Geopolitical risk dashboard

BlackRock

December 2021

Geopolitical Risks – December update

We see geopolitics in 2022 as driven by domestic policy priorities, U.S.-China competition, divergence between developed and emerging markets, and dynamics relating to the bumpy energy transition. As a result, our focus risk zooms in on three areas:

- A highly polarized U.S. political landscape ahead of the 2022 midterm elections - and likely political gridlock thereafter.
- A general pause in U.S.-China escalation against a backdrop of strategic competition as both countries focus on domestic priorities.
- Middle East cross-currents: a risk of military action over Iran's growing nuclear capabilities but a de-escalation of tensions among Gulf nations

We raise the likelihood of our *Gulf tensions* risk as prospects deteriorate for a full revival of the 2015 Iran nuclear deal. We leave the remaining risks unchanged, but highlight potential conflicts with Russia and North Korea.

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 four areas where market attention and our views diverge: *Gulf tensions*, *North Korea conflict*, *Major cyber attack(s)*, and *Major terror attack(s)*. In each instance, we believe markets are underappreciating the potential risks.

Our BlackRock Geopolitical Risk Indicators (BGRIs) track market attention to each risk based on mentions in brokerage reports and financial news stories, and integrate the latest advancements in natural language processing and machine learning. This assessment of market attention 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 much asset prices may be moving in response to each risk. 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 what the MDS assumed and how much asset prices related to the MDS 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 and their 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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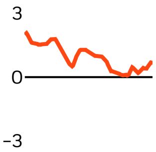
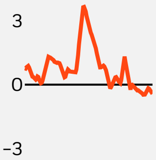
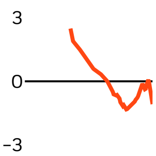
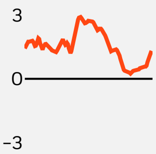
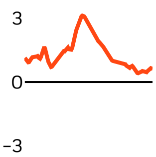
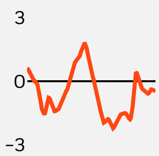
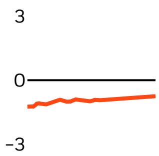
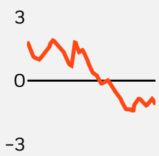
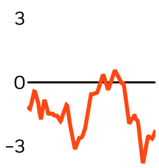
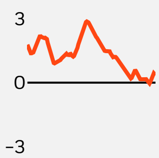
BlackRock **Investment** Institute

Top 10 risks by likelihood

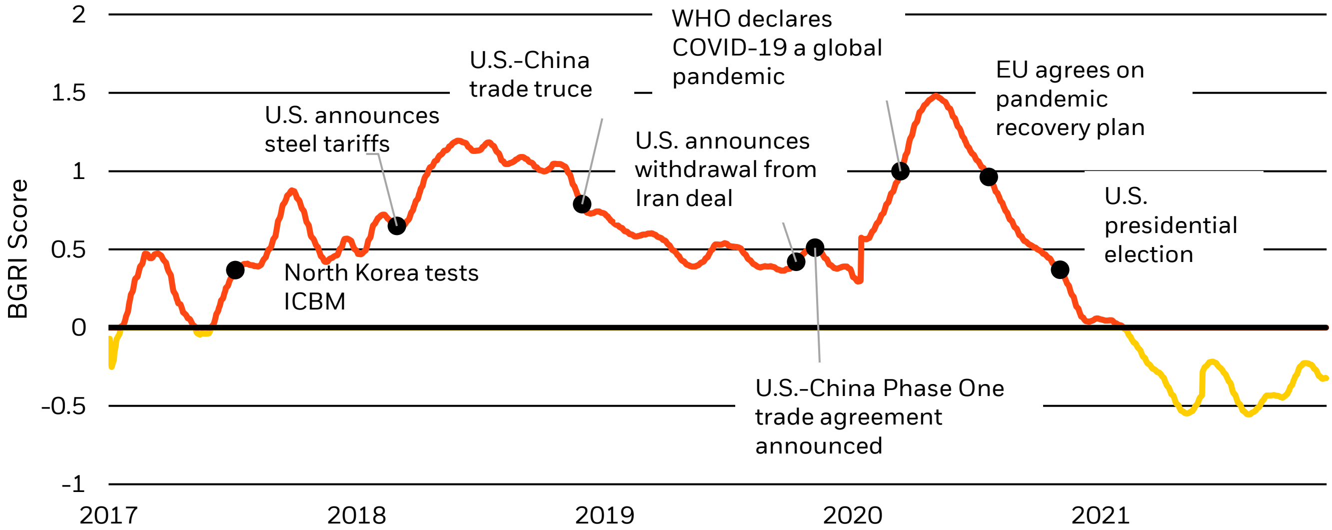
Risk	Description	Market attention since 2019	Likelihood	Our view
1 **Global technology decoupling**	Technology decoupling between the U.S. and China significantly accelerates in scale and scope.		High	The COVID-19 pandemic has exposed supply chain vulnerabilities and heightened reliance on technology. Strategic competition between the U.S. and China is driving global fragmentation as both countries are focused on reducing vulnerabilities and a managed decoupling of their tech sectors. The U.S. Senate passed industrial policy legislation aimed at boosting U.S. 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. China, for its part, has cracked down on selected tech industries as part of a broad new development agenda. The U.S. and EU are coordinating more closely on technology issues
2 **Major cyberattack(s)**	Cyberattacks cause sustained disruption in the operation of critical physical or digital infrastructure.		High	It has become clear that critical government and private sector networks around the globe are vulnerable to hacking and spying, though financial market reactions have been muted. Critical infrastructure remains vulnerable, and attacks are increasing in scope, scale and sophistication. The U.S. is facing an "epidemic" of ransomware. Repeated attacks present the possibility of significant damage and sustained disruption. This could spill over to financial markets and the economy.
3 **COVID-19 resurgence**	The fight against COVID falters in the developed world.		High	COVID cases are likely to surge across regions in the first quarter, with countries with high vaccination rates likely facing lighter government measures to tamp out the virus. Beijing's zero-Covid policy is likely to persist through the Winter Olympics in February and potentially beyond. Vaccine hesitancy in some developed markets and an uneven global vaccine rollout risk the emergence of new variants such as Omicron. The U.S. and some European countries are pursuing vaccine mandates, which have proven divisive.
4 **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	The stability we have seen in relations between the U.S., China and Taiwan over the past four decades is weakening as positions shift on all sides. Taiwan has become a flashpoint in the relationship. China has taken steps, including sending record numbers of aircraft near the island and reiterating Beijing's commitment, to achieving "complete unification" with Taiwan. The U.S. has called for Taiwan's increased participation in UN activities, and media reports indicate the U.S. is training local forces in Taiwan. We do not see a military confrontation as an imminent threat, but believe the risk will increase as the decade wears on.
5 **Emerging markets political crisis**	Failure to arrest the COVID-19 pandemic severely stresses EM political systems and institutions.		Medium	COVID-19 has driven significant divergence between developed economies and emerging markets. This divergence will be amplified by the uneven rollout of vaccines and stressed fiscal conditions. We see a risk of social unrest across fragile emerging market countries facing the explosive convergence of the ongoing pandemic, fast-rising inflation, increasing poverty and weak government performance.

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 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.
7 **North Korea conflict**	North Korea continues its nuclear buildup and takes provocative actions, such as ballistic missile launches.		Medium	After conducting a review of its policy toward North Korea, the Biden administration is seeking direct diplomacy with Pyongyang, working alongside U.S. allies. North Korea has rebuffed talks and escalated provocations. Recent studies have noted North Korea's nuclear production capacity is much larger than previously reported, marking an increasingly serious situation. We do not see an imminent threat of regional armed conflict. Yet tensions will increase in 2022, in our view. We could see additional long-range missile tests and possibly a nuclear test. We see this risk as underappreciated by markets.
8 **Gulf tensions**	U.S. negotiations to rejoin the Iran nuclear deal falter.		Medium	We see a full revival of the 2015 Iran nuclear deal as increasingly unlikely, given the pace of Iran's nuclear advancements. Negotiations will likely extend deep into 2022, and we see the risk of military action in the region increasing over that time. Outside of Iran, there has been a general de-escalation of tensions among the Gulf's oil producers, who are benefiting from higher oil prices.
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	Climate risk has moved to the center of policymaking around the world, and negotiations are now shifting to implementation. The COP26 summit in Glasgow saw fresh commitments on coal phase-out and forest protection as well as on sectoral roadmaps to net zero for key global industries like steel and aviation. The U.S.-China joint declaration on climate is significant - not only as a political signal but also as a commitment to rebuild the technical cooperation on climate policy last seen during the Obama administration. Glasgow pledges, if implemented, would put the world on track for 1.8C of warming, close to the 1.5C goal. The gap between promises and implementation, however, looms large as firm policies would only deliver a 2.7C outcome.
10 **European fragmentation**	Troubled vaccine rollouts, renewed lockdowns, and policy fatigue lead to a populist resurgence.		Low	Strong monetary and fiscal policy support have bolstered European political unity. The greatest near-term risk is an escalation of tensions between the UK and the EU over Brexit, which could see sanctions or tariffs against the UK. In addition, a debate over the supremacy of EU laws vis-à-vis Polish ones could see Poland deprived of EU funds. In Germany, Social Democrats, Greens and Free Democrats have formed a collation government. We see future German fiscal policy likely reflecting a flexible implementation of existing rules.

Sources: BlackRock Investment Institute, with data from Refinitiv. Data as of December, 2021. 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

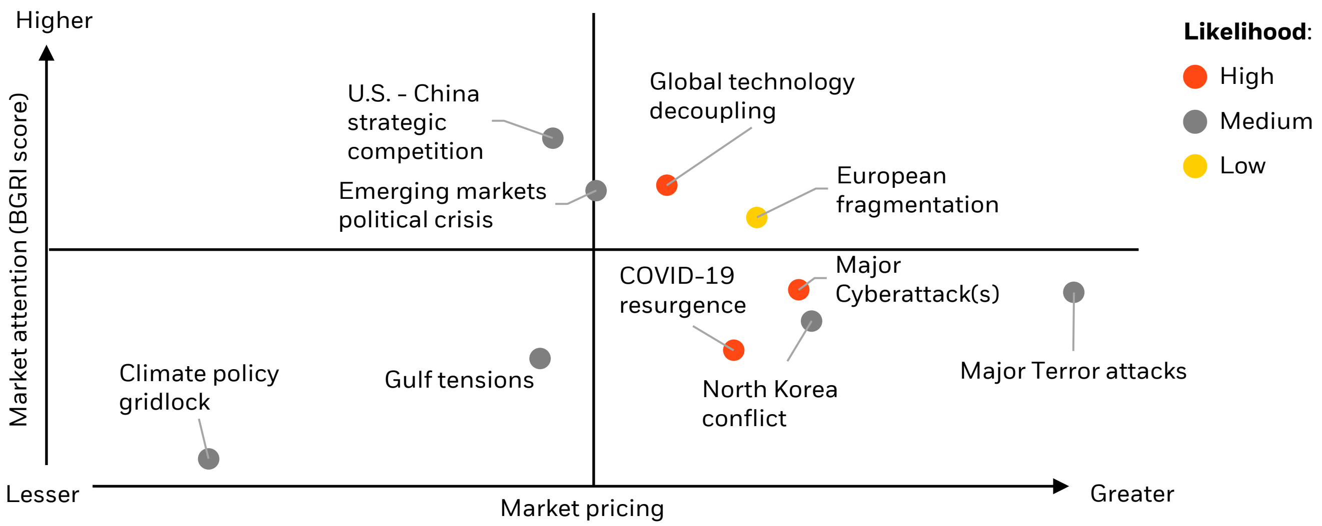


Forward-looking estimates may not come to pass. Source: BlackRock Investment Institute. December 2021. Notes: The BlackRock Geopolitical Risk Indicator (BGRI) tracks the relative frequency of brokerage reports (via Refinitiv) and financial news stories (Dow Jones News) associated with specific geopolitical 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 the market attention to our geopolitical risks. The indicator has started ticking up in recent months amid increased market attention to *Global technology decoupling and U.S.-China strategic competition*. The gauge has been hovering in negative territory in 2021, as the chart shows, following a change in the U.S. administration and as inflation and pandemic-related worries have taken precedence for investors. This low reading means investor attention to geopolitical risks is below the average of the past four years. As a result, geopolitical shocks could catch investors more off guard than usual.

Risk map

BlackRock Geopolitical market attention, market movement and likelihood



Forward-looking estimates may not come to pass. Source: BlackRock Investment Institute. December 2021. 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.

We have developed a market movement score for each risk that measures the degree to which asset prices have moved similarly to our risk scenarios, integrating insights from our Risk & Quantitative Analysis (RQA) team and their Market-Driven Scenario (MDS) shocks. We do this by estimating how "similar" the current market environment is to our expectation of what it would look like in the event the particular MDS was realized, also taking into account the magnitude of market moves. The far right of the horizontal axis indicates that the similarity between asset movements and what our MDS assumed is greatest; the middle of the axis means asset prices have shown little relationship to the MDS, and the far left indicates markets have behaved in the opposite way that our MDS anticipated.

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
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	▼
COVID-19 resurgence	U.S. investment grade credit	▼
	Asia investment grade credit	▼
	U.S. energy investment grade	▼
U.S.-China strategic competition	Taiwanese dollar	▼
	Taiwanese equities	▼
	China high yield	▼
Emerging markets political crisis	Latin America consumer staples sector	▲
	Emerging vs. developed equities	▼
	Brazil debt	▼
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, December 2021. 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.

Focus risk: Geopolitics in 2022

We see geopolitics in 2022 as driven by domestic polarization, U.S.-China competition, divergence between developed and emerging markets, and dynamics relating to the bumpy energy transition.

A contentious U.S. political landscape

The honeymoon phase of the Biden presidency is over, and the administration is focused on its signature initiatives – including the $1.2 trillion bipartisan infrastructure bill and the roughly $2 trillion Build Back Better package of social policy programs. The scale of the legislation will present implementation challenges, but also create new opportunities because of significant market impact, in our view. Regulation, particularly on antitrust, climate and digital assets, will come to the fore in 2022 – alongside progressive issues such as voting rights.

Republicans are likely to flip the House of Representatives in the 2022 midterm elections, history suggests. Only once since WWII has a president gained seats in the House during his first midterm election – in 2002, when President Bush enjoyed high approval ratings after the 9/11 attacks. Presidents with approval ratings below 50 percent have, on average, lost 37 seats in midterm elections, and Biden's approval rating has been hovering in the low-40s. We see U.S. policy focusing on domestic issues in 2022 and expect the change in Congressional majority to drive policy gridlock.

A floor under the U.S.-China relationship

The nature of the U.S.-China relationship remains broadly confrontational. The U.S. is enforcing or extending selected Trump administration policies and actions, and there is little political space to make concessions. A U.S. diplomatic boycott of the Beijing Olympics has added to the strain. In China, there is little interest in compromise; Beijing has put the onus for progress on the U.S. to address Chinese complaints. Meanwhile, President Xi Jinping has undertaken a major reorientation of China's development approach focused on anti-monopoly, data security and common prosperity.

Yet the two nations are generally seeking to lower the temperature within the overall confrontational frame. Beijing wants to reduce tensions amid a challenging environment of lower growth and ambitious domestic initiatives. Xi also wants to ensure stability in the run-up to the Winter Olympics and the 2022 National Party Congress, where he is expected to be elected to a third term. President Biden, too, is primarily focused on his domestic agenda. As a result, the two leaders met virtually in an effort to put a floor under the relationship and prevent it spiraling from competition to conflict. The U.S.-China joint declaration on climate is significant both as a political signal, and as a commitment to rebuild the technical cooperation on climate policy last seen during the Obama administration.

Looking ahead, concerns in the U.S. are growing over China's military buildup, including China's hyper-sonic missile test, hundreds of new ICBM solos, simulations with US aircraft carrier models and a potential Atlantic maritime foothold in West Africa. The Pentagon has asserted that China could quadruple its deliverable warheads to 1,000 by 2030. Chairman of the Joint Chiefs Mark Milley said that China's military buildup reflects "one of the largest shifts in global and geostrategic power that the world has witnessed" – and a significant risk to the U.S. Tensions over Taiwan are also high, but we see the likelihood of a military confrontation as low in the near term. The risk increases into the decade.

A delicate balance in the Middle East

Contrasting dynamics are at play in the Middle East. On the one hand, the Iran nuclear situation has deteriorated meaningfully. The pace of Iran's nuclear advancements means a return to the 2015 agreement may not be possible. Negotiations are likely to extend deep into 2022, and Iranian oil will remain (at least officially) off the market during that time. Iran will get closer to attaining a nuclear weapon, and we could approach a situation similar to that in 2011-2012, when Israeli decisionmakers contemplated a military strike against Iran's nuclear facilities. Such military action would fall short of an all-out war but have potential for escalation – and presents a real risk over the next year.

On the other hand, there's been a general de-escalation of tensions among the Gulf oil producers. This recalibration is driven, among other things, by the U.S. pivot to Asia, as seen in the military withdrawal from Afghanistan. In Saudi Arabia, Crown Prince Mohammed bin Salman (MBS) ended the blockade of Qatar, has pledged to end the war in Yemen, is engaging in dialogue with Iran and pursuing domestic reforms. MBS is also reportedly considering normalization with Israel. The UAE, too, is taking steps to improve relations with Iran and Turkey. And despite some political tensions, the UAE and Israel have expanded their relationship. These dynamics are taking place against a backdrop of high oil prices. We see efficient producers in the Gulf as having significant pricing power during the climate transition.

Lastly, we see disruption and state failure in non-oil rich countries like Lebanon, Syria, and Yemen driving greater conflict and social unrest in the year ahead.

Potential conflicts with Russia and North Korea

Tensions are building around Russia's massing of troops near the Ukraine border and North Korea's nuclear program. The first presents one of the most serious security situations in Europe in decades – and has already led to a virtual meeting between Biden and Russian President Vladimir Putin. The U.S. and its European allies are threatening harsh economic sanctions in the event of further Russian escalation. A Russian buildup in April turned out not to be an issue, but the current situation is significantly more worrying and presents a meaningful risk in the first quarter of 2022.

North Korea has escalated provocations, and a recent Stanford analysis noted that its nuclear production capacity is much larger than previously reported. We see this as an increasingly serious situation and a key risk for 2022.

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.

*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. The scenarios are for illustrative purposes only and do not reflect all possible outcomes as geopolitical risks are ever-evolving.

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