	-0.0381	0.126	0.000	0.286	0.076	0.773
Political	(-2;2)	-0.0063	0.004	0.010	0.063	0.042	0.145	-0.0017	0.623	0.745	0.827	0.523	0.730	-0.0191	0.596	0.594	0.456	0.130	0.405
Political	(-5;5)	-0.0109	0.000	0.000	0.000	0.000	0.003	-0.0084	0.093	0.002	0.069	0.070	0.125	-0.0671	0.213	0.257	0.471	0.026	0.068
Political	(-10;10)	-0.0144	0.001	0.000	0.000	0.000	0.001	0.0010	0.888	0.126	0.393	0.504	0.537	-0.0332	0.680	0.800	0.681	0.637	0.349
RU airstrikes	(0;0)	0.0047	0.206	0.156	0.087	0.430	0.161	0.0069	0.392	0.337	0.128	0.143	0.138	-0.1648	0.000	0.000	0.320	0.531	0.593
RU airstrikes	(-1;1)	-0.0084	0.190	0.104	0.014	0.041	0.253	0.0055	0.690	0.595	0.631	0.744	0.570	-0.0875	0.032	0.000	0.348	0.531	0.767
RU airstrikes	(-2;2)	-0.0037	0.653	0.609	0.442	0.532	0.717	0.0144	0.421	0.556	0.607	0.744	0.459	0.0099	0.902	0.591	0.476	0.968	0.799
RU airstrikes	(-5;5)	-0.0125	0.383	0.368	0.105	0.118	0.277	0.0243	0.345	0.543	0.638	0.744	0.248	-0.1370	0.253	0.296	0.086	0.146	0.149
RU airstrikes	(-10;10)	-0.0048	0.781	0.759	0.724	0.183	0.799	0.0093	0.805	0.480	0.667	0.744	0.885	0.0381	0.816	0.111	0.000	0.968	0.892

Notes: The table presents CAAR estimated with market adjusted Model 1 and calculated using Eq. (3). Color coding legend: red = negative CAARs; green = positive CAARs; darkest blue = p-values of the tests is below 0.01; medium blue = p-values of the tests is between 0.01 and 0.05; light blue = p-values of the tests is between 0.05 and 0.1. The significance tests are t-test, Patell, Boehmer, generalized sign, and Wilcox tests. The null hypothesis in all of them is CAAR = 0. Values in the test columns are p-values. The "Pro-Ukraine" sample includes Estonia, Latvia, Lithuania, and Poland. The "Pro-Russia" sample includes Hungary, Serbia, and Cyprus. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

Table 6
CAAR of countries pledging at least 0.2 % GDP to Ukraine (most support to Ukraine) vs. the rest (least support to Ukraine). Sample **after** February 24, 2022.

Event	Event window	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox
		Most support to Ukraine						**Least support to Ukraine**					
Sanctions	(0;0)	-0.0035	0.000	0.000	0.007	0.047	0.051	-0.0049	0.000	0.000	0.000	0.050	0.009
Sanctions	(-1;1)	-0.0041	0.007	0.000	0.029	0.384	0.269	-0.0067	0.000	0.000	0.000	0.049	0.100
Sanctions	(-2;2)	-0.0088	0.000	0.000	0.001	0.006	0.012	-0.0138	0.000	0.000	0.000	0.000	0.000
Sanctions	(-5;5)	-0.0142	0.000	0.000	0.000	0.030	0.002	-0.0232	0.000	0.000	0.000	0.000	0.000
Sanctions	(-10;10)	-0.0044	0.276	0.004	0.114	0.353	0.236	-0.0083	0.029	0.085	0.409	0.239	0.439
Positive	(0;0)	0.0001	0.864	0.520	0.674	0.515	0.728	-0.0013	0.107	0.002	0.046	0.670	0.672
Positive	(-1;1)	-0.0005	0.753	0.468	0.693	0.815	0.983	-0.0028	0.040	0.001	0.106	0.911	0.586
Positive	(-2;2)	-0.0029	0.140	0.000	0.078	0.556	0.345	-0.0053	0.003	0.000	0.006	0.288	0.238
Positive	(-5;5)	-0.0142	0.000	0.000	0.000	0.008	0.000	-0.0191	0.000	0.000	0.000	0.000	0.000
Positive	(-10;10)	-0.0034	0.390	0.856	0.920	0.648	0.125	-0.0036	0.344	0.404	0.667	0.661	0.578
Negative	(0;0)	-0.0115	0.000	0.000	0.000	0.000	0.000	-0.0096	0.000	0.000	0.000	0.000	0.000
Negative	(-1;1)	-0.0070	0.003	0.000	0.002	0.096	0.162	-0.0059	0.007	0.000	0.000	0.054	0.352
Negative	(-2;2)	-0.0061	0.046	0.000	0.038	0.457	0.495	-0.0101	0.000	0.000	0.005	0.038	0.177
Negative	(-5;5)	-0.0125	0.012	0.000	0.000	0.033	0.034	-0.0165	0.000	0.000	0.000	0.064	0.007
Negative	(-10;10)	-0.0185	0.004	0.001	0.071	0.002	0.022	-0.0175	0.003	0.000	0.042	0.013	0.078
Political	(0;0)	-0.0019	0.028	0.000	0.055	0.638	0.559	-0.0035	0.000	0.000	0.001	0.818	0.210
Political	(-1;1)	-0.0058	0.000	0.000	0.008	0.045	0.056	-0.0079	0.000	0.000	0.000	0.003	0.020
Political	(-2;2)	-0.0091	0.000	0.000	0.000	0.003	0.008	-0.0142	0.000	0.000	0.000	0.000	0.000
Political	(-5;5)	-0.0168	0.000	0.000	0.000	0.000	0.000	-0.0249	0.000	0.000	0.000	0.000	0.000
Political	(-10;10)	-0.0068	0.095	0.445	0.649	0.097	0.065	-0.0110	0.004	0.945	0.972	0.030	0.146
RU airstrikes	(0;0)	-0.0132	0.000	0.000	0.001	0.018	0.001	-0.0116	0.000	0.000	0.001	0.045	0.002
RU airstrikes	(-1;1)	-0.0113	0.000	0.000	0.001	0.181	0.070	-0.0119	0.000	0.000	0.000	0.014	0.083
RU airstrikes	(-2;2)	-0.0111	0.006	0.000	0.007	0.288	0.182	-0.0194	0.000	0.000	0.000	0.002	0.009
RU airstrikes	(-5;5)	-0.0185	0.007	0.000	0.004	0.095	0.050	-0.0262	0.000	0.000	0.000	0.113	0.002
RU airstrikes	(-10;10)	-0.0136	0.098	0.000	0.101	0.234	0.191	-0.0183	0.020	0.000	0.071	0.325	0.138
UA airstrikes	(0;0)	-0.0050	0.032	0.017	0.007	0.193	0.041	-0.0067	0.002	0.001	0.000	0.000	0.000
UA airstrikes	(-1;1)	0.0075	0.068	0.000	0.000	0.181	0.068	0.0059	0.106	0.000	0.000	0.010	0.113
UA airstrikes	(-2;2)	0.0077	0.250	0.010	0.001	0.196	0.142	0.0126	0.013	0.000	0.000	0.105	0.003
UA airstrikes	(-5;5)	-0.0122	0.106	0.018	0.108	0.193	0.150	-0.0097	0.179	0.016	0.133	0.047	0.236
UA airstrikes	(-10;10)	0.0037	0.769	0.011	0.262	0.673	0.803	0.0141	0.248	0.000	0.062	0.222	0.220

Notes: The table presents CAAR estimated with market adjusted Model 1 and calculated using Eq. (3). Color coding legend: red = negative CAARs; green = positive CAARs; darkest blue = p-values of the tests is below 0.01; medium blue = p-values of the tests is between 0.01 and 0.05; light blue = p-values of the tests is between 0.05 and 0.1. The significance tests are t-test, Patell, Boehmer, generalized sign, and Wilcox tests. The null hypothesis in all of them is CAAR = 0. Values in the test columns are p-values. The "Most support to Ukraine" sample includes countries that have pledged at least 0.2 % of their GDP to Ukraine according to Trebesch et al. (2023) data displayed on Fig. 2. These are Estonia, Latvia, Lithuania, Poland, Slovakia, Denmark, Norway, Finland, the Netherlands, Czech Republic, Sweden, Bulgaria, Croatia, and Germany. The "Least support to Ukraine" sample includes the remaining countries, except for Russia itself. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

−0.001, p-value <0.001] than those which support Ukraine more).

The results shown in Table 9 paint another interesting picture, with Russia affected by sanctions announcements one day following such announcements (coef. of −0.011, p-value of 0.005), but otherwise not at all for most other events (apart from an interesting positive response to positive news for Ukraine, the day of). "Pro-Ukraine" countries see an immediate negative reaction to sanctions but then positive reactions, especially at the 10th day out (coef. = 0.001, p > 0.001) while somewhat paradoxically show a positive reaction to Russian airstrikes 10 days out as well; we conjecture this is because a) airstrikes are a discrete event with a beginning and ending and b) airstrikes are just that, a strike from the air and not a signal of territorial gains on the ground. Finally, for the most part, "pro-Russian" stock markets follow the same pattern as "pro-Ukrainian" ones, apart from marginally significant positive reactions to political news two days after the fact and marginally significant negative reactions to Russian airstrikes (perhaps for the same reasons noted above). In any event, connectivity to Russia appears to have not insulated countries from the deleterious consequences of Russia's war.

To see if these results are different during the long war of attrition in the Donbas region versus the "hot war" since February 2022, as above, we split the sample into pre-invasion and post-invasion. Using the first classification scheme (based on pledges of support), Table 10 shows the effect of war-related events on both countries pledging support to Ukraine and those at the bottom of the table. Perhaps most striking is the fact that there is almost absolutely no difference between countries which, *ex post*, can be classified as "pro-Ukraine" to those which are classified as pledging the least support. The effects of sanctions are statistically and economically similar for both sets of countries, while the ramifications of different types of news bounce around somewhat erratically for both the most and least supportive countries. The only differences can be really seen on the day of various war-related events, with sanctions having a

Table 7
CAAR of countries in "pro-Ukraine" vs. "pro-Russia" camp. Sample **after** February 24, 2022.

Event	Event window	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox	CAAR	t-test	Patell	Boehmer	GenSign	Wilcox
		Pro-Ukraine						**Pro-Russia**						**Russia**					
Sanctions	(0;0)	-0.0027	0.115	0.010	0.333	0.484	0.837	-0.0025	0.229	0.031	0.357	0.711	0.893	-0.0254	0.049	0.000	0.626	0.916	0.799
Sanctions	(-1;1)	-0.0061	0.039	0.000	0.095	0.271	0.702	-0.0064	0.071	0.001	0.195	0.817	0.961	-0.0375	0.127	0.000	0.283	0.271	0.829
Sanctions	(-2;2)	-0.0133	0.000	0.000	0.006	0.008	0.286	-0.0185	0.000	0.000	0.047	0.018	0.221	-0.0273	0.444	0.443	0.410	0.131	0.259
Sanctions	(-5;5)	-0.0174	0.003	0.000	0.055	0.030	0.228	-0.0351	0.000	0.000	0.000	0.042	0.064	-0.0704	0.184	0.389	0.587	0.027	0.067
Sanctions	(-10;10)	-0.0097	0.206	0.354	0.626	0.187	0.795	-0.0175	0.092	0.643	0.824	0.602	0.857	0.0029	0.971	0.083	0.186	0.641	0.718
Positive	(0;0)	0.0047	0.004	0.006	0.106	0.063	0.017	0.0021	0.312	0.600	0.774	0.325	0.462	0.0274	0.022	0.000	0.204	0.488	0.152
Positive	(-1;1)	0.0019	0.499	0.895	0.950	0.466	0.222	-0.0017	0.617	0.383	0.713	0.209	0.574	0.0078	0.726	0.498	0.603	0.197	0.789
Positive	(-2;2)	-0.0083	0.031	0.000	0.047	0.138	0.646	-0.0097	0.031	0.000	0.188	0.357	0.768	-0.0145	0.615	0.591	0.673	0.062	0.361
Positive	(-5;5)	-0.0160	0.004	0.000	0.020	0.013	0.088	-0.0317	0.000	0.000	0.000	0.008	0.022	-0.0745	0.100	0.142	0.303	0.004	0.022
Positive	(-10;10)	-0.0092	0.225	0.039	0.255	0.293	0.434	-0.0076	0.466	0.734	0.849	0.495	0.553	-0.0004	0.996	0.178	0.269	0.917	0.595
Negative	(0;0)	-0.0181	0.000	0.000	0.008	0.013	0.005	-0.0104	0.002	0.000	0.085	0.634	0.079	-0.1019	0.000	0.000	0.314	0.599	0.500
Negative	(-1;1)	-0.0098	0.034	0.000	0.033	0.526	0.544	-0.0049	0.397	0.040	0.320	0.474	0.971	-0.0632	0.053	0.000	0.311	0.155	0.733
Negative	(-2;2)	-0.0022	0.706	0.085	0.366	0.972	0.524	-0.0143	0.046	0.001	0.157	0.170	0.473	0.0194	0.713	0.183	0.299	0.944	0.794
Negative	(-5;5)	-0.0059	0.553	0.205	0.528	0.355	0.889	-0.0279	0.012	0.000	0.007	0.240	0.289	-0.0320	0.684	0.912	0.954	0.284	0.407
Negative	(-10;10)	-0.0150	0.221	0.021	0.267	0.046	0.537	-0.0193	0.227	0.888	0.954	0.332	0.782	-0.0132	0.920	0.460	0.510	0.523	0.592
Political	(0;0)	-0.0006	0.703	0.134	0.573	0.507	0.412	-0.0002	0.916	0.255	0.635	0.355	0.629	-0.0202	0.121	0.000	0.652	0.603	0.508
Political	(-1;1)	-0.0062	0.035	0.000	0.096	0.276	0.704	-0.0058	0.107	0.012	0.333	0.616	0.907	-0.0381	0.126	0.000	0.286	0.076	0.773
Political	(-2;2)	-0.0146	0.000	0.000	0.003	0.003	0.203	-0.0160	0.001	0.000	0.051	0.099	0.381	-0.0191	0.596	0.594	0.456	0.130	0.405
Political	(-5;5)	-0.0207	0.000	0.000	0.026	0.002	0.094	-0.0364	0.000	0.000	0.000	0.013	0.047	-0.0671	0.213	0.257	0.471	0.026	0.068
Political	(-10;10)	-0.0127	0.103	0.007	0.098	0.068	0.509	-0.0163	0.116	0.345	0.633	0.492	0.787	-0.0332	0.680	0.800	0.681	0.637	0.349
RU airstrikes	(0;0)	-0.0227	0.000	0.000	0.064	0.984	0.272	-0.0117	0.008	0.001	0.251	0.374	0.722	-0.1648	0.000	0.000	0.320	0.531	0.593
RU airstrikes	(-1;1)	-0.0117	0.060	0.000	0.058	0.766	0.902	-0.0151	0.049	0.000	0.073	0.358	0.662	-0.0875	0.032	0.000	0.348	0.531	0.767
RU airstrikes	(-2;2)	-0.0049	0.532	0.265	0.429	0.983	0.563	-0.0344	0.000	0.000	0.009	0.006	0.099	0.0099	0.902	0.591	0.476	0.968	0.799
RU airstrikes	(-5;5)	-0.0180	0.175	0.392	0.480	0.515	0.969	-0.0427	0.005	0.000	0.024	0.201	0.186	-0.1370	0.253	0.296	0.086	0.146	0.149
RU airstrikes	(-10;10)	-0.0059	0.707	0.112	0.555	0.425	0.884	-0.0106	0.614	0.501	0.813	0.989	0.909	0.0381	0.816	0.111	0.000	0.968	0.892
UA airstrikes	(0;0)	-0.0021	0.645	0.533	0.486	0.956	0.875	-0.0063	0.273	0.252	0.165	0.282	0.173	-0.0068	0.812	0.752	0.701	0.518	0.593
UA airstrikes	(-1;1)	0.0143	0.070	0.002	0.012	0.271	0.055	0.0093	0.350	0.055	0.031	0.355	0.387	-0.0256	0.609	0.669	0.634	0.518	0.441
UA airstrikes	(-2;2)	0.0183	0.297	0.134	0.004	0.191	0.166	0.0104	0.447	0.027	0.011	0.525	0.354	-0.0799	0.217	0.056	0.103	0.072	0.088
UA airstrikes	(-5;5)	-0.0078	0.587	0.484	0.544	0.527	0.639	-0.0299	0.138	0.023	0.084	0.137	0.208	-0.0943	0.326	0.318	0.315	0.072	0.166
UA airstrikes	(-10;10)	-0.0013	0.956	0.118	0.506	0.461	0.999	0.0151	0.698	0.356	0.470	0.049	0.527	0.2291	0.377	0.005	0.419	-	-

Notes: The table presents CAAR estimated with market adjusted Model 1 and calculated using Eq. (3). Color coding legend: red = negative CAARs; green = positive CAARs; darkest blue = p-values of the tests is below 0.01; medium blue = p-values of the tests is between 0.01 and 0.05; light blue = p-values of the tests is between 0.05 and 0.1. The significance tests are t-test, Patell, Boehmer, generalized sign, and Wilcox tests. The null hypothesis in all of them is CAAR = 0. Values in the test columns are p-values. The "Pro-Ukraine" sample includes Estonia, Latvia, Lithuania, and Poland. The "Pro-Russia" sample includes Hungary, Serbia, and Cyprus. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

smaller positive impact, negative news for Ukraine having a slightly higher positive impact, and political events having a larger negative effect in the least supportive countries. Results using the other classification scheme for connectivity (Table 11) are similar, with the difference that sanctions are greeted positively and significantly by "pro-Ukraine" countries but have no significant effect on "pro-Russian" countries; in line with Table 10, the effect of political events are also more negative and more significant in "pro-Russian" countries than in "pro-Ukrainian" ones.

These results markedly change after the invasion, however, as sanctions have an immediate shock effect in countries with the most support to Ukraine but eventually turns positive five days out, while sanctions are seen as a negative in every window for least supportive countries apart from the ±5 day mark. Political news 10 days after the fact also is strongly positive for countries with the least support for Ukraine, and positive news for Ukraine is bad for the least supportive stretching out from the two-day mark onward. Table 13 replicates this sample using the pro-Ukraine/pro-Russia dichotomy, and finds very similar effects, with sanctions eventually affecting "pro-Ukraine" markets positively and "pro-Russian" markets negatively (apart from the 10-day mark, when the effect of sanctions might be seen). In sum, while connectivity to Russia may not result in overtly negative consequences for markets even during the war, neither does this connectivity appear to confer any advantages: indeed, countries friendly to Russia suffer the same consequences as those friendly to Ukraine, while the countries at the tail end of political connectivity to Russia see the most deleterious

Table 8
Effect of the war-related events on abnormal returns of countries pledging at least 0.2 % GDP to Ukraine (most support to Ukraine) vs. the rest (least support to Ukraine).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Event window	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)
Sample	Most support to Ukraine					Least support to Ukraine				
Sanctions	−0.001	−0.001**	−0.000**	−0.000	−0.000	−0.002***	−0.001***	−0.001**	−0.001***	−0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Positive	0.002***	0.003***	0.003***	−0.001*	0.000	0.003***	0.003***	0.003***	−0.001***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Negative	−0.003**	0.001	−0.000	0.000	−0.001***	−0.003***	0.001***	−0.000	0.001*	−0.001**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Political	−0.005**	0.002	0.001	0.001	−0.001**	−0.000	0.003*	0.002	0.001	−0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)
RU airstrikes	0.002	−0.000	−0.000	−0.000	0.000	0.002	−0.000	−0.000	0.000	−0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
UA airstrikes	−0.006***	0.002**	0.002***	−0.002***	−0.001**	−0.007***	0.001	0.002***	−0.002***	−0.000
	(0.002)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Exchange rate ret.	0.091	0.091	0.091	0.091	0.091	−0.058**	−0.058**	−0.058**	−0.059**	−0.058**
	(0.074)	(0.074)	(0.074)	(0.074)	(0.074)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
Commodity index ret.	−0.035***	−0.035***	−0.035***	−0.035***	−0.035***	−0.021***	−0.021***	−0.021***	−0.021***	−0.021***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Constant	−0.000***	−0.000***	−0.000***	−0.000**	−0.000	−0.000***	−0.000***	−0.000***	−0.000***	−0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	35,657	35,657	35,657	35,657	35,657	48,491	48,491	48,491	48,491	48,491
R-squared	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Index FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Clustered SE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust and clustered standard errors in parentheses. The estimation method is fixed effects panel regression. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market Model 1 estimated with OLS. The "Most support to Ukraine" sample includes countries that have pledged at least 0.2 % of their GDP to Ukraine according to Trebesch et al. (2023) data displayed on Fig. 2. These are Estonia, Latvia, Lithuania, Poland, Slovakia, Denmark, Norway, Finland, the Netherlands, Czech Republic, Sweden, Bulgaria, Croatia, and Germany. The "Least support to Ukraine" sample includes the remaining countries, except for Russia itself. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

Table 9
Effect of the war-related events on abnormal returns of countries in "pro-Ukraine" vs. "pro-Russia" camp.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Event window	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)
Sample	Pro-Ukraine					Pro-Russia					Russia				
Sanctions	−0.005***	−0.003**	−0.000	0.002**	0.001***	−0.005**	−0.006	−0.001	0.001	0.001**	−0.026	−0.011**	−0.004	0.002	0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.002)	(0.001)	(0.000)	(0.022)	(0.005)	(0.004)	(0.003)	(0.002)
Positive	0.016**	0.003	−0.001	−0.001	−0.002**	0.015*	0.005	0.000	0.001	−0.001	0.079*	0.014	0.005	−0.004	−0.000
	(0.004)	(0.001)	(0.001)	(0.001)	(0.000)	(0.005)	(0.002)	(0.002)	(0.003)	(0.001)	(0.045)	(0.009)	(0.007)	(0.004)	(0.002)
Negative	0.003**	−0.000	−0.001	−0.001	−0.002**	0.006	0.002	0.001	0.002	−0.001	0.015	−0.000	0.001	−0.000	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.000)	(0.003)	(0.001)	(0.018)	(0.004)	(0.004)	(0.002)	(0.002)
Political	−0.012*	−0.000	0.001*	−0.001	0.001	−0.010*	0.000	0.002*	−0.001	0.000	−0.054	−0.006	−0.003	0.001	0.000
	(0.004)	(0.001)	(0.001)	(0.001)	(0.000)	(0.003)	(0.000)	(0.000)	(0.001)	(0.001)	(0.034)	(0.006)	(0.006)	(0.003)	(0.002)
RU airstrikes	−0.010*	−0.002	−0.001*	−0.000	0.001***	−0.007	−0.002	−0.004*	−0.003*	0.000	−0.086	−0.015	−0.011	−0.012	−0.003
	(0.004)	(0.001)	(0.000)	(0.001)	(0.000)	(0.004)	(0.002)	(0.001)	(0.001)	(0.000)	(0.074)	(0.034)	(0.022)	(0.012)	(0.007)
UA airstrikes	−0.018**	0.002*	0.003*	−0.001	−0.000	−0.020*	−0.001	0.002	−0.003	−0.001	−0.086*	−0.013	−0.007	0.003	0.005
	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)	(0.006)	(0.002)	(0.003)	(0.002)	(0.001)	(0.046)	(0.015)	(0.015)	(0.009)	(0.007)
Exchange rate ret.	−0.040	−0.040	−0.040	−0.040	−0.040	−0.030	−0.032	−0.032	−0.030	−0.031	−0.639***	−0.667***	−0.668***	−0.674***	−0.674***
	(0.023)	(0.020)	(0.019)	(0.020)	(0.019)	(0.061)	(0.063)	(0.062)	(0.063)	(0.062)	(0.051)	(0.059)	(0.060)	(0.063)	(0.062)
Commod. ind. ret.	−0.023***	−0.023**	−0.023**	−0.023***	−0.023***	−0.027*	−0.025*	−0.026*	−0.026*	−0.026*	0.028	0.048	0.050	0.046	0.042
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.008)	(0.009)	(0.008)	(0.007)	(0.008)	(0.056)	(0.079)	(0.080)	(0.076)	(0.075)
Constant	−0.000**	−0.000*	−0.000	0.000	0.000	−0.000***	−0.001***	−0.001**	−0.001	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	10,234	10,234	10,234	10,234	10,234	7586	7586	7586	7586	7586	2526	2526	2526	2526	2526
R-squared	0.009	0.004	0.003	0.004	0.004	0.005	0.004	0.003	0.003	0.003	0.239	0.176	0.173	0.175	0.170
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Index FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Clustered SE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES^R	YES^R	YES^R	YES^R	YES^R

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. YES^R stands for robust standard errors. Robust and clustered standard errors in parentheses in panels 1–10, robust standard errors in panels 11–15. The estimation method is fixed effects panel regression in panels 1–10 and OLS in panels 11–15. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market Model 1 estimated with OLS. The "Pro-Ukraine" sample includes Estonia, Latvia, Lithuania, and Poland. The "Pro-Russia" sample includes Hungary, Serbia, and Cyprus. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

Table 10
Effect of the war-related events on abnormal returns of countries pledging at least 0.2 % GDP to Ukraine (most support to Ukraine) vs. the rest (least support to Ukraine). Sample **before** February 24, 2022.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Event window	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)
Sample	Most support to Ukraine					Least support to Ukraine				
Sanctions	0.004***	−0.002**	0.000	0.000	−0.000	0.003***	−0.002***	0.000	0.000	−0.000
	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Positive	0.001	0.001***	−0.001***	0.001*	−0.000	0.004***	0.001**	−0.001*	0.001**	−0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Negative	0.004***	0.000	−0.001***	0.000	−0.001**	0.005***	0.001	−0.000	0.001	−0.001**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)
Political	−0.005***	0.001	0.001***	−0.001***	0.000	−0.007***	0.001*	0.001***	−0.001***	0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
RU airstrikes	0.001	0.000	0.002**	0.001**	0.002***	−0.000	−0.001	0.001	0.002***	0.002***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Exchange rate ret.	0.101	0.101	0.102	0.101	0.101	−0.054**	−0.054**	−0.054**	−0.055**	−0.054**
	(0.072)	(0.072)	(0.072)	(0.072)	(0.072)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Commodity index ret.	−0.031***	−0.031***	−0.031***	−0.031***	−0.030***	−0.019***	−0.019***	−0.020***	−0.020***	−0.019***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Constant	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	34,014	34,014	34,014	34,014	34,014	46,257	46,257	46,257	46,257	46,257
R-squared	0.004	0.004	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.002
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Index FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Clustered SE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust and clustered standard errors in parentheses. The estimation method is fixed effects panel regression. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market Model 1 estimated with OLS. The "Most support to Ukraine" sample includes countries that have pledged at least 0.2 % of their GDP to Ukraine according to Trebesch et al. (2023) data displayed on Fig. 2. These are Estonia, Latvia, Lithuania, Poland, Slovakia, Denmark, Norway, Finland, the Netherlands, Czech Republic, Sweden, Bulgaria, Croatia, and Germany. The "Least support to Ukraine" sample includes the remaining countries, except for Russia itself. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

Table 11
Effect of the war-related events on abnormal returns of countries in "pro-Ukraine" vs. "pro-Russia" camp. Sample **before** February 24, 2022.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Event window	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)
Sample	Pro-Ukraine					Pro-Russia					Russia				
Sanctions	0.004**	−0.000	0.001**	0.001	0.001**	0.000	−0.003	−0.001	0.000	0.001*	0.000	−0.000	0.000	0.002	0.002
	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.004)	(0.003)	(0.003)	(0.003)	(0.002)
Positive	0.002	0.002*	−0.001	−0.000	−0.002**	0.008*	0.003	0.001	0.002	−0.001	0.007	0.002	−0.001	−0.004	−0.002
	(0.003)	(0.001)	(0.001)	(0.001)	(0.000)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)	(0.009)	(0.004)	(0.003)	(0.003)	(0.002)
Negative	0.002	0.000	−0.001	−0.001	−0.002**	0.007	0.001	0.001	0.003	−0.001	−0.005	−0.001	−0.002	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.005)	(0.002)	(0.002)	(0.003)	(0.001)	(0.006)	(0.004)	(0.003)	(0.002)	(0.002)
Political	−0.006*	−0.001	0.000	−0.000	0.001	−0.009**	−0.000	0.001	−0.002	−0.000	−0.011	−0.002	0.001	0.002	0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.011)	(0.005)	(0.004)	(0.003)	(0.002)
RU airstrikes	0.003*	−0.001	0.002	0.001	0.002**	0.001	0.003	0.003	0.002	0.002	−0.006	−0.002	−0.001	−0.002	0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.005)	(0.004)	(0.002)	(0.001)	(0.006)	(0.007)	(0.005)	(0.003)	(0.003)
Exchange rate ret.	−0.024	−0.024	−0.024	−0.023	−0.023	−0.004	−0.005	−0.004	−0.004	−0.004	−0.750***	−0.751***	−0.752***	−0.752***	−0.753***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.013)	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)
Commod. ind. ret.	−0.010	−0.010	−0.010	−0.010	−0.010	−0.012	−0.012	−0.013	−0.015*	−0.012	−0.030	−0.030	−0.030	−0.030	−0.031
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.006)	(0.006)	(0.005)	(0.004)	(0.006)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Constant	−0.000**	−0.000***	−0.000**	−0.000	0.000	−0.000***	−0.000**	−0.001**	−0.001*	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	9770	9770	9770	9770	9770	7240	7240	7240	7240	7240	2428	2428	2428	2428	2428
R-squared	0.004	0.003	0.003	0.003	0.004	0.004	0.003	0.004	0.004	0.003	0.230	0.227	0.227	0.228	0.227
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Index FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Clustered SE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES^R	YES^R	YES^R	YES^R	YES^R

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. YES^R stands for robust standard errors. Robust and clustered standard errors in parentheses in panels 1–10, robust standard errors in panels 11–15. The estimation method is fixed effects panel regression in panels 1–10 and OLS in panels 11–15. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market Model 1 estimated with OLS. The "Pro-Ukraine" sample includes Estonia, Latvia, Lithuania, and Poland. The "Pro-Russia" sample includes Hungary, Serbia, and Cyprus. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

Table 12
Effect of the war-related events on abnormal returns of countries pledging at least 0.2 % GDP to Ukraine (most support to Ukraine) vs. the rest (least support to Ukraine). Sample **after** February 24, 2022.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Event window	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)
Sample	Most support to Ukraine					Least support to Ukraine				
Sanctions	−0.002	−0.007***	−0.013***	0.007***	0.004***	−0.004***	−0.008***	−0.010***	0.006**	−0.007***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Positive	0.015**	0.001	−0.004***	−0.004**	–	0.016***	0.004***	−0.003***	−0.007***	−0.002***
	(0.006)	(0.002)	(0.001)	(0.002)		(0.004)	(0.001)	(0.001)	(0.001)	(0.001)
Negative	−0.004*	0.000	0.000	−0.002***	−0.004***	−0.001	0.002	0.000	0.001*	−0.004***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Political	−0.012**	0.006***	0.017***	−0.005***	–	−0.014***	0.003	0.012***	−0.004	0.009***
	(0.005)	(0.002)	(0.002)	(0.002)		(0.004)	(0.002)	(0.001)	(0.002)	(0.000)
RU airstrikes	−0.003	−0.004**	−0.004***	−0.001	0.001***	−0.005	−0.005**	−0.006***	−0.004***	0.000
	(0.003)	(0.002)	(0.001)	(0.001)	(0.000)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)
UA airstrikes	−0.020***	0.003**	0.007***	0.000	0.002**	−0.022***	0.001	0.007***	0.001	0.003***
	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)	(0.001)	(0.001)	(0.000)
Exchange rate ret.	−0.022	−0.027	−0.020	−0.032	−0.024	−0.134	−0.119	−0.118	−0.121	−0.119
	(0.148)	(0.129)	(0.128)	(0.132)	(0.133)	(0.155)	(0.148)	(0.147)	(0.148)	(0.149)
Commodity index ret.	−0.073**	−0.065**	−0.063*	−0.053*	−0.074**	−0.050***	−0.039**	−0.030	−0.020	−0.044**
	(0.028)	(0.029)	(0.029)	(0.028)	(0.029)	(0.017)	(0.017)	(0.018)	(0.017)	(0.017)
Constant	−0.000	−0.000	−0.000	0.003***	−0.003***	0.000	−0.000	−0.000	0.004***	−0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	1643	1643	1643	1643	1643	2234	2234	2234	2234	2234
R-squared	0.038	0.019	0.035	0.026	0.016	0.042	0.021	0.029	0.030	0.017
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Index FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Clustered SE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust and clustered standard errors in parentheses. The estimation method is fixed effects panel regression. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market Model 1 estimated with OLS. The "Most support to Ukraine" sample includes countries that have pledged at least 0.2 % of their GDP to Ukraine according to Trebesch et al. (2023) data displayed on Fig. 2. These are Estonia, Latvia, Lithuania, Poland, Slovakia, Denmark, Norway, Finland, the Netherlands, Czech Republic, Sweden, Bulgaria, Croatia, and Germany. The "Least support to Ukraine" sample includes the remaining countries, except for Russia itself. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

Table 13
Effect of the war-related events on abnormal returns of countries in "pro-Ukraine" vs. "pro-Russia" camp. Sample **after** February 24, 2022.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Event window	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)	(0;0)	(−1;+1)	(−2;+2)	(−5;+5)	(−10;+10)
Sample	Pro-Ukraine					Pro-Russia					Russia				
Sanctions	−0.002	−0.010***	−0.018***	0.008**	0.003**	−0.005	−0.018*	−0.011**	0.011	0.003**	0.020	−0.028*	−0.018	0.024*	−0.014
	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)	(0.004)	(0.005)	(0.002)	(0.012)	(0.001)	(0.036)	(0.015)	(0.017)	(0.014)	(0.026)
Positive	0.038**	0.005	−0.003*	−0.000	–	0.024*	0.005*	−0.006*	−0.012	–	0.234*	0.030	0.003	−0.044	−0.008
	(0.007)	(0.003)	(0.001)	(0.003)		(0.008)	(0.002)	(0.002)	(0.006)		(0.129)	(0.034)	(0.038)	(0.041)	(0.029)
Negative	−0.001	−0.001	−0.000	−0.003	−0.002	0.001	0.007	0.004	0.001	−0.004*	−0.011	−0.006	0.007	0.014	−0.017
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.004)	(0.001)	(0.001)	(0.009)	(0.009)	(0.016)	(0.015)	(0.020)
Political	−0.032**	0.005	0.021**	−0.008	–	−0.015	0.012**	0.017**	−0.004	–	−0.237*	−0.016	−0.003	0.008	0.006
	(0.007)	(0.002)	(0.004)	(0.004)		(0.009)	(0.003)	(0.002)	(0.014)		(0.130)	(0.029)	(0.029)	(0.044)	(0.039)
RU airstrikes	−0.009	−0.001	−0.004*	0.000	0.001	−0.006	−0.008**	−0.012	−0.007**	−0.000	−0.082	−0.011	−0.022	−0.046	−0.000
	(0.007)	(0.003)	(0.002)	(0.003)	(0.001)	(0.012)	(0.002)	(0.004)	(0.001)	(0.002)	(0.074)	(0.067)	(0.064)	(0.046)	(0.019)
UA airstrikes	−0.040**	0.004**	0.008***	−0.001	0.001	−0.029	0.004	0.009*	0.003	0.003**	−0.250*	−0.019	−0.005	0.020	0.026
	(0.007)	(0.001)	(0.001)	(0.001)	(0.001)	(0.011)	(0.003)	(0.002)	(0.003)	(0.000)	(0.131)	(0.034)	(0.039)	(0.043)	(0.038)
Exchan. rate ret.	−0.229	−0.217	−0.191	−0.215	−0.212	−0.219	−0.257	−0.253	−0.226	−0.245	−0.323**	−0.492**	−0.493**	−0.488**	−0.514**
	(0.216)	(0.133)	(0.099)	(0.117)	(0.121)	(0.364)	(0.354)	(0.355)	(0.349)	(0.359)	(0.152)	(0.191)	(0.195)	(0.234)	(0.195)
Commod. in. ret.	−0.111	−0.112	−0.110	−0.096	−0.112	−0.143**	−0.123*	−0.105	−0.090	−0.126*	0.201	0.514	0.564	0.566	0.494
	(0.066)	(0.072)	(0.073)	(0.070)	(0.072)	(0.030)	(0.039)	(0.042)	(0.047)	(0.039)	(0.299)	(0.607)	(0.642)	(0.559)	(0.553)
Constant	−0.000**	−0.001	−0.000	0.001	−0.003*	−0.001	−0.001	−0.000	0.004	−0.002	−0.001	0.001	0.004	0.009	0.006
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.002)	(0.001)	(0.004)	(0.005)	(0.006)	(0.008)	(0.014)
Observations	464	464	464	464	464	346	346	346	346	346	98	98	98	98	98
R-squared	0.130	0.041	0.063	0.039	0.028	0.066	0.061	0.059	0.058	0.034	0.481	0.151	0.148	0.161	0.135
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Index FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Clustered SE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES^R	YES^R	YES^R	YES^R	YES^R

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. YES^R stands for robust standard errors. Robust and clustered standard errors in parentheses in panels 1–10, robust standard errors in panels 11–15. The estimation method is fixed effects panel regression in panels 1–10 and OLS in panels 11–15. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market Model 1 estimated with OLS. The "Pro-Ukraine" sample includes Estonia, Latvia, Lithuania, and Poland. The "Pro-Russia" sample includes Hungary, Serbia, and Cyprus. *Sanctions, Positive, Negative, Political, RU airstrikes*, and *UA airstrikes* are dummy variables taking the value of one in the event window, and zero otherwise. The dummies are constructed based on Table A5. (0;0), (−1;+1), (−2;+2), (−5;+5), and (−10;+10) are event windows and reflect the number of days relative to the event date.

Table 14
Effect of the war-related events on abnormal returns of countries pledging at least 0.2 % GDP to Ukraine (most support to Ukraine). GARCH modeling for (−1;+1) event window.

Sample	**Most support to Ukraine**													
Country	Estonia	Latvia	Lithuania	Poland	Slovakia	Denmark	Norway	Finland	Netherlands	Czech Rep.	Sweden	Bulgaria	Croatia	Germany
Model	apGARCH	apGARCH	eGARCH	gjrGARCH_M	gjrGARCH	gjrGARCH	gjrGARCH	eGARCH-M	gjrGARCH	apGARCH	apGARCH	gjrGARCH	apGARCH	apGARCH_M
							Conditional mean							
Sanctions	0.001	-0.001	0.000	-0.002	-0.003	0.002	0.001	0.001	0.002	0.001	0.001	-0.003	-0.001	-0.001
	(0.002)	(0.002)	(0.008)	(0.002)	-0.003	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.005)	(0.002)
Positive	0.004	0.000	0.001	0.003	0.002	0.000	-0.002	-0.003	-0.002	0.003	-0.001	0.004	0.002	-0.001
	(0.003)	(0.003)	(0.000)	(0.002)	0.004	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.007)	(0.002)
Negative	0.001	-0.002	0.002	-0.001	0.000	0.002	0.001	0.000	-0.001	0.002	-0.001	0.002	0.001	0.000
	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.015)	(0.002)
Political	-0.004*	0.001	-0.001	-0.001	0.002	-0.002	0.002	0.002	0.000	-0.003	0.001	-0.001	-0.001	0.001
	(0.002)	(0.003)	(0.006)	(0.002)	-0.003	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.011)	(0.002)
RU airstrikes	-0.002	0.000	-0.005	0.000	-0.002	-0.004	-0.003	-0.001	-0.002	-0.007	-0.003	-0.004	0.003	-0.002
	(0.003)	(0.005)	(0.006)	(0.004)	(0.004)	(0.003)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.005)
UA airstrikes	0.010*	0.004	0.005	-0.003	-0.001	0.001	0.004	0.002	0.000	-0.001	-0.001	0.003	-0.001	-0.001
	(0.005)	(0.007)	(0.005)	(0.008)	(0.006)	(0.002)	(0.007)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.019)	(0.005)
Exchange rate returns	-0.138***	-0.128***	-0.073**	-0.003	-0.281***	0.214***	0.394***	-0.111***	-0.181***	0.132***	0.273***	0.121**	0.125	-0.178***
	(0.043)	(0.045)	(0.036)	(0.031)	-0.063	(0.061)	(0.043)	(0.015)	(0.054)	(0.040)	(0.046)	(0.049)	(0.221)	(0.058)
Commodity index returns	-0.036**	-0.032	-0.051***	-0.049**	-0.051	-0.036	-0.027	-0.0455*	-0.040	-0.026	-0.026	-0.0364*	-0.033	-0.031
	(0.018)	(0.022)	(0.017)	(0.019)	-0.03	(0.023)	(0.023)	(0.025)	(0.025)	(0.018)	(0.026)	(0.019)	(0.037)	(0.026)
							Conditional variance							
Sanctions	3.698***	1.092	0.540	1.342	-1.011	84.200	1.224**	0.526	9.865	3.011*	2.998***	12.370	67.170	389.100***
	(1.142)	(1.294)	(0.388)	(1.140)	(1.376)	(78.269)	(0.541)	(0.347)	(0.000)	(1.608)	(0.846)	(8.005)	(160.700)	(1.232)
Positive	2.362**	0.835	0.192	1.520	1.502*	0.281	12.300***	0.082	19.610	0.201	1.362	2.161	9.885	448.000***
	(0.936)	(1.190)	(0.292)	(1.920)	(0.834)	(0.745)	(1.626)	(0.269)	(0.000)	(1.168)	(1.329)	(6.303)	(25.790)	(1.627)
Negative	1.962**	2.146**	0.364**	2.229	-0.988	1.134	13.440	0.152	-0.608	1.648*	0.270	2.557**	-0.266	-0.894
	(0.789)	(0.861)	(0.182)	(1.451)	(1.954)	(0.759)	(0.000)	(0.169)	(3.792)	(0.913)	(1.393)	(1.145)	(8.214)	(4.812)
Political	-3.846***	-0.518	-0.471*	-1.045	0.383	-83.760***	-12.810***	-0.510**	-10.080***	-2.008*	-3.619***	-10.720	-11.870	-390.000
	(1.088)	(1.165)	(0.242)	(0.856)	(1.234)	(0.851)	(1.328)	(0.246)	(1.707)	(1.141)	(1.329)	(0.000)	(0.000)	(0.000)
RU airstrikes	-3.264*	-0.796	-0.267	-0.166	0.104	-249.100***	-0.010	0.231	1.394	1.454	0.836	-10.870	2.278	1.377
	(1.940)	(1.174)	(0.348)	(0.895)	(2.357)	(30.830)	(1.192)	(0.276)	(3.727)	(1.604)	(1.532)	(16.180)	(15.070)	(4.926)
UA airstrikes	-0.874	1.415	0.082	0.400	-0.707	-82.770***	2.318**	-0.268	-8.220***	1.885	-136.100	-118.800***	-89.250	-388.900***
	(1.540)	(1.119)	(0.461)	(1.422)	(1.260)	(1.295)	(1.030)	(0.476)	(1.664)	(1.827)	(0.000)	(35.100)	(176.000)	(1.363)
ARCH	0.265***	0.297***	0.075**	0.248***	0.186***	0.350***	0.284***	-0.0479*	0.410***	0.172	0.293***	0.189***	0.269	0.317***
	(0.051)	(0.060)	(0.038)	(0.045)	(0.061)	(0.060)	(0.044)	(0.029)	(0.063)	(0.115)	(0.038)	(0.045)	(1.271)	(0.038)
LEVERAGE	0.109**	0.043	0.508***	-0.134***	0.122	-0.103	-0.069	0.486***	-0.197***	-0.012	-0.115*	0.071	0.043	-0.165***
	(0.055)	(0.062)	(0.066)	(0.044)	(0.087)	(0.069)	(0.055)	(0.049)	(0.068)	(0.054)	(0.063)	(0.060)	(0.916)	(0.056)
GARCH	0.556***	0.590***	0.896***	0.773***	0.615***	0.558***	0.746***	0.992***	0.735***	0.531**	0.687***	0.770***	0.752	0.753***
	(0.079)	(0.107)	(0.120)	(0.085)	(0.112	(0.086)	(0.023)	(0.085)	(0.023)	(0.254)	(0.092)	(0.032)	(1.060)	(0.024)
GARCH-M				12.430***				0.557***						0.712
				(4.678)				(0.071)						(1.857)
Observations	2,570	2,551	2,553	2,560	2,525	2,514	2,530	2,530	2,583	2,569	2,529	2,539	2,550	2,554
Robust SE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
AIC	-16372	-15367	-16611	-16149	-14656	-14277	-14511	-14472	-14965	-16290	-14476	-15601	-16385	-14534
BIC	-16249	-15244	-16500	-16026	-14557	-14166	-14400	-14350	-14860	-16167	-14359	-15490	-16274	-14417

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors are in parenthesis. Estimation method is the GARCH-type modeling based on Eq. (5). The model chosen for each country exhibits the minimum AIC and BIC. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market model (1) estimated with OLS. Depending on the type of GARCH model, different ARCH and GARCH terms are represented in the table (e.g., for EGARCH). GARCH-M refers to GARCH in mean term. Constants not shown for space. The sorting of the countries appearing in the table is based on the amount of support they pledged to Ukraine, from left (the most support) to right (the least support).

Table 15
Effect of the war-related events on abnormal returns of countries pledging <0.2 % GDP to Ukraine (least support to Ukraine) and Russia. GARCH modeling for (−1;+1) event window.

Sample	**Least support to Ukraine**									
Country	Austria	Portugal	Iceland	Luxembourg	Slovenia	Greece	Belgium	Italy	Spain	France
Model	gjrGARCH	apGARCH	apGARCH	gjrGARCH	eGARCH	gjrGARCH	apGARCH_M	gjrGARCH	apGARCH	apGARCH_M
Conditional mean										
Sanctions	-0.004**	0.001	-0.001	0.001	-0.004	0.000	0.001	-0.001	-0.001	0.001
	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)
Positive	0.006***	-0.001	0.002	0.002	0.000	-0.002	0.002	-0.003	-0.002	-0.002
	(0.002)	(0.004)	(0.002)	(0.004)	(0.003)	(0.004)	(0.002)	(0.003)	(0.003)	(0.002)
Negative	-0.001	0.002	0.001	0.001	0.002	-0.002	0.000	0.001	0.000	0.000
	(0.002)	(0.003)	(0.002)	(0.002)	(0.000)	(0.003)	(0.001)	(0.002)	(0.002)	(0.002)
Political	-0.003	0.000	-0.001	-0.001	0.003*	0.002	-0.002	0.002	0.002	0.001
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)	(0.001)	(0.002)	(0.003)	(0.002)
RU airstrikes	0.001	-0.005	0.001	-0.006	-0.003	-0.003	0.001	-0.006	-0.004	-0.004
	(0.004)	(0.005)	(0.005)	(0.006)	(0.005)	(0.009)	(0.004)	(0.006)	(0.004)	(0.004)
UA airstrikes	-0.006	0.007	0.000	0.002	-0.002	0.005	-0.003	-0.001	0.004	0.002
	(0.004)	(0.007)	(0.006)	(0.007)	(0.006)	(0.005)	(0.003)	(0.006)	(0.007)	(0.005)
Exchange rate returns	-0.065	-0.137**	0.073	-0.099	-0.108	-0.118	-0.209***	-0.201***	-0.131**	-0.164***
	(0.046)	(0.062)	(0.0442)	(0.064)	(0.106)	(0.076)	(0.033)	(0.064)	(0.063)	(0.055)
Commodity index returns	-0.010	-0.026	-0.028	-0.043	-0.027	-0.033	-0.025	-0.020	-0.022	-0.029
	(0.019)	(0.028)	(0.0442)	(0.029)	(0.024)	(0.030)	(0.015)	(0.028)	(0.026)	(0.026)
Conditional variance										
Sanctions	1.643**	-0.119	3.286***	0.573	0.096	1.697	2.564	2.906**	4.107	23.730
	(0.685)	(1.811)	(1.105)	(0.918)	(0.261)	(1.831)	(2.000)	(1.336)	(19.300)	(18.276)
Positive	-0.757	1.666	0.941	0.293	0.282	-4.169*	-0.026	1.457*	4.605	33.450***
	(0.779)	(3.205)	(1.040)	(1.494)	(0.255)	(2.256)	(1.457)	(0.755)	(29.330)	(1.747)
Negative	0.514	-204.300	1.042	-0.235	0.081	44.570	0.330	-333.900	0.565	-0.289
	(0.506)	(0.000)	(0.665)	(0.803)	(0.132)	(0.000)	(1.146)	(0.000)	(2.689)	(2.967)
Political	-0.170	0.701	-3.203***	-0.373	-0.239	4.078	-1.151	-3.883***	-4.304	-24.940***
	(0.685)	(1.947)	(1.205)	(1.283)	(0.232)	(2.702)	(1.240)	(1.444)	(19.220)	(1.245)
RU airstrikes	0.632	204.700***	-0.575	0.819	0.436	5.263	1.478	333.000***	-5.057	0.540
	(0.836)	(0.938)	(1.222)	(1.323)	(0.319)	(0.000)	(1.310)	(2.650)	(15.110)	(3.128)
UA airstrikes	0.296	1.873	-0.985	-0.377	-0.244	-413.900***	-0.438	-2.911	-3.143	-96.860
	(1.155)	(1.406)	(1.883)	(4.764)	(0.367)	(119.800)	(1.674)	(1.858)	(20.240)	(78.129)
ARCH	0.302***	0.236***	0.158*	0.370***	0.087**	0.357***	0.349***	0.519***	0.260***	0.364***
	(0.051)	(0.043)	(0.089)	(0.072)	(0.034)	(0.055)	(0.057)	(0.087)	(0.047)	(0.048)
LEVERAGE	-0.079	-0.122**	0.021	-0.186**	0.427***	-0.107*	0.151**	-0.330***	-0.160***	-0.153***
	(0.067)	(0.049)	(0.072)	(0.081)	(0.055)	(0.065)	(0.077)	(0.087)	(0.053)	(0.050)
GARCH	0.453***	0.710***	0.424***	0.541***	0.910***	0.720***	0.352***	0.558***	0.738***	0.716***
	(0.124)	(0.107)	(0.115)	(0.114)	(0.099)	(0.026)	(0.082)	(0.093)	(0.072)	(0.028)

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors are in parenthesis. Estimation method is the GARCH-type modeling based on Eq. (5). The model chosen for each country exhibits the minimum AIC and BIC. The dependent variable is *Abnormal Returns* generated using the event study methodology based on the market model (1) estimated with OLS. Depending on the type of GARCH model, different ARCH and GARCH terms are represented in the table (e.g., for EGARCH). GARCH-M refers to GARCH in mean term. Constants not shown for space. The sorting of the countries appearing in the table is based on the amount of support they pledged to Ukraine, from left (the most support) to right (the least support).

consequences.[4]

5.3. GARCH modeling

These panel results can show averages across our categories of connectivity, but to shed further light on the country-specific effects, as a final test, we turn to the results of the GARCH modeling. As noted above, the benefit of a GARCH specification is that it will also allow us to see volatility effects, something which could be very important when considering the effect of connectivity; that is, connectivity, especially when done politically with an erratic country, may transmit direct effects to markets but may also transmit volatility, as the connected country receives the results of volatile and shifting policies (as shown in the large literature on monetary policy spillovers, see for example, Azad and Serletis (2022)). The specific type of GARCH model shifts for each country based on information criteria, but all of them are asymmetric in form, i.e., showing that bad news impacts markets more forcefully than good news.

As with the panel estimations, we break out connectivity by our two classifications, the most/least supportive and the actively pro-Ukraine/pro-Russian countries, and the results are shown in Tables 14 and 15 for the three day window around an event (i.e., −1 day to +1 day).[5] It is here that we can see most clearly the effects related to political connectivity on a country-by-country basis. In the first instance, our supposition about war-related events impacting markets through volatility appears vindicated, and in fact, the main effects on specific country markets move through the volatility channel instead of on the conditional mean. More importantly however the effects of all types of connectivity come out clearly: for countries which are geographically contiguous with Russia, war-related events have a powerful impact, as in the case of sanctions or negative news for Ukraine on Estonia or the impact of sanctions and positive news on Norway (Table 14). Similarly, countries with extensive trade links with Russia prior to the invasion also see significantly higher levels of volatility due to sanctions, most prominently seen in Germany but also with regard to the effect of Ukrainian airstrikes on volatility in the Netherlands.

However, the purpose of this paper is to examine the effect of political connectivity, and it appears there is a clear divide between most and least supportive countries (Table 14) or pro-Ukrainian and pro-Russian countries (Table 15). For countries such as Italy (which had some important trade links with Russia in 2021, but not in the top-5 of either country) and Iceland (with very little trade linkages), we can see significant increases in volatility related to sanctions on Russia; in a similar vein, France saw spikes in volatility related to positive news for Ukraine despite having very little of an economic relationship with Russia but a more prominent political relationship (Table 15). Perhaps most emblematic of political connections can be found in Serbia, a country which has had significant political connectivity to Russia but no other formal relationships, where volatility was significantly higher (coef. = 30.95, p-value <0.001) as a result of sanctions. Similarly, Turkey is the country which has probably fared the worst from the Russian invasion, with spikes in volatility accompanying sanctions announcements, political news, and Russian airstrikes (and drops in volatility for both positive and negative news for Ukraine). In this sense, Turkey's attempts to walk a fine line between Russia and Ukraine appear to have satisfied no one politically, as well as failing to satisfy Turkish markets.

6. Discussion and conclusions

This paper has examined the effects of political connectivity on financial markets in the wake of the Russian invasion of Ukraine since 2014, with an eye on exploring the differential effects on stock markets in either Russian-aligned or Russian-opposed countries. Using event studies, panel estimations, and GARCH volatility modeling, and using novel ways to measure connectivity beyond UNGA voting, our results confirmed our hypothesis that there is a dark side to political connectivity: being politically connected to Russia was not beneficial to a country's stock markets, especially given the Russian proclivity to military aggression since 2013 (the beginning of our sample, but not the beginning of this proclivity). In our event studies, there was little difference in the pre-war period between markets in countries not connected to Russia and those that were, while after the invasion markets which were closer to Russia saw more negative consequences from sanctions. Where effects appeared to really manifest, however, was in volatility, as countries geographically proximate to Russia understandably (and in line with theory) saw much higher volatility; more importantly, countries which were politically connected to Russia also saw much higher levels of volatility connected with war-related events than those which were less connected (or more connected with Ukraine). For countries such as Serbia, political connectivity imported volatility with no seeming benefits for firms in the country, meaning that the political and commercial benefits of such connectivity in the short run are questionable.

In spirit, this paper was similar to Hudson and Urquhart (2015), who examined the effect of war-related news on the UK stock market during the Second World War. While we set out with a similar goal, to understand how European financial markets respond to news about Russia's ongoing invasion of Ukraine, unlike the Second World War, which was fought as a series of theater-contained battles before 1939 and then was in open warfare for six years thereafter, the Ukrainian conflict has gone from invasion to frozen conflict to outright war over a period of eight years. More importantly, our work has been framed by the ideas of political affinity and political connectivity, moving beyond the mere response of capital markets to war-related news to understand how previous

[4] Results for the before/after the full-scale invasion of Ukraine by Russia for abnormal returns calculated using the constant mean Model 2 are similar to those presented in Tables 10–13 and may be found in Tables A15–A18 in the Appendices.

[5] The GARCH results for the event window (−2;+2) may be found in Tables A19–A22 in the Appendices. The GARCH results for longer event windows are similar and are available upon request.

government-to-government policies can harm a country's stock markets in a time of turbulence. Indeed, while previous work (e.g., Boungou and Yatié, 2022) attempted to show the effects of physical proximity to a conflict, our contribution has been to quantify for the first time the differential effect on stock markets from countries based on operationalized political affinity, i.e., political connectivity.

These results have several important policy implications for management and investors of MNEs, with the most obvious one being that firm management needs to consider their home country's foreign policy as another form of political risk, one which may become salient during international crises. While firms, and especially MNEs, may have developed internal processes to deal with host country risk, the advent of heightened geopolitical tensions means that firms may need to keep an eye on home country relations with other countries to stay ahead of exogenously inspired idiosyncratic risk. In the example shown here, countries which forged connections to Russia saw little benefit to broader markets from these connections and instead imported volatility to capital markets. In other situations, such as the souring relationship between the US and China, supply chains can be disrupted and connections broken, changing the landscape that a firm faces rather substantially. This new form of risk may be difficult for a firm to diversify away from: both the example of Russia and China show the problems which can accrue to an MNE which is already established in a country. On the other hand, for greenfield investment or joint ventures, understanding the political relations between home and host country needs to be added to the due diligence which firms undertake. In any event, international relations adds yet another wrinkle to doing business internationally.

Given this reality and the increasing importance of geopolitics for international management, the extensions from this work for international business and management are virtually limitless and can be either theoretical or empirical. As we touched upon in the introduction, the exogenous nature of the political risk conferred by political connectivity should have an effect on shaping the options available to a firm. That is, a government, acting in its own interest, can create opportunities in connectivity but also generate barriers, altering the environment that a firm operates in and circumscribing decisions or strategies. It would be useful for other scholars to take up this challenge and further develop theoretical models of the effect of such path dependence on firm strategy and operations. For example, the issue of "boundary spanning" in global organizations (Schotter et al., 2017) would likely be impacted by increasing connectivity driven by government and could also be thoroughly disrupted if state to state relations were severed, causing internal turmoil within a firm. Alternatively, the move towards MNEs replacing international connections with local ones (Lorenzen et al., 2020) may be reversed as a hedging mechanism against volatility created at the international level by government policies.

From an empirical perspective, replicating our analysis with firm-level data, and subjecting various theoretical channels to rigorous microeconomic examination would also be of use, using either this specific case (the Russian invasion of Ukraine) or other similar geopolitical shocks. We have already mentioned one of the largest potential shocks to the global economy, the de-coupling of China and the United States, and examining the effects of volatility in political connectivity (i.e., what happens when connections are forged and then broken) could also keep researchers busy for years. Supplementing this work with interviews and surveys on decisions being made in the boardroom would also help to highlight how firms deal with geopolitical risk.

In essence, however, the story told here of the Russian invasion of Ukraine is firmly one of a specific form of connectivity and in particular its dark side. By bringing in more insights from the political science and international relations literature on exactly how countries are connected to each other by their politicians and by their governments, we can have a more nuanced understanding of the environmental constraints and opportunities that firms face. This is critical in a world of rising geopolitical risks.

CRediT authorship contribution statement

Christopher A. Hartwell: Writing – review & editing, Writing – original draft, Visualization, Methodology, Investigation, Conceptualization. **Olha Zadorozhna:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Data curation, Conceptualization.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.intman.2024.101141.

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