

Geopolitical risk dashboard

BlackRock®

September 22, 2022

Geopolitical Risks – September update

A new geopolitical world order is coming more clearly into view. COVID-19 and Russia's invasion of Ukraine have deepened fragmentation and the emergence of competing geopolitical blocs. Our BlackRock Geopolitical Risk Indicator is hovering just above its historic average, meaning investors remain attentive to geopolitical risks.

Geopolitical events typically have a modest, short-lived impact on markets and economies. Our [analysis](#) of 68 risk events since 1962 shows that. The current crisis is different, in our view. The war is having a direct and likely lasting effect.

We see strategic competition between major powers intensifying, and global economic and energy relationships shifting along geopolitical lines. Political dynamics are driving economics, in our view. This includes ongoing sanctions and export controls against Western adversaries, alongside a push for self-reliance and diversification of supply chains. We think Russia and China will deepen economic ties to become less dependent on the West. These forces are likely to reduce economic growth and bolster inflation. We see food and energy inflation elevating the risk of social instability in emerging markets.

Key highlights this month include:

- We keep the likelihood of *U.S.-China strategic competition* at a medium level. China is likely to ratchet up the pressure on Taiwan, but we do not see a military confrontation as likely in the near term.
- We also maintain the risk of *Climate policy gridlock* at a medium likelihood. The Ukraine crisis has brought energy security to the fore, but recent U.S. legislation moves the world's second-largest carbon emitter closer to its climate commitments.
- Lastly, we assess the likelihood of our *Gulf tensions risk* at a medium level amid stalled progress in the Iranian nuclear negotiations.

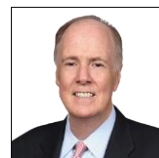
Our dashboard features both data-driven market attention barometers and judgment-based assessments of our top risks. We show market attention to each risk, assess the likelihood of it occurring over a six-month horizon and analyze its potential market impact.

Our BlackRock Geopolitical Risk Indicators (BGRIs) track market attention to each risk using mentions in brokerage reports and financial news stories. They integrate natural language processing and machine learning techniques. This assessment helps determine when geopolitical risks start to appear on investors' radar screens – and when they start fading.

We also have developed a market movement measure that we believe gives us insights into how asset prices are responding to geopolitical 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 based on how similar the market environment is to the MDS assumptions and how much the 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 continuously update our risk scenarios and refine our methodologies. Our scenarios are hypothetical and do not reflect all possible outcomes. Our market movement analyses are not recommendations to invest in any specific investment strategy or product.



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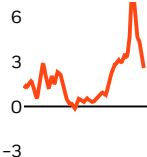
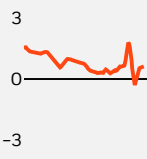
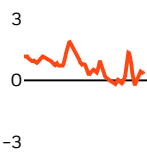
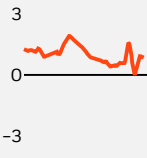
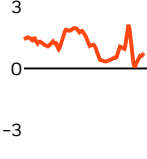
Carl Patchen
Multi-Asset Risk & Quantitative Analysis

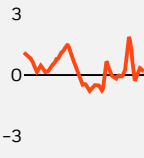
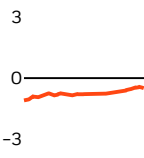
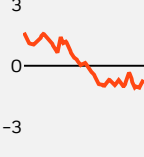
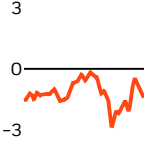
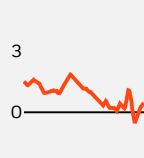
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Top 10 risks by likelihood

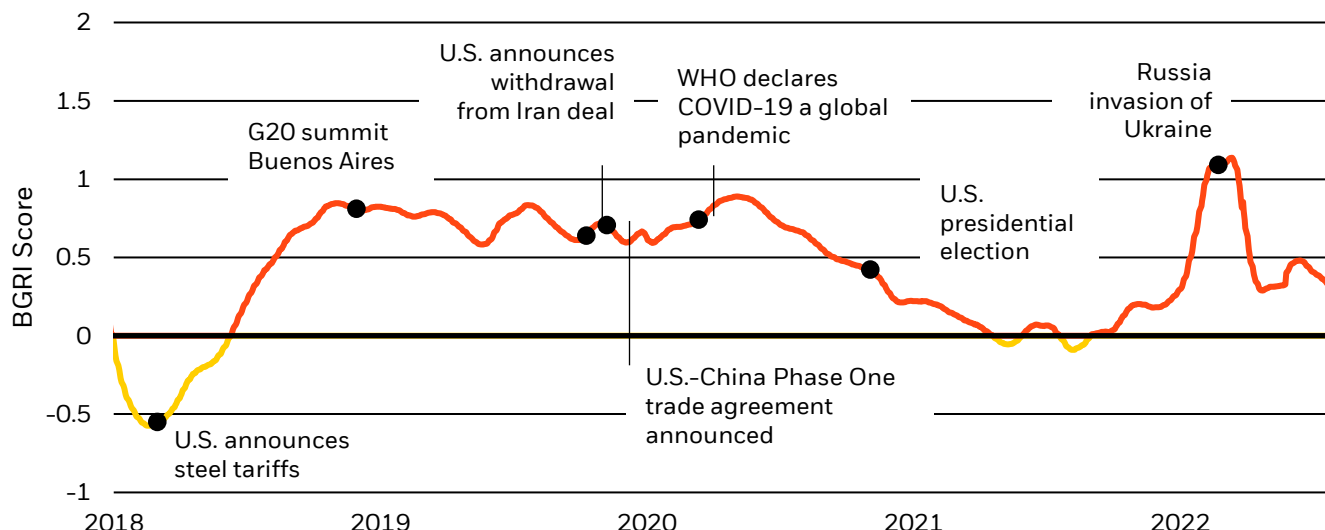
Risk	Description	Market attention since 2019	Likelihood	Our view
1 Russia-NATO conflict	Russia launches a large-scale invasion of Ukraine. The U.S. and EU respond with financial, energy and technology sanctions on Russia.		High	Russia's invasion of Ukraine is the largest, most dangerous military mobilization in Europe since WWII. Russian President Vladimir Putin failed in his initial aim to deny Ukraine sovereignty. The war is now moving into a more dynamic phase: Ukraine is pursuing counter-offensives in the south and northeast, and Russia is mobilizing additional troops and preparing to annex territory in eastern Ukraine. A settlement of the conflict at this point looks unlikely, in our view. Instead, we see an extended conflict, alongside a long-term political, economic and military standoff between the West and Russia. There is an ever-present risk of intentional or accidental escalation between NATO and Russia.
2 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 focus on boosting self-reliance, reducing vulnerabilities and decoupling their tech sectors. We think western sanctions on Russian technology imports will exacerbate fragmentation and deepen the global focus on reliable supply chains. The U.S. has enacted the CHIPS and Science Act aimed at boosting competitiveness in critical technologies such as semiconductors. And the SEC is increasing disclosure requirements for Chinese firms listing in the U.S. The U.S. has also announced sanctions against Chinese companies undermining U.S. sanctions on Russia and is considering controls on outbound investment into China.
3 Major cyberattack(s)	Cyberattacks cause sustained disruption to critical physical and digital infrastructure.		High	We see the likelihood of cyber attacks increasing as the Russia-Ukraine conflict evolves into an extended war of attrition. Critical government and private sector networks as well as infrastructure are vulnerable to hacking and spying, and the U.S. government is advocating for additional required protections. 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.
4 Emerging markets political crisis	Ripple effects from the Ukraine crisis severely stress EM political systems and institutions.		Medium	Spillover effects from the Ukraine crisis are set to amplify challenges for emerging economies. EMs were already struggling with inflation and a slow economic rebound from the pandemic. They now face compounded pressure from high food and energy prices, higher U.S. interest rates and slowing Chinese growth. Social unrest, already noticeable in various countries, remains a risk. There is a long history of food shortages and inflation causing instability in EMs. We see the potential for a wave of sovereign defaults.
5 U.S.-China strategic competition	China takes military action to accelerate reunification with Taiwan or forcefully assert claims in the South China Sea.		Medium	Taiwan has become the key flashpoint in U.S.-China relations. Beijing has responded to U.S. House Speaker Nancy Pelosi's visit to Taiwan with an unprecedented set of live-fire exercises, import bans and sanctions against U.S. officials. China also suspended military, climate and other dialogues with the U.S. Chinese actions have reset the status quo around Taiwan, in our view, making additional steps to pressure the island more likely. We think the U.S. Congress will continue to support closer Taiwan relations, elevating tensions. We do not see a military confrontation in the short to medium term, but believe the risk will increase significantly in the long run.

Risk	Description	Market attention since 2019	Likelihood	Our view
6 Major terror attack(s)	A terror attack leads to significant loss of life and commercial disruption.		Medium	The killing of Al-Qaida leader Ayman al-Zawahiri demonstrates the strength of U.S. counterterrorism capabilities, even after the withdrawal from Afghanistan. It should weaken Al-Qaida, according to U.S. intelligence, but the international terrorist threat persists with affiliate networks and ISIS still active. The U.S. administration has underscored the growing risk of domestic terrorism, calling it the most serious and persistent terrorist threat to the homeland. We see the threat increasing in the lead-up to the November midterm elections.
7 North Korea conflict	North Korea pushes ahead with its nuclear buildup and takes provocative actions such as missile launches.		Medium	North Korea's nuclear program continues unabated across all its dimensions. North Korea has rebuffed talks with the U.S. and significantly escalated provocations, including conducting ballistic missile tests during U.S. President Joe Biden's May trip to the region. We do not see an imminent threat of regional conflict. Yet tensions will increase this year, in our view. This could include additional long-range missile tests and a seventh 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	Progress toward a revived nuclear deal with Iran appears to have stalled, and key hurdles remain. A deal and Iranian nuclear compliance would lead to U.S. sanctions removal and oil market relief. Without a deal, we see increasing risks of military action and upward pressure on oil prices. Outside of Iran, there has been a general de-escalation of tensions among Gulf oil producers. The Abraham Accords and diplomatic efforts by the Biden administration are enhancing cooperation between Israel and Arab states such as the UAE.
9 Climate policy gridlock	Developed economies fail to increase public investment or take action to achieve net-zero emission targets.		Medium	The crisis in Ukraine has brought energy security to the forefront. The world will need more non-Russian fossil fuels in the near term, but we believe the crisis will ultimately accelerate the net-zero transition. In Europe, the energy shock will likely boost decarbonization plans and make clean energy more competitive as the oil-importing continent seeks greater energy security. In the U.S., there is more political polarization around energy and climate change. Recent legislation will provide greater transition incentives and likely spur other countries to take action, in our view.
10 European fragmentation	The energy crunch and inflationary pressures lead to a populist resurgence and economic volatility.		Low	The Ukraine crisis triggered a strong impulse toward European unity, as governments came together to impose sanctions on Russia and support Ukraine's military. There is a risk of divisions emerging as the war becomes protracted and economic costs mount. We see Europe's effort to wean itself off Russian energy as among the most significant challenges ahead. September elections in Italy are likely to give rise to a conservative government led by the far right Fratelli d'Italia. This could increase tensions with European institutions on the implementation of Italy's National Recovery and Resilience Program, in our view, and more generally on the speed of fiscal adjustment.

Sources: BlackRock Investment Institute, with data from Refinitiv. Data as of August 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



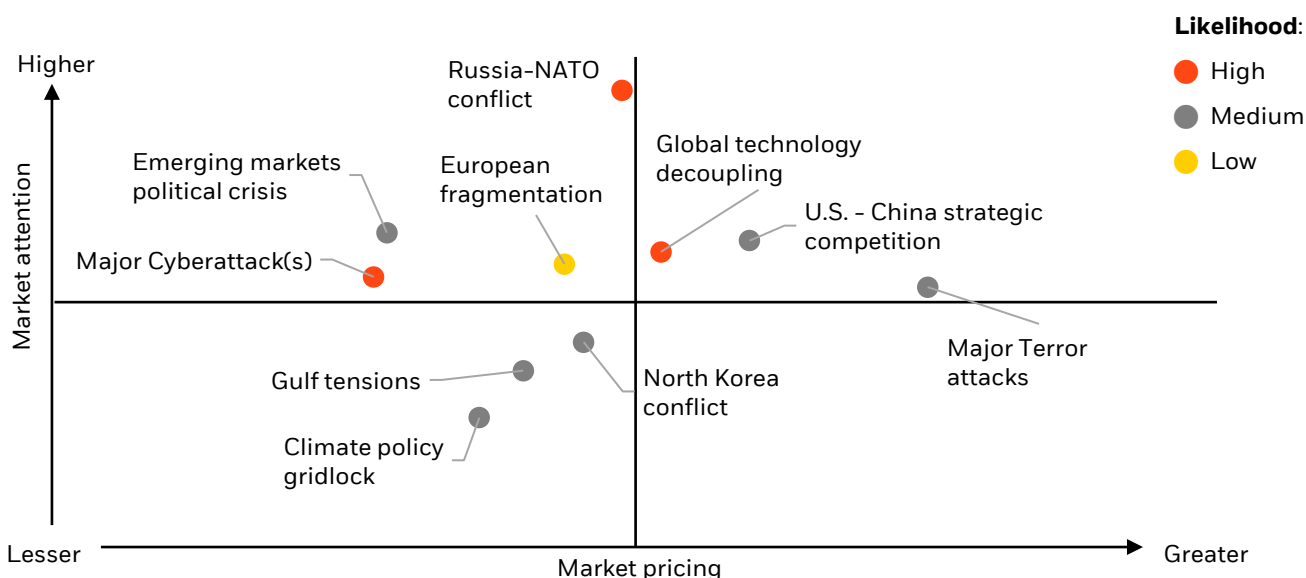
Forward-looking estimates may not come to pass. Source: BlackRock Investment Institute. August 2022. Notes: The BlackRock Geopolitical Risk Indicator (BGRI) tracks the relative frequency of brokerage reports (via Refinitiv) and financial news stories (Dow Jones News) associated with specific geopolitical 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 overall market attention to geopolitical risks, as the line chart shows. The indicator is a simple average of our top-10 individual risks. Its level has declined from its March peak in the wake of the Russian invasion of Ukraine. For sure, market attention to selected individual risks such as *Russia-NATO conflict* remains elevated and has kept the global gauge above its five-year average.

We lower the likelihood of our *Gulf tensions* risk to medium amid increased prospects for a revived Iranian nuclear deal. We keep our *Russia-NATO conflict*, *Major cyber attacks* and *Global technology decoupling* risks at high levels (the red dots on the chart). We believe market prices currently underestimate risks such as *Major cyber attacks* (the risks on the left side of the chart).

Risk map

BlackRock Geopolitical market attention, market movement and likelihood



Forward-looking estimates may not come to pass. Source: BlackRock Investment Institute. August 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	▲
Global technology decoupling	Chinese yuan	▼
	U.S. investment grade	▼
	Asia ex-Japan electrical	▼
Major cyberattack(s)	U.S. high yield utilities	▼
	U.S. dollar	▲
	U.S. utilities 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	▼
Major terror attack(s)	Germany 10-year government bond	▲
	Japanese yen	▲
	Europe airlines sector	▼
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, August 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.

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 five-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 through 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 BGRI 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 mean 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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