From Risk to Resilience

How Economies Can Thrive in a World of Threats

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In recent years, a fierce debate has raged among scholars and policymakers about the risks and rewards of economic interdependence. On one side are globalists who argue that economic globalization remains the best route to peace and prosperity, even if it comes with some risks. On the other are nationalists who contend that Western countries must decouple their economies from China and other authoritarian powers to avoid dangerous dependencies and reduce the vulnerability of their critical infrastructure and supply chains.

These debates tend to frame the tradeoffs in black-and-white terms: globalization versus deglobalization and interdependence versus decoupling. But such binaries have never been realistic. The COVID-19 pandemic, Russia's invasion of Ukraine, and rising tensions between the United States and China have all made Western companies and countries more wary of the risks associated with economic inter-

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dependence. Few, however, are prepared to make the sacrifices that full-scale decoupling would entail.

No wonder that "de-risking" has entered the policy lexicon as a softer alternative to decoupling. In January 2023, European Commission President Ursula von der Leyen coined the term as she laid out the EU's strategy for reducing critical vulnerabilities while maintaining economic relations with China. The United States and the rest of the G-7 have since embraced de-risking, in part to assuage growing fears of a painful economic divorce from China. The idea is to differentiate connections that are high risk, for which selective decoupling is appropriate, from those that are low risk, for which it makes sense to maintain ties while also diversifying.

But inherent to de-risking is the idea that policymakers need to accept a zero-sum tradeoff between the risks and rewards of interconnection. There is a better way to understand the problem. Companies and countries need to embed calculations about risk and reward in a broader framework of systemic resilience—that is, the characteristics of a system that determine its ability to survive and thrive over time. Although resilience is commonly understood as the ability to withstand shocks and stressors, it is about more than just effectively responding to risks. It is also about evolving to better capture future rewards and cope with change.

To achieve systemic resilience, governments and firms must strike the right balance between risk and reward. If they always aim to minimize risks, they will not only reduce their rewards but also create new vulnerabilities over time. Likewise, if they always aim to maximize rewards in the short term, they may overlook existing risks and create new ones that could cost them dearly later. As a framework for weighing these competing objectives, systemic resilience can help policymakers and business executives think through questions of economic interdependence. It can help them decide when they should take risks in search of rewards and how they should prepare for potentially transformative changes—none more pressing than the coming energy transition.

THE BINARY BIAS

The rewards of economic connection can be immense. Global markets create extraordinary opportunities for economies of scale and enable companies and countries to develop their capabilities by specializing in what they do best and trading for the rest. Trade and investment treaties facilitate access to such markets, as do improvements in infrastructure,

communications, and transportation. In the immediate aftermath of the Cold War, global supply chains proliferated as the rewards of international trade and investment seemed to far outstrip any potential risks. But by the first decade of the next millennium, the dangers of international connectedness had become manifest. The global financial crisis of 2008 stoked fears about financial contagion. China's economic rise and growing assertiveness fueled Western capitals' concerns about economic coercion. And Western sanctions made Moscow and Beijing more worried about weaponized interdependence.

Risks arise when a vulnerable system is exposed to threats or hazards. Interconnection exposes countries to intentional threats, such as economic coercion, as well as unintentional hazards, including financial crises and pandemics. Specialization creates additional vulnerabilities in the form of dependencies and concentration risks, such as when a country relies on critical goods manufactured by a foreign country or by a small group of suppliers in a region that is subject to extreme weather events. But because the same things that promise economic rewards often pose security risks, interdependence creates a dilemma. "Just in time" global supply chains that enable companies to reduce costs by storing minimal inventory can be tremendously efficient. But as the COVID-19 pandemic revealed, they can also leave societies dangerously exposed to disruptions, including in the supply of vital medical goods. The United States' deep economic integration with China has produced enormous economic rewards, but it has also created vulnerabilities and dependencies for both countries, for example, in access to active pharmaceutical ingredients and semiconductors.

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Interdependence does more than create tradeoffs between risk and reward; sometimes an increase in rewards can lead to a reduction in risks—a classic win-win outcome. Trade is often thought to promote peace and prosperity because rich and economically interdependent countries have powerful incentives to avoid war. But the effect is more ambiguous: interdependence may reduce the probability of conflict, but it can also make the consequences of conflict more dire if it does break out—since strong economic ties can be weaponized to devastating effect.

Efforts to mitigate one risk can also create or exacerbate others. Reshoring global supply chains may make countries less vulnerable

to international disruptions while making them more vulnerable to domestic ones. Insulation from international supply chains can cause its own problems. For example, the United States generally manufactures enough baby formula to meet its own needs. But in 2022, a major U.S. baby formula plant was shut down because of bacterial contamination, causing nationwide shortages and forcing the Biden administration to take emergency actions to secure international supplies. People often struggle to acknowledge such tradeoffs because doing so is cognitively taxing. Rather than attempting to weigh the necessary multiple factors, people overwhelmed by that exercise tend to lump them together and simply declare that their chosen course of action is preferable on all counts. The psychologist Adam Grant calls this the "binary bias"—the tendency to collapse shades-of-gray spectrums into black-and-white categories. The result is tradeoff denialism: one side argues for globalization because it promotes peace and prosperity, while the other argues for decoupling on the grounds that it reduces the risks of coercion and stimulates the economy through reshoring.

The rhetorical shift from decoupling to de-risking is important because it represents an effort to move past the binary bias and tradeoff denialism. In this vein, Europe's new economic security strategy, released by the European Commission in June 2023, begins by noting "the inherent tensions that exist between bolstering our

economic security, and ensuring that the European Union continues to benefit from an open economy." Policymakers must acknowledge those tensions instead of obfuscating them if their goal is to manage risk, not just minimize it.

In some sectors, the rewards from economic globalization are high and the risks are comparatively low. "Most of our trade in goods and services remains mutually beneficial and 'un-risky,'" von der Leyen said in March 2023. Decoupling in these areas makes little sense. In other sectors, the risks arising from interdependence are high and the rewards are low. For example, trade in sensitive military technologies is too high a risk for the reward. In cases such as these, decoupling seems sensible. The hardest cases are where both the risks and rewards of economic interdependence are high. Here, focusing on systemic resilience is particularly helpful.

BOUNCING BACK

Resilience is a rich concept, with applications in engineering, psychology, disaster management, climate change adaptation, and more. In engineering, resilience describes the ability of a substance to return to its original shape after bending or stretching. Applied to people, communities, corporations, and countries, it describes the ability to absorb and adapt to changes. Scholars call this "socioecological resilience."

Absorbing shocks means enduring them without incurring lasting damage or undergoing minor adaptations or major transformations. When countries stockpile semiconductors and other goods that are critical for manufacturing, they aim to create a cushion against supply chain disruptions. Building in redundancies such as multiple suppliers, some onshore and some offshore, helps systems weather shocks without suffering harm or disruption.

Adapting to shocks or stressors involves making incremental changes. When stocks of hand sanitizer ran low during the COVID-19 pandemic, some gin manufacturers adjusted their operations to produce needed supplies. Companies that specialized in three-dimensional printing began producing face masks and oxygen valves, while still others responded to shortages of medical supplies by finding alternative vendors. Adaptive changes are often small and short in duration. For example, schools shifted their classrooms online during the height of the pandemic, but most have since returned to in-person learning.

Transforming in the face of shocks is even more radical. It involves making more permanent structural changes that either reduce exposure and vulnerability to risks or increase the ability to capture rewards. Whereas adaptation can be achieved through incremental adjustments that largely preserve the status quo, transformation involves dramatic change to a new and better state. COVID-19 vaccines enabled governments to transform their response to the pandemic, fundamentally changing the risk-reward calculus for lockdowns and allowing countries to open their economies. Clean energy will prove even more transformative in the future. Governments will be able to use green technology to remake their economies in response to climate change.

These three modes of resilience—absorption, adaptation, and transformation—can operate alone or in combination. Often, they work on different timelines. For example, when China abruptly cut off exports of rare-earth elements to Japan in 2010 amid tensions in the East China Sea, Japan used all three modes of resilience to minimize harm. In the short term, it used careful inventory management to absorb the initial shock of the disruption and stretch existing supplies as far as possible. In the medium term, it adapted by recycling old rare-earth elements and finding substitutes for them. And in the long term, it took advantage of a transformation in the market for rare-earth minerals as new mines opened outside China.

THE RISE OF RESILIENCE

In the wake of the COVID-19 pandemic and Russia's invasion of Ukraine, policymakers are beginning to appreciate the importance of resilience, which requires weighing polarities such as centralization and decentralization, diversification and concentration, and independence and interdependence. When it comes to free trade, for instance, U.S. Trade Representative Katherine Tai has said that it is "critical" to "incentivize resilience as opposed to just efficiency." Sabine Weyand, the European Commission's director general for trade, has identified a similar rebalancing of priorities in policymaking, arguing that "it is not just about efficiency in trade relations today; it's about resilience."

The key is to strike a balance between two extremes. Whereas optimizing for efficiency can create too many risks, optimizing for resilience can generate too few rewards. The scholar and former management consultant Roger Martin has characterized the dilemma well: "Pursuit of all resilience and no efficiency is as problematic as

pursuit of efficiency with no resilience. The only difference is in the nature of the death." By death, he meant the eventual demise of the system. Systems that are not resilient tend to die suddenly. They work well in the short term and sometimes the medium term, producing impressive rewards. But over time, they accumulate systemic vulnerabilities, eventually reaching a state of extreme fragility caused by factors such as excessive concentration and lack of diversity. When a shock disrupts such a system, its lack of absorptive and adaptive capacities can cause it to fail spectacularly. Inefficient systems, however, tend to die gradually as they compete unsuccessfully against more efficient ones.

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To thrive over the long term, systems need to find a middle ground between efficiency and resilience and between the desire to minimize risks and maximize rewards. Countries that aim to minimize risks in the short term often leave themselves vulnerable to long-term threats. Just as children who grow up without being exposed to viruses can end up with weak immune systems, countries that have never experienced pandemics or other public health emergencies can be ill-prepared for them. During the COVID-19 pandemic, countries that had previously dealt with respiratory viruses such as SARS and MERS—for example, Singapore, South Korea, and Taiwan—mounted the most effective initial responses to the new disease. The risk analyst Nassim Nicholas Taleb uses the term "antifragile" to refer to systems that grow stronger when exposed to moderate levels of stress as opposed to ones that atrophy when they are shielded from all risks.

Likewise, countries that aim to maximize short-term rewards often make themselves vulnerable to future shocks. Maximizing rewards from just-in-time supply chains may seem economically efficient in the short term, but as the pandemic showed, it can eventually prove catastrophic. Similarly, countries that seek to accelerate their development by offshoring low-cost manufacturing and pivoting their domestic economies to high-end services could wind up forfeiting the industrial capacity needed to power the sectors of the future, including clean energy. And countries that rely heavily on their most profitable industry risk creating a monoculture that makes money in the short term but is vulnerable to the effects of environmental or market changes.

WALK THE LINE

So what is the right balance between peril and payoff? Where high risks promise high rewards, countries should abide by a simple rule: run the risk only when the relevant system has sufficient resilience to absorb, adapt, or transform if that risk becomes reality.

With 5G networks, for example, countries have taken clear steps toward decoupling because they perceive high risks and low resilience. The Chinese telecommunications giant Huawei is a cheap provider of leading 5G technologies that have the potential to generate strong economic rewards. But for many Western governments, the risks that the Chinese government would abuse access to 5G networks to engage in espionage or sabotage were too high to discount. Laying 5G networks is also expensive, and 5G network providers are almost always the service providers. These features of the technology mean that it would be extremely difficult for a government to adapt and find a new 5G supplier should Beijing weaponize Huawei's networks. In areas where countries cannot adapt during a crisis, they often seek to reduce their exposure, even if that means forsaking possible rewards.

By contrast, where countries have sufficient resilience—for instance, in the trade of basic commodities, where global markets are deep and diversified—they are more likely to maintain interdependence, despite the risks of economic coercion. Many Australian exporters depended heavily on the Chinese market before Beijing instituted trade bans and other coercive economic measures in 2020, following Australia's call for an inquiry into the origins of COVID-19. But not all these exporters proved resilient. Those selling high-end products such as lobsters and fine wines struggled to find alternative markets, whereas those trading basic commodities such as coal, barley, and cotton were able to adapt and redirect their inventory to global markets.

It is telling that Australia's response to Chinese economic coercion was not to decouple. Even after the risks had been laid bare, the potential rewards of continued economic engagement were too great. Australia continued to trade in goods that were unaffected by the bans, such as iron ore, while seeking to reopen export markets with China in the industries that were affected. But the Australian government also advised exporters to adopt a more diversified "China plus" strategy to make pivoting markets easier in the event of future disruptions. When resilience is high, countries can take greater risks

in pursuit of rewards because they have something to fall back on if their fears are realized. For many traded goods, including agricultural products and raw resources, diversification rather than decoupling is the more practical and prudent path.

Another advantage of systemic resilience is that it can help governments and firms proactively adapt to changing circumstances. Greater resilience often makes it easier to maintain something close to the status quo. But sometimes the status quo is the problem, in which case more transformational approaches are needed to ensure long-term resilience. That is why many Western countries are turning to industrial policy—official encouragement of specific domestic economic sectors—as they attempt to address climate change and heightened threat perceptions from increased geopolitical tensions.

In some cases, governments are using industrial policy to promote transformative innovations that will reduce risks and build resilience. For example, the U.S. government has invested in developing Open Radio Access Networks, new mobile network technology that runs on the cloud and would break the connection between 5G network providers and 5G service providers, allowing users to mix and match providers. If successful, this technology would reduce some of the risks inherent in 5G networks and increase resilience. The 5G markets would be more open and competitive, making it easier for countries and companies to switch service providers if networks are weaponized.

In other cases, governments are using industrial policy so they can reap future rewards as well as limit risks. The United States is subsidizing the development and deployment of green technologies not just to address the dangers of a changing climate but also to ensure that American companies capture a sizable share of important emerging markets, including the one for electric vehicles. The CHIPS and Science Act, which aims to boost the domestic semiconductor industry; the Inflation Reduction Act, which made historic investments in clean energy; and the Infrastructure Investment and Jobs Act, which has upgraded infrastructure in areas such as bridges, rail, and broadband are also designed to transform the U.S. economy and society. These laws, passed in 2021 and 2022, reduce supply chain vulnerabilities; provide incentives to manufacturers of renewable energy, batteries, electric vehicles, and semiconductors; and enhance access by building a national network of electric vehicle chargers and overhauling the nation's power grid to improve clean energy transmission.

NO MAGIC FORMULA

There is no magic formula for balancing risk, reward, and resilience. The best calibration is subjective; different actors have different risk appetites. What countries see as the right balance also depends on how optimistic they are about the future. Expectations are important because decisions that may be optimal in stable and predictable environments can be disastrous in turbulent and unpredictable ones. When turbulence is low and predictability is high, countries can often focus on maximizing rewards. This is what they did after the Cold War, a placid period when globalization was on the march. But when turbulence is high and predictability is low, they turn to resilience.

Standard approaches to risk management focus on calculating the probability and likely impact of different risks. But many risks and rewards involve events whose probability and impact are unknowable. It is impossible to calculate the odds or likely effects of a Chinese invasion of Taiwan, for instance. When uncertainty is high, actors often prefer to stay flexible and minimize potential losses. As the world becomes (or is perceived to become) riskier and more turbulent, countries are increasingly adopting these kinds of conservative strategies. As a result, they are focused on protecting their most important needs—critical infrastructure, critical supply chains, critical minerals, and critical technologies. This approach reflects a pessimistic outlook that prioritizes mitigating risks in bad times over maximizing rewards in good times.

The world is facing enormous challenges, from great-power rivalry to the climate crisis. To survive and thrive as best they can, countries will need to understand the drivers of risk, reward, and resilience; how these forces are connected; and what tradeoffs and synergies they create. Great-power competition may undermine cooperation on climate change while supercharging the clean energy race. Efforts to increase resilience may require reducing interdependence among rivals while accelerating it among allies. Resilience may sometimes require rebuilding national capabilities and other times require forging alliances.

Taking a systemic approach to resilience will not be easy, particularly in a world characterized by polarization and specialization. Government officials are often focused on the next election, while their departments are busy engaging in bureaucratic turf wars. But failing to embrace systemic resilience will not just mean forgoing many of the rewards of economic integration; it will also mean creating new vulnerabilities that could prove catastrophic down the road.