Geopolitical risk dashboard

BlackRock

April 2022

Geopolitical Risks – April update

The Russian invasion of Ukraine is the largest, most dangerous military mobilization in Europe since WWII. It has upended the geopolitical order, with profound implications for financial markets and the global economy.

Indeed, our overall geopolitical risk indicator has spiked to its highest level in more than a year. This is driven by elevated market attention to conflict-related risks generally, and *Russia-NATO conflict* specifically. We see geopolitics as a key risk factor for the foreseeable future.

The Ukraine war is likely to drive geopolitical fragmentation and the emergence of blocs, in our view. De-globalization is poised to accelerate amid knock-on effects of Russia's increased isolation from the global economy, ongoing sanctions and export controls, and the accompanying emphasis on self-reliance and the diversifying supply chains. These forces are likely to reduce economic growth and increase inflation – and reverberate across the globe. Food and energy inflation, in particular, elevate the risk of social instability in emerging markets.

This month, we maintain the likelihood of a *Russia-NATO conflict* at a high level, even as the U.S. and its allies are working hard to prevent it. The conflict inside Ukraine is likely to last for an extended period, with on-and-off negotiations, ceasefires and breached stand-downs. The West is unlikely to lift sanctions on Russia anytime soon, in our view.

Our dashboard features both data-driven market attention barometers and judgment-based assessments of our top risks. We show market attention to each risk, assess the likelihood of it occurring over a six-month horizon and analyze its potential market impact.

We note three areas where market attention and our views diverge: *Gulf tensions*, *North Korea conflict* and *Climate policy gridlock*. In each instance, we believe markets are underappreciating the potential risks.

Our BlackRock Geopolitical Risk Indicators (BGRIs) track market attention to each risk using mentions in brokerage reports and financial news stories. They integrate the latest advancements in natural language processing and machine learning. This assessment helps determine when geopolitical risks start to appear on investor radar screens – and when they start fading. See our methodology for details.

We also have developed a market movement measure that we believe gives us insights into how asset prices are responding to risks. It integrates analysis from our Risk & Quantitative Analysis (RQA) team and its Market-Driven Scenarios (MDS) for each risk.

The gauge's score is base on how similar the market environment is to MDS' assumptions and how much MDS-related asset prices have moved over the past month. See the "How it works" section. We also list the three assets that we see as the key variables of each MDS.

We believe tracking geopolitical risks' market impact is as much an art as a science. We are continuously updating our risk scenarios and refining our methodologies. Our scenarios are hypothetical and do not reflect all possible outcomes as geopolitical risks are ever-evolving. Our market movement analyses are not recommendations to invest in any specific investment strategy or product.

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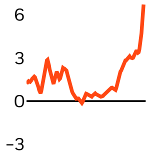
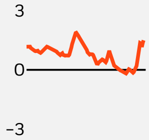
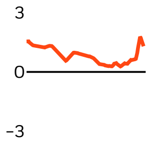
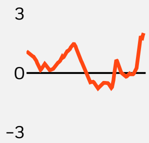
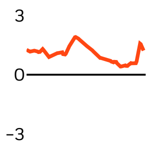
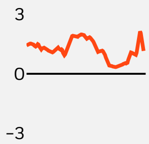
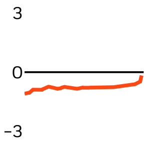
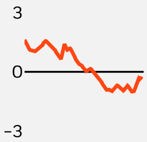
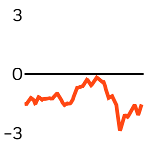
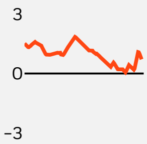
Top 10 risks by likelihood

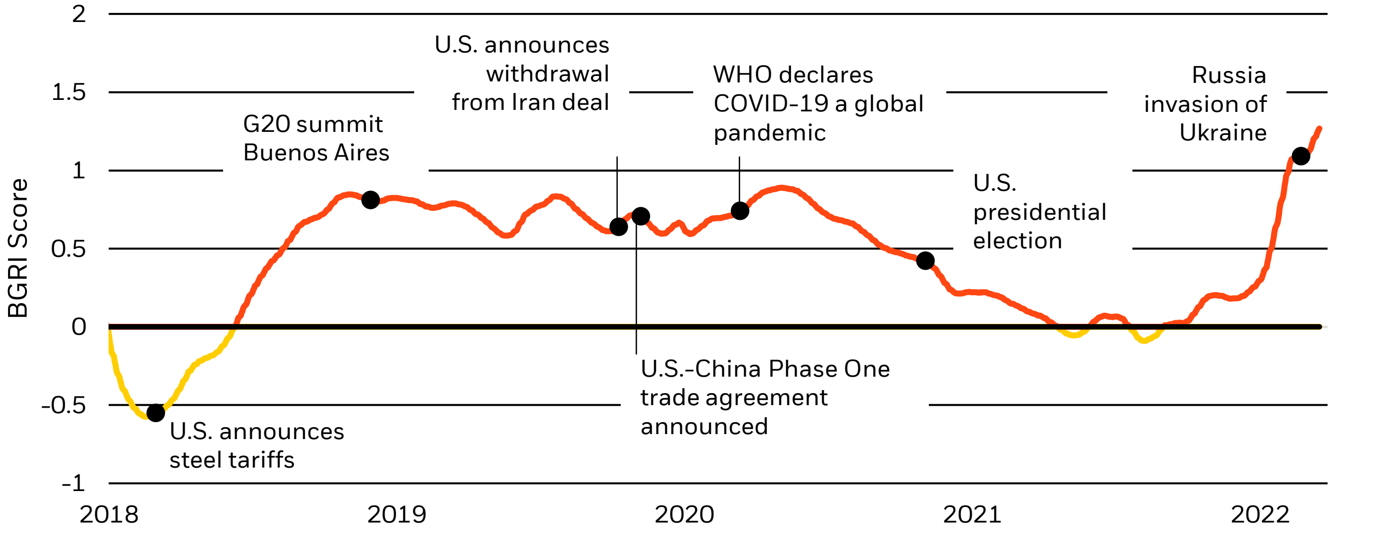
Risk	Description	Market attention since 2019	Likelihood	Our view
1 **Russia-NATO conflict**	Russian troops launch a large-scale invasion of Ukraine. The U.S. and EU respond with harsh financial, energy, and technology sanctions on Russia.		High	Russia's invasion of Ukraine is the largest, most dangerous military mobilization in Europe since WWII. Russian President Vladimir Putin has failed in his initial plan to quickly take the capital of Kyiv, decapitate the government and replace it with one loyal to him. We are now in a more aggressive and destructive phase of the Russian operation. This is taking a devastating humanitarian toll. We do not see a settlement of the conflict as likely at this point, despite peace talks. Rather, the most likely scenario in our view is an extended conflict in Ukraine, with a long-term political, economic, and military standoff between the West and Russia.
2 **Major cyberattack(s)**	Cyberattacks cause sustained disruption in the operation of critical physical or digital infrastructure.		High	The Ukraine war has significantly increased the cyber threat to the West. It has become clear that critical government and private sector networks and infrastructure across the globe are vulnerable to hacking and spying. Financial market reactions, however, have been muted. Attacks are increasing in scope, scale and sophistication, with the U.S. facing an "epidemic" of ransomware. Repeated attacks could cause significant damage and sustained disruption, which may spill over to financial markets and the economy.
3 **Global technology decoupling**	Technology decoupling between the U.S. and China significantly accelerates in scale and scope.		High	Strategic competition between the U.S. and China is driving global fragmentation as both countries focus on boosting self-reliance, reducing vulnerabilities and managing a decoupling of their tech sectors. Western sanctions on Russian technology imports will exacerbate fragmentation and deepen the global focus on self-reliance and reliable supply chains. In the U.S., Congress is moving on industrial policy legislation aimed at boosting competitiveness in critical technologies. The administration is pursuing "Buy American" initiatives. And the SEC is increasing disclosure requirements for Chinese companies listing in the U.S. The U.S. has also threatened sanctions against Chinese companies that undermine U.S. export controls on Russia and is considering controls on outbound investment into China either by legislation or executive action.
4 **Major terror attack(s)**	A terror attack leads to significant loss of life and commercial disruption.		Medium	The Taliban takeover and the accompanying release of prisoners in Afghanistan may increase the risk of international terrorism, even as U.S. counter-terrorism capabilities have improved. The insurrection at the U.S. Capitol underscores the significant and growing risk of domestic terrorism, which the Biden administration has called the most serious and persistent terrorist threat to the U.S.
5 **Emerging markets political crisis**	Failure to arrest the COVID-19 pandemic severely stresses EM political systems and institutions.		Medium	Spillover effects from the Ukraine crisis will amplify challenges for emerging economies. EMs were already struggling with fast-rising inflation and a slow economic rebound from the pandemic. They now are set to face compounded pressure from rising food and energy prices, exacerbated shortages, and higher U.S. interest rates. Social unrest, already noticeable in various fragile countries, will remain a risk well into 2022. There is a long history of food shortages and inflation causing instability in EMs. We worry about a potential wave of sovereign defaults in the years ahead.
6 **U.S.-China strategic competition**	China takes military action to accelerate reunification with Taiwan or more forcefully assert claims in the South China Sea.		Medium	Taiwan has become a flashpoint in the U.S.-China relationship. China has sent record numbers of aircraft near the island and reiterated Beijing's commitment to achieving "complete unification" with Taiwan. The U.S. has called for Taiwan's increased participation in UN activities and approved the possible sale to Taiwan of $100 million of military equipment and services. We do not see a military confrontation as an imminent threat, but believe the risk will increase as the decade wears on. Any Chinese action to directly support Russia's invasion of Ukraine – particularly through military aid – would put China at risk of significant sanctions and threaten its Western relationships.

Risk	Description	Market attention since 2019	Likelihood	Our view
7 **North Korea conflict**	North Korea continues its nuclear buildup and takes provocative actions, such as ballistic missile launches.		Medium	North Korea's nuclear program continues unabated across all its dimensions, with more missile tests in January than in all of 2021. North Korea has rebuffed talks with the U.S. and significantly escalated provocations – including resuming work on its main nuclear test site and conducting its first ICBM test since 2017. We do not see an imminent threat of regional conflict. Yet tensions will increase in 2022, in our view. We will likely see additional long-range missile tests and possibly a nuclear test. We believe markets are underappreciating this risk.
8 **Gulf tensions**	Iran nuclear talks collapse, and tensions escalate, raising the risk of a regional conflict.		Medium	A revival of the 2015 nuclear deal is more uncertain after Iran's insistence that the US remove the terrorist organization designation of Iran's Revolutionary Guard Corps as a condition for agreement. Should a deal be agreed, it would be formally implemented in a multi-month process whereby Iran returns to its compliance with its nuclear obligations, while receiving sanctions relief in phases. An agreement would be controversial in Washington, but we do not see Congressional review as an ultimate risk to the deal's implementation. Without a deal, we see increasing risk of military action, as well additional pressure on oil prices. Outside of Iran, there has a general de-escalation of tensions among the Gulf oil producers who are benefiting from high energy prices. Continued attacks by Houthi rebels on Saudi Arabia and Abu Dhabi are an ongoing source of regional tensions.
9 **Climate policy gridlock**	Developed economies fail to increase public investment and regulatory action in pursuit of their stated ambitions for net zero emissions.		Medium	The crisis in Ukraine has brought energy security to the forefront. The world will need more non-Russian fossil fuels in the short term, and we think the crisis will make the word's transition to net zero carbon emissions more regionally divergent The energy shock is essentially acting as a carbon tax for consumers. In Europe, this will likely boost decarbonization plans and make clean energy more competitive as the region is a net importer of fossil fuels seeking greater energy security. In the U.S., by contrast, there is less incentive for the world's largest fossil fuel producer to transition. Benefits for producers are higher, and the burden of higher energy costs on U.S. consumers will be lower than in the EU.
10 **European fragmentation**	Ongoing COVID and inflationary pressures lead to a populist resurgence and economic volatility.		Low	The Ukraine crisis has triggered a strong impulse toward European unity. European governments have come together to impose harsh economic and financial sanctions on Russia. They also are now focused on greater self-reliance in energy and defense. Europe's current dependence on Russian energy presents challenges. Additional fiscal easing is likely to counter higher energy costs, fund increased defense spending and respond to the growing humanitarian crisis. This could prove inflationary, but we expect the ECB to normalize cautiously. If the EU coordinates another centralized response, as it did during the pandemic, this would represent a further step toward fiscal union in Europe.

Sources: BlackRock Investment Institute, with data from Refinitiv. Data as of April 2022. Notes: The "risks" column lists the 10 key geopolitical risks that we track. The "description" column defines each risk. "Market attention" is a graphical snapshot of recent movement in the BlackRock Geopolitical Risk Indicator (BGRI) for each risk. The BGRI measures the degree of the market's attention to each risk, as reflected in brokerage reports and financial media. See the "how it works" section on p.7 for details. The table is sorted by the "Likelihood" column which represents our fundamental assessment, based on BlackRock's subject matter experts, of the probability that each risk will be realized – either low, medium or high – in the near term. The "our view" column represents BlackRock's most recent view on developments related to each risk. This is not intended to be a forecast of future events or a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding any funds or security in particular. Individual portfolio managers for BlackRock may have opinions and/or make investment decisions that may, in certain respects, not be consistent with the information contained herein.

Geopolitical risk framework

BlackRock Geopolitical Risk Indicator

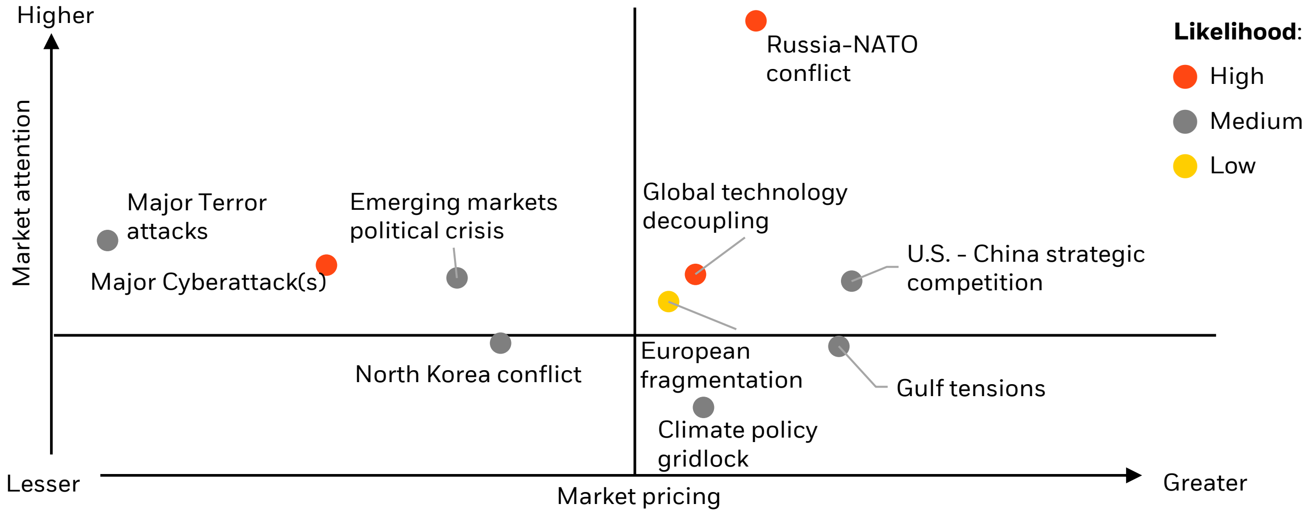


Forward-looking estimates may not come to pass. Source: BlackRock Investment Institute. April 2022. Notes: The BlackRock Geopolitical Risk Indicator (BGRI) tracks the relative frequency of brokerage reports (via Refinitiv) and financial news stories (Dow Jones News) associated with specific geopolitical risks. We adjust for whether the sentiment in the text of articles is positive or negative, and then assign a score. This score reflects the level of market attention to each risk versus a 5-year history. We use a shorter historical window for our COVID risk due to its limited age. We assign a heavier weight to brokerage reports than other media sources since we want to measure the market's attention to any particular risk, not the public's.

The global BlackRock Geopolitical Risk Indicator (BGRI) aims to capture market attention to our geopolitical risks. The indicator has spiked in recent months amid high market attention to *Russia-NATO conflict, U.S.-China strategic competition, Major cyber attack(s)* and *Major terror attack(s).* Market attention to *North Korea conflict* is ticking up. The gauge is now well above its historic average, meaning investors are paying heightened attention to geopolitical risk. We see this level of attention as well-justified given high levels of geopolitical competition and potential conflict in the world.

Risk map

BlackRock Geopolitical market attention, market movement and likelihood



Forward-looking estimates may not come to pass. Source: BlackRock Investment Institute. April 2022. Notes: The vertical axis depicts the market attention to each of our top-10 risks, as reflected in brokerage reports and financial media and measured by the BlackRock Geopolitical Risk Index (BGRI). The horizontal axis shows our estimate of the degree to which asset prices have moved in accordance with our risk scenarios (horizontal axis). See the "How it works" section on p.7 for details. The color of the dots indicates our fundamental assessment of the relative likelihood of the risk – low, medium or high, as per the legend. Some of the scenarios we envision do not have precedents – or only imperfect ones. The scenarios are for illustrative purposes only and do not reflect all possible outcomes as geopolitical risks are ever-evolving. The chart is meant for illustrative purposes only. This material represents an assessment of the market environment at a specific time and is not intended to be a forecast of future events or a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding any funds, strategy or security in particular.

Key scenario variables

How to gauge the potential market impact of each of our top-10 risks? We have identified three key “scenario variables” for each – or assets that we believe would be most sensitive to a realization of that risk. The chart below shows the direction of our assumed price impact.

Geopolitical risk	Asset	Direction of assumed price impact
Russia-NATO conflict	Russian equities	▼
	Russian ruble	▼
	Brent crude oil	▲
Major cyberattack(s)	U.S. high yield utilities	▼
	U.S. dollar	▲
	U.S. utilities sector	▼
Global technology decoupling	Chinese yuan	▼
	U.S. investment grade	▼
	Asia ex-Japan electrical	▼
Major terror attack(s)	Germany 10-year government bond	▲
	Japanese yen	▲
	Europe airlines sector	▼
Emerging markets political crisis	Latin America consumer staples sector	▲
	Emerging vs. developed equities	▼
	Brazil debt	▼
U.S.-China strategic competition	Taiwanese dollar	▼
	Taiwanese equities	▼
	China high yield	▼
North Korea conflict	Japanese yen	▲
	South Korean won	▼
	South Korean equities	▼
Gulf tensions	Brent crude oil	▲
	VIX volatility index	▲
	U.S. high yield credit	▼
Climate policy gridlock	U.S. building products sector	▼
	U.S. construction materials sector	▼
	U.S. utilities sector	▲
European fragmentation	Italy 10-year government debt	▼
	EMEA hotels and leisure	▼
	Russian rouble	▼

Source: BlackRock Investment Institute, with data from BlackRock’s Aladdin Portfolio Risk Tools application, April 2022. Notes: The table depicts the three assets that we see as key variables for each of our top-10 geopolitical risks – as well as the direction of the assumed shocks for each in the event of the risk materializing. The up arrow indicates a rise in prices (corresponding to a decline in yields for bonds); the down arrow indicates a fall in prices. Our analysis is based on similar historical events and current market conditions such as volatility and cross-asset correlations. See the “implied stress testing framework” section of the 2018 paper Market-Driven Scenarios: An Approach for Plausible Scenario Construction for details. For illustrative purposes only. The scenarios are for illustrative purposes only and do not reflect all possible outcomes as geopolitical risks are ever-evolving. This material represents an assessment of the market environment at a specific time and is not intended to be a forecast of future events or a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding any funds, strategy or security in particular.

Appendix: How it works

The quantitative components of our geopolitical risk dashboard incorporate two different measures of risk: the first based on the market attention to risk events, the second on the market movement related to these events.

Market attention

The BlackRock Geopolitical Risk Indicator (BGRI) tracks the relative frequency of brokerage reports (via Refinitiv) and financial news stories (Dow Jones News) associated with specific geopolitical risks. We adjust for whether the sentiment in the text of articles is positive or negative, and then assign a score. This score reflects the level of market attention to each risk versus a 5-year history. We use a shorter historical window for our COVID-19 risk due to its limited age. We assign a heavier weight to brokerage reports than other media sources since we want to measure the market's attention to any particular risk, not the public's.

Our updated methodology improves upon traditional "text mining" approaches that search articles for predetermined key words associated with each risk. Instead, we take a big data approach based on machine-learning. Huge advances in computing power now make it possible to use language models based on neural networks. These help us sift through vast data sets to estimate the relevance of every sentence in an article to the geopolitical risks we measure.

How does it work? First we augment a pre-trained language model with broad geopolitical content and articles representative of each individual risk we track. The fine-tuned language model then focuses on two tasks when trawling though millions of brokerage reports and financial news stories:

- classifying the relevance of each sentence to the individual geopolitical risk to generate an attention score
- classifying the sentiment of each sentence to produce a sentiment score

The attention and sentiment scores are aggregated to produce a composite geopolitical risk score. A zero score represents the average BGRI level over its history. A score of one means the BGRI level is one standard deviation above its historical average, implying above-average market attention to the risk. We weigh recent readings more heavily in calculating the average. The level of the BGRIs changes slowly over time even if market attention remains constant. This is to reflect the concept that a consistently high level of market attention eventually becomes "normal."

Our language model helps provide more nuanced analysis of the relevance of a given article than traditional methods would allow. Example: Consider an analyst report with boilerplate language at the end listing a variety of different geopolitical risks. A simple keyword-based approach may suggest the article is more relevant than it really is; our new machine learning approach seeks to do a better job at adjusting for the context of the sentences – and determining their true relevance to the risk at hand.

Market movement

In the market movement measure, we use Market-Driven Scenarios (MDS) associated with each geopolitical risk event as a baseline for how market prices would respond to the realization of the risk event.

Our MDS framework forms the basis for our scenarios and estimates of their potential one-month impact on global assets. The first step is a precise definition of our scenarios – and well-defined catalysts (or escalation triggers) for their occurrence. We then use an econometric framework to translate the various scenario outcomes into plausible shocks to a global set of market indexes and risk factors.

The size of the shocks is calibrated by various techniques, including analysis of historical periods that resemble the risk scenario. Recent historical parallels are assigned greater weight. Some of the scenarios we envision do not have precedents – and many have only imperfect ones. This is why we integrate the views of BlackRock's experts in geopolitical risk, portfolio management, and Risk and Quantitative Analysis into our framework. See the 2018 paper Market Driven Scenarios: An Approach for Plausible Scenario Construction for details. MDS are for illustrative purposes only and do not reflect all possible outcomes as geopolitical risks are ever-evolving.

We then compile a market movement index for each risk.* This is composed of two parts:

1. Similarity: This measures how "similar" the current market environment is to our expectation of what it would look like in the event the particular MDS was realized. We focus on trailing one-month returns of the relevant MDS assets.
2. Magnitude: this measures the magnitude of the trailing one-month returns of the relevant MDS assets.

These two measures are combined to create an index that works as follows:

- A value of 1 would means that asset prices reacted in an identical way as our MDS indicated.
- A value of zero would indicate that the pattern of asset prices bears no resemblance at all to what the MDS for a particular risk would indicate.
- A value of -1 would indicate that asset prices are moving in the opposite direction to what the MDS would indicate. Markets are effectively betting against the risk.

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