2021

Global Risk Management Survey

Contents

1

Introduction

The impact of the COVID-19 pandemic has demonstrated with clarity and certainty that the world is more volatile and interconnected than ever before. As this year's Global Risk Management Survey shows, long-tail risks have become a focal point of the risk landscape, with the ripple effects of increased cyber events, severe weather and supply chain disruptions having a significant impact on the global economy.

What our research also continues to show is that a failure — or unwillingness — to prepare can be catastrophic to an organization's reputation and survival. COVID-19 is a stark reminder that it is not enough to focus on a specific event or exposure, but but also on the impact events can carry in a globally connected marketplace.

At Aon, we are in the business of better decisions. That is why as a firm we are dedicated to developing and delivering innovative solutions that address both known risks and those that are emerging. It is not enough to look in the rearview mirror for predictive models and solutions. The increased volatility in the world demands that we use data, state-of-the-art analytics and our subject matter expertise to build new predictive models and solutions that help clients prepare for what's to come, as well as manage what they currently face.

Given the threats posed by long-tail risks, we are focusing on four major identified areas of client need to address these challenges — challenges that are disrupting supply chains, leaving intellectual property assets undervalued and vulnerable, and increasing the risks of a major cyber event:

1. Understand new forms of volatility — building an understanding of holistic risk management solutions to solve for emerging threats and long-tail risks.
2. Consider access to new forms of capital — understand how to create alternative sources of capital that support risk taking and preserve existing capital to address recent hard market cycles and lack of capacity for emerging risks.
3. Build a resilient workforce — consider the role of all employees in building solutions and addressing challenges stemming from various threats, including how the future of work will be impacted and continue to evolve.
4. Create solutions for traditionally underserved or newly emerging market sectors — like gig economy workers — to map to how our economy and market needs are constantly evolving.

The bottom line for us all, is that risk managers who successfully manage their risk portfolio enterprise wide will be those that set themselves apart from their peers by actively enhancing their organization's performance. The following insights and analysis — from an array of Aon experts — endeavors to help readers make better decisions for the future and drive improved performance.

As mentioned above, Aon is in the business of better decisions. We hope you will find these insights useful in your decision-making efforts and encourage you to reach out to your Aon representative for more information or if you would like to discuss any of the subjects raised within the report.

— Greg Case, CEO, Aon

2

Executive Summary

At a recent U.S. Congressional hearing, when U.S. Federal Reserve Chair Jerome Powell was asked to rate the greatest systemic threats to global financial stability, he responded, "The thing that worries me the most is really cyber risk." Calling it "another epidemic," Powell pointed out that cyber risk is even more damaging than the lending and liquidity risks that led to the 2008 global financial meltdown.[1]

President Joe Biden went one step further. If this country has a "real shooting war," it could be the result of cyber attacks, he warned while delivering a speech to the U.S. intelligence community in July 2021.[2]

Meanwhile, the finance ministers of the G-7 countries have voiced similar concerns over the rise in "malicious cyber attacks" in the midst of the coronavirus (COVID-19) pandemic. Cyber attacks "have been growing in scale, sophistication and frequency," causing "significant economic damage and [threatening] customer protection and data privacy," the ministers said.[3]

Their concerns are justified. Over the past year, hackers and criminals have exploited the COVID-19 pandemic and escalated their attacks on every business sector in many countries around the world. The sheer number of cyber crimes broke all records in 2020. Aon's 2021 Cyber Security Risk Report shows that the global number of ransomware attacks grew dramatically — up 400 percent from the first quarter (Q1) of 2018 to Q4 of 2020.[4] Cyber-security firm SonicWall also points out that in the first half of 2021, ransomware attacks surged globally to total $304.7 million in payments, surpassing 2020's full-year total of $304.6 million.[5]

Needless to say, cyber security has also risen to the top of the agenda for organizations taking part in Aon's 2021 Global Risk Management Survey, the highlight of which is the Top 10 Risk List, a ranking of the top risks organizations face today. The risk of cyber attacks and data breaches ranked number one and is also projected to be a top risk in 2024. In fact, cyber security is perceived as a top 10 risk by every surveyed sector and for all job roles, including CFOs, CEOs and chief people officers.

These insights related to cyber threats are just one part of Aon's 2021 Global Risk Management Survey, which illustrates today's traditional and emerging corporate risk portfolio. This biennial web-based survey has gathered the responses of 2,344 risk decision makers from 16 industry clusters, which include small, medium and large companies in 60 countries/territories around the world. Its robust representation has enabled Aon to provide intelligence about risk management practices by geography and industry and has validated the data about risks common to all industries.

Key Findings: Top 10 Risk List

Respondents have selected and rated 10 top risks that their organizations face today:

1 Cyber Attacks/ Data Breach	2 Business Interruption	3 Economic Slowdown/ Slow Recovery	4 Commodity Price Risk/Scarcity of Materials	5 Damage to Reputation/ Brand
6 Regulatory/ Legislative Changes	7 Pandemic Risk/ Health Crises	8 Supply Chain or Distribution Failure	9 Increasing Competition	10 Failure to Innovate/Meet Customer Needs

2 A New Entry That Casts a Long Shadow Over the Top Risks

COVID-19 continues to mutate and spread, rendering vaccines less effective. As a result, fear and anxiety, together with confusing and conflicting information over its unpredictable impact, have aggravated concerns about pandemic risk and health crises. This has seen the risk enter the Top 10 Risk List for the first time this year, jumping from number 60 in the previous survey to number seven in the current one. As expected, reported loss of income from pandemic risk in the past 12 months has risen from 2 percent in 2019 to 79 percent in 2021.

For more than a decade, the risk of pandemics and health crises lay buried at the bottom of Aon's risk list, despite the constant threats of bird flu and the SARS, MERS, Ebola and Zika viruses. Having foreseen the potentially devastating impact of these diseases, experts at Aon repeatedly called out this risk in various reports, characterizing it as an underrated threat.

In 2013, Aon polled more than 100 captive directors and asked participants whether the risk of pandemics and health crises, ranked number 44 in Aon's previous surveys, was underrated. Much to our surprise, respondents seemed undecided on this question, with only 39 percent considering it to be underrated.

Then came the COVID-19 pandemic, the largest in modern history. Unlike a typical crisis that takes a linear path to its conclusion, the COVID-19 pandemic has played out in multiple waves of infection, requiring organizations to pivot quickly between reacting, responding, recovering and reshaping. This pandemic is an event driven by a host of as-yet-unknown factors and hidden interconnectivities that combine to amplify the pandemic's impacts and ripple effects.

Pandemic risk is an issue in its own right but has also acted as a catalyst and magnifier, accelerating changes in the way companies operate and, in turn, impacting other existing risks on the Top 10 Risk List.

For example, during the COVID-19 lockdowns, remote working for office-based environments quickly transitioned from being an option to a necessity almost overnight. This required companies to bring forward the investment and transformation of a "digital-at-scale" model by two to five years. Technology played a central role during the lockdowns of 2020 and acceleration of economic activity during the reopening in 2021, but this dependency has also created more Cyber "attack surface," presenting more potential security vulnerabilities to bad actors.

At the same time, business interruption, which was predicted to be at number seven, comes in a close second on the Top 10 Risk List. Participants in Asia Pacific and Europe, as well as those from the energy, utilities and natural resources, hospitality, travel and leisure, and life sciences sectors have ranked it number one. The pandemic-induced lockdowns, along with an ever-adapting threat profile, have helped to deliver this high ranking.

The pandemic has been one catalyst for the high ranking of supply chain/distribution failure, along with a spate of high-profile events, regulatory change and significant weather events. As a consequence, supply chain has surged back into the Top 10 Risk List, having been rated at number 19 as recently as 2017.

For many organizations, the definitions of supply chain failure and business interruption have broadened, from event-based to impact-based but also from property to non-property. The challenge facing companies today is to build resilience at a time when many will be looking to continue removing perceived cost and inefficiencies.

COVID-19 triggered a global economic recession, ensuring that economic slowdown/slow economic recovery remained a top three risk in Aon's survey. A related threat, commodity price risk/scarcity of materials has registered its highest-ever ranking (at number four) since it was added to Aon's list in 2009. In the early days of the pandemic, when entire industries came to an abrupt halt, the commodity market experienced similar volatility. Prices for oil and metals plunged as coronavirus lockdowns reduced demand. Supply chain disruptions also led to severe scarcity of materials. Now that the world is slowly recovering from the pandemic, the risk has been redefined, as the availability of raw materials to make the products that are suddenly in high demand is now under pressure.

As we move at a rapid pace to reshape, the pandemic has changed the profile of many of our existing risks, casting doubt over our ability to manage and finance them, and imposing new demands on the insurance market to stay relevant.

2

Underrated Risks

We believe that survey participants have underrated the following risks:

Environmental, Social and Governance (ESG): In Aon's 2021 survey, ESG ranks only in 31st place overall. (However, it is ranked sixth by respondents in Japan.)

ESG strategies sit at the heart of most business plans today, and with these strategies comes new risk. Companies are increasingly required by regulators to adopt transparent and effective ESG initiatives. The underrated status of this risk can be attributed to the fact that many participants today classify ESG as mainly being about regulatory exposure or a driver of reputational damage, both of which feature in the Top 10 Risk List. Regardless, we predict that climate change will become the next big focus for companies and enter the top fifteen in the future survey.

Climate Change: This risk has risen from 31 in Aon's 2019 survey to 23. Despite its jump, it's not rated as a Top 10 Risk. Participants do not consider climate change will pose a top threat, even in three years' time, which surprises us. From Aon's perspective, climate change is not only an emerging risk. It is an urgent risk. According to "Aon's Global Catastrophe Recap: First Half of 2021" report, which evaluates the impact of natural disaster events that occurred worldwide, insured losses from natural disasters hit a 10-year high of $42 billion in the first half of 2021. Planning in new ways has become a must for the reality of climate change, which presents a systemic threat that is going to justify a completely fundamental change in terms of how companies think and how we plan for the future.

Personal Liability (D&O risk): This risk has dropped to its lowest-ever ranking, at 45, despite the obvious pressures on D&O capacity and cost in the market. Perhaps participants don't perceive personal liability to be a risk in its own right, but rather an impact of a range of other risk events or a solution in the form of insurance.

Disruptive Technologies: This risk was introduced as new in 2017 and landed at number 20 before rising to 14 in the 2019 survey. Disruptive technologies was predicted to come in at number eight in Europe and nine in North America, but has dropped to 30. However, as the pandemic has accelerated technological advances in some industries, participants may consider it less of an unknown going forward.

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Projected Risks for 2024

Top 10 in 2021

1 Cyber Attacks/ Data Breach

2 Business Interruption

3 Economic Slowdown/ Slow Recovery

4 Commodity Price Risk/Scarcity of Materials

5 Damage to Reputation/ Brand

6 Regulatory/ Legislative Changes

7 Pandemic Risk/ Health Crises

8 Supply Chain or Distribution Failure

9 Increasing Competition

10 Failure to Innovate/ Meet Customer Needs

Predicted to be Top 10 in 2024

1 ↔ Cyber Attacks/ Data Breach

2 ↑ Economic Slowdown/ Slow Recovery

3 ↑ Commodity Price Risk/Scarcity of Materials

4 ↓ Business Interruption

5 ↑ Accelerated Rates of Change in Market Factors

6 ↑ Increasing Competition

7 ↑ Failure to Innovate/ Meet Customer Needs

8 ↓ Regulatory/ Legislative Changes

9 ↓ Pandemic Risk/ Health Crises

10 ↑ Cash Flow/ Liquidity Risk

Respondents are not predicting wholesale changes to the relative importance of risks in the future. For example, cyber risk is projected to occupy the top spot globally and in North America in the future. Behind this trend may be rapidly changing definitions and profiles of existing risks, in areas such as business interruption, supply chain and cyber.

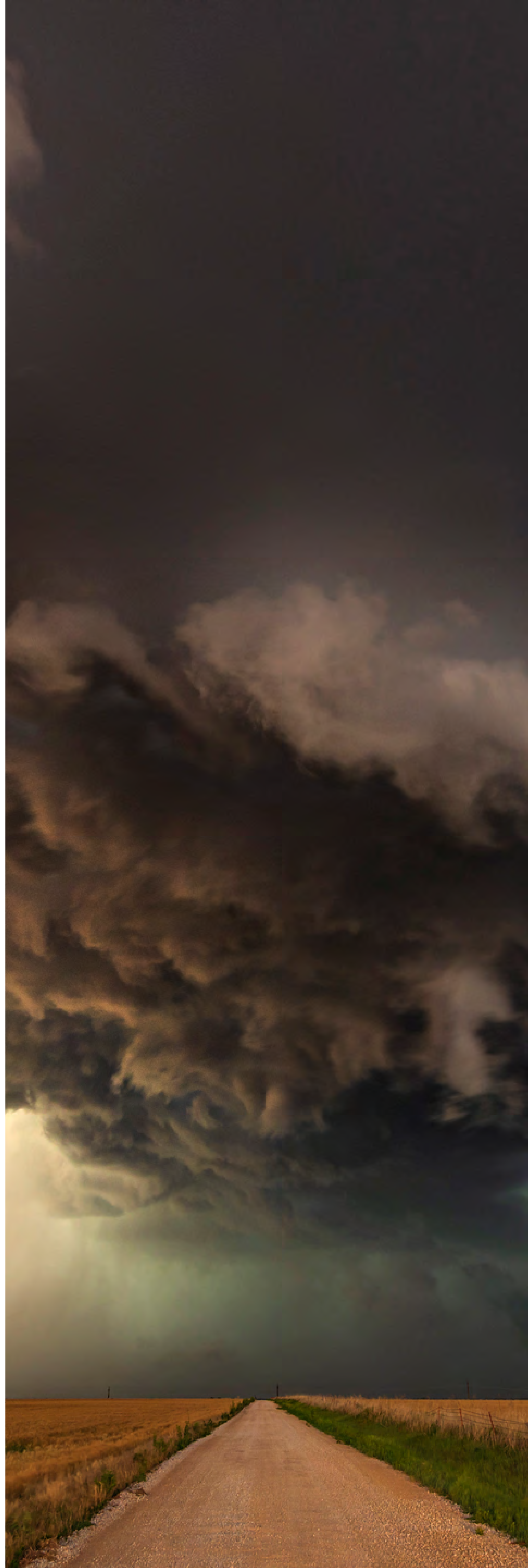
Three years from now, surveyed businesses in North America have predicted failure to attract and retain talent to return as a priority, having dropped from the overall Top 10 Risk List in the current survey. This heightened perception reflects the direction of travel of the workforce in the U.S. The 2020 census shows the lowest birthrate since the Depression decade of the 1930s. The data reflects fewer people in their prime working years, fewer working-age immigrants and more baby boom retirees. The situation in the U.S. is further compounded by the changes in the country's immigration policy and by what many believe to be the pandemic-related subsidies, which discouraged employment.

Failure to attract and retain talent is also considered to be a future Top 10 risk by organizations in the Asia and Pacific region, where the problems of lower birthrate and aging population are beginning to make an impact on available workers.

Overall, this risk may also be connected with developments in employee value proposition, and workers now choosing their employers not only based on role and remuneration but also the companies' values.

Businesses in the U.K., which have experienced workforce shortages as a result of Brexit, perceive the risk to be in the top six risk today but are not expecting it to remain a key threat in the future. Even though the pandemic may have temporarily upstaged the U.K.'s fallout from Brexit in the first half for 2021, we predict that failure to attract/retain talents will emerge as a bigger issue in years to come for the country and for the EU in general.

Climate change is not predicted to be in the global Top 10 Risk List, but many individual countries expect it to be a top threat in 2024: number five in the U.K., number six in Brazil and Japan, number eight in Chile and number nine in France.



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Risk Readiness and Reported Loss of Income

We investigate an organization's risk readiness every year because it serves as a good barometer of risk management activity, sophistication and dynamism.

Despite (or perhaps because of) the exceptional circumstances surrounding the global pandemic, more organizations now have plans to address and manage risks. Overall readiness for the top 10 risks increased from 51 percent in 2019 to 58 percent in 2021 as awareness of them has heightened, reversing the downward trend in previous surveys.

However, the growing volatility and changing nature of the top 10 risks have led to the highest-ever reported loss of income for businesses, despite a spike in reported levels of risk readiness. The average reported loss of income due to the top 10 risks has seen a 10 percent increase, the biggest hike since Aon's first survey in 2007.

Despite the rising amount of reported loss of income only 29 percent of respondents plan on increasing their investment level in risk management resources. About 63 percent state that they will maintain investment levels in risk management resources to support their risk agenda in the next 12 months, with 4 percent even planning on reducing their resources. Nearly 60 percent of survey participants do not measure total cost of insurable risk, with Asia Pacific reporting the lowest percentage of participants measuring total cost of insurable risk, at 33 percent.

Only 36 percent report that their company proactively assesses their most critical and emerging risks through mergers and acquisitions (M&A) and divestiture processes. This shows that most companies, regardless of industries and sizes, do not proactively assess their critical and emerging risks as part of the deal-making process, likely because risk management is generally not an integral part of planning processes for M&A and divestitures. This lack of risk oversight in corporate deal making may ultimately impact the value or security of the investment.

Regional Divergence

From a regional perspective, there is some consistency, as four key risks — the risk of cyber attacks/data breaches, the risk of business interruption, the risk of economic slowdown/slow recovery, and the risk of regulatory/legislative change — are cited across all geographies.

At the same time, the risk of pandemics and health crises occupies a top spot in the current and future Top 10 Risk List for all regions except North America, where participants have ranked it at number 12 and remain undecided about its future ranking. This could be attributed to the rising optimism seen back in the second quarter of 2021, when new infections were on an overall decline and more people were being fully vaccinated. With surging COVID-19 cases in the summer and fall, such perceptions could change.

Commodity price risk/scarcity of materials is perceived as a Top 10 Risk by all regions except Asia Pacific, which ranks it at 12. The difference in rating could be a reflection of the industry profile of our respondents from Asia as well as elevated commodity prices and scarcity of materials, from the rebound in economic growth in Europe and North America.

Similarly, companies in Europe and North America ranked supply chain/distribution failure risk at number five and number six, respectively, whereas other regions perceive it as a lesser threat. This is because the advanced economies in the West depend heavily on global suppliers to improve the cost and efficiency of their operations. Lockdowns and border closings have disproportionately affected businesses in these regions.

In North America, corporate reputational crises from financial fraud and neglect of employee health to racially offensive messages in advertising and inappropriate executive tweets frequently dominate headlines. As a result, North American participants ranked damage to reputation or brand in third place. At the same time, respondents in Latin America and the Middle East and Africa only ranked it in 13th place. A veteran public-relations (PR) expert[6] joked, "If you were going to have a PR disaster, this was the year to do it." In other words, the devasting impact of the global pandemic on businesses in these regions has overshadowed the public's concerns for corporate reputational issues.

Strategic Insights: Long-Tail Risks

The rapid pace of societal and technological transformation has brought increased focus on new forms of volatility, and what Aon calls the six "long-tail" risks — cyber security, damage to brand and reputation, complex supply chain risk, pandemic, intellectual property, and climate transition. If we examine the survey results, four of the six long-tail risks are represented on the Top 10 List.

Because of their complex nature and long-tail exposures, these interconnected risks are top of mind for companies. Companies tend to understand these risks less well, either because they are new or because they are accelerating or changing in profile. This requires companies to take a fresh look at risk assessment and scenario quantification, and to rigorously test the validity of existing risk management and financing programs.

2

Making Better Decisions To Shape the Future

The impact of the COVID-19 pandemic has demonstrated the interconnected nature of risk. Risk profiles have been and continue to be in a state of flux as businesses and economies emerge from the pandemic. As our survey shows, long-tail risks have become an important part of the risk landscape: cyber risk has increased as reliance on technology has increased, and global economics and trade have been impacted by unprecedented lockdowns all over the world.

There are also exposures that are still relatively new for many businesses. Companies' understanding of, readiness for and ability to manage and transfer risks such as climate-change, supply chain/ distribution failure and ESG-related risk leaves much room for improvement.

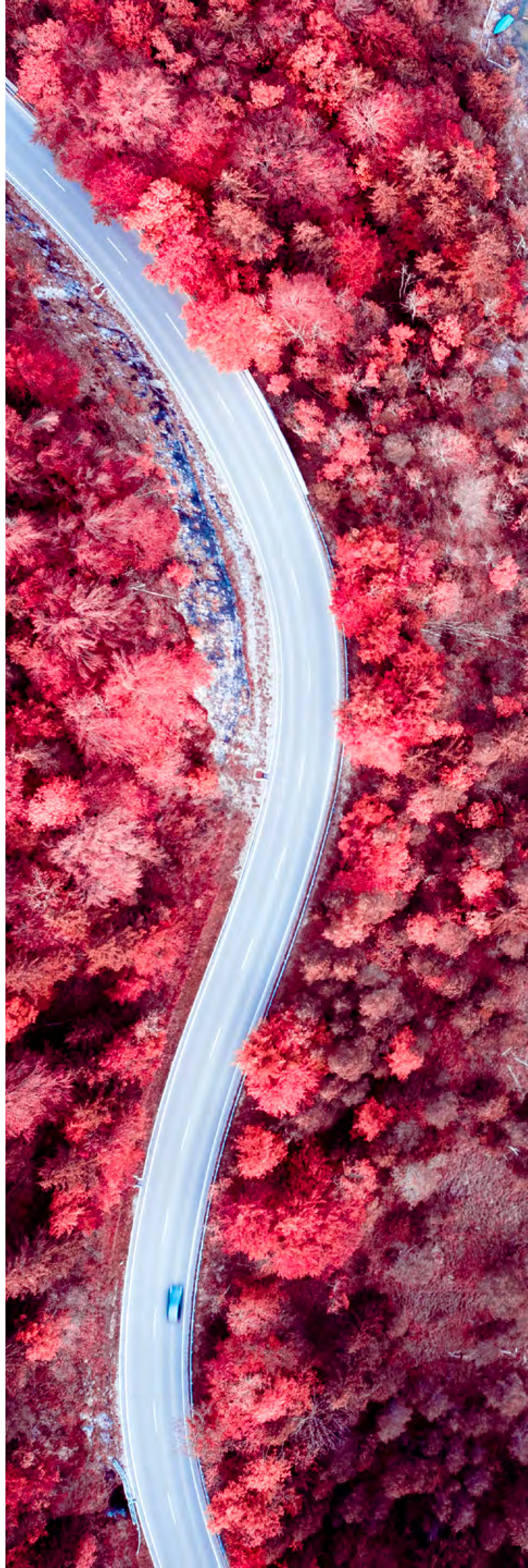
The business climate in 2021 has experienced a perfect storm. Business models are being reshaped, while organizations across the globe are responding to and, at the same time, recovering from the once-in-a-lifetime set of challenges posed by the COVID-19 pandemic. Large financial losses from large-scale natural disasters and man-made events continue to loom and adversely impact livelihoods and businesses. All the while, insurance markets see tough market conditions for traditional exposures and a limited appetite for emerging ones.

As an organization, we are dedicated to innovative solutions that address both known and emerging risks. Whether through proprietary data or state-of-the-art analytics, our purpose is to enable our clients to make better decisions and manage volatility at scale.

Historically, we have learned and made decisions by analyzing data from loss events as they have occurred. With the current absence of historical data, the challenge will be to forward-think how to best develop solutions to properly prepare for and manage through them.

To address these challenges, we suggest that organizations focus on these key priorities:

- Understanding new forms of volatility: Building an understanding of holistic risk management solutions to solve for emerging threats and long-tail risks.
- Considering access to new forms of capital: Understanding how to create alternative sources of capital that support risk taking and preserve existing capital to address recent hard market cycles and lack of capacity for emerging risks
- Building a resilient workforce: Considering the role of all employees in building solutions, and addressing challenges stemming from various threats, including how the future of work will be impacted and continue to evolve.



Global Risk Management Survey Risk Ranking

Partially Insurable Insurable Uninsurable

1 Cyber Attacks/ Data Breach	2 Business Interruption	3 Economic Slowdown/ Slow Recovery	4 Commodity Price Risk/ Scarcity of Materials	5 Damage to Reputation/ Brand	6 Regulatory/ Legislative Changes	7 Pandemic Risk/ Health Crises	8 Supply Chain or Distribution Failure	9 Increasing Competition	10 Failure to Innovate/ Meet Customer Needs
11 Accelerated Rates of Change in Market Factors	12 Cash Flow/ Liquidity Risk	13 Failure to Attract or Retain Top Talent	14 Workforce Shortage	15 Exchange Rate Fluctuation	16 Political Risk	17 Tech Failure/ System Failure	18 Environmental Risk	19 Counterparty Credit Risk	20 Property Damage
21 Vendor Management/ Third Party Risk	22 Weather/ Natural Disasters	23 Climate Change	24 Capital Availability	25 Product Liability/ Recall	26 Data Privacy (including GDPR) Requirements/ NonCompliance	27 Concentration Risk (Product, People, Geography, etc.)	28 Major Project Failure	29 Work Injuries	30 Disruptive Technologies
31 Corporate Social Responsibility (CSR)/ Environmental Social Governance (ESG)	32 Geopolitical Volatility	33 Asset Price Volatility	34 Conduct Risk/ Unethical Behavior	35 Aging Workforce and Related Health Issues	36 Third Party Liability (e.g., E&O)	37 Merger/Acquisition/ Restructuring	38 Failure to Implement/ Communicate Strategy	39 Absenteeism	40 Outdated Tech Infrastructure
41 Interest Rate Fluctuation	42 Inadequate Succession Planning	43 Intellectual Property Risks	44 Globalization/ Emerging Markets	45 Personal Liability (Directors and Officers)	46 Rising Healthcare Costs	47 Fraud or Embezzlement	48 Outsourcing	49 Theft	50 Artificial Intelligence (AI)
51 Terrorism	52 Impact of Brexit	53 Share Price Volatility	54 Harassment/ Discrimination (Employment Related)	55 Sovereign Debt	56 Gender Pay Gap	57 Pension Scheme Funding	58 Extortion	59 Kidnap and Ransom	60 Impact of Blockchain Tech

3

Respondent Profile

Aon’s 2021 Global Risk Management Survey, a biennial web-based research report, was conducted in the Q2 of 2021 in 11 languages. The research gathered the responses of 2,344 risk decision makers from 16 industry clusters, which include small, medium and large companies in 60 countries/territories around the world.

About 68 percent of the surveyed organizations are privately owned, while 22 percent are public organizations. The rest are primarily government or not-for-profit entities.

The robust range of voices represented in the 2021 survey has enabled Aon to provide insight into risk management practices by geography and industry and has validated the data that illustrate risks common to all industries.

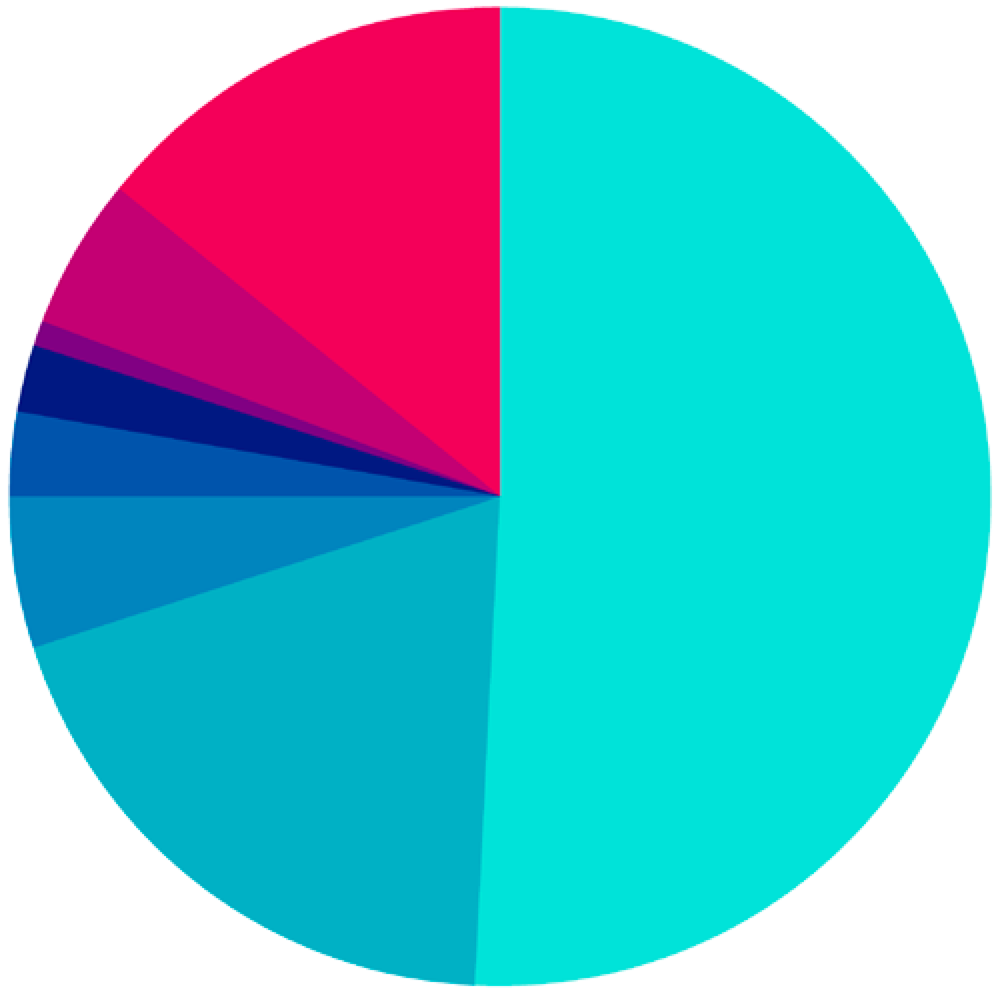
Survey Respondents by Industry

Food, Agribusiness and Beverage	14%
Construction and Real Estate	8%
Energy, Utilities and Natural Resources	12%
Financial Institutions	6%
Healthcare Providers and Services	4%
Hospitality, Travel and Leisure	1%
Industrials and Manufacturing	17%
Insurance	3%
Life Sciences	4%
Other	5%
Private Equity	0%
Professional Services	4%
Public Sector Partnership	4%
Retail and Consumer Goods	6%
Technology	4%
Telecom, Media and Entertainment	2%
Transportation and Logistics	6%

Survey Respondents by Region

Asia Pacific	14%
Europe	42%
Latin America	23%
Middle East and Africa	2%
North America	18%

Survey Respondents by Revenue (in $)



< $1B	51%
$1B – $4.9B	19%
$5B – $9.9B	5%
$10B – $14.9B	3%
$15B – $19.9B	2%
$20B – $24.9B	1%
$25B+	5%
Cannot Disclose	14%

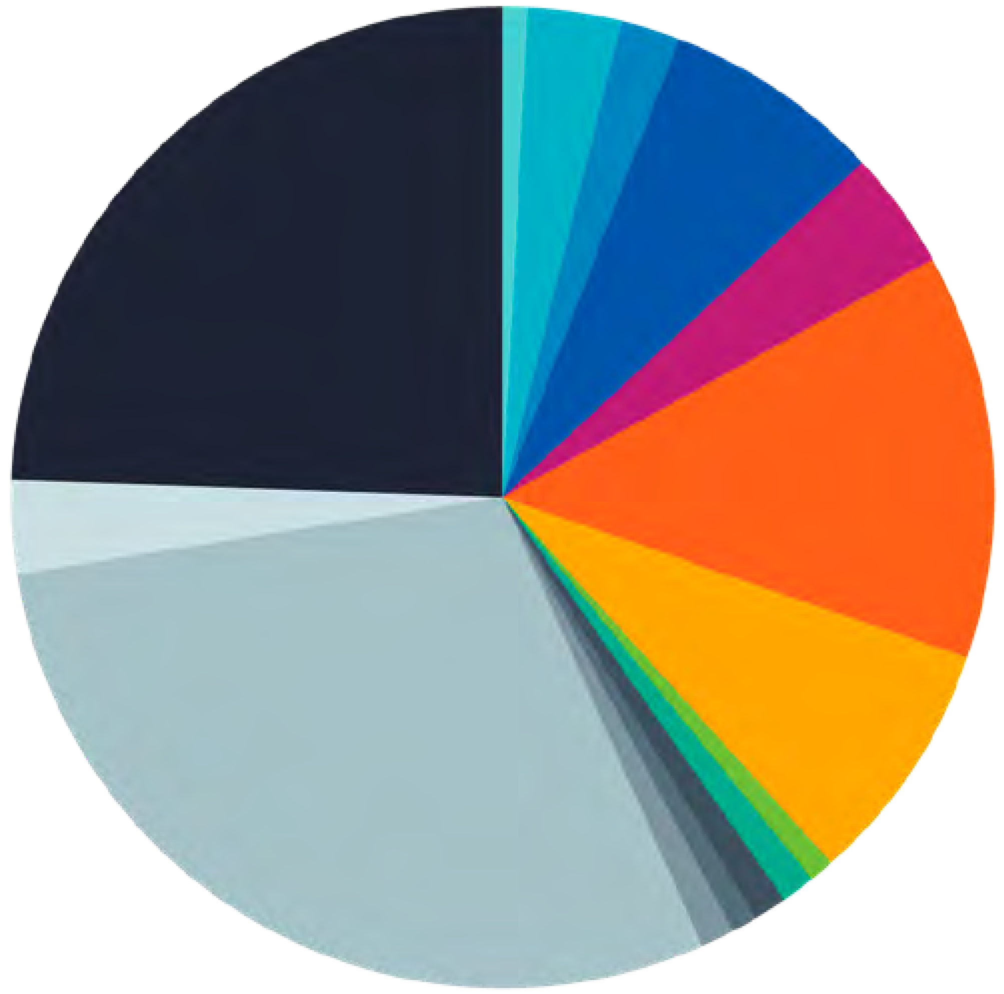
Survey Respondents by Number of Countries/Territories in Which They Operate

1	31%
2 – 5	19%
6 – 10	11%
11 – 15	5%
16 – 25	6%
26 – 50	9%
51+	16%
I Don't Know	2%

Survey Respondents by Number of Employees

1 – 249	21%
250 – 499	10%
500 – 2,499	23%
2,500 – 4,999	11%
5,000 – 14,999	15%
15,000 – 49,999	10%
50,000 +	9%
I Don't Know	1%

Survey Respondents by Role



- Chief Administration Officer
- Chief Counsel/Head of Legal
- Chief Executive
- Chief Financial Officer
- Chief Information Officer
- Chief Operations Officer
- Chief Risk Officer
- Chief Technology Officer
- Company Secretary
- Finance Manager
- General Business Manager
- Head of Human Resources
- Managing Director/Partner
- Member of the Board of Directors
- President
- Risk Consultant
- Risk Manager or Insurance Manage
- Treasurer
- Others

4

Top 10 Risks

4 Current Top 10 Risks

Respondents have selected and rated 10 top risks that their organizations face today

1 Cyber Attacks/ Data Breach	2 Business Interruption	3 Economic Slowdown/ Slow Recovery	4 Commodity Price Risk/Scarcity of Materials	5 Damage to Reputation/ Brand
6 Regulatory/ Legislative Changes	7 Pandemic Risk/ Health Crises	8 Supply Chain or Distribution Failure	9 Increasing Competition	10 Failure to Innovate/Meet Customer Needs

1. Cyber Attacks/Data Breach

Rankings in Previous Surveys

Year	Rank
2007	19
2009	25
2011	18
2013	18
2015	9
2017	5
2019	6
2021	1

Rankings by Region

Region	Rank
Asia Pacific	2
Europe	4
Latin America	9
Middle East and Africa	2
North America	1

Industry leaders call cyber attacks an epidemic.

In May 2021, the U.S. Congress summoned representatives of the country's largest banks for a hearing to examine risks facing financial institutions.[7]

At the time, the COVID-19 Delta variant was surging in many parts of the world. The threats of material scarcity, inflation, climate change and a possible extended economic contraction in the U.S. were looming large. However, much to the surprise of many observers, the CEOs of Citigroup, Goldman Sachs, Morgan Stanley and Wells Fargo singled out cyber attacks as the most serious threat to U.S. financial institutions and the system as a whole.

Their concerns are justified. While global financial institutions have higher levels of cyber maturity than most organizations, their sheer scale and geographic diversity have created challenges. Over the past decade, the sector has sustained many high-profile attacks. A special report by Cyber Talk[8] reveals that financial-services organizations experienced a 238 percent increase in cyber attacks in the first half of 2020. Nearly 75 percent of banks and insurance groups have witnessed a spike in cyber crimes since the start of the COVID-19 pandemic. Meanwhile, the U.S. Department of the Treasury claims that Evil Corp, a Russia-based cyber-criminal organization, has stolen nearly $100 million from banks and financial institutions in more than 40 countries.

In fact, hackers and criminals exploited the pandemic to target every business sector. The sheer number of cyber attacks on corporations broke all records in 2020. For example, ransomware attacks grew dramatically — up 400 percent from the first quarter of 2018 to the fourth quarter of 2020, according to Aon's 2021 Cyber Security Risk Report.[9]

Meanwhile, Aon's Cyber Solutions saw an average of three new errors and omissions (E&O) and cyber matters per business day in 2020, up almost 100 percent from 2019. The majority of these matters were related to ransomware events. Cybersecurity firm SonicWall[10] points out that ransomware attacks surged globally in the first half of 2021 to $ 304.7 million, surpassing 2020's full-year total of $ 304.6 million.

Alarming statistics related to the frequency and severity of cyber attacks and dire warnings by business and political leaders have heightened awareness of this risk. In Aon's 2021 Global Risk Management Survey, participants around the globe rated the risk of cyber/data breach as the number one threat facing companies today.

This risk was listed at number six in Aon's 2019 survey. At that time, participating businesses projected that it would be ranked third in the future. In 2015, only one industry — telecommunications and broadcasting — considered the risk of cyber attack/data breach to be a top threat. Now, four more industries — finance, insurance, professional services and technology — perceive it as a top threat. Moreover, it is perceived as a top 10 risk by every surveyed sector — a massive statement on the heightened awareness of this risk.

Meanwhile, all job roles, including CFOs, CEOs and chief people officers, now rank the risk of cyber attacks/data breach in the top 10, even though none of them ranked it as high as risk managers did in 2019.

Regionally, businesses in North America have consistently regarded cyber attack/data breach as a number one risk since 2019. Their risk perception is driven by the dramatic increase in the frequency and severity of high-profile cyber breaches and exorbitant ransom payments in North America. In 2020, the FBI's Internet Crime Complaint Center received 791,790 complaints for all types of internet crime — a record number — from the American public, with reported losses exceeding $4.1 billion.[11] The dire situation prompted Yahoo Finance's[12] technology editor to proclaim in one of his columns, "Sorry, America. You have already been hacked!" U.S. Federal Reserve Chair Jerome Powell stated that he is more worried about cyber risk than another financial crash because "a cyber event" could have "a broad part" to play in the financial system "coming to a halt."[13]

Against this backdrop of increasing attacks, the risk of cyber attack/data breach registered the highest level of risk readiness at 87 percent. In the "loss of income" category, it ranked third-lowest on the Top 10 Risk List at 18 percent in 2021. In comparison with other risks on the Top 10 Risk List, cyber has had the highest percentage of risk mitigation actions taken: 65 percent of participants say they have assessed cyber risk, 46 percent have quantified cyber risk, 68 percent have developed a cyber-risk management plan, 45 percent have evaluated risk finance and transfer solutions and 60 percent have developed continuity plans.

Then why is cyber ranked as the number one risk when readiness levels are high and reported losses are low?

The high ranking could be attributed to the recognition of the central role that technology has played as an enabler both of business survival during the COVID-19 lockdowns of 2020 and of acceleration of economic activity during the reopening. However, this expanded dependency on technology has similarly expanded "attack surfaces," presenting more potential security vulnerabilities to bad actors.

One illustrative example is remote work's transition from an option to a necessity almost overnight. This forced companies to advance investment in and transformation into a "digital at scale" model by two to five years. The change in operating-model and technology architecture was at times so rapid that vulnerabilities were overlooked or unintentionally created by companies less advanced in this transformational journey. Aon's 2021 Cyber Security Risk Report[14] underscores this, with only 40 percent of organizations reporting that they have adequate cyber-security controls to safeguard new remote-work strategies.

Another trend driving the rise in cyber's ranking has been the evolution of the objectives and tactics of adversaries. For example, in the past, criminals attempted to steal sensitive data or money online. Now, they employ ransomware to extort, breach and erase data, as well as directly targeting critical physical infrastructure. In May 2021, ransomware penetrated a U.S. oil pipeline's computerized equipment system, paralyzing its operations.[15] However, Aon research shows that only 31 percent of organizations have adequate business resilience measures in place to deal with ransomware threats.

The bad actors are also exploiting the expansion of third-party technology vendors and digital supply chains. In what are known as watering-hole attacks, hackers insert malicious codes into enterprise platforms to spread their attack to corporate clients, which can sometimes number in the thousands. However, despite such risks, only 21 percent of organizations surveyed by Aon's 2021 Security Risk Report[16] have baseline measures to oversee critical suppliers and vendors.

The cyber insurance market has been equally impacted by the rise in cyber attacks since the beginning of the pandemic. According to Aon's Underwriting Survey Data of 2021, ransomware now accounts for the majority of insurer losses (more than 58 percent), with loss ratios increasing between 5 and 25 percent for all large cyber underwriters.

From Aon's research monitoring the behavioral signals from the market, these insurer losses are triggering two major responses:

- **Increases in insurance premiums:** Rates increased by more than 35 percent in Q1 2021 and continued to trend upward to as high as 40 to 50 percent in Q2 2021.
- **Reduced capacity:** Fewer companies can now secure or renew cyber insurance policies. Carriers are now demanding a higher baseline in ransomware protection that includes proactive and reactive measures, including business continuity management and incident-response plans. If these conditions are not met, insurers are more likely to decline coverage.

Because cyber criminals and nation-states are constantly innovating and our dependency on digital technology is only increasing, companies must keep pace with cyber risk. In addition to increasing their cyber-security budgets, Rich Nolan, managing director for cyber investigations at Citigroup, tells Aon that companies must embrace zero-trust architecture to deal with cyber risks. Zero trust is a security concept in which an organization does not trust anyone inside or outside its perimeters and verifies any request for connecting to its systems, even if the request appears to be coming from an employee.

According to Forbes,[17] by 2025 an estimated 70 percent of the workforce will be working remotely at least five days a month. "As the pandemic catalyzed the rapid digital evolution of business models across all industries, there has been an acknowledgment that cyber risk will now be a persistent threat to the 'new normal' going forward," says Adam Peckman, global practice leader for Cyber Risk Consulting. "With distributed supply chains, automation, remote working and e-commerce underpinning these new models, our risk mitigation and insurance market strategies to manage cyber risk will need to continue evolving to stay ahead."

2. Business Interruption

Rankings in Previous Surveys

Year	Rank
2007	2
2009	3
2011	5
2013	7
2015	7
2017	8
2019	4
2021	2

Rankings by Region

Region	Rank
Asia Pacific	1
Europe	1
Latin America	2
Middle East and Africa	3
North America	2

For visitors to London, the 1.5-mile-long Oxford Street in the West End district, with more than 90 flagship fashion and high-tech retail stores, restaurants and entertainment venues, was the ultimate shopping paradise. In March 2020, when the government issued a lockdown order to fight the COVID-19 pandemic, Oxford Street emptied out overnight. The West End turned into a dead end.

A year later, at about the same time that Aon's survey was conducted, stores were gradually opening, but about one-fifth of Oxford Street had boarded up for good; more than 50,000 retail and hospitality jobs were lost. Revenues in the district had fallen by more than 80 percent.[18]

What happened on Oxford Street is emblematic of what happened in other cities around the world, from Paris and New York to Tokyo and Rio de Janeiro, where all industry sectors experienced unprecedented disruptions from the broadest stay-at-home orders and travel restrictions in human history.

"The pandemic has subverted the traditional way we think about business interruption," says Richard Waterer, a managing director in EMEA at Aon. "It has been redefined — businesses can be interrupted on a much wider berth of issues. Because of technology and the way we do business, BI [business interruption] can be more systemic. It doesn't just happen to those in high-risk areas. BI can happen to anyone."

This risky and volatile environment has propelled business interruption to number two in Aon's 2021 Global Risk Management Survey. Meanwhile, the increasing complexity of business-interruption insurance is also contributing to respondents' concerns about the wider issue. In the 2019 survey, global participants projected business interruption risk to only rank at number seven by 2022..

Respondents in Europe and the Asia-Pacific region — where stricter COVID-19-related lockdowns have decimated small- and medium-sized businesses due to massive temporary factory and port closings and where natural disasters such as wildfires, flooding and typhoons have wreaked havoc — perceived business interruption as a number one risk.

It is not surprising that participants in the hospitality, travel and leisure industry also rated business interruption as a number one risk. This sector faced the biggest interruption issues because of continued travel restrictions and a precipitous drop in consumer demand. In a separate Aon study, "Reprioritizing Risk and Resilience for a Post COVID-19 Future," 67 percent of participants in the hospitality sector have seen their business severely impacted and expect it will take significant time to recover — 63 percent expect the impact to their business to last over a year. According to Forbes, during the first 10 months of 2020 alone, the tourism industry lost $935 billion in revenue worldwide.[19]

At the same time, the energy sector also perceives business interruption to be a number one risk because the pandemic choked demand. While electricity use was down significantly in many countries, the market for transport fuel shrank dramatically as planes were grounded and movement was restricted.

Business interruptions also posed a top threat for the life-sciences sector, which had to cease its human research trials in regions that were in partial or complete lockdown.

While the risk perception of business interruption is mostly pandemic-driven, one needs to take into account other factors:

- Cyber attacks have become a growing business-interruption threat. For example, hackers targeted the computer network of a major U.S. beef supplier in May 2021.[20] As a consequence, meat plants across the U.S. and Australia were forced to shut down. The speed at which new technology has been implemented in enterprise-wide use may mean that full interdependencies and critical failure points have not yet been fully tested.
- Climate change is another factor in creating business interruptions. Natural disasters, such as record-breaking wildfires across Australia, flooding in Germany, typhoons in the Philippines, an earthquake in Turkey and hurricanes in the U.S. and Central America, caused severe business interruptions. A newly released Aon report shows that insured losses from natural disasters reached $42 billion in the first half of 2021, a figure that represents a 10-year high for insured losses over the opening six months of the year.

While business interruption is a traditional risk by name, its profile is evolving fast. Businesses need to improve their understanding of this new form of volatility and build market solutions to manage this risk. The COVID-19 pandemic serves as a reminder that risk management and business-continuity management need to evolve further to help businesses prepare for and survive extreme events. In a separate Aon survey related to COVID-19 preparedness, only two in five companies said they have business-continuity management (BCM) that addresses cyber-triggered business interruption. At the same time, about 69 percent stated that they will review and improve BCM as part of their normal business processes. This suggests that organizations understand the need to reevaluate their existing plans to apply the lessons learned from the pandemic.

For companies with complex business models, Aon recommends mixing, combining and aligning the following risk transfer options:

- Traditional business-interruption coverage (loss of revenue or profit at affected location)
- Interdependency business-interruption coverage (knock-on internal effects within the broader organization, both at the affected location and at other locations)
- Contingent business-interruption coverage (revenue or profit impact for client resulting from a covered event at a third-party customer or supplier)
- Ancillary or additional coverage (increased costs, additional increased cost or denial of access)

At the same time, Aon believes that organizations will have to ready themselves for more frequent extreme scenarios caused by economic disruptions, health crises, business model disruptions, geopolitical tensions and technological failures.

3. Economic Slowdown/Slow Recovery

Rankings in Previous Surveys

Year	Rank
2007	8
2009	1
2011	1
2013	1
2015	2
2017	2
2019	1
2021	3

Rankings by Region

Region	Rank
Asia Pacific	3
Europe	3
Latin America	1
Middle East and Africa	1
North America	4

In 2020, when the COVID-19 pandemic cut a deadly swath across the world, only 27 countries in the world experienced economic growth. Global economic growth dropped from an annual rate of –3.4 percent to –7.6 percent. A year and a half later, recovery seems to be finally on the way.[21]

In Israel, the government officially ended its COVID-19-related restrictions in June 2021, when over half of its population was fully vaccinated. Pre-pandemic life returned. Shops, restaurants, hotels and cinemas were fully open. Meanwhile, the British prime minister proclaimed that people in England would be enjoying "Freedom Day" on July 19, 2021, when many state-mandated rules — on social distancing, face masks and numbers for gatherings — would be lifted. Soon, many other countries, including the U.S., Sweden, the Netherlands and South Korea, also eased their restrictions.

Reopening fuels economic recovery. In its latest Global Economic Prospects report, the World Bank said growth is expected to accelerate to 5.6 percent in 2021. Meanwhile, global trade, which fell by an estimated 5.3 percent in 2020, is projected to grow by 8.0 percent.[22]

Due to massive fiscal support and an aggressive vaccination drive, the World Bank projected the U.S. growth rate to reach 6.8 percent in 2021, the fastest pace since 1984. Meanwhile, China's economy — which hardly contracted in 2020 due to the success of its substantial virus-containment policies — is expected to grow by 8.5 percent. According to the European Commission's Summer 2021 Economic Forecast, average Gross Domestic Product (GDP) across the European Union is now expected to increase by 4.8 percent in 2021 and 4.5 percent in 2022.[23]

Despite a fast economic rebound, uncertainty still reigns. Economists say global GDP in 2021 is still 3.2 percent below pre-pandemic projections. The growth outlook can also vary wildly from region to region and from industry to industry.[24]

At their July 2021 meetings, policymakers at both the U.S. Federal Reserve[25] and the European Central Bank[26] voted unanimously to leave interest rates unchanged, warning that "risks to the economic outlook remain" and that the path of the economy would depend "significantly" on the course of the virus. In August, the resurgence of the Delta variant prompted economists at Goldman Sachs to slash their forecast for third-quarter GDP growth in the U.S. to 5.5 percent from 9.0 percent because "its impact on growth and inflation is proving to be somewhat larger than we expected."[27]

Concerns for a stalled economic recovery are reflected in Aon's 2021 Global Risk Management Survey, where the risk of economic slowdown/slow economic recovery is listed as the third-greatest risk facing global organizations today. It was ranked as the number one risk in the immediate aftermath of the 2008 financial crisis, but it slipped to number two in Aon's 2015 and 2017 surveys.

Geographically, companies in the Middle East and Africa, where economies are being hit hard by COVID-19 and fluctuating oil prices, see economic slowdown as a top threat. According to the latest forecast by the International Monetary Fund (IMF), the region's 4 percent economic-recovery rate will lag behind the global growth rate of 6 percent for 2021. The IMF report notes that, within the Middle East, countries that started vaccinations early on, such as the affluent Gulf Cooperation Council countries, face relatively better prospects, while fragile and conflict-affected states "have seen their outlook darken." Political instability and armed conflicts could also disrupt economic recovery. Among sub-Saharan African countries, tourism-reliant economies have suffered the worst impact.[28]

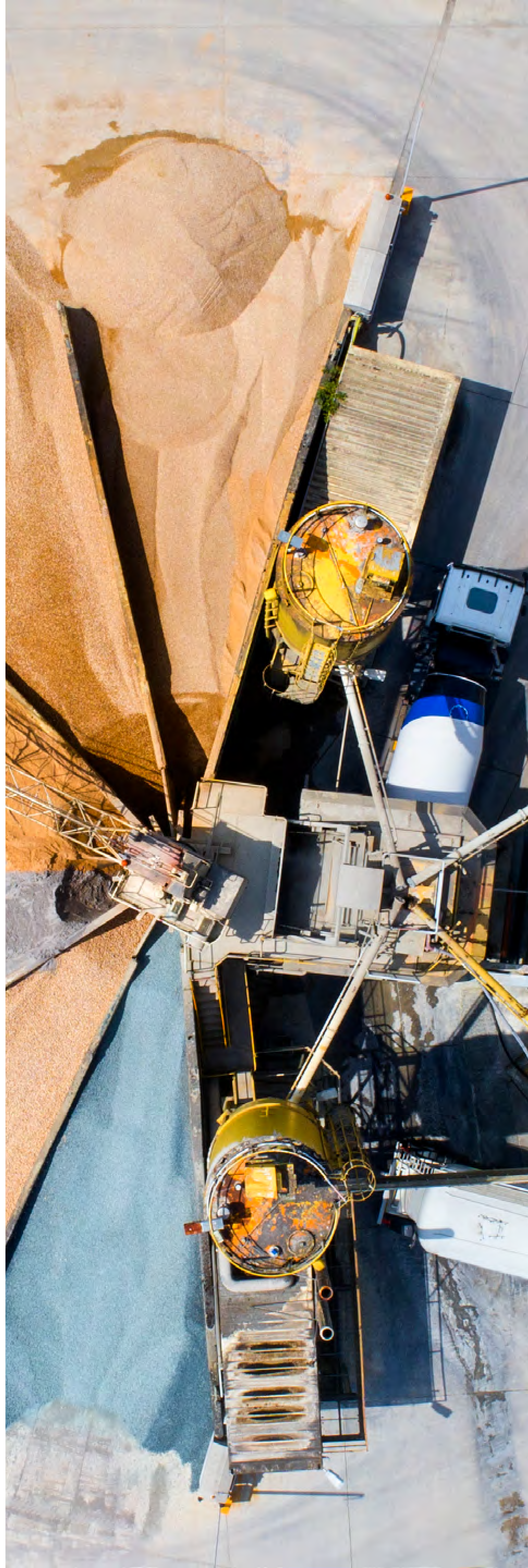
As expected, survey participants in Latin America also perceive economic slowdown and slow recovery as a number one risk. As of June 30, 2021, COVID-19-related deaths reached more than 1.26 million (32.0 percent of the global total, even though the region's population represents just 8.4 percent of the global total).[29] The Economic Commission for Latin America and the Caribbean (ECLAC) raised its average growth rate estimate for the region in 2021 to 5.2 percent, a figure that reflects a rebound from the deep contraction of 6.8 percent registered in 2020. However, with low vaccination rates, insufficient investment and employment, and major environmental deterioration, ECLAC says this expansion is not sustainable.[30]

When we break data down by industry, the real estate and construction sectors see the risk of economic slowdown and slow economic recovery as a top threat. The pandemic has fundamentally changed the way real estate business is conducted. The demand for space has been adversely impacted by social distancing, shutdowns, quarantines, layoffs and remote work. The construction sector encountered similar challenges. In the early days of the COVID-19 pandemic, many companies considered stopping — or at least pausing — construction projects due to uncertainty about the economy. Many projects remain stalled as owners continue to worry about demand for office or retail space when so many businesses have closed and people are working remotely. A survey conducted by the Associated General Contractors of America (AGC) in June 2021 found that 68 percent of contractors had seen a project canceled and that 48 percent saw a pre-pandemic project halted.[31]

The transportation and logistics sectors also consider the risk of economic slowdown/slow recovery to be a number one risk. As the pandemic continues, many countries across the globe are keeping their borders closed and limiting transportation and travel, thus creating impediments for international trade and transportation.

At a time of economic uncertainty, it is important to set priorities for maintaining and increasing revenue. While new and accelerated use of technology constitutes a significant opportunity, asset investment is another important solution. This may be linked to the need to invest in assets to make them COVID-19-secure, to reconfigure to allow activity in compliance with local regulations and to add digital technologies to promote agile working practices. The imperative to keep operations resilient and to gain the trust of employees and customers is likely to be a key factor driving decision making. To keep a healthy balance sheet, companies should look to manage a low level of expense to offset volatility in their revenue lines while optimizing their free cash-flow position.

Since economic slowdown is not an event that can be insured directly, Aon believes that a comprehensive and informed enterprise risk management (ERM) program can further bolster a company's resilience and agility, improving competitiveness against peers when it comes to managing overall earnings volatility.



4

4. Commodity Price Risk/Scarcity of Materials

Rankings in Previous Surveys

Year	Rank
2009	5
2011	8
2013	8
2015	11
2017	11
2019	7
2021	4

Rankings by Region

Region	Rank
Asia Pacific	12
Europe	2
Latin America	3
Middle East and Africa	4
North America	10

The global commodity market has been suffering from wild mood swings.

In the early days of the COVID-19 pandemic, when entire industries came to an abrupt halt, oil futures crashed. Brent Crude, the global oil benchmark, briefly plunged below $20 a barrel in April 2020 as coronavirus lockdowns reduced demand from airlines, motorists and manufacturers. This represented a sharp drop from the 2019 average of $61 per barrel.[32] Metal prices also fell in early 2020. The biggest declines were in copper and zinc.[33]

Meanwhile, border closings, as well as port and factory shutdowns, disrupted global supply chains, leading to severe scarcity of materials. Empty supermarket shelves became a signature image during the early days of the pandemic. Shortages of medical masks, gloves, face shields, sanitizing products and ventilators were reported in most countries. With more people working from home, the semiconductor industry experienced an explosion in demand for products like smartphones and computers, causing an unprecedented supply shock.

Now that the worst of the pandemic is winding down, the global economy is struggling to keep up as demand rebounds with a vengeance. Companies are unable to secure enough raw materials to make products that are suddenly in high demand. Material shortages have swung the commodity market to the other extreme. According to a CNN report, Brent Crude has shot up to over $70 a barrel for the first time in nearly three years.[34]

A similar phenomenon is playing out across a host of commodities. At time of writing, iron ore, copper, steel, corn, soybeans, sugar and sunflower oil have hit record price levels. The Bloomberg Commodity Spot Index, which tracks price changes across a range of metals and agricultural commodities, has jumped roughly 60 percent over the same period in 2020. Governments' quantitative easing and fiscal stimulus measures in the world's major economies are also keeping these prices elevated.

At the same time, cyber attacks, extreme weather conditions and economic uncertainties are all contributing factors to increased commodity volatilities, causing major concerns for businesses.

4

In Aon's 2021 Global Risk Management Survey, the risk of commodity prices risk/scarcity of materials has registered its highest-ever ranking (number four) since it was added to Aon's Risk List in 2009. The global financial crisis in 2008 drove the commodity price risk to a similarly high ranking (number five).

While preparedness for this risk has improved, loss of income in the past 12 months has almost doubled from 28 percent in the 2019 survey to 50 percent in 2021.

As expected, the food, agribusiness and beverage (FAB) industries perceive commodity price risk as a top threat. According to the U.S. Bureau of Labor Statistics, wholesale food prices have gone up at least 1 percent every month since January 2021, a trend not seen since 1973. The prices of cooking oils, a so-called disposable ingredient, have nearly doubled since earlier this year.

Meanwhile, the industrials and manufacturing sectors also rated commodity prices as a number one risk. The Institute for Supply Management (ISM),[35] based in Washington, D.C., said that "record-long lead times due to port closings, wide-scale shortages of critical basic materials, rising commodities prices and difficulties in transporting products are continuing to affect all segments" of manufacturing. For example, since chips have become an essential component in so many products, their shortages not only affected electronics and automobile manufacturers but also firms selling medical devices, chemicals, apparel and even tobacco. CNBC reports that at least 70 Standard & Poor's (S&P) 500 companies highlighted chip shortages during their 2021 Q2 earnings calls.[36]

There's no telling how long demand will outpace supply. The big question is whether shortages and price hikes are temporary by-products of the pandemic, as some experts claim, or if the global economy is changing in ways that could permanently hike the cost of doing business and usher in a new era of inflation. Hanna Ziady with CNN Business points out that the commodity price risk has huge implications for investors, companies and governments.[37]

According to experts at Tracc Solutions, business leaders need to formulate a two-pronged strategy to mitigate the risk of commodity price volatility and escalation by first incorporating detailed cost tracking, projections under various scenarios and risk analytics. Procurement departments need to become agile and adept within the full gambit of derivative instruments to facilitate the widest possible hedging opportunities. At the same time, companies should focus on the proximity to raw-material sources and their value-to-sustainability quotient.[38]

Given the pressures on commodity pricing, building broader resilience and agility is a partial mitigant to this external threat. Understanding and integrating various risk management solutions is key to navigating new forms of volatility and solving emerging and long-tail risks.

5. Damage to Reputation/Brand

Rankings in Previous Surveys

Year	Rank
2007	1
2009	6
2011	4
2013	4
2015	1
2017	1
2019	2
2021	5

Rankings by Region

Region	Rank
Asia Pacific	4
Europe	6
Latin America	13
Middle East and Africa	13
North America	3

At the end of each year, many international media outlets and public relations firms release their lists of notable events relating to corporate reputational crises to illustrate the importance of brand and reputational management. This was no exception in 2020. We have culled 10 high-profile cases from their lists to gauge how these headlines affect companies' perceptions of reputational risks.[39]

- The CEO of a U.S. food company triggered a massive boycott of his company on social media after meeting with U.S. President Donald Trump in the White House and showering him with praise.
- An international hotel chain disclosed a new data breach impacting 5.2 million guests.
- More than 10,000 workers became sick from COVID-19 at a U.S. food-processing plant during the first three months of the outbreak. A plant manager organized a betting pool to wager how many employees would test positive for COVID-19.
- U.S. airports were unprepared for chaos when passengers came rushing back from abroad during the pandemic, forcing passengers into packed lines and raising fears of fresh outbreaks.
- A European carmaker pulled social media ads after public outcry and apologized for their racist overtone.
- Multiple Western banks and corporations faced accusations of supporting China's new security law in Hong Kong.
- A U.S. fast-food chain launched a vegan burger that contained eggs and was cooked on the same grill as burgers made of meat.
- A European software giant fell victim to a double extortion attack, resulting in a forced shutdown of internal systems.
- A U.S. technology giant reached a $310 million sexual harassment settlement.
- A Canadian apparel company promoted an Instagram link with a T-shirt bearing an image that netizens say could stir up anti-Asian sentiment and racism.
- Given the devasting impact of the global pandemic on global businesses, many assumed that corporate reputational issues would be overshadowed. A veteran public relations expert even joked, "If you were going to have a PR disaster, this was the year to do it." Obviously, the 2020 headlines we have just cited invalidate such an assumption and affect the perception of this risk.

In Aon's 2021 Global Risk Management Survey, damage to reputation or brand is listed at number five, two ranks above pandemic risk and health crisis. In Aon's previous three surveys, the risk of damage ranked at either number one or number two.

This risk perception is justified. A joint Aon-Pentland Analytics study reveals that a major reputational crisis causes shareholders to lose an average of 26 percent of value at some point during the post-crisis year. Pentland Analytics' Reputation Crisis Databank currently includes 300 corporate reputation crises spanning the last four decades. In 36 of the 300 global reputation crises studied, more than 50 percent of value is destroyed. Across the 40-year study period, reputation crises destroyed $1.2 trillion in shareholder value.

In North America, where corporate reputational crises such as financial fraud, neglect of employee health during the pandemic, racially offensive messages in advertising and inappropriate executive tweets frequently dominate the headlines, participants rated damage to reputation or brand at number three.

In the Asia-Pacific region, there has been a spate of high-profile corporate scandals in countries such as China, Japan, Singapore and Thailand.[40] That explains why surveyed businesses in the region rank damage to reputation at number four.

Public-sector participants see reputational damage as a number one risk. This is probably due to governments' poor handling of the COVID-19 crisis, a series of high-profile political scandals and extreme partisan politics in many countries, all of which undermined the public's trust in government institutions.

From these major headlines in recent years, experts have detected a new trend: Reputational risks are increasingly caused by incidents that are sometimes unrelated to the company's products and services, but instead emanate from areas such as their ESG agenda, internal workplace relations and association with other firms, suppliers or industries. Media attention (i.e., social or traditional) often amplifies their impact, sparking widespread public backlash.

For example, there is a growing trend of CEOs taking public stances on political and social issues about which they traditionally would have remained silent, sometimes out of their own convictions or at the instigation of employees or customers wanting to know their positions, says Harvard Professor David Larcker.[41] The CEO of a big tech company voiced support for an abortion law in Texas, triggering calls for boycotts of the company's products and services.

Often, multinational companies are caught in geopolitical quagmires. In "Crisis Review, Top 20 Crises of 2020" by Provoke Media, the author points out that when forced to take sides on geopolitical conflicts, corporations always find themselves "between a rock and a hard place."[42] Western financial institutions and fashion brands with operations and stores in Hong Kong and mainland China are no stranger to this dilemma. They face the demands of the Chinese authorities on one hand and their stated values and the expectations of Western stakeholders on the other. In the summer of 2020, after some companies voiced support for the Chinese government's new security law, they were slammed by the media and lawmakers in the West. At the same time, companies that criticized the abuse of Uyghurs by Chinese authorities faced boycotts and threats from Chinese consumers. The Chinese technology champion Huawei, which is increasingly ensnared in the global tech cold war between the U.S. and China, constitutes another example.

In this fast-paced digital world with social media readily available to almost everyone, incidents or innuendo that undermines corporate brand and reputation can quickly lead to earnings volatility. It is important for corporate leaders to identify these exposures — however remote they may be — and develop their ERM programs. Our research shows that scenario analysis, quantification and response rehearsal remain critical to the mitigation of this risk and also to accessing capital to support development of scalable risk transfer products in this space.

6. Regulatory/Legislative Changes

Rankings in Previous Surveys

Year	Rank
2007	2
2009	2
2011	2
2013	2
2015	3
2017	4
2019	10
2021	6

Rankings by Region

Region	Rank
Asia Pacific	10
Europe	8
Latin America	6
Middle East and Africa	12
North America	8

In July 2021, Didi Global, a dominant ride-hailing service in China, went public on the New York Stock Exchange. With shares rising 16 percent on the first day, it was poised to become one of the biggest and hottest initial public offerings in years. However, two days later, China's internet regulators suspended the company from registering new users on the grounds that the company mishandled sensitive data that could pose risks to personal privacy and national cyber security. Subsequently, Chinese authorities removed 25 Didi mobile apps from Apple and Android stores.[43]

The penalty for Didi highlights a series of sweeping regulatory actions taken by the Chinese government against the country's big high-tech companies. At time of writing, China has released a five-year blueprint calling for greater regulation in areas including data security, technology and monopolies. Compliance will be strengthened in sectors ranging from food and drugs to big data and artificial intelligence.

Even though these aggressive and abrupt moves by Beijing have caused upheavals in the global equity market, experts say many of these issues are not China-specific, and other governments in Europe and the U.S. have advanced similar overarching reforms in connection with user data and taxation. Of course, the difference is that regulations in the West are often constrained by a balanced and complicated legal and legislative system.

Regardless, in the post-pandemic era, when governments around the world are expected to expand their authorities in the areas of public health, financial markets, climate change, taxation and technology, the global regulatory landscape for businesses has become more complex and challenging.

In the U.S., the 2020 presidential election led to drastic changes in compliance. In 2017, President Donald Trump issued an executive order that required agencies to cut two regulations for every new one issued, launching a term filled with regulatory rollbacks. Four years later, President Joe Biden has reversed much of the Trump administration's deregulatory agenda and detailed his ambitions to dramatically expand the scope of his administration's involvement in education, healthcare, immigration, the environment and taxation.

In the U.K., as Brexit has reached its endgame, businesses are facing many uncertainties and anticipate significant changes relating to compliance with evolving U.K.-EU regulatory divergence.

The EU is currently at the vanguard of ESG measures. The newly implemented obligations for ESG disclosure, the likely forthcoming mandatory human rights, and environmental and governance due diligence will have widespread repercussions for companies domiciled in the EU as well as those operating within the EU.

In Latin America, with resource nationalization firmly back on the agenda for a host of governments, the long-term regulatory outlook for the energy sector appears to be more uncertain.

Regulations are supposed to represent an important policy tool for addressing market failure, protecting both businesses and consumers and advancing effective national policymaking. However, businesses feel that some legislative and regulatory processes have strayed from their original intent. Regulations are becoming so burdensome and stifling that they have undermined their effectiveness in rejuvenating the post-pandemic economic recovery and serving public interest.

For example, in the area of emerging technologies, experts claim that regulations are proliferating rapidly in areas of emerging technologies. In its 2019 Cyber Security Risk Report, Aon points out that “cyber security regulations have gone viral” because laws, rules, standards and guidelines are being proposed and implemented in federal agencies, local legislatures and the business world. Complex and overlapping cyber regulations run the danger of actually creating more cyber risks, not fewer, because compliance obligations overwhelm the chief information officer and a “check the box” mentality ends up replacing best cyber-security practices. This does not even take into account the hefty fines for regulatory violations.

Such concerns are also well documented in Aon’s 2021 Global Risk Management Survey, in which regulatory or legislative change is ranked as a number six risk. Regulatory or legislative change has typically occupied a higher rank on Aon’s Top 10 Risk List. It was ranked at number two from 2007 to 2015 before slipping to number 10 in 2019.

Representatives from the much-regulated insurance sector rate this risk at number two: The industry is anticipating more legislative efforts to refine existing regulations and expand into new areas such as climate risk and InsurTech supervision.

Fortunately, at the height of the pandemic, many governments reduced enforcement of laws, rules and regulations and stalled new legislation to allow companies to quickly respond to consumer demands. In some countries, regulatory agencies have paused or delayed many of their oversight activities. Industry leaders and policymakers may take advantage of the situation and question the value of many regulations that had to be suspended in order to effectively respond to the market and consumers.

But in the long term, as laws and regulations are becoming ever more overarching and detailed, organizations will have to adapt quickly. The consequences of non compliance will be more severe and rigorous. Even though regulatory risk is not an exposure that can be insured directly, like other emerging areas of volatility it will continue to be an important facet of any comprehensive and informed ERM program.

For example, multinationals should consider an integrated global compliance infrastructure that can respond effectively to the different enforcement environments in various jurisdictions. The compliance team should be involved in the product-development, risk-assessment and design stages to ensure compliance with the most stringent regulatory standards in the different markets. At the same time, it is also imperative to enhance the ability to manage an ever-increasing number of regulators and respond to multiple simultaneous, parallel enforcement actions in different countries.

7. Pandemic Risk/Health Crises

Rankings in Previous Surveys

Year	Rank
2007	23
2009	34
2011	36
2013	44
2015	44
2017	51
2019	60
2021	7

Rankings by Region

Region	Rank
Asia Pacific	5
Europe	9
Latin America	4
Middle East and Africa	10
North America	12

In Australia, where strict preventive measures effectively contained the initial spread of COVID-19, allowing the country to remain relatively free and open, the Delta variant, which ravaged India in early 2021, easily penetrated the island nation's defenses.

In mid-June 2021, an unvaccinated airport driver, who was in his 60s, became infected when he transported international airline crews from Sydney Airport to their hotel rooms. Barely a month after the driver tested positive for COVID-19, Sydney, Australia's most populous city, faced an outbreak.

At time of writing, more than half of Australia's population is in lockdown. Sydney extended its two-month-long restrictions from June to the end of September. The neighboring country of New Zealand, which had been seen as a success story, was also forced to implement a nationwide lockdown after uncovering 30 active new cases.[44]

Similarly, the new variant set back the success of COVID-19 control measures in Southeast Asia. With its population of more than 655 million people, the region quickly became the next hot spot. The average number of confirmed daily new cases there had increased to nearly 30,000 by the end of June. The resurgence has caused an uptick in hospitalizations and, sadly, deaths, especially in regions where vaccination rates are lagging.

The COVID-19 pandemic is not a typical crisis that progresses in a linear way to conclusion. Rather, it comes in multiple waves of infection that require organizations to pivot between reacting, responding, recovering and reshaping. It is an event driven by a host of as-yet-unknown factors and hidden interconnectivities that combine to amplify the pandemic's impacts and ripple effects.

As the virus continues to mutate and spread, rendering vaccines less effective, the stakes rise even higher. Fear and anxiety, together with confusing and conflicting information over COVID-19 and its impact, are casting a dark shadow over businesses that participated in Aon's 2021 survey. As expected, pandemic risk and health crisis has entered the Top 10 Risk List for the first time, springing from number 60 in the previous survey to number seven in the current one.

Reported loss of income from the pandemic in the past 12 months has risen from 2 percent in 2019 to 79 percent in 2021. The good news is that reported readiness has also risen, from 45 percent in 2019 to 70 percent in 2021.

Not surprisingly, the hospitality, travel and leisure sectors ranked pandemic risk at number two. The existing travel restrictions and new rounds of lockdowns continue to stunt the sector's recovery.

Survey participants who manage human resources (HR) also rated the pandemic as a number two threat. The pandemic has disrupted organizations, forcing HR managers to reconsider their roles as companies switched to a remote-work model at a rate and scale they've never experienced before. Not only do HR professionals have to advise management regarding best health and safety practices, they also have to handle employee layoffs and furloughs.

Regionally, Pandemic Risk/Health Crises occupies top spots in the current and future Top 10 Risk List(s) for all regions except North America.

Surveyed businesses in North America ranked it at number 12 and remain undecided about its future ranking. The situation can be attributed to the rising optimism in the Q2 of 2021, when new infections were on an overall decline and more people were being fully vaccinated. An online ABC News/Ipsos poll in May 2021 found that 64 percent of Americans said they were optimistic about the next year.[45] However, as of mid-August, when COVID-19 cases once again reached 133,000 per day, the University of Michigan's Consumer Sentiment Index plunged to its lowest level in a decade.[46]

In Latin America, the risk is ranked at number four. At the time Aon's survey was conducted, most of Latin America and most Caribbean countries were still battling with the rapid rise of new infections, and vaccination was lagging badly — only one in 10 people had been fully vaccinated. The same is true with the Middle East and Africa, which ranks it at number 10.

It's interesting to note that for more than a decade, pandemic risk and health crises lay buried at the bottom of the risk list in Aon's various studies despite the constant threats of bird flu and the SARS, MERS, Ebola and Zika viruses. Having foreseen its potentially devastating impact, Aon has repeatedly called out the risk in various reports, characterizing it as an underrated threat.

In 2013, Aon polled more than 100 captive directors for our report Underrated Threats? Research Into the Evolving World of Risk. In the survey, we asked participants, "With the dramatic increase in international travel, from 683 million journeys in 2000 to over 1 billion journeys in 2011, and with the growing resistance to antibiotics in the developed world, do you think that pandemic risk and health crisis, ranked at number 44, is underrated?"

Much to our surprise, respondents seemed undecided on this ranking, with only 39 percent saying it was underrated. As solutions advisors, we held a completely different view from that of our clients. The COVID-19 pandemic, the longest lasting in memory, has taught us a valuable lesson.

The current pandemic is testing every business leader in new and unknown ways. Any playbook for a linear crisis event has become obsolete. The world as we know it is being completely reshaped. No country or company will simply bounce back or rebound to the way it was before. Consumer behaviors are changing, supply chains are being rewritten, institutions are shuttering, business models are being fundamentally reshaped and expectations of governments are shifting. The question remains whether this reshaping will lead to more resilient business models.

For the insurance industry, which did not contribute materially to the mitigation of volatility in this space, this crisis has highlighted many gaps in our understanding, testing, resourcing and contingency planning for these types of risks. So far, solutions are lacking, and many parts of the 21st-century commercial landscape are underserved.

In a recent Aon survey, more than half of companies report that they expect COVID-19 will continue to impact their business a year from now, and nearly 70 percent say the pandemic has exposed new risks and vulnerabilities that would require a significant change in how businesses should think about the future. All of this means that businesses need to implement a new response framework that enables them to confidently make better business decisions in this complex and volatile time. This will not be the last challenge, but as various forces converge in this moment, we are witnessing a fundamental reordering of priorities on a global scale.

When it comes to managing a pandemic or, indeed, any other crisis, Aon, in conjunction with its research partner, has identified four activities that contribute to corporate resilience:

1. **Leadership:** Act with urgency and transparency. Acknowledging the unknown helps to provide a sense of reassurance and common purpose.
2. **Communication:** Crises require leaders to build trust with their listeners through accurate, honest and frequent communication.
3. **Action:** Leaders must assess the information available to execute new business models, operating modes, communication channels and other processes, creating new structures and adjusting as needed.
4. **Preparation:** Organizations must create workforces prepared to withstand future disruptions and stresses. The path to getting there requires using data intelligently to balance people risk with people spend while also empowering workforce agility and resilience.

While these actions focus on post-event rehabilitation, “pre-habilitation” requires us to better understand this exposure qualitatively and quantitatively and work as an industry to provide both insights about risk prevention — building of resilient business models and resilient workforces — and insurance solutions for all business sectors and segments to offset potential volatility.

8. Supply Chain or Distribution Failure

Rankings in Previous Surveys

Year	Rank
2007	4
2009	8
2011	12
2013	14
2015	14
2017	19
2019	12
2021	8

Rankings by Region

Region	Rank
Asia Pacific	13
Europe	5
Latin America	12
Middle East and Africa	14
North America	6

In the early morning of March 23, 2021, the Ever Given, one of the world's largest container vessels with a capacity of 20,000 containers, was caught in a strong sandstorm as it was traveling to the Port of Rotterdam in the Netherlands through the Suez Canal. Having lost its ability to steer in the strong wind, the ship ran aground and became lodged sideways across the waterway, causing 370 ships to be stuck on both sides of the canal, including five other container ships of similar size. Experts told the British Broadcasting Corporation (BBC) that about 12 percent of global trade — around one million barrels of oil and roughly 8 percent of liquefied natural gas — passes through the Suez Canal each day, so the value of the goods delayed each hour was estimated at $400 million.[47]

The Suez Canal blockage didn't just affect the global shipping industry. Countless businesses, from domestic transport providers to retailers, supermarkets and manufacturers, were also adversely impacted. The blockage further compounded the woes caused by the pandemic; threatened the fragile flow of raw materials, parts and consumer goods; and thwarted budding economic recovery.

Meanwhile, fresh outbreaks of the COVID-19 Delta variant in Southeast Asia have crippled the region's factory sector, disrupting global supply chains for goods such as rubber gloves, semiconductors and sport utility vehicles (SUVs). Japan's Daihatsu Motor halted operations at four factories in Japan for up to 17 days because surging coronavirus cases in Malaysia and Vietnam created a serious parts crunch. In Vietnam and Thailand, factories that supplied parts and products for multinational companies such as Samsung, Foxconn and Nike were also forced to close.[48]

In addition to the pandemic, climate change has also wreaked havoc. At time of writing, wildfires in Australia and the American West, floods in China and Europe, and droughts in South America are already disrupting the supply of everything from lumber to chocolate. More importantly, increased cyber attacks have caused broader disruptions in the supply chain. For example, ransomware attacks are threatening the shipping industry, which relies heavily on the interaction between a number of different digital systems, from ports and cities to individual ships and the companies that own them.

The upheaval from these disruptions has aggravated businesses' concerns. In Aon's 2021 Global Risk Management Survey, supply chain or distribution failure, which ranked at number 19 in the 2017 survey, is surging back into the Top 10 Risk List for the first time since 2009. Participants ranked it at number eight in the 2021 survey.

Loss of income from this risk in the past 12 months has risen from 21 percent to 35 percent, whereas risk readiness has declined from 70 percent to 63 percent. The results are consistent with those in Aon's COVID-19 Risk Management and Insurance Survey, in which 36 percent of surveyed companies cited disruption to their supply chains and nearly 20 percent had trouble sourcing materials.

Not surprisingly, the retail and consumer-goods sectors see supply chain and distribution failure as a number one risk. According to two surveys conducted by the National Association of Convenience Stores, two in five convenience retailers say there were "significant" levels of disruption across the supply chain during Q2 of 2021, and 86 percent reported that at least 10 percent of their orders were disrupted. Also, two in five industry suppliers said they faced "significant" levels of disruption for materials necessary to create their products.[49]

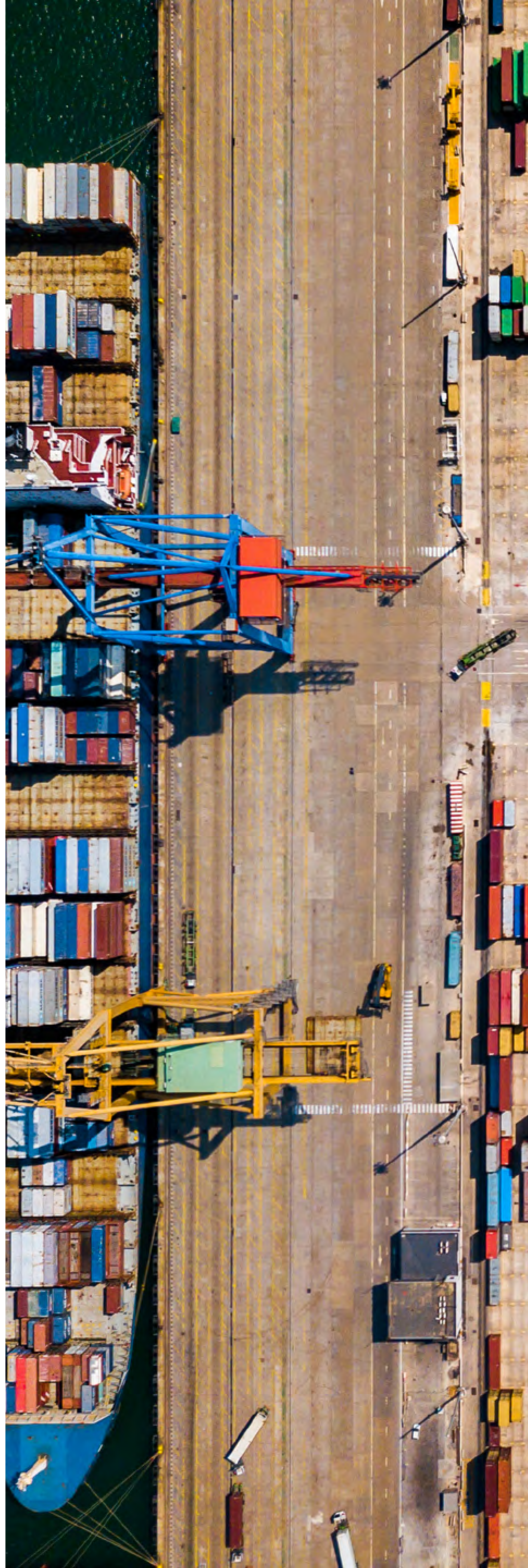
Regionally, participants in Europe and North America, where companies of all sizes are deeply reliant on international supply chains to produce medical equipment, pharmaceutical products, automobiles, technology, toys and apparel, to name a few, rank this risk at number five and six, respectively. Rising demands combined with unforeseen events struck a crippling blow to companies in these regions. In the short term, global supply-chain problems could constrain output in many manufacturing and service-sector companies while simultaneously pushing prices higher as demand exceeds supply.

The perils that may cause supply-chain interruptions can be very broad, from pandemics and cyber attacks to climate change, political turbulence, credit failure and recall events. As consumers and governments demand change, the way companies are doing business is coming under scrutiny. Looking ahead, ESG risk could develop into the biggest threat to the global supply chain.

Aon classifies complex supply-chain risk as one of the big six risks facing businesses today, along with loss of intellectual property, cyber attacks, damage to reputation, climate change and the COVID-19 pandemic, all of which are interconnected and evolving fast. They have long-tail exposures but limited risk transfer solutions.

Lori Goltermann, CEO of Enterprise Clients at Aon, says the pandemic served as a wake-up call, forcing companies to carefully consider how "grey swan" events — major events that are unlikely to occur but are becoming increasingly common — could impact their supply chains and their overall operations. Besides a pandemic, other grey swan events could manifest in the form of major cyber-security attacks, significant climate incidents and global wars.

Lambros Lambrou, Aon's CEO of Commercial Risk Solutions, advises businesses to start planning ahead and focus on shaping end-to-end processes rather than on one part of the chain. They should get better at understanding who touches what along the chain and use data and sensor technology accurately to see their pain points so they can protect themselves against risks that wouldn't have been covered before. "We can now use different sets of data to enable us to not just understand how risks can evolve but also where we can link [them] to a risk transfer product that provides a holistic solution," says Lambrou.



While supply-chain risk is becoming more concentrated, frequent and broadly defined, challenges in the insurance market are poised to contribute to the size of the problem. Contingent business-interruption coverage in particular is increasingly under review. There have been more restrictions because of the ever-growing complexities of internationalization and globalization of trade, as well as the growth of technology and logistics solutions.

Coverage issues center around the following:

- Quantitative issues. These issues concern the "plume" of tiers (i.e., who, where), which affect aggregations and accumulations to carriers, and its unknown potential financial impact.
- Qualitative issues. Identify and understand key bottlenecks. Adopt a combination of risk management approaches, including business-continuity plans, disaster-recovery plans, construction occupancy protection exposure (COPE) information, and alternative or dual-source suppliers.
- Growth in severity and frequency of losses.
- Certain industry verticals, such as life sciences, technology and complex manufacturing, present greater exposure and issues.
- Non-physical damage-related perils that lead to business interruptions.

In the face of the pandemic and a changing risk landscape, global supply chains are being tested to the limit. The just-in-time supply chain that is all about cost and efficiency must now respond to those emerging risks. Failure to do so is not an option. A strong, resilient and adaptable supply chain is an imperative for business survival and growth. To meet that imperative, leaders should take a number of actions, which include agreeing on which contracts, customers and products need protection first, understanding your suppliers and their suppliers, quantifying risks and breaking down silos everywhere.

Often, a crisis can bring opportunities to reshape existing operating models that drive innovation. By preparing for shocks now, companies will be able to make better decisions tomorrow and be poised to thrive in a volatile and changing business environment.

9. Increasing Competition

Rankings in Previous Surveys

Year	Rank
2007	4
2009	4
2011	3
2013	3
2015	4
2017	3
2019	5
2021	9

Rankings by Region

Region	Rank
Asia Pacific	7
Europe	7
Latin America	10
Middle East and Africa	7
North America	11

Even before the pandemic, the competition among online businesses was already tough. It became even tougher when most people turned to online stores during lockdowns. Even major brands expanded their online sales. The increase in the number of competitors made it more challenging for many businesses to survive.

Etsy Inc. is a U.S. e-commerce company that specializes in handmade and vintage items and craft supplies. In April 2020, when medical face masks were in short supply, the company took advantage of its flexible business model and issued a call to the site's third-party sellers to immediately start making face masks. As a result, Etsy outdid its competitors and sold $346 million worth of masks in the second quarter. Meanwhile the company directed all that new traffic to its e-commerce app by promoting other homewares, crafts, apparel and beauty supplies. By year's end, even though only 4 percent of sales came from masks, revenue had surged by 129 percent.[50]

In almost any market, crowds of businesses fight for their shares within their respective niches. But over time, only a small number manage to dominate the industry. A study by McKinsey found that the average life span of companies listed in Standard & Poor's (S&P) 500 was 61 years in 1958. Today, with the rapid adoption of new technology, fierce competition has shortened their life cycles to less than 18 years. In five years, McKinsey predicts that 75 percent of the companies currently quoted on the S&P 500 will be bought out, merged or bankrupt. The global pandemic has further intensified competition, forcing companies into insolvency.[51]

This tough competitive business environment explains why increased competition has consistently been a top 10 risk since Aon launched its Global Risk Management Survey in 2007. The ranking of increased competition has slipped from number three in 2017 and number five in 2019 because of the heightened perception of other risks, such as business interruption, commodity price and scarcity of materials, and economic slowdown and slow recovery, all of which are connected to the COVID-19 pandemic and exert direct and immediate impact on the bottom line.

As expected, the technology sector — where the lifetime of products continues to shrink, the race to market has intensified and consumer needs are fickle — ranks the risk of increased competition at number four and projects it to be a number three risk three years from now.

Participants in the insurance industry also consider increased competition to be a number three risk because the pandemic-induced global economic downturn intensified competition in the insurance market. Moreover, COVID-19 restrictions have limited customer interaction, affecting normal business operations and forcing both insurers and customers to go digital. InsurTech, an offshoot of the financial technology (fintech) sector, is a rapidly evolving movement aimed at simplifying and improving the efficiency of insurance. Traditional insurance firms are facing increasing competitive pressure from the emergence of InsurTech start-ups. According to data from Boston Consulting Group, global InsurTech funding hit the highest-ever mark of $7.5 billion in 2020. In Asia, countries such as China, India and Singapore have become hot spots for many InsurTech start-ups.[52]

Many variables can impact the competitive position of an organization in certain industry sectors: entry of new competitors, changes in consumer trends, advancements in technology, regulatory changes, economic trends, entry into lower-cost economies and aggressive strategies by competitors. In this rapidly changing marketplace, failure to adequately address these and other market changes could result in irreversible loss of market share.

One of the benefits of the pandemic is that companies have accelerated the digitalization of their customer and supply-chain interactions and of their internal operations. Alan Frohman at Harvard Business Review discussed the research-and-development (R&D) investments of nine major international companies to see how those that use technology successfully as part of their competitive strategies differ from those that do not use it successfully. His study found that investing in technology can be a competitive weapon. Top management with a technical orientation, selection criteria that support and maintain advanced technology, and systems and structures in place vastly improve a company's competitiveness.[53]

Competition is central to the operation of markets and fosters innovation, productivity and growth. At the same time, increasing competition can also eat away market share and end a business. During a crisis, while larger business organizations may be able to fend off higher amounts of competition than smaller ones with limited resources, all organizations, regardless of size, should embrace competition and treat it as a priority risk.

While competition risk is not an event that can be insured directly, comprehensive and informed ERM can bolster resilience and improve competitiveness against peers.

10. Failure to Innovate/Meet Customer Needs

Rankings in Previous Surveys

Year	Rank
2007	14
2009	15
2011	6
2013	6
2015	6
2017	6
2019	9
2021	10

Rankings by Region

Region	Rank
Asia Pacific	6
Europe	11
Latin America	15
Middle East and Africa	19
North America	5

Moderna's speedy COVID-19 vaccine release bore the hallmark of an innovative process that not only has enabled the U.S.-based biotech company to build resilience during an unprecedented crisis but also has turned challenges into impactful products that benefit billions of people.

Moderna's co-founder Noubar Afeyan listed three factors that made her company innovative:[54]

1. Moderna invested in breakthrough mRNA technology more than 10 years ago and has developed it as a bioplatform, a system that can easily be scaled and tailored to treat many different diseases. When the pandemic struck, the company was not afraid to take risks, successfully using this existing technology and its decade-long experience to solve a new problem.
2. Moderna embraced cutting-edge technology and used artificial intelligence (AI) to speed up vaccine development. AI helped automate other key systems and processes to build efficiencies across the organization. Previously, the company could only produce about 30 mRNAs manually per month. Using AI has expanded its capacity to about a thousand, with much better consistency in quality.[55]
3. Moderna created an innovation-friendly environment, attracting many industry professionals who are highly motivated, smart and ambitious.

The Chinese character for crisis is made up of two parts: danger and opportunity. While COVID-19 has caused devastating disruptions to the global economy, decimating many famous brands, it is also forcing companies across different industries to innovate and reinvent themselves. Businesses have found new ways to sell, service and operate during the crisis.

The challenge is this: How can these innovations bring systematic growth after the pandemic abates? This question weighs heavily on the minds of participants in Aon's 2021 Global Risk Management Survey. Participants rank failure to innovate or meet customer needs at number 10.

As expected, the technology sector predicts failure to innovate or meet customer needs to be a number two risk in three years. This is because many high-tech companies thrive on new disruptive technologies, such as cutting-edge computing, cloud computing and artificial intelligence, all of which are being introduced at an unprecedented speed. A company clinging to established products and business models will lose ground quickly, and many are already being pushed out of the market.

Interestingly, participants in two highly competitive regions — North America and Asia Pacific — perceive failure to innovate or meet customer demand at number five and number six, respectively.

For the past two decades, North America has served as a haven for tech and bioscience start-ups, drawing some of the finest talent from around the world. From the birth of giant online retailers and the development of global social media apps to the growth of the cloud and gene therapy, Silicon Valley in California has become home to more than 39 Fortune 1000 tech giants, as well as 40,000 start-ups. At the same time, Canada is quickly becoming a center for technology as well.[56]

Innovation is critical to ensuring leading positions in the future. Even though North America has acted as the catalyst for many monumental technological developments, other regions are closing the gap. Asia has made tremendous progress in new technologies. More than 90 percent of the world's smartphones are made there. In addition, companies have focused significant innovative capacity on mobile application processors and are developing new types of hardware. Last year, the Chinese company Royole released the world's first flexible smartphone, and Samsung launched the first smartphone with a foldable glass screen. In addition, Asian firms have capitalized on the region's well-developed infrastructure to establish themselves at the cutting edge of 5G development and deployment. Of the five companies that hold the majority of 5G patents, four are Asian. While the region's consumer markets are expanding and digitalizing rapidly, there is still a great deal of room for growth and innovation in consumer-facing technologies.

Innovation is a turbulent process of venturing into the unknown. Many businesses have responded to the crisis by developing entirely new products and services that will last long into the future. For example, many healthcare providers across the U.S. began to offer telemedicine appointments during the lockdown. Looking ahead, hospitals can gain competitive advantage by continuing to innovate their service offerings, gradually developing higher standards for delivering virtual healthcare.

At the same time, many innovative companies like Moderna use existing technology and resources to solve problems that they have never tackled before. While this may seem like an unpredictable technique, experts say this type of innovation can be systematically used to produce highly innovative products and services on a regular basis.[57]

The COVID-19 crisis has taught us that it is important for organizations and leaders to become more comfortable with uncertainty and ambiguity, which are fundamental parts of the innovation process. Failure to innovate is a commercial risk that can also be directly impacted by impaired resilience and a failure to manage volatility. It highlights the importance of a comprehensive and forward-looking approach to ERM.

Top 10 Risks Year-Over-Year

	2021	2019	2017	2015	2013	2011	2009	2007
1	Cyber Attacks/ Data Breach	Ecomonic Slowdown/ Slow Recovery	Damage to Reputation/ Brand	Damage to Reputation/ Brand	Economic Slowdown/ Slow Recovery	Economic Slowdown/ Slow Recovery	Economic Slowdown/ Slow Recovery	Damage to Reputation/ Brand
2	Business Interruption	Damage to Reputation/ Brand	Economic Slowdown/ Slow Recovery	Economic Slowdown/ Slow Recovery	Regulatory/ Legislative Changes	Regulatory/ Legislative Changes	Regulatory/ Legislative Changes	Business Interruption
3	Economic Slowdown/ Slow Recovery	Accelerated Rates of Change in Market Factors	Increasing Competition	Regulatory/ Legislative Changes	Increasing Competition	Increasing Competition	Business Interruption	Third-Party Liability
4	Commodity Price Risk/Scarcity of Materials	Business Interruption	Regulatory/ Legislative Changes	Increasing Competition	Damage to Reputation/ Brand	Damage to Reputation/ Brand	Increasing Competition	Supply Chain or Distribution Failure
5	Damage to Reputation/ Brand	Increasing Competition	Cyber Attacks/ Data Breach	Failure to Attract or Retain Top Talent	Failure to Attract or Retain Top Talent	Business Interruption	Commodity Price Risk	Market Environment
6	Regulatory/ Legislative Changes	Cyber Attacks/ Data breach	Failure to Innovate/ Meet Customer Needs	Failure to Innovate/ Meet Customer Needs	Failure to Innovate/ Meet Customer Needs	Failure to Innovate/ Meet Customer Needs	Damage to Reputation/ Brand	Regulatory/ Legislative Changes
7	Pandemic Risk/ Health Crises	Commodity Price Risk	Failure to Attract or Retain Top Talent	Business Interruption	Business Interruption	Failure to Attract or Retain Top Talent	Cash Flow/ Liquidity Risk	Failure to Attract or Retain Top Talent
8	Supply Chain or Distribution Failure	Cash flow/ Liquidity Risk	Business Interruption	Third Party Liability	Commodity Price Risk	Commodity Price Risk	Supply Chain or Distribution Failure	Market Risk (Financial)
9	Increasing Competition	Failure to Innovate/ Meet Customer Needs	Political Risk/ Uncertainties	Cyber Attacks/ Data Breach	Cash Flow/ Liquidity Risk	Technology Failure/ System Failure	Third Party Liability	Physical Damage
10	Failure to Innovate/ Meet Customer Needs	Regulatory/ Legislative Changes	Third Party Liability (inc. E&O)	Property Damage	Political Risk/ Uncertainties	Cash Flow/ Liquidity Risk	Failure to Attract or Retain Top Talent	Merger/Acquisition/ Restructuring

4

Top 10 Risks by Region

Rank	Asia Pacific	Europe	Latin America	Middle East and Africa	North America
1	Business Interruption	Business Interruption	Economic Slowdown/ Slow Recovery	Economic Slowdown/ Slow Recovery	Cyber Attacks/Data Breach
2	Cyber Attacks/Data Breach	Commodity Price Risk/ Scarcity of Materials	Business Interruption	Cyber Attacks/Data Breach	Business Interruption
3	Economic Slowdown/ Slow Recovery	Economic Slowdown/ Slow Recovery	Commodity Price Risk/ Scarcity of Materials	Business Interruption	Damage to Reputation/Brand
4	Damage to Reputation/Brand	Cyber Attacks/Data Breach	Pandemic Risk/Health Crises	Commodity Price Risk/ Scarcity of Materials	Economic Slowdown/ Slow Recovery
5	Pandemic Risk/Health Crises	Supply Chain or Distribution Failure	Cash Flow/Liquidity Risk	Exchange Rate Fluctuation	Failure to Innovate/ Meet Customer Needs
6	Failure to Innovate/ Meet Customer Needs	Damage to Reputation/Brand	Regulatory/Legislative Changes	Counterparty Credit Risk	Supply Chain or Distribution Failure
7	Increasing Competition	Increasing Competition	Political Risk	Increasing Competition	Failure to Attract or Retain Top Talent
8	Accelerated Rates of Change in Market Factors	Regulatory/Legislative Changes	Exchange Rate Fluctuation	Cash Flow/Liquidity Risk	Regulatory/Legislative Changes
9	Failure to Attract or Retain Top Talent	Pandemic Risk/Health Crises	Cyber Attacks/Data Breach	Accelerated Rates of Change in Market Factors	Workforce Shortage
10	Regulatory/Legislative Changes	Accelerated Rates of Change in Market Factors	Increasing Competition	Pandemic Risk/Health Crises	Commodity Price Risk/ Scarcity of Materials

Top 3 Risks by Industry

Industry	Key Risk 1	Key Risk 2	Key Risk 3
Food, Agribusiness and Beverage	Commodity Price Risk/Scarcity of Materials	Business Interruption	Supply Chain or Distribution Failure
Construction and Real Estate	Economic Slowdown/Slow Recovery	Commodity Price Risk/Scarcity of Materials	Cash Flow/Liquidity Risk
Energy, Utilities and Natural Resources	Business Interruption	Commodity Price Risk/Scarcity of Materials	Regulatory/Legislative Changes
Financial Institutions	Cyber Attacks/Data Breach	Economic Slowdown/Slow Recovery	Damage to Reputation/Brand
Healthcare Providers and Services	Workforce Shortage	Cyber Attacks/Data Breach	Pandemic Risk/Health Crises
Hospitality, Travel and Leisure	Business Interruption	Pandemic Risk/Health Crises	Economic Slowdown/Slow Recovery
Industrials and Manufacturing	Commodity Price Risk/Scarcity of Materials	Economic Slowdown/Slow Recovery	Business Interruption
Insurance	Cyber Attacks/Data Breach	Regulatory/Legislative Changes	Damage to Reputation/Brand
Life Sciences	Business Interruption	Cyber Attacks/Data Breach	Regulatory/Legislative Changes
Private Equity	Economic Slowdown/Slow Recovery	Failure to Attract or Retain Top Talent	Cyber Attacks/Data Breach
Professional Services	Cyber Attacks/Data Breach	Damage to Reputation/Brand	Failure to Attract or Retain Top Talent
Public Sector Partnership	Damage to Reputation/Brand	Cyber Attacks/Data Breach	Failure to Innovate/Meet Customer Needs
Retail and Consumer Goods	Supply Chain or Distribution Failure	Cyber Attacks/Data Breach	Business Interruption
Technology	Cyber Attacks/Data Breach	Economic Slowdown/Slow Recovery	Failure to Attract or Retain Top Talent
Telecom, Media and Entertainment	Cyber Attacks/Data Breach	Business Interruption	Tech Failure/System Failure
Transportation and Logistics	Economic Slowdown/Slow Recovery	Cyber Attacks/Data Breach	Business Interruption

Risk Readiness for the Top 10 Risks

We investigate an organization's risk readiness every year because it serves as a good barometer of risk management activity, sophistication and dynamism. Mitigants evolve around business risks and the broader environment, so it is no surprise that with the exceptional circumstances the global pandemic has brought since its outbreak in early 2020, risk readiness, which we define as an organization having plans in place to address and manage risks, has increased.

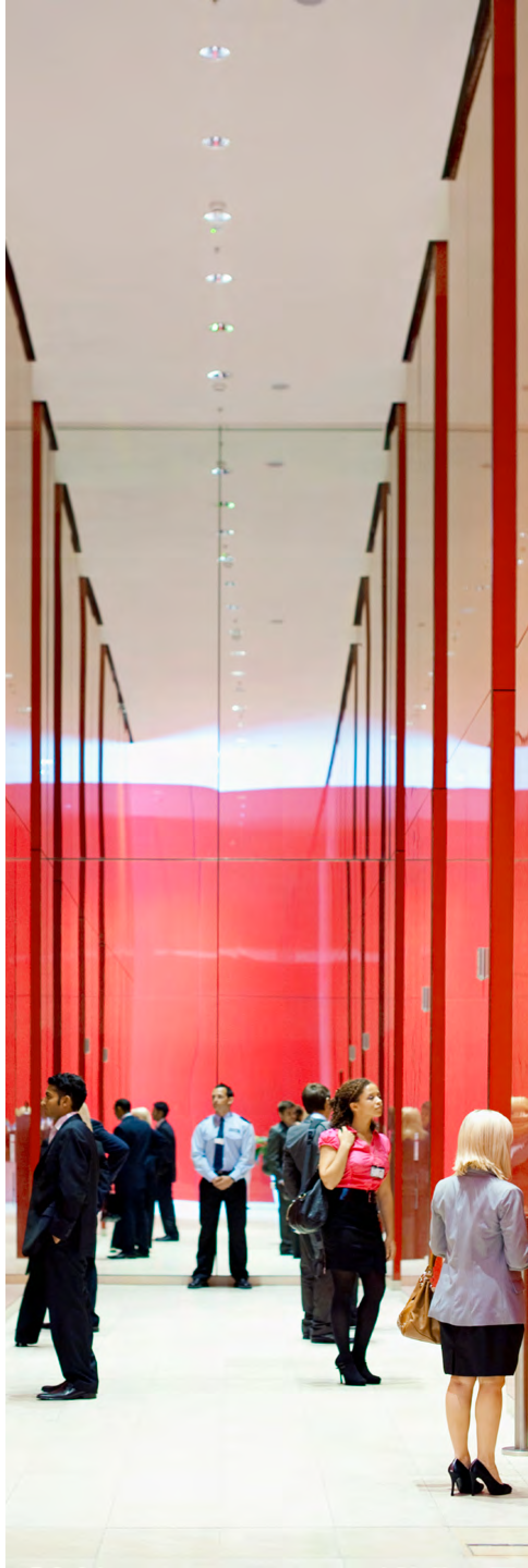
The overall risk readiness for the top 10 risks increased from 51 percent in 2019 to 58 percent in 2021 as awareness of the most important risks increased. The downward trend that emerged in previous surveys has been reversed now that past experiences have become more or less obsolete when trying to manage the present or predict the future.

The nature of risks is changing at an unprecedented speed, so any mitigation plans or solutions are often obsolete by the time they are created or launched.

The key examples we would like to call out in this context are pandemic risk/health crises, cyber attacks/data breach, and damage to reputation or brand, because they highlight very different stages of risk preparedness.

Risk readiness for pandemics and potential health crises showed the biggest increase among the top 10 risks, rising by 25 percent. This reflects the fact that companies have been actively managing their pandemic responses since 2020, giving them ample time to put plans in place by the time this survey took place in 2021. In past surveys, the highest ranking for this risk was 23 (in 2007), before descending to number 60 in 2019, where it had a risk readiness of 45 percent. This is only 6 percent below the average risk readiness for the top 10 risks, which illustrates that while the risk of a pandemic or health crisis might have not been top of mind for risk managers, crisis management plans were still in place. The scale and speed of the pandemic highlighted the gaps in these planned mitigation actions and forced companies to develop more in-depth plans to react, respond and recover in 2020 before focusing on reshaping in 2021. Overall, this likely led to the rise in risk readiness.

Companies reported the highest levels of risk readiness for cyber attacks and data breaches yet again, rising from 79 percent in 2019 to 86 percent in 2021. The extensive media coverage of high-profile cyber attacks and related business interruptions undoubtedly increased awareness, prompting many organizations to implement plans to protect themselves from the possible impact of such events. Additionally, since cyber risk is a relatively new exposure, many businesses feel that the mitigants they have put in place are current and up-to-date. That confidence likely positively influenced their perception of effectiveness.



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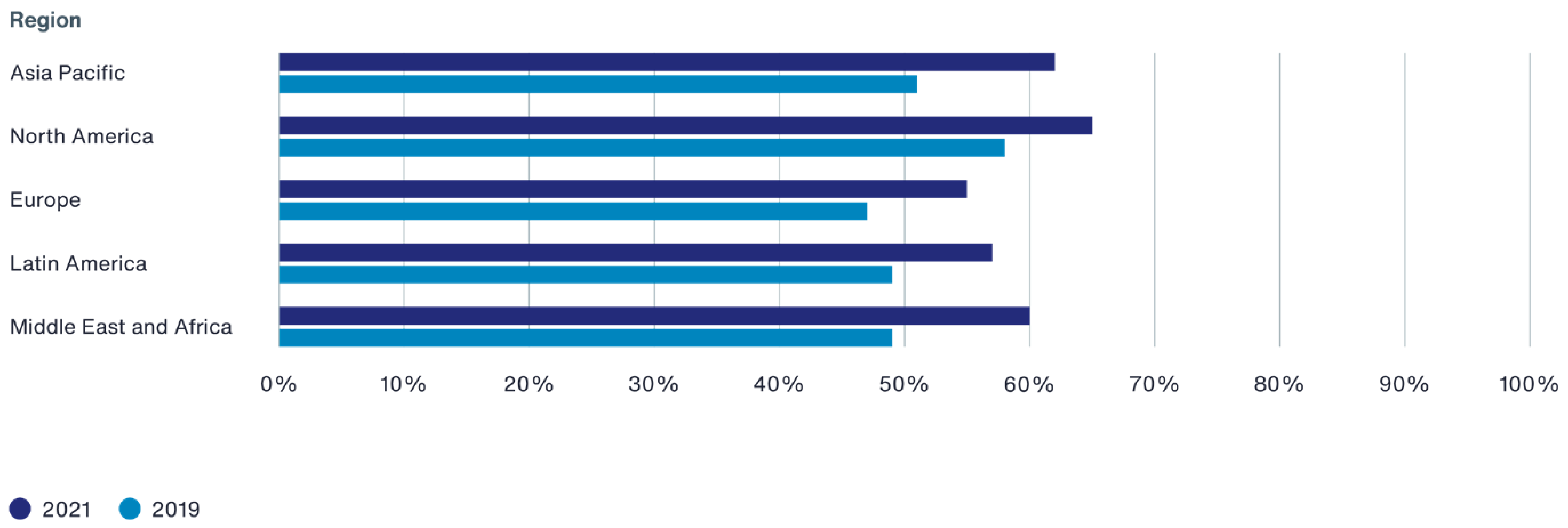
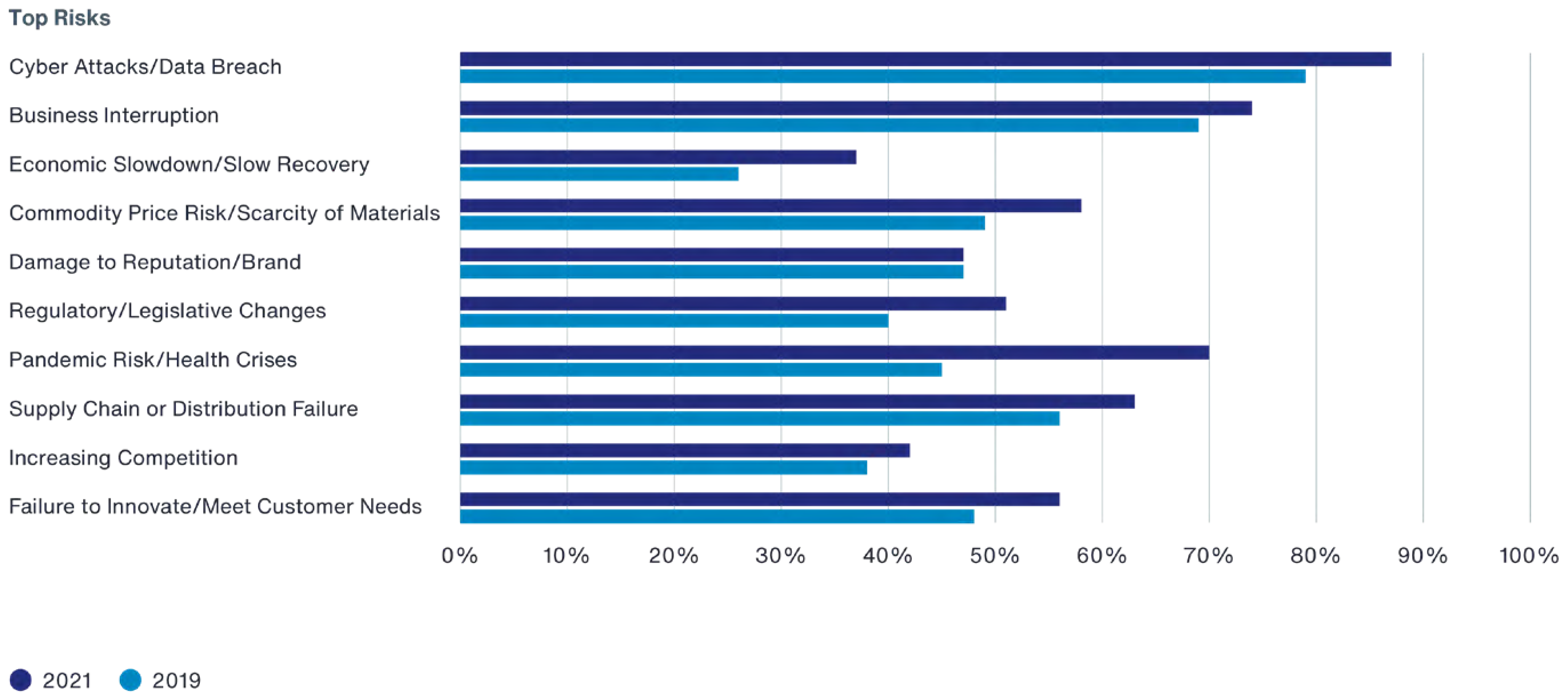
In contrast to cyber attacks/data breach, the risk of damage to reputation/brand has remained at the same level as it was in 2019 and is the only risk in the Top 10 Risk List that has not seen increased readiness. We assume this is because this is a very complex risk, and companies are still struggling with it. It has remained on the Top 10 Risk List since the inception of this survey in 2007, whereas readiness for other risks has been steadily improving as more mitigants become available to manage their impact and associated exposures.

Average Reported Readiness for Top 10 Risks by Region



Reported Readiness for Top 10 Risks



When we drill down by industry, we can see that all except one sector have reported an increase in risk readiness. In contrast, in 2019 only one-third showed an increase. It will come as no surprise that the hospitality, travel and leisure sector has reported a decrease in risk readiness; the sector was the hardest hit by the global pandemic and had to face risks that were largely out of the control of its members and for which only limited mitigants are available. There are also some notable disparities. Industries that are heavily regulated, such as life sciences; telecommunications, media and entertainment; and government organizations, trended over 19 percent higher than other sectors, at 68 percent, 74 percent and 59 percent, respectively.

Geographically, the level of reported preparedness also improved across all regions, with North America reporting the highest level at 65 percent and with Middle East and Africa showing the biggest rise, from 49 percent in 2019 to 60 percent in 2021.

In summary, Aon believes that the overall level of risk preparedness, while showing improvement since 2019, is lower than it should be. With the rising number of industries focused on risk management strategies, organizations could do an even better job in improving preparedness, resilience and sustainability to ensure their organizations are able to keep pace with the rapidly evolving risk landscape.

Average Reported Readiness for Global Top 10 Risks by Industry

Industry	2021	2019	Change
Private Equity	52%	0%	52%
Life Sciences	68%	42%	26%
Telecom, Media and Entertainment	74%	49%	25%
Public Sector Partnership	59%	40%	19%
Healthcare Providers and Services	59%	47%	12%
Financial Institutions	65%	54%	11%
Retail and Consumer Goods	57%	48%	9%
Industrials and Manufacturing	58%	50%	8%
Energy, Utilities and Natural Resources	60%	52%	8%
Food, Agribusiness and Beverage	56%	48%	8%
Technology	59%	51%	7%
Construction and Real Estate	50%	47%	3%
Insurance	58%	55%	3%
Transportation and Logistics	51%	50%	1%
Professional Services	55%	54%	1%
Hospitality, Travel and Leisure	51%	53%	-2%

4 Losses Associated with Top 10 Risks

Aon's 2021 survey shows that losses from the top 10 risks have on average increased by 10 percent compared with last year, reaching 36 percent overall. This represents the biggest-ever average loss of income experienced in 12 months due to the top 10 risks since the beginning of the survey in 2007.

While this would be a sizable increase in any common two-year period, during a global pandemic this shows a certain level of resilience, especially when organizations had to also face issues that they feel might impact them at some stage in the future, including increased competition and regulatory or legislative change (e.g., Brexit, climate change, trade wars, economic sanctions).

A closer examination of losses from the top 10 risks reveals another side of the story. While some insurable or partially insurable risks, such as business interruption, supply chain or distribution failure, and pandemic risk and health crisis, are trending negatively and have experienced steep increases in losses of income, others in the same category, such as the risk of cyber attacks and data breaches, only show a small increase in loss of income.

The latter shows a story similar to our 2019 findings; namely, that losses for cyber attacks could be underestimated for two reasons. First, the impact of many hackings and disruptions is not accurately reported because cyber-related losses are more often viewed as an operational expense. Secondly, losses from cyber events that have disrupted businesses are being recorded as business interruptions, a category that has reported a 13 percent increase of loss of income. Of course we cannot discount the positive impact of rising public awareness and the proactive risk-mitigation techniques taken by many organizations. These reasons could have contributed to the low reports of cyber-related losses.

Average Reported Loss of Income From Global Top 10 Risks by Industry

Industry	2021 - Average Loss of Income Experienced From Top Ten Risk in the Last 12 Months	2019 - Average Loss of Income Experienced From Top Ten Risk in the Last 12 Months	Change
Private Equity	42%	0%	42%
Professional Services	37%	22%	15%
Hospitality, Travel and Leisure	35%	21%	14%
Financial Institutions	34%	20%	14%
Healthcare Providers and Services	35%	24%	12%
Industrials and Manufacturing	38%	27%	11%
Life Sciences	30%	20%	10%
Telecom, Media and Entertainment	44%	34%	10%
Energy, Utilities and Natural Resources	34%	24%	10%
Construction and Real Estate	33%	24%	9%
Food, Agribusiness and Beverage	34%	26%	9%
Technology	35%	28%	8%
Retail and Consumer Goods	34%	27%	8%
Public Sector Partnership	25%	18%	7%
Transportation and Logistics	33%	26%	7%
Insurance	26%	22%	4%

4

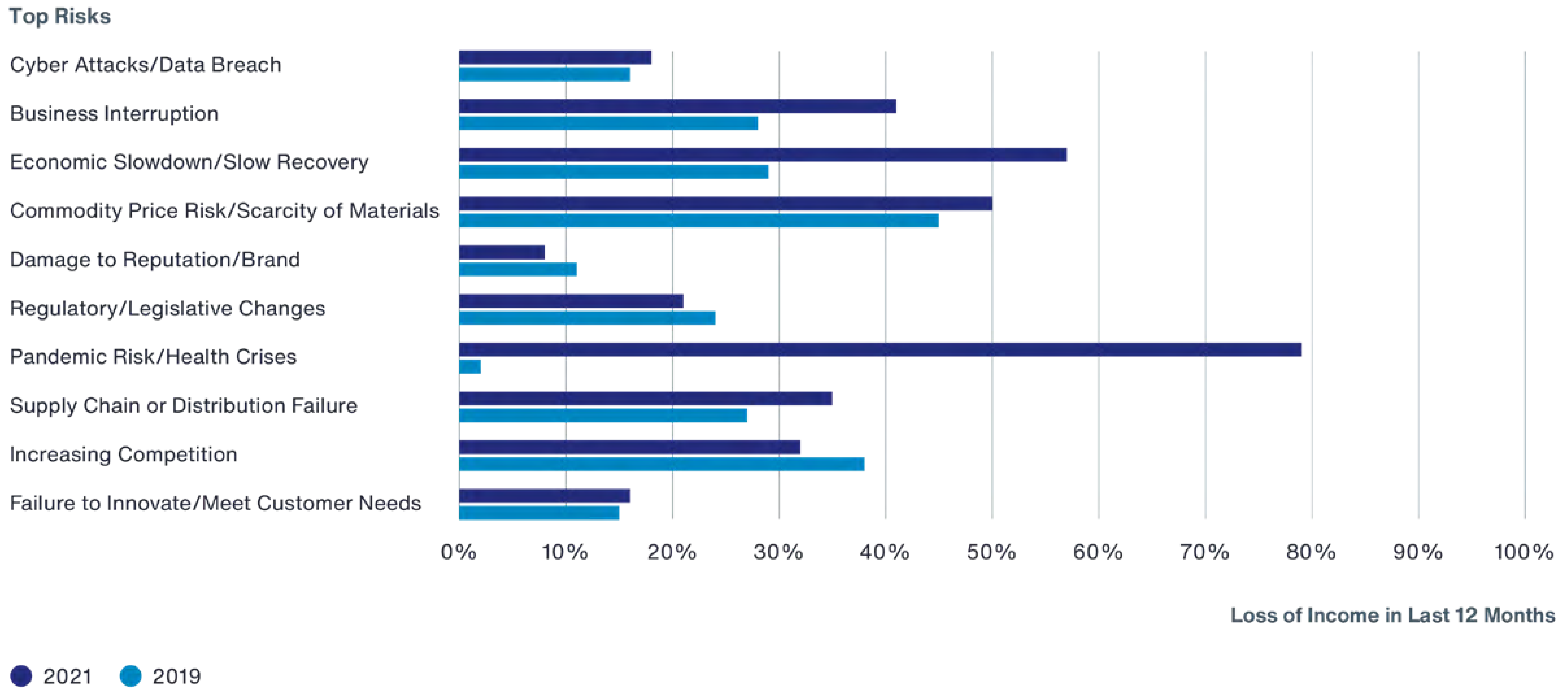
Loses related to damage to reputation/brand have decreased in the 2021 survey, which could be because they might not be connected as obviously to loss of income as other risks. However, the fear of a loss related to reputation or brand damage is high, and that is why the risk has remained within the top six risks since 2007. Now, more than ever, industries have to work together to find solutions for this risk.

Interestingly, uninsurable risks show a similar trend. While loss of income from economic slowdown/slow recovery has almost doubled since 2019, increasing competition and regulatory/legislative changes have not caused as much loss of income compared with 2019.

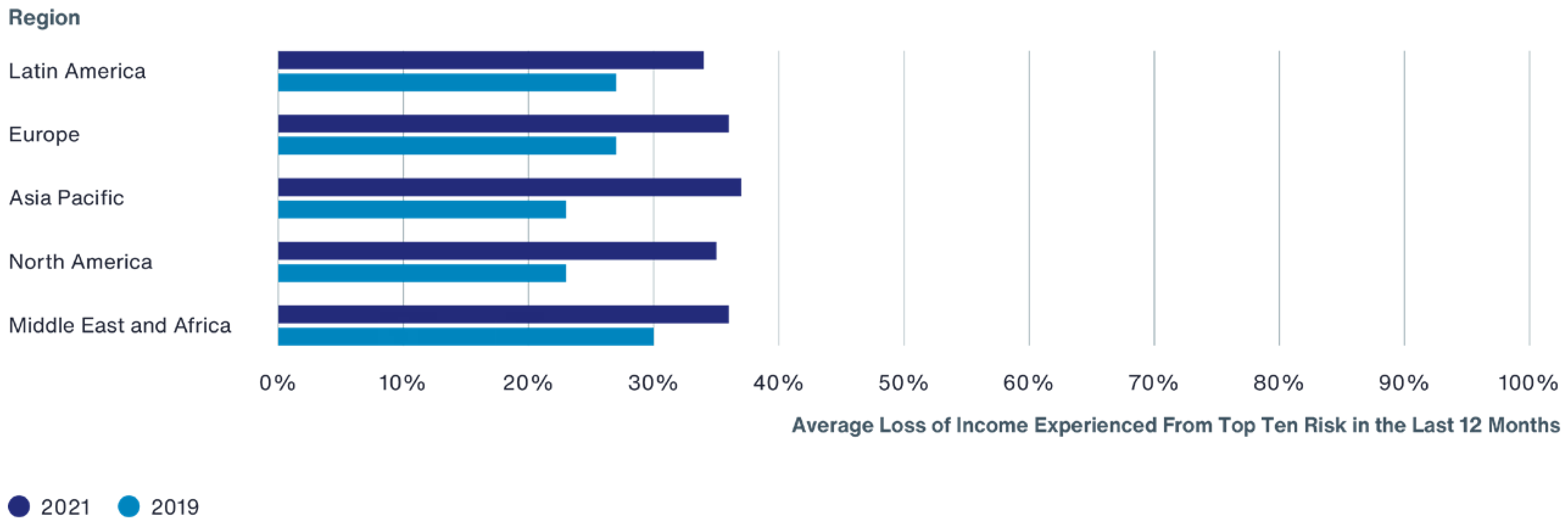
In front of the COVID-19 pandemic, the most disrupting global event to affect most companies in the world, we see the reported loss of income numbers as a reflection of the increased interconnectivity of risks. In other words, income losses cannot be allocated solely to any one risk category anymore. We predict that the pace of these changes won’t slow down for a while, so we advocate for a cohesive enterprise-wide risk management approach.

When breaking our data down by region, we see the Asia-Pacific region has reported the highest increase in loss of income, from 23 percent in 2019 to 37 percent in 2021. This can be linked to the region’s early exposure to the pandemic, its slow vaccination program and the fact that the region is home to the largest number of suppliers for manufacturing components for many key industries across the globe.

Losses From Top 10 Risks



Average Reported Loss of Income From Top 10 Risks by Region



4 Mitigation Actions for Top 10 Risks

Risk Description	Assessed Risk	Quantified Risk	Developed Risk Management Plan	Evaluated Risk Finance/ Transfer Solutions	Developed Continuity Plans	Other
Cyber Attacks/Data Breach	65%	46%	68%	45%	60%	3%
Business Interruption	54%	42%	53%	36%	51%	2%
Economic Slowdown/Slow Recovery	27%	21%	22%	11%	17%	1%
Commodity Price Risk/Scarcity of Materials	40%	32%	33%	18%	24%	3%
Damage to Reputation/Brand	35%	20%	31%	10%	22%	2%
Regulatory/Legislative Changes	38%	24%	33%	11%	19%	4%
Pandemic Risk/Health Crises	48%	34%	50%	19%	46%	2%
Supply Chain or Distribution Failure	47%	34%	43%	23%	39%	1%
Increasing Competition	28%	19%	22%	8%	18%	2%
Failure to Innovate/Meet Customer Needs	44%	24%	35%	11%	19%	4%

This year, we provide our first year-over-year comparison of mitigation actions for the top 10 risks; we first explored this topic in 2019. Not surprisingly, COVID-19 caused many companies to double down on elements of their risk-mitigation plans in 2020, not just for the pandemic but also for related risks, including cyber risk, business interruption, economic slowdown and supply chain risk.

Elsewhere in our survey, risk readiness generally improved greatly for the top 10 risks. Irrespective of region, size or industry, companies lag in risk-quantification activities, an admittedly challenging task for some types of risk (e.g., reputational risk), but an important one nonetheless. Companies continue to be behind the curve with quantification, yet efforts to prioritize management actions and set insurance limits without risk quantification are little more than guesswork. As new, emerging and accelerating risks continue to rise in prominence, we see more companies looking to develop scenario-based quantification, often using alternative data sets as the basis of their efforts.

Some variation in the adoption of mitigants likely reflects companies' more limited resources; they are prioritizing control measures that will deliver the best returns, but this approach obviously comes with its own risks.

Cyber risk is the focus of considerable attention in 2021. High-profile data breaches and ransomware attacks reflect a growing threat landscape. What's more, digitalization accelerated by remote work in the "new normal" and a notably hardening insurance market have exacerbated concerns about cyber risk. A relatively high percentage of respondents say their companies have taken one or more actions to mitigate cyber risk because of heightened concerns. This is helped by ever-improving cyber-loss data sets and risk intelligence to guide them to the right decisions. In 2019, 55 percent of respondents said they had developed a risk management plan; that figure jumped to 68 percent in 2021. Sixty-five percent say they have assessed this risk, up from 64 percent in 2019, and 60 percent have developed continuity plans, up from 49 percent in 2019, possibly reflecting the growing interest in cyber continuity shown by cyber underwriters. Investment in risk mitigation is the highest for cyber risk, yet respondents still rate it the most significant risk, an indication of the scale of the issue in the eyes of respondents.

Twenty-seven percent of respondents assessed the risk of economic slowdown in 2021, up from 16 percent in 2019. Since the last survey, COVID-19 is estimated to have triggered a global loss in GDP of 4.5 percent, amounting to almost $4 trillion of lost economic output. Despite signs of recovery, ongoing economic and fiscal uncertainty calls for companies to address this risk from a corporate-strategy and risk-appetite perspective.

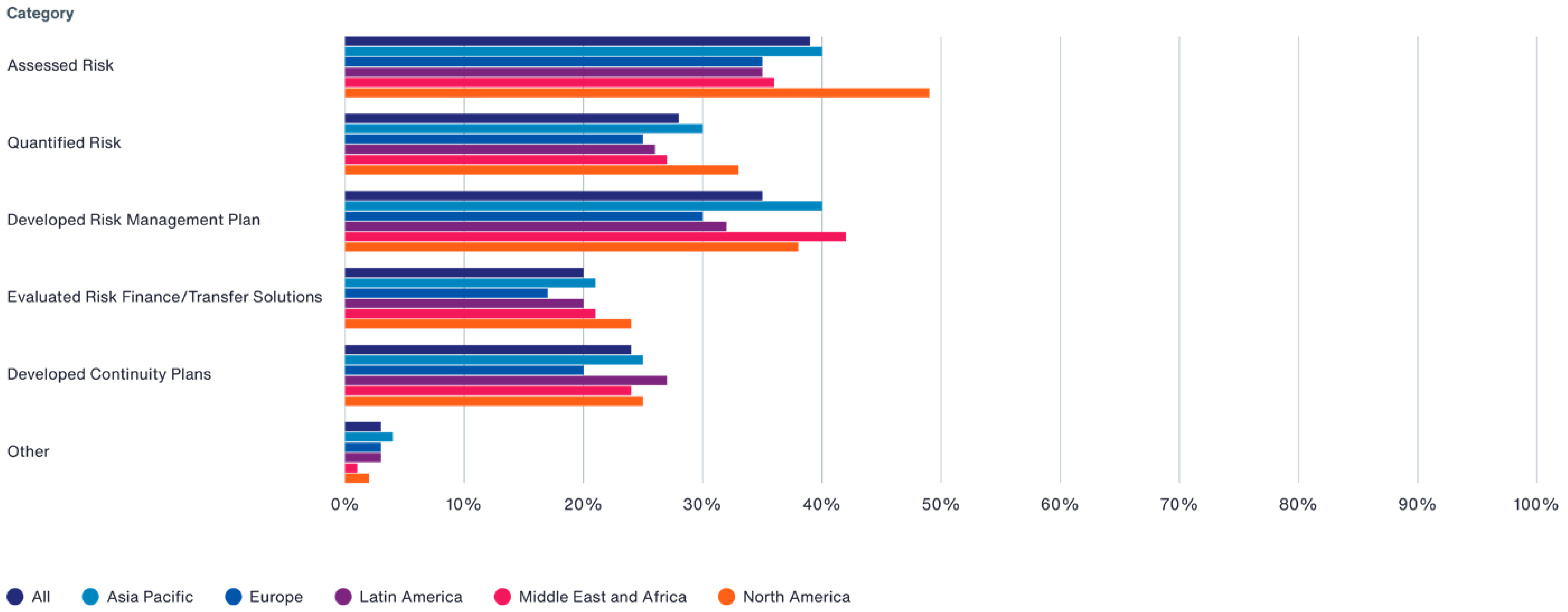
Business interruption is an insurable risk. Given the changes in operating environment and financial performance of many companies, it is somewhat surprising that just 36 percent of respondents said they have evaluated relevant risk or finance transfer solutions (ERFTS), compared with over 50 percent that assessed this risk, developed a risk management plan or developed continuity plans. This finding suggests that companies need to be more adept at reviewing ongoing coverage to ensure it is optimal. The fact that only three of the top 10 risks have over 20 percent of respondents turning to ERFTS as a mitigant reminds us that the insurance industry needs to be more proactive in order to maintain its relevance as a hedge for companies' most significant risk exposures.

Because reputational risk has been seen as difficult to quantify, the percentage taking action to mitigate it remains low. However, recent research commissioned by Aon and conducted by Pentland Analytics shows that the financial impact from negative reputational risk events has never been higher. Risk professionals must continue to focus on reputation exposure in their enterprise risk assessments while demanding more relevant insurance coverage from the market. In 2019 and again in 2021, 28 percent of respondents said they had assessed risk from increasing competition, but considerably fewer have acted in the remaining four mitigation areas. In light of post-pandemic reshaping of many business models, coupled with a rise in new market entrants, the need to intensify focus on competition risk as a strategic exposure remains of the upmost importance.

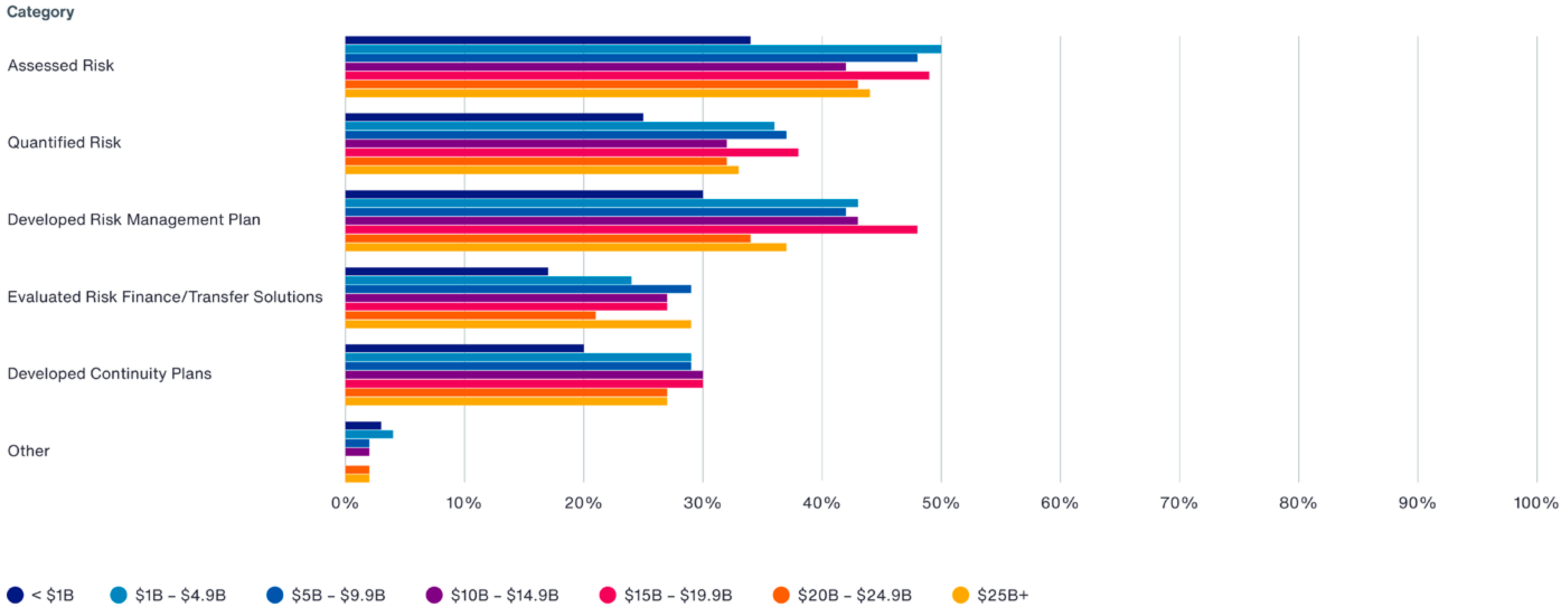
4

As the table above shows, companies take actions such as quantifying risks and evaluating risk financing for some new and emerging risks regardless of size. For example, 33 percent of companies with revenues in excess of $25 billion quantify risk, compared with 36 percent of companies with revenues of $1 billion to $5 billion. With respect to developing risk management plans, 42 percent of respondents in Europe, the Middle East and Africa have developed a plan for key risks, a 16 percent jump from 2019. At the same time, the Asia-Pacific region saw a 12 percent year-over-year jump to 40 percent. This underscores the pandemic's impact on business and the need to bolster resilience.

Mitigation Actions for Top 10 Risks by Region



Mitigation Actions for Top 10 Risks by Revenue (in $)



Mitigation Actions for Top 10 Risks by Industry

Industry	Assessed Risk	Quantified Risk	Developed Risk Management Plan	Evaluated Risk Finance/ Transfer Solutions	Developed Continuity Plans	Others
Food, Agribusiness and Beverage	35%	27%	31%	19%	24%	2%
Construction and Real Estate	35%	24%	29%	19%	19%	5%
Energy, Utilities and Natural Resources	45%	32%	39%	22%	24%	4%
Financial Institutions	36%	30%	40%	21%	26%	3%
Healthcare Providers and Services	35%	25%	30%	19%	19%	2%
Hospitality, Travel and Leisure	44%	30%	40%	22%	27%	1%
Industrials and Manufacturing	35%	26%	31%	17%	21%	3%
Insurance	39%	29%	34%	21%	23%	2%
Life Sciences	38%	28%	32%	18%	26%	1%
Private Equity	24%	19%	17%	8%	13%	0%
Professional Services	33%	21%	31%	14%	20%	3%
Public Sector Partnership	35%	24%	33%	17%	16%	3%
Retail and Consumer Goods	32%	23%	28%	14%	20%	3%
Technology	33%	24%	27%	18%	25%	2%
Telecom, Media and Entertainment	39%	28%	39%	16%	27%	5%
Transportation and Logistics	38%	27%	33%	21%	23%	3%

4

Top 10 Risks in the Next 3 Years

In every survey, Aon asks participants to project the top five risks facing their organizations in the next three years. Their projections enable us not only to gauge what might be on the horizon but also to compare what they have predicted with the actual results. This exercise gives us the opportunity to see how risk perceptions change and what factors are driving this change.

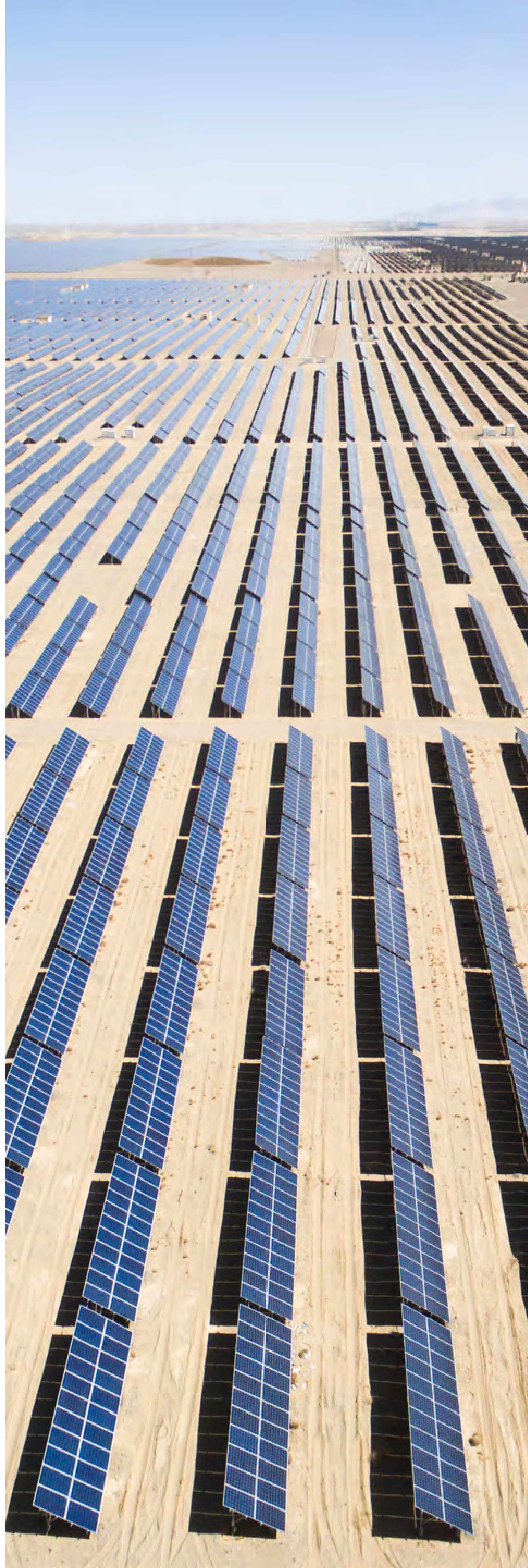
In the 2019 survey, participants predicted that economic slowdown/slow recovery would remain in the top spot, followed by accelerated rates of change in market factors at number two and cyber attacks/data breach in third place. Nobody, of course, predicted a global pandemic and its transformational impact on organizations and people's lives in general.

Out of the top 10 predicted risks for 2021, only two — accelerated rate of change in market factors and failure to attract and retain talent — did not make it into the actual Top 10 Risk List and were replaced by pandemic risk health crises and supply chain or distribution failure, respectively.

Interestingly, damage to reputation/brand and regulatory/legislative changes were both predicted to come far lower on the risk ranking, at number 10 and 14, respectively, but have again been deemed far more important, which demonstrates that these risks remain a constant challenge and focus for organizations.

The rise of cyber attacks/data breach to number one and business interruption to number two was, although not correctly predicted, much more anticipated, as both risks were projected higher for the future risk list than they placed in the 2019 rankings.

Looking back at projections from 2019, the only real outlier is failure to attract or retain talent, which came in at number 13 globally in 2021. This risk appeared last in the top 10 risk list in 2017 (at number seven) and has since trended downward, giving us cause for concern as keeping or attracting talent is the key to organizational success.



Top 10 in 2021

1	Cyber Attacks/ Data Breach
2	Business Interruption
3	Economic Slowdown/ Slow Recovery
4	Commodity Price Risk/Scarcity of Materials
5	Damage to Reputation/ Brand
6	Regulatory/ Legislative Changes
7	Pandemic Risk/ Health Crises
8	Supply Chain or Distribution Failure
9	Increasing Competition
10	Failure to Innovate/ Meet Customer Needs

Predicted to be Top 10 in 2024

1	Cyber Attacks/ Data Breach	↔
2	Economic Slowdown/ Slow Recovery	↑
3	Commodity Price Risk/Scarcity of Materials	↑
4	Business Interruption	↓
5	Accelerated Rates of Change in Market Factors	↑
6	Increasing Competition	↑
7	Failure to Innovate/ Meet Customer Needs	↑
8	Regulatory/ Legislative Changes	↓
9	Pandemic Risk/ Health Crises	↓
10	Cash Flow/ Liquidity Risk	↑

In the next three years, the risk of cyber attacks/data breach is expected to remain at the top of the list, followed by economic slowdown/slow recovery and commodity price risk/scarcity of materials. Business interruption is expected to drop to rank four, and accelerated rate of change in market factors is predicted to rise to number five again.

The only other forecast re entry is cash flow/liquidity risk at number nine, which suggests that respondents don't think that the economy's overall pace of change will slow down in the next three years. Risk managers and business leaders anticipate the rapid pace of change will bring about dynamic risk profiles, changing the way we work, the creation of new business models and how we consume.

The risk of cyber attacks/data breach is predicted to remain in the top spot for the Asia-Pacific region, Europe and North America; number two in the Middle East and Africa; and, for the first time, in the top five for Latin America. It is a top three future risk across all industry sectors, which further highlights the fact that this most complex risk will continue to be a core focus for businesses across the globe.

Failure to attract and retain top talent is predicted to be the number two risk in North America three years from now. We assume this is driven by an aging workforce — compounded by the political environment and COVID-19 stimulus in the current risk rankings — and a dramatic population decline.

Birthrates in North America and Asia are below death rates, indicating challenges in time to maintain the workforce without immigration. Furthermore, people are choosing to work for companies based not only on remuneration packages but also on their approach to staff wellbeing and companies' social and ethical values, so the war for the best talent remains challenging. This, coupled with low birthrates and an aging workforce, is bringing the talent issue to the forefront for respondents in these regions.

Europe has dealt with these issues for a longer time and has designed suitable social programs in response. While businesses in the U.K., which have experienced talent shortages due to Brexit, perceive the failure to attract and retain talent to be the sixth most important risk in the current survey, they have not singled it out as a key threat in the future. Even though in the first half of 2021 the pandemic may have temporarily upstaged the fallout from Brexit, we predict that failure to attract and retain talent will emerge as a bigger issue in years to come for the U.K. and for the EU in general.

Where Current Top 10 Risks Are Projected To Be in 3 Years

Risk Description	Current Risk Ranking	Projected Rank in 2024
Cyber Attacks/Data Breach	1	1
Business Interruption	2	4
Economic Slowdown/Slow Recovery	3	2
Commodity Price Risk/Scarcity of Materials	4	3
Damage to Reputation/Brand	5	13
Regulatory/Legislative Changes	6	8
Pandemic Risk/Health Crises	7	9
Supply Chain or Distribution Failure	8	15
Increasing Competition	9	6
Failure to Innovate/Meet Customer Needs	10	7

Top 5 Risks in the Next 3 Years by Region

Rank	Asia Pacific	Europe	Latin America	Middle East and Africa	North America
1	Cyber Attacks/Data Breach	Cyber Attacks/Data Breach	Economic Slowdown/ Slow Recovery	Economic Slowdown/Slow Recovery	Cyber Attacks/Data Breach
2	Economic Slowdown/Slow Recovery	Commodity Price Risk/Scarcity of Materials	Political Risk	Cyber Attacks/Data Breach	Failure to Attract or Retain Top Talent
3	Business Interruption	Economic Slowdown/Slow Recovery	Commodity Price Risk/Scarcity of Materials	Accelerated Rates of Change in Market Factors	Economic Slowdown/Slow Recovery
4	Failure to Innovate/Meet Customer Needs	Business Interruption	Cyber Attacks/Data Breach	Pandemic Risk/Health Crises	Business Interruption
5	Increasing Competition	Accelerated Rates of Change in Market Factors	Business Interruption	Business Interruption	Failure to Innovate/Meet Customer Needs

Top 3 Risks in the Next 3 Years by Industry

Industry	Key Risk 1	Key Risk 2	Key Risk 3
Food, Agribusiness and Beverage	Commodity Price Risk/Scarcity of Materials	Cyber Attacks/Data Breach	Economic Slowdown/Slow Recovery
Construction and Real Estate	Economic Slowdown/Slow Recovery	Cash Flow/Liquidity Risk	Cyber Attacks/Data Breach
Energy, Utilities and Natural Resources	Commodity Price Risk/Scarcity of Materials	Business Interruption	Cyber Attacks/Data Breach
Financial Institutions	Cyber Attacks/Data Breach	Economic Slowdown/Slow Recovery	Counterparty Credit Risk
Healthcare Providers and Services	Cyber Attacks/Data Breach	Workforce Shortage	Failure to Attract or Retain Top Talent
Hospitality, Travel and Leisure	Cyber Attacks/Data Breach	Pandemic Risk/Health Crises	Business Interruption
Industrials and Manufacturing	Commodity Price Risk/Scarcity of Materials	Economic Slowdown/Slow Recovery	Cyber Attacks/Data Breach
Insurance	Cyber Attacks/Data Breach	Economic Slowdown/Slow Recovery	Failure to Innovate/Meet Customer Needs
Life Sciences	Cyber Attacks/Data Breach	Regulatory/Legislative Changes	Business Interruption
Private Equity	Damage to Reputation/Brand	Cyber Attacks/Data Breach	Business Interruption
Professional Services	Cyber Attacks/Data Breach	Economic Slowdown/Slow Recovery	Failure to Attract or Retain Top Talent
Public Sector Partnership	Cyber Attacks/Data Breach	Damage to Reputation/Brand	Failure to Innovate/Meet Customer Needs
Retail and Consumer Goods	Cyber Attacks/Data Breach	Failure to Innovate/Meet Customer Needs	Accelerated Rates of Change in Market Factors
Technology	Cyber Attacks/Data Breach	Failure to Attract or Retain Top Talent	Increasing Competition
Telecom, Media and Entertainment	Cyber Attacks/Data Breach	Regulatory/Legislative Changes	Increasing Competition
Transportation and Logistics	Economic Slowdown/Slow Recovery	Cyber Attacks/Data Breach	Pandemic Risk/Health Crises

Underrated Risks

Climate Change's Rank Now and in 3 Years' Time by Region

Region	Current Rank	Predicted Rank
Pacific	18	12
Asia	23	11
North America	27	28
Latin America	26	13
EMEA	20	11

We have featured underrated risks in many Global Risk Management Survey reports to date, and in this edition we would like to again explore the topic, as some of the risks we consider underrated in the 2021 survey are of vital importance to ensure the survival of not just organizations but also our entire planet.

Climate Change

While climate change has risen from number 31 in 2019 to number 23 in 2021, which is a significant improvement, it is still not a top 10 risk. Climate change is not an emerging risk — it is an urgent risk.

A growing number of stakeholders, including governments, regulatory bodies, shareholders, employees and consumers, are starting to hold organizations accountable for their roles in causing or combating climate change. As a result, climate risk has emerged as a prominent investment issue.

Climate risks include both physical risks, such as storms, drought and flooding, and transition risks, such as litigation, reputation and carbon pricing. The future-looking and long-tail nature of climate risks further complicates how businesses are expected to address them.

Some participants in this survey might have connected climate change to regulatory risk, environmental risk or weather and natural disasters because these have historically been common ways risk management audiences would have thought about it. However, climate change is a far, far bigger risk than previously assumed, and it is quickly becoming an imperative for boards and C-level executives to address.

The transition to net zero is a complex, global challenge. The world is facing a monumental challenge regarding increased volatility as we collectively strive to address the impact of climate change today and in the future. Organizations should employ a multi pronged approach to ensure their long-term resilience. They should aim to reduce both physical and transition risk as they relate to climate-change volatility, as well as to capitalize on the opportunities climate change will present. Further, and equally important, organizations are expected to move toward more environmentally friendly ways of doing business, setting targets to measure their progress.

Disappointingly, the only two countries where the risk appears in the current top 10 is the U.K., ranked eight, and Japan, ranked nine. However, it does feature across various countries as a predicted top 10 risk three years from now, ranking at number five in the U.K., six in Brazil and Japan, eight in Chile and nine in France.

However, even three years from now climate change is not predicted to be in the global top 10 in any region overall. We expect that the importance of this risk will grow between now and then and that we will see it in a more prominent position in the near future.

Corporate Social Responsibility and Environmental, Social and Governance

Even though this risk was ranked in 31st place in 2021, up from 39th place in the 2019 survey, we consider it an underrated risk. At the same time, we predict this will become the next big focus for companies in the very near future.

While risk managers are often consumed with the results of topics related to ESG — such as climate change implications, regulatory risks and reputational damage — a simple explanation for its current ranking is that the risk function is often less involved in the development and management of their companies' ESG strategies today. Hence, they don't see these issues as top 10 risks because they are more focused on specific outcomes, such as cyber attacks, supply-chain issues or workforce shortages. When thinking about the implications of a business having a sound, or not-so-sound, ESG strategy, risk professionals are often tuned in, but overall ESG risk will cover a spectrum that stretches beyond the core remit of the risk manager.

The question organizations and the industry needs to reflect on is, "How do we take an issue that is 10 miles wide and 10 miles deep and generate value to the organization through the risk functions' focus on the minimization of volatility? As business leaders consider what ESG means for their individual firms, different roles and responsibilities for risk managers will emerge and in time influence the approach taken to corporate governance.

Disruptive Technologies

The risk of disruptive technologies was introduced in 2017 and landed at number 20 before rising to 14 in the 2019 survey. It was predicted to come in at number eight in Europe and number nine in North America in 2021, but it has dropped to 30. However, because the pandemic has accelerated technological advances in some industries, participants may see it more as an opportunity than a risk, hence its drop in rank.

Personal Liability (D&O risk)

For a second time we see Personal Liability (D&O risk) come in very low on the global risk list. This is potentially a severely underrated risk (ranking 45) despite real difficulties in placing affordable insurance and the volatility the exposure can present. In Aon's Q2 2021 Aon Global Market Insights publication, which monitored market conditions around the time the survey data was captured, we clearly see that D&O capacity is still constrained and often not available at all for certain risks, a fact we feel warrants a higher rating.

5

Industry Views

Construction and Real Estate

Rank	Current Risk
1	Economic Slowdown/Slow Recovery
2	Commodity Price Risk/Scarcity of Materials
3	Cash Flow/Liquidity Risk
4	Business Interruption
5	Accelerated Rates of Change in Market Factors
6	Cyber Attacks/Data Breach
7	Workforce Shortage
8	Capital Availability
9	Damage to Reputation/Brand
10	Pandemic Risk/Health Crises

Rank	Future Risk
1	Economic Slowdown/Slow Recovery
2	Cash Flow/Liquidity Risk
3	Cyber Attacks/Data Breach
4	Commodity Price Risk/Scarcity of Materials
5	Business Interruption

33 percent loss of income — up from 2019
50 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

The past 18 months have been difficult for the construction and real estate industry, which has historically been highly sensitive to economic cycles. The economic slowdown caused by the COVID-19 pandemic has led to the delay, suspension and cancellation of projects around the globe. Initially, it disrupted all types of construction, but 18 months in, the impact is diverging. Commercial construction activity in industries that have thrived during the pandemic, including technology, distribution, life sciences and healthcare, has rebounded — and even accelerated. Meanwhile, construction activity in more discretionary sectors including retail, hospitality, office leasing and travel has yet to return to pre-pandemic levels.

The industry is confronting substantial risk from a shortage of materials and talent due to mobility restrictions caused by the pandemic. This risk is compounded by the uncertain pace of recovery. Evidence that the pandemic is under control — for example, proof of high vaccination rates with high-efficacy vaccines — is needed to gain support and accelerate deployment of investments. The top 10 risks chosen by survey respondents in the industry closely mirror the current situation.

Surprises in the Top 10 Risks Selected

The COVID-19 pandemic is a defining event, and most of the real estate and construction industry's top risks, including scarcity of supplies, liquidity risk and workforce shortages, flow from it. For example, increased cyber-risk exposure caused by knowledge workers accessing less-secure home networks has had a major impact, requiring companies to increase investment in security infrastructure.

The overall order of the top 10 risks in 2021 compared with 2019 is as expected; however, perception of risk varies slightly from region to region. For example, in Asia the local skilled workforce and available materials align well with the type of projects undertaken, although this may not be the case in other regions. Meanwhile, major project failures dropped off the Top 10 Risk List this year.

In an industry that is perceived to have a high-risk profile due to the inherent physical dangers of construction work, it is somewhat surprising that five of the top 10 risks in construction are financial. Additionally, we would have expected regulatory and legislative risk to be included in the Top 10 Risk List for the construction industry globally due to the fact that emerging countries need considerable government-led investment in infrastructure.

Most Underrated Risks

Arguably, pandemic risk and health crisis should be the number one risk affecting the industry given that many other top 10 risks flow directly from it, including scarcity of supplies, liquidity risk and workforce shortages. Although we hope it will be a short-term risk consideration, its current impact is paramount.

Climate change seems to be an underrated risk given that large infrastructure projects — for example, building power plants, ports, roadways and railways — could be hugely affected by extreme weather events.

Workforce shortage ranks high (number seven) but arguably could rank even higher. Companies are embarking on more mega-projects (projects valued at more than $1 billion), which is significantly straining skilled labor capacity. This is especially true when construction locations are far from large population centers. Growing project complexity and increased volatility as a result of extreme weather further exacerbate workforce risk.

Finally, considering the global expansion of real estate and construction, as well as the growing political instability in countries where infrastructure projects with a high level of invested capital are most common, we would have expected respondents in the industry to rank political risk higher than they did.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

This sector will continue to fluctuate as changes to the economy create new risks. The trend toward telecommuting and contract working is driving demand for shorter leases and smaller offices, which is affecting core revenue streams. Companies will continue to explore new ways to diversify revenue, including financial lending and technology services like data and analytics. E-commerce will continue to disrupt commercial real estate. With diminishing demand for brick-and-mortar stores, real estate companies and developers are finding new uses for conventional retail spaces, such as using them as entertainment venues, restaurants, healthcare facilities and more.

In response to the “K-shaped” recovery to the pandemic, with different parts of the economy recovering at different rates, multiple governments around the world are planning large stimulus investments in infrastructure.

Industries benefiting from economic trends spurred by the pandemic — for example, technology, healthcare, pharmaceuticals and logistics — are also seeking to invest in capital expenditures to lock in success achieved over the past 18 months.

Both trends will increase construction opportunities, but the challenge will come in selecting profitable projects, securing compensation based on value created, and managing a more complicated risk environment throughout this process.

Construction industry risk managers should consider acquiring insurance protection; complete or partial solutions are available for some of the industry’s most highly ranked risks, including cyber attacks, business interruption and political risk. For example, parametric insurance covers the risk of construction interruption due to unexpected weather.

Top risks such as material and talent shortages will continue to create challenges for the construction industry, forcing companies to take actions to mitigate them.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Construction and real estate organizations will need to have better processes and systems to accommodate future workloads with respect to materials, workforce and financing and will have to be highly skilled at managing risk to scale their activities.

Amid growing global complexity, the convergence of risk factors and increasing integration among coverage lines, participants in the construction industry will need to consider risk in a multidimensional fashion rather than by line of coverage. Leading firms have already adopted this approach and have seen better outcomes as a result. By combining traditional and more innovative risk mitigation strategies, including risk arbitrage, companies can improve performance.

Protection against cyber attacks and protection of intellectual property will be particularly challenging as the industry increases its adoption of disruptive digital technologies, including, for example, building information modeling and drones.

Last, access to investment capital may hinge on a comvpany’s ability to articulate and execute environmental, social and governance agendas.

5 Energy, Utilities and Natural Resources

Rank	Current Risk
1	Business Interruption
2	Commodity Price Risk/Scarcity of Materials
3	Regulatory/Legislative Changes
4	Economic Slowdown/Slow Recovery
5	Environmental Risk
6	Cyber Attacks/Data Breach
7	Accelerated Rates of Change in Market Factors
8	Climate Change
9	Cash Flow/Liquidity Risk
10	Political Risk

Rank	Future Risk
1	Commodity Price Risk/Scarcity of Materials
2	Business Interruption
3	Cyber Attacks/Data Breach
4	Accelerated Rates of Change in Market Factors
5	Climate Change

34 percent loss of income — up from 2019
60 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Energy companies are grappling with ESG obligations, so it is unsurprising that environmental risk ranks at number five. Transitioning to carbon neutrality will alter their risk profiles, requiring them to simultaneously maintain their capital positions while addressing scrutiny from investors to meet their ESG obligations. Macroeconomic and regulatory trends are already affecting not only the availability of risk transfer for some industry sectors but also the profile of boardrooms — for example, through activist investors.

The Colonial Pipeline cyber attack demonstrated an increase in cyber risk, which has been exacerbated, at least in part, by increased remote-work arrangements during the COVID-19 pandemic. Energy companies should be assessing their IT environments to understand their ability to defend against attacks, but changes to their operating technology environments will expand this threat in the long term.

Talent management is becoming increasingly important. Energy companies need to retain and attract talent to support the sector's transition to carbon neutrality, as well as to compete with other industries that prospective employees perceive as more advanced in their sustainability initiatives. This is developing into a key risk, and the energy industry has to adapt to mitigate and manage it. As the energy transition accelerates, the workforce of the past may not have the skills needed for the future, including expertise in new technologies such as hydrogen and carbon capture. Demand for engineers and skilled labor is likely to surge as more new, low-carbon projects come online in response to heightened concerns over climate change, governmental action and the global drive to net zero.

Surprises in the Top 10 Risks Selected

Given the increased influence of ESG across the entire energy and power sector, as well as growing pressure on company boards from shareholders, investors, governments, regulators and non-governmental organizations, it is surprising that this did not rank in the top five risks. Initially, industry ESG concerns focused on oil sands, thermal coal and arctic drilling. The entire industry is now under scrutiny due to its high carbon usage and faces mounting pressure to deliver a credible decarbonization plan underpinned by clear actions and targets.

Failure to attract and retain talent is another major risk that is not included in the top 10 risks, although it may be reflected in the high rank of accelerated rate of change in market factors. Many companies and observers across the sector acknowledge that a lack of talent is a significant and increasing risk to energy transition and growth plans and warrants elevated attention form senior management.

Additionally, the volatility of the business environment, which arises at least in part from political risks and growing stakeholder influence, is recognized as pivotal to the future of the industry, despite not rising to the top-ranked risks.

The top risks selected could suggest that the day-to-day roles of some respondents may at times distance them from the changing risk environment and the growing influence of external stakeholders on their boards. Companies that implement an ERM strategy are likely to have greater risk alignment between the board and the insurance buyer and thus can respond more effectively to current and future risks.

Most Underrated Risks

Climate change and reputation risks do not appear to be top of mind for energy respondents. However, as the world is becoming more aware of industries that could pose an existential threat to humanity, these risks could become relatively significant threats to the industry. The World Economic Forum's "Road to net zero in four charts," among other analyses, points to the impact of decarbonization initiatives in the developed and developing worlds on current oil and gas economics. Additionally, although weather and natural disasters did not make the Top 10 Risk List, they are more consequential than some higher-ranked risks considering recent extreme weather events globally.

Given the industry's heavy reliance on governmental decision making, political risk should rank higher as regulators across the world grapple with the appropriateness of actions, subsidy protections and their impact on the energy transition. We see regional variations in terms of how the pace of change is being dictated, which has a knock-on effect for global energy companies.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Utility companies will need to devise ways to shift power to consumers. This will include smart technologies to help control consumption and possibly to share non fossil-fuel sources via a two-way grid. As reliance on fossil fuels diminishes, non fossil energy sources — renewables and nuclear options such as thorium — will become important commodities. The energy sector faces game-changing trends and technologies over the next few years. With global warming and extreme climate conditions becoming the new normal, there is growing global recognition that changes are needed quickly.

Companies need to demonstrate well-developed ESG objectives because these will become important for continued access to capital, specifically when pursuing new investments. The industry has made some ESG progress on its own, but government action — for example, placing a price or tax on carbon — may accelerate change.

On the asset side of the balance sheet, safe and sustainable infrastructure transition, as well as the necessary decommissioning and repurposing of assets, will alter risk profiles, influence capital requirements and necessitate a review of risk retention and transfer mechanisms, as well as of insurance coverage and levels.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Companies need to adopt a holistic risk management framework that includes physical and human assets. ESG and climate change realities will drive significant change in the way energy and power companies manage the risks of their assets.

Power-sector insurance needs are increasing exponentially as companies work to eliminate fossil fuels from their energy mix and invest in new technology. Energy companies are used to managing high-profit projects and now are confronted with technologies such as hydrogen that could take many years to generate a return.

Some integration of power and traditional oil and gas businesses is inevitable as the industry transitions toward carbon neutrality. This could take over 30 years, but energy companies need to adapt to a new reality to meet changing obligations.

ESG and the energy transition have created new and evolving risks that boards and companies need to navigate. With limited historical precedent to guide them, businesses must find new ways to define how they look at risk and return on capital, including issues such as decommissioning and the management of stranded assets and implications for production. The transition to new forms of energy and the convergence of power and energy sectors will potentially affect the speed of return on capital investment.

Financial Institutions

Rank	Current Risk
1	Cyber Attacks/Data Breach
2	Economic Slowdown/Slow Recovery
3	Damage to Reputation/Brand
4	Counterparty Credit Risk
5	Regulatory/Legislative Changes
6	Business Interruption
7	Tech Failure/System Failure
8	Data Privacy (including GDPR) Requirements/Non-Compliance
9	Increasing Competition
10	Failure to Innovate/Meet Customer Needs

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Economic Slowdown/Slow Recovery
3	Counterparty Credit Risk
4	Regulatory/Legislative Changes
5	Failure to Innovate/Meet Customer Needs

34 percent loss of income — up from 2019
65 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Risk profiles of financial institutions are rapidly evolving due to changes in their operating models and client offerings, as well as because of accelerating competition from digital challengers, including fintech companies. Moreover, the costs associated with these digital transformations present risks of their own, placing pressure on profit and loss statements, especially if low interest rates continue.

Survey results reveal a broad stakeholder focus on potential losses from rare events, known as tail risk, related to climate, credit and cyber, among other areas. Regulatory or legislative change (number five) is also a highly rated risk — related to issues such as climate change, ESG, digital assets and resiliency — and also compounds some other risks (e.g., data privacy).

Surprises in the Top 10 Risks Selected

With cyber attacks ranking as the number one risk by financial institutions, it is surprising that related risks, including supply chain or distribution failure, vendor risk, conduct risk and fraud, didn't make the top 10. Industry data suggest that fraud has risen significantly since lockdowns began.[62] Other noticeable omissions from the top 10 are political risk, credit risk and climate change, a concern that dominates boardrooms. Arguably, credit risk should rank higher, especially given its prevalence in Europe, the Middle East and Africa, which accounted for 42 percent of respondents.

Most Underrated Risks

The most underrated risks are non financial, particularly fraud, embezzlement and other misconduct. Among banks, the most frequent and severe losses have historically occurred as a result of these types of conduct risks. The current environment — with legions of employees working from home — increases the potential for more longer-tail losses during the next three to five years and for incidents that could go undetected for periods of time.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Transition risk associated with meeting stakeholder demand for ESG is among the biggest challenges facing the industry. In addition, risk departments will be challenged to ensure they have robust frameworks in place to quantify and mitigate tail risk exposure.

Adoption of new technologies and the need to innovate at scale must be accompanied by plans to mitigate associated cyber and litigation risk. According to VMWare, in the three-month period from February through March 2020 cyber attacks targeting the financial sector increased 238 percent; ransomware attacks increased nine fold during the same period.[63] Cyber-risk governance practices need to keep pace with the threat landscape.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Financial institutions will need to ensure they have a structured approach in defining cyber and other non financial risks. This includes developing a detailed understanding of key risks — quantified at increased confidence levels — in the context of an institution's risk appetite and tolerance. Additionally, financial institutions must increase their reliance on risk transfer as a tool to manage volatility. Broad stakeholder focus on climate risk, coupled with more climate-related losses, will require financial institutions to forge tighter linkages between corporate strategy and climate-risk management. This effort will include incorporating new modeling techniques into risk frameworks and evaluating new sources of capital, such as insurance-linked securities, to transfer or mitigate retained risk.

5 Food, Agribusiness and Beverage

Rank	Current Risk
1	Commodity Price Risk/Scarcity of Materials
2	Business Interruption
3	Supply Chain or Distribution Failure
4	Economic Slowdown/Slow Recovery
5	Cyber Attacks/Data Breach
6	Damage to Reputation/Brand
7	Pandemic Risk/Health Crises
8	Increasing Competition
9	Regulatory/Legislative Changes
10	Product Liability/Recall

Rank	Future Risk
1	Commodity Price Risk/Scarcity of Materials
2	Cyber Attacks/Data Breach
3	Economic Slowdown/Slow Recovery
4	Business Interruption
5	Pandemic Risk/Health Crises

34 percent loss of income — up from 2019

56 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

The U.N. predicts that world population will reach 10 billion by 2050, a level of growth that puts unprecedented pressure on the food, agribusiness and beverage (FAB) industry to ensure it has the capacity to feed the world.[58] Meanwhile, the industry is increasingly feeling the disruptive effects of climate change and extreme weather events, including yield losses for commodities. The COVID-19 pandemic introduced new levels of supply-chain volatility. These concerns likely explain why FAB respondents ranked commodity price risk and scarcity of materials, business interruption, and distribution or supply-chain failure as their top three risks.

Cyber attacks often manifest as business disruption. The industry is under attack from cyber criminals, with an almost 400 percent increase in ransomware attacks over the past two years.[59]

Food safety risk and the related risk of damage to brand and reputation risk are significant and ongoing. Earning consumer trust requires companies to demonstrate transparency in how they source, produce, market and deliver their products. Any crisis — whether in food safety, the supply chain, weather, governance or regulation — erodes trust and could have a devastating financial impact.

Surprises in the Top 10 Risks Selected

Several risks did not rise to the top 10 in the industry despite their severity. First, even before the COVID-19 pandemic, the industry — heavily reliant on in-person, manual workers — faced challenges with attracting, retaining and developing talent. The meat and horticulture segments in particular are struggling to recruit workers; shortages also are being felt in transportation and logistics. Meanwhile, FAB companies are in a period of rapid digitalization with unprecedented investment in technology. While some argue this will eliminate jobs, best-in-class employers will invest in developing their workforces to fill higher-paying, higher-skilled positions.

Second, as climate change creates more frequent and severe extreme weather events, operations may be unable to sustain these companies.

Third, rising costs and shrinking margins place pressure on the industry to minimize waste and employ resources efficiently — goals that go hand in hand with improving environmental sustainability credentials. Despite wide recognition within the industry of the importance of climate change and ESG vissues, the survey results show they are not key strategic risk priorities.

Most Underrated Risks

Companies are increasingly concerned about intangible asset risks, including cyber risk. Recent high-profile cyber attacks — for example, those at JBS, Campari and Lion[60] — highlight the industry's susceptibility. Furthermore, businesses are realizing cyber risk extends beyond data breaches and can significantly disrupt day-to-day operations. The industry is shifting from viewing cyber risk purely as an IT issue to understanding that it involves people, processes and technology. Companies that perceive cyber as a relatively new risk may still be investing less than is required to mitigate it.

Catastrophic weather events resulted in thousands of dollars of unexpected losses for primary producers of commodities such as coffee, sugarcane and corn.[61] Heavy frosts and long periods of drought drastically reduced harvest forecasts for these producers, directly impacting the entire food chain. Commodity-price volatility for inputs and packaging will continue, perhaps indefinitely. In this environment, FAB companies face increased pressure from stakeholders to define their approaches to climate change and to integrate climate risk into decision-making processes. Transitioning to more sustainable businesses will necessitate identifying new, emerging risks and assessing their impact on the balance sheet, which will be greater than ever.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Survey respondents seem to underrate evolving environmental and climate change risks, given their broad implications and severity. As climate change worsens, access to capital and insurance may be limited or cost substantially more. Regulations are tightening, and ESG expectations are rising in many regions. Against this backdrop, companies need to define ESG strategies, set realistic targets for reducing their climate impact and transparently report their results.

Additionally, companies, often operating on tight margins, are investing in technology to bolster resilience, productivity and efficiency, but digitalization and automation also increase their cyber exposures. Companies are seeing double-digit price increases for cyber insurance renewals, but continue to increase the limits of cover they buy. A robust, fact-based cyber impact analysis can inform decision making in risk-financing strategies.

Finally, striving for a diverse workforce makes practical business sense given the substantial challenges companies face in attracting, retaining and developing talent. Having a mixture of perspectives, experience and capabilities at all levels in an organization is proven to improve business results. Best-in-class organizations build a diverse workforce where all employees are valued and have their wellbeing protected.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

To navigate today's interconnected and often uninsurable risks, FAB businesses are sharpening their focus on ERM strategies to achieve goals such as transferring risk, accessing insurance capital at favorable rates and preparing crisis-response plans to avoid business interruption.

Meanwhile, companies need to ensure their ERM framework encompasses an appropriate ESG strategy that can withstand scrutiny from stakeholders, including shareholders, customers and the broader community. Specific ESG goals may include reducing carbon emissions and meeting animal-welfare standards.

More closely integrating risk, control and compliance functions is imperative to achieving long-term success. According to this year's survey, nearly 40 percent of companies said the pandemic would accelerate their review of ERM processes, yet only 19 percent said they were willing to increase capital expenditures to improve their ERM capabilities. Moreover, only 27 percent of companies have their risks mapped, and only 31 percent have a defined risk-management plan. This suggests that companies need to continue to develop an enterprise-risk mindset focused on understanding and managing their corporate risks in order to increase their resilience.

Healthcare Providers and Services

Rank	Current Risk
1	Workforce Shortage
2	Cyber Attacks/Data Breach
3	Pandemic Risk/Health Crises
4	Regulatory/Legislative Changes
5	Failure to Attract or Retain Top Talent
6	Business Interruption
7	Damage to Reputation/Brand
8	Rising Healthcare Costs
9	Absenteeism
10	Failure to Innovate/Meet Customer Needs

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Workforce Shortage
3	Failure to Attract or Retain Top Talent
4	Accelerated Rates of Change in Market Factors
5	Business Interruption

35 percent loss of income — up from 2019

59 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Workforce shortages combined with the loss of income caused by the COVID-19 pandemic have significantly impacted healthcare systems around the world. According to BMJ Global Health, a total of 152,888 infections and 1413 deaths were reported globally for healthcare workers; physicians accounted for just over half (51.4 percent) of the deaths.[64] In addition, the industry was already facing a global shortage of 5.9 million nurses, and the pandemic caused additional turnover of 20 to 30 percent, according to some estimates.[65]

As a strategy to mitigate talent risk, one healthcare provider, HCA Healthcare, acquired majority ownership of the Galen College of Nursing, one of the largest private nursing schools in the U.S. The overall industry also is focused on employee retention strategies to address issues such as burnout and fatigue. Risk to patients and overall quality are paramount in the industry.

Surprises in the Top 10 Risks Selected

The 2019 survey showed an emphasis on cyber, reputation and competition risk. In 2021, human capital emerged as the dominant risk, accounting for four of the top 10 risks. Workforce shortages in healthcare are well known, but the pandemic crisis accelerated the strain on employees. As healthcare systems work through waves of COVID-19 variants, human-capital concerns remain front and center. To confront this risk, the industry will need to divert time, resources and funding to preserve and protect its workforce and offer benefit and reward programs that attract and retain talent.

In addition, organizations could benefit from definitive strategies to assist employees' physical and emotional recovery from work by taking a risk-management approach to the problem and developing a recovery management policy. They can systematically collect information on recovery as a hazard, analyze its risk and implement controls that will mitigate that risk. They can also establish a recovery-reporting system for employees that can convert subjective data into objective, actionable insights to inform decision making. When investigating accidents, companies can include recovery as part of the analysis to identify potential contributing or root-cause factors. And they can conduct recovery management training and education for employees and management, develop definitive plans for sleep-disorder management and other issues related to employee wellbeing, and conduct periodic audits that deliver corrective action through a continuous improvement model.

Most Underrated Risks

The most underrated risk in the industry is a failure to meet customer (patient) needs. The workforce shortage, pandemic crisis, absenteeism and a failure to attract and retain talent can all have serious implications for quality of care, patient safety and patient satisfaction. The strain being placed on employees is unprecedented, and the impact on quality of care cannot be overstated. A recent survey of healthcare workers in hospitals found that 26 percent are angry and 29 percent have considered leaving the medical field.[66]

Talent-retention and recruitment strategies will be front and center for organizations, as will developing solid connections with nursing schools and medical schools to attract candidates. In addition, the growing use of travel nursing to fill employment gaps introduces other risks that have to be managed with demonstrably effective training, education and didactic learning to ensure high reliability of patient care.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

The Internet of Things (IoT) is an ever-growing challenge for the industry. With the advancement of telemedicine and related technologies for remote monitoring, home health, digital diagnostics and the like, organizations will need to focus extensively not only on cyber risk and controls but on operation and quality controls for the workplace of the future. Care models that have pivoted to virtual bring a whole new set of risks to organizations. Risk managers will need to hone their approaches to include vulnerability assessments of telemedicine platforms, telemedicine delivery models and patient-care outcomes. In addition, workforce shortages and their associated impact on patient care will continue to be a critical concern for the industry. Building recovery, burnout and resilience models will be a key component of risk plans for healthcare systems to ensure consistency of care, whether the care is delivered in person or through the internet (e.g., via telemedicine, app-based programs).

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Risk-management and mitigation strategies will have to be rapidly adapted to effectively manage both patient and employee safety and satisfaction in light of workforce shortages. Risk managers will need to expand their scope to include human-resource and human-capital risk to ensure that traditional risks (e.g., medical malpractice, workers' compensation, general liability) are effectively assessed. Staffing simulation exercises may be useful to understand the inherent risks associated with absenteeism, turnover and shortages. Shoring up risk-management reach to ensure that risk professionals are involved early and often in mergers, acquisitions, employment gap strategies and establishing the environment of care will provide improvements in retained risk for the organization.

Hospitality, Travel and Leisure

Rank	Current Risk
1	Business Interruption
2	Pandemic Risk/Health Crises
3	Economic Slowdown/Slow Recovery
4	Cyber Attacks/Data Breach
5	Damage to Reputation/Brand
6	Cash Flow/Liquidity Risk
7	Increasing Competition
8	Data Privacy (including GDPR) Requirements/Non-Compliance
9	Failure to Innovate/Meet Customer Needs
10	Failure to Attract or Retain Top Talent

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Pandemic Risk/Health Crises
3	Business Interruption
4	Weather/Natural Disasters
5	Economic Slowdown/Slow Recovery

35 percent loss of income — up from 2019

51 percent risk readiness — down from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

The hospitality, travel and leisure industry was hit especially hard by the COVID-19 pandemic, as evidenced by this year's top-ranked risks, many of which are interconnected: business interruption, economic slowdown and slow recovery, cash flow or liquidity risk, failure to innovate, and failure to attract and retain talent. Due in part to the impact of COVID-19 variants and slow and uneven vaccination rates, we see an uneven recovery around the globe and a slow resumption of leisure travel and entertainment. Building organizational resilience to absorb further uncertainty and external shocks as the pandemic wanes will be a key concern for the industry going forward.

Gaining better customer insights and providing personalized services are now recognized by many of the players in the industry as core business goals. Companies leverage personal data for this, with the result that data privacy (including GDPR) requirements and non compliance risk continues to challenge the industry.

The industry is highly vulnerable to climate change, which was ranked at number 12, and at the same time contributes to the emission of greenhouse gases, one of the causes of global warming. Accelerating climate action, therefore, is of utmost importance for the resilience of the industry.

Surprises in the Top 10 Risks Selected

Cyber risk ranks at number four by respondents in the hospitality, travel and leisure industry, compared with its first-place ranking in the overall survey. While the impact of the COVID-19 pandemic has been devastating, the threat of cyber attacks and data breaches is ever-present and increasing in frequency, sophistication and severity. While legislation around the globe continues to address public concerns related to data privacy, ransomware attacks are becoming larger and more frequent; this exposure will only increase. We have seen a number of high-profile loss events in the industry, so addressing cyber risk should be a top priority in creating organizational resilience.

In due time, pandemic concerns will fade, whereas the threat and impact of cyber attacks and data breaches will only intensify, threatening the ability of hospitality, travel and leisure companies to transfer risk via insurance.

Most Underrated Risks

The COVID-19 pandemic has highlighted the potential for non-damage business interruption (NDBI) events to have a devastating impact on the industry. Risk professionals should take other potential NDBI events into account, such as terrorism attacks and natural catastrophes, which have the potential to cause significant financial impact without physical damage to first-party assets.

Accelerated rates of change in market factors dropped out of the top 10 this year, down to rank 14 from rank five in 2019. Recent events such as escalating global trade tensions and uncertainty surrounding Brexit, among others, can cause market conditions to change quickly and in ways businesses might not anticipate. Meanwhile, the emergence of disruptive technologies can suddenly threaten existing business models.

Regulatory or legislative risk, ranked 24, is not among the top 10 risks identified by industry respondents in 2021, dropping from number eight in 2019. This is surprising considering changing regulatory landscapes around the world and the growing complexity of geopolitical events.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Hospitality, travel and leisure companies are under significant financial strain and are dealing with concerns about cash flow, liquidity, economic recovery and resumption of leisure activities, including travel. This financial pressure could lead to stringent cost-control measures that compromise risk management. Companies should resist the temptation to cut expenses to the bare minimum and focus instead on total cost of insurable risk and on maintaining adequate risk-management and risk-transfer programs.

The industry's inability to offer remote-work options for many essential job functions is also a concern because it could make it more difficult for companies to attract and retain talent.

The hospitality, travel and leisure sector lags other industries with respect to its use of captive or protected cell captive insurers, although survey results indicate an intent to increase use of these vehicles in the next three years. As the industry risk landscape changes and companies develop a greater appreciation of emerging risks, some of which may be considered uninsurable or partially insurable, risk-financing strategies, including the use of strategic retention vehicles, will likely accelerate.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Two looming risks that could significantly impact the hospitality, travel and leisure industry are rising inflation and a new period of global unrest. Rising inflation could lead to higher fuel prices, which could curtail road travel and increase the price of air travel. It could also increase prices for wages for workers and for building materials used to renovate properties. Growing global unrest could lead to increased terror threats, which may reduce travel demand, especially in the most affected geographic locations.

Given the financial pressure they currently face, companies may be tempted to cut expenses as much as possible, but a focus on the total cost of insurable risk and maintaining adequate risk-management and risk-transfer programs is essential. Organizations should focus on understanding their risk tolerance levels now and in the coming years as the industry recovers and ensure that, within tolerance levels, those risks are adequately addressed. Risks that rise above those tolerance levels should be transferred to the insurance market.

5 Industrials and Manufacturing

Rank	Current Risk
1	Commodity Price Risk/Scarcity of Materials
2	Economic Slowdown/Slow Recovery
3	Business Interruption
4	Supply Chain or Distribution Failure
5	Cyber Attacks/Data Breach
6	Accelerated Rates of Change in Market Factors
7	Increasing Competition
8	Exchange Rate Fluctuation
9	Pandemic Risk/Health Crises
10	Regulatory/Legislative Changes

Rank	Future Risk
1	Commodity Price Risk/Scarcity of Materials
2	Economic Slowdown/Slow Recovery
3	Cyber Attacks/Data Breach
4	Business Interruption
5	Accelerated Rates of Change in Market Factors

38 percent loss of income — up from 2019

58 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

The manufacturing industry encountered a perfect storm of interrelated risks in 2021 that are reflected in the rankings of survey respondents. These include a scarcity of materials, business interruption, supply chain/disruption failures, and cyber attacks. Meanwhile, demand for products increased rapidly as the economy began to rebound from the pandemic.

Supply-chain challenges can no longer be considered shocks. Events around the world that occurred in a matter of months include pandemic-related disruptions; the Suez Canal blockage, which alone cost around $9 billion every day; and the closure of the Yantian terminal in Shenzhen, among others.

Uncertainty in managing inventory had been growing even before the pandemic as geopolitical tensions affected trade between the U.S. and China. The U.S. has also faced trucking strikes, while Brexit has caused transportation shortages and increased costs for U.K. and European firms. Finally, the semiconductor chip shortage has wreaked further havoc for many manufacturing industries.

Surprises in the Top 10 Risks Selected

While cyber risk had been gradually moving up in the risk profile of the manufacturing industry during the past several years, it jumped to number five this year from rank 16 in 2019 due to a rapid escalation of ransomware attacks targeting major manufacturing companies. The industry is now on full alert to protect itself from cyber risk to an extent that was unimagined even three to five years ago. We expect cyber risk to remain a top five risk indefinitely.

Failure to innovate or meet customer seeds dropped to number 12 in the risk rankings from number eight in 2019, although this may reflect the industry's general acceptance of the IoT, which entails the interconnection of unique devices within an existing internet infrastructure. IoT is becoming more widespread in the manufacturing industry; it makes the industry's list of top trends year after year due to its adaptability and ongoing innovation. IoT has enabled manufacturers to make informed, strategic decisions using real-time data and to achieve a wide variety of goals including cost reduction, enhanced efficiency, improved safety and product innovation.

Most Underrated Risks

Failure to attract and retain talent is a critical risk that warrants much more attention. The labor shortage in various countries has impacted many industries as the economy has recovered from the pandemic. The manufacturing skills gap, which is predicted to leave 2.1 million jobs unfilled by 2030, could cost the U.S. economy as much as $1 trillion[67] as companies compete for talent and reevaluate their manufacturing footprint to secure a steady labor force.

Climate change, at rank 32, is underrated in manufacturing, an industry that accounts for roughly one-third of global greenhouse-gas emissions, especially from construction staples like steel and cement. That makes manufacturing more polluting than either the power sector or the transportation sector, which receive far more attention in policies and investments. And the manufacturing sector is set to grow, as the global population climbs and countries develop further.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

This sector has done well to embrace new technologies and ways of working, but the future looks more challenging. Trucking companies that transport equipment are subject to increasingly sophisticated cargo-theft methods, with rogue individuals posing as motor carriers to hack into computer systems to uncover location information and steal valuable loads. Theft from within businesses, including property theft and funds, is also on the rise. The handling of fuel and the disposal of hazardous waste continue to present manufacturers with unique challenges: Leaks or spills result in significant clean up costs, diminished reputation and fines from state and federal regulators. Catastrophic losses can increase quickly when litigation leads to jury awards and judicial decisions that often exceed manufacturers' expectations — and their coverage limits.

The overlapping business interruptions caused by the COVID-19 pandemic, including supply-chain disruptions and cyber attacks, are unlikely to be resolved any time soon. Manufacturers are already stepping up efforts to better understand the financial impacts of these risks while looking for new approaches to risk control and risk financing to insulate themselves from future industry challenges.

Annualized volatility of commodity prices averaged 10 to 20 percent during the four years prior to the COVID-19 pandemic, with annual price swings of up to 70 percent of the average in a given year; the pandemic added to this volatility.[68] The industry outlook is heavily dependent on progress in containing the COVID-19 pandemic, on policy support measures in advanced economies and on production decisions in major commodity-producing nations.

For years, supply chains have focused on reducing inventory levels and cutting costs by embracing lean, just-in-time management in their logistics plans. These efforts negatively impacted the resilience and agility of supply chains. The pandemic exposed weaknesses in contingency planning and risk-mitigation strategies across the world. From the initial scarcity in personal protective equipment to the ongoing shortage in microprocessors, challenges emerged in linking suppliers of goods on one side of the planet to sources of demand on the other. As a result, companies are growing more risk-averse with their global manufacturing footprints.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Effectively managing cyber risk is a good example of how manufacturers need to increase internal collaboration among functional departments — manufacturing, cyber security, IT, supply chain, legal and risk management — and adopt new approaches that did not exist two or three years ago. The industry needs to learn from these successes, and companies need to refresh their ERM approaches to tackle fresh challenges.

Insurance

Rank	Current Risk
1	Cyber Attacks/Data Breach
2	Regulatory/Legislative Changes
3	Damage to Reputation/Brand
4	Increasing Competition
5	Business Interruption
6	Tech Failure/System Failure
7	Failure to Innovate/Meet Customer Needs
8	Data Privacy (including GDPR) Requirements/ Non-Compliance
9	Failure to Attract or Retain Top Talent
10	Economic Slowdown/Slow Recovery

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Economic Slowdown/Slow Recovery
3	Failure to Innovate/Meet Customer Needs
4	Data Privacy (including GDPR) Requirements/ Non-Compliance
5	Business Interruption

26 percent loss of income — up from 2019

58 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Insurers are focused on finding ways to remain relevant to their customers while also managing their changing risk profiles. These major themes are being propelled by emerging technologies and exposures, an increasing pace of innovation, and more scrutiny by regulators and lawmakers. For instance, business interruption continues to be an evolving and potentially under-insured exposure for insureds, as many discovered during the pandemic; however, most insurers consider pandemic-triggered business interruption to be uninsurable. Similarly, while the industry has significant opportunities to provide solutions to manage and mitigate cyber risk, it also poses a dynamic threat to insurers both from an underwriting perspective and in terms of the insurer's own operational resilience.

Surprises in the Top 10 Risks Selected

It is somewhat surprising that increasing competition ranks in the top five risks, up from number six in 2019. While we are seeing rates stabilize and start to decrease in some areas, the effects of new market entrants relative to the overall increase in capacity are still developing. It may be that respondents are reacting to the introduction of new InsurTech challengers that have received large funding rounds, with some even becoming public companies. Although InsurTechs have not taken meaningful market share yet, many insurers see these new business models as a call to improve efficiency and customer experience by increasing their investments in technology.

Most Underrated Risks

The risk of cyber attack and data breach ranks at number one, but it could still be underrated by the industry. Unknown and evolving cyber threats have the potential to impact the industry's underwriting results and significantly disrupt insurance company operations. Insurers must not only manage how they underwrite cyber risks but also make large investments of their own to bolster the ability of their systems to withstand a cyber attack against them directly or against their vendors or trading partners.

Notably, weather and natural-disaster risk and concentration risk did not appear in the top 10 list for 2021, but other risks — business interruption (number five), technology or system failure and data privacy requirements (number eight) — bubbled up.

Failure to attract and retain talent was a new addition to the top 10 in 2021, and we expect it to remain an area of focus with the anticipated retirement of 25 to 40 percent of the workforce within the next few years.[69] Additionally, 30 roles in the insurance industry are at risk of disruption by technology, which means existing skill sets might not be adequate, and suitable talent can't always be found within the industry. Finally, only 4 percent of millennials are interested in pursuing jobs in insurance.[70]

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

ESG concerns are part of a sweeping movement that will provide opportunities for product innovation, create a need for companies to assess the contents of their portfolios and change the way insurers think about talent management. The ESG theme is reflected in regulatory legislative changes (number two), damage to reputation/brand (number three), tech/system failure (number six), failure to innovate or meet customer needs (number seven) and failure to attract or retain top talent (number nine).

To understand the risks and opportunities associated with ESG, insurers can start by reviewing current operations to assess their exposures to projected ESG-driven changes. Already, regulatory pressures related to ESG have mounted in 2021, most notably in the U.K. and the EU; other regions will likely follow suit.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Mitigating ESG risk is critical and will require companies to identify and assess exposure while monitoring the transition to increased sustainability and litigation trends. Organizations need to assess changing product portfolios and evolving risks with a view toward product innovation.

According to the U.S. Census Bureau, the 65-and-older population will almost double over the next 30 years, reaching 88 million by 2050. Workforces are aging quickly, which will have a particular impact on the insurance industry.[71]

The insurance sector will face a shortage of talent in the near future as experienced staff retire and not enough new talent enters the industry. In the U.K., for example, the percentage of young people entering the insurance industry has steadily declined. Combating this trend will be a big challenge for the sector, especially as technology will play an even bigger part of the business model and requires different skill sets to support the need for innovation.

5 Life Sciences

Rank	Current Risk
1	Business Interruption
2	Cyber Attacks/Data Breach
3	Regulatory/Legislative Changes
4	Product Liability/Recall
5	Damage to Reputation/Brand
6	Supply Chain or Distribution Failure
7	Failure to Innovate/Meet Customer Needs
8	Pandemic Risk/Health Crises
9	Increasing Competition
10	Intellectual Property Risks

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Regulatory/Legislative Changes
3	Business Interruption
4	Failure to Innovate/Meet Customer Needs
5	Economic Slowdown/Slow Recovery

30 percent loss of income — up from 2019

68 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Life-sciences organizations are focused on continuing to innovate quickly and stay ahead of competitors in an uncertain business environment. Commercial pressures to innovate to avoid being left behind in a highly competitive space can expose risks. This is reflected in the high rankings of business interruption, regulatory or legislative changes, product liability or recall, supply chain or distribution failure, failure to innovate and intellectual property (IP) risks. Digitalization provides huge opportunities for innovation and improved process efficiencies for life-sciences companies; however, it can also increase cyber risk, as reflected in the high ranking for cyber attacks.

Unsurprisingly, pandemic risk and health crisis moved into the top 10 risks this year. Although the life-sciences industry has demonstrated more resilience during the COVID-19 pandemic than many other industries, it also suffered business interruptions (risk number one) in areas such as clinical trials and supply chain or distribution failures (number six). The pandemic has also brought into sharp focus life-sciences companies' brands and products such as vaccines, drugs to treat COVID-19 patients, and ventilators and personal protective equipment. But when things go wrong — such as the emergence of unexpected side effects, the accumulation of side effects, public discussion of a product's effectiveness, process failures and delivery shortages — people can lose trust in the products and the company, as demonstrated in the fourth-place ranking of product liability or recall.

It is also important to note the increasing importance of emerging markets for life-sciences organizations, particularly in Asia, and new regulatory environments in established markets such as the U.S. Adapting to challenging new payer environments will be key in establishing market share and sustaining market position for established organizations, while new, local and more digital organizations are on the rise. This change in key markets adds to the increasing competition.

Surprises in the Top 10 Risks Selected

It is surprising to see supply chain or distribution failure drop from number three in 2019 to number six in 2021 and number eight in the next three years. The life-sciences industry, especially the medical-devices sector, is facing increased supply-chain challenges. Although the COVID-19 pandemic brought industry supply shortages and interruptions to the forefront, these risks were already present.

Product liability or recalls may be associated with damage to reputation and brand risk, which ranked at number five in 2021. Surprisingly, given that damage to reputation is a perennial concern for the industry, it did not rise to the top 10 in 2019.

In 2019, life-sciences respondents ranked accelerated rates of change in market factors at number two. Given the increasing rate of change in the industry brought on by M&A activity, new start-ups, new treatment options and the ongoing impact of the pandemic, it is surprising to see this risk drop out of the top 10 in 2021. However, it may be captured in the regulatory change and increasing competition response.

Most Underrated Risks

A failure to attract and retain staff is a major concern in the life-sciences industry, where competition for talent is stiff and turnover rates are high. This appears to be an underrated risk since it dropped out of the top 10 risks this year.

Additionally, intellectual-property risk ranks at number 10 but doesn't appear in the top 10 anticipated risks in three years. This could be an underrated risk given that the industry relies heavily on intangible (versus tangible) assets, and that the loss of intellectual-property rights can be volatile and costly.

Finally, the risk of supply chain or distribution failure may be underrated compared with business interruption, given the industry's heavy reliance on third parties and its dependence on certain production plants and raw materials.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Navigating the pandemic has been an all-encompassing challenge. Globally, the life-sciences sector responded with great leadership, and it continues to grow stronger and embrace better collaboration to increase efficiencies. Digitalization and technological advancements will increase new possibilities around biopharma and medtech.

Digitalization is likely to remain a strategic opportunity and challenge for life-sciences organizations in the next three years. As an enabler, it allows innovative life-sciences companies to adapt at pace to the changing macro environment — for example, by developing new patient-centric solutions, supporting physicians and optimizing their R&D processes. However, risk management and risk financing need to catch up with the changing risk profile of life-sciences organizations and provide adequate solutions.

The life-sciences industry's role in the global response to the pandemic has demonstrated the vital need for ongoing R&D and innovation. If proposed controls over pharmaceutical product pricing gain traction, or if IP protections are eroded by international pressures, the impact on future capital investment could be adverse. It is critical, therefore, that the industry continues to articulate and demonstrate the life saving value of its products and therapies.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

The life-sciences industry is moving toward a more holistic approach to risk management and mitigation that may also incorporate ESG priorities. Managing total cost of risk will only increase in importance as expense controls become even more vital in preserving funds for vital R&D. We expect that unmet risk transfer needs will continue to grow in key areas such as IP, cyber and supply chain. Organizations will need to evolve their approaches to assessing, mitigating and managing these and other emerging risks.

A new challenge on the horizon is associated with new, complex life-sciences products such as gene therapies and smart devices. For example, gene-therapy solutions are typically associated with new partnerships, R&D approaches, novel reimbursement models, small-batch production and logistical challenges.

5 Professional Services

Rank	Current Risk
1	Cyber Attacks/Data Breach
2	Damage to Reputation/Brand
3	Failure to Attract or Retain Top Talent
4	Business Interruption
5	Economic Slowdown/Slow Recovery
6	Failure to Innovate/Meet Customer Needs
7	Data Privacy (including GDPR) Requirements/Non-Compliance
8	Increasing Competition
9	Regulatory/Legislative Changes
10	Tech Failure/System Failure

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Economic Slowdown/Slow Recovery
3	Failure to Attract or Retain Top Talent
4	Business Interruption
5	Damage to Reputation/Brand

37 percent loss of income — up from 2019

55 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

The high rankings of cyber attacks and data breaches and damage to reputation or brand likely reflect the professional-services industry's concerns about possessing large volumes of sensitive client information that could be stolen or misused. A damaging cyber incident may also result in regulatory intervention, first-party losses and third-party claims. Increasing digitalization, connectivity and workforce mobility heighten exposure to these risks.

Increased activity and focus among regulators leads to more frequent and intense regulatory investigations and claims, with the potential for serious reputational damage and financial fallout. CSR and ESG concerns, expanding legal and regulatory obligations, industry convergence risk, increasing competition, rapid technological change and geopolitical tensions are becoming increasingly challenging for the professional-services industry and have the potential to cause damage to reputation and brand.

Firms face high volatility in the global business environment, exacerbated by the COVID-19 pandemic and the resulting economic slowdown. Some types of professional-services firms also face challenges obtaining sufficient insurance capacity for professional and third-party liability, including errors and omissions.

Surprises in the Top 10 Risks Selected

Third-party liability dropped out of the top 10 risks in 2021, a surprising result given the industry's significant and ongoing risks in this area, amplified by the increasing risk of actions by regulators.

The 10th-place ranking of regulatory or legislative changes is surprisingly low, again because of increased activities and statements of intent from regulators around the world.

Finally, the high ranking for business interruption is somewhat surprising given that professional-services firms demonstrated their ability to maintain required activities, operations and workflows throughout the pandemic and adapted quickly to working from home. The ranking could reflect concerns about increasing dependence on critical nonphysical infrastructure and supply chains.

Most Underrated Risks

Third-party liability risk varies by segment, but the industry has experienced an uptick in very large claims, particularly involving law and consulting firms, coupled with a material increase in the cost of defending complex claims across all segments. In some segments, claims are becoming more diverse with respect to service lines affected, alleged wrongdoing and the parties asserting claims.

Regulatory claims are rising in the U.S. and EMEA, suggesting that the risk is underrated. Among U.S. companies, regulatory actions are resulting more frequently from violations of laws that govern behavior in other jurisdictions, such as the Foreign Corrupt Practices Act.

There is growing concern that local regulatory actions — alleging failures in work performed for a regulated client such as a financial institution — that are taken against a professional-services firm in one part of the world could be picked up and pursued by U.S. regulators (for example, the U.S. Department of Justice) if the firm is based in the U.S. or has a material presence in the U.S.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Firms need to plan for increased oversight from regulators in the provision of certain types of regulated professional services.

Increased competition for talent calls for fresh recruitment and retention strategies and policies. Multi generational and increasingly diverse workforces will drive a need for highly innovative and flexible compensation and benefits solutions.

The industry will need targeted investments to safeguard confidential personal and commercial data and to upgrade the quality and efficiency of service delivery. Growing dependence on intangible assets and nonphysical infrastructure will drive a focus on associated first- and third-party risks, requiring more accurate (and commonly accepted) intangible asset valuation techniques and methodologies, risk quantification and modeling, and broader and more responsive risk-financing solutions.

Business interruption from nonphysical events and supply-chain risks will continue to evolve and increase in importance, driving a need for risk quantification and modeling tools and resources as well as broader and more responsive risk-financing solutions.

Finally, evolving third-party liability risks will drive a need for risk-sensitive client-intake tools, enhanced loss-prevention training and targeted analytics to better inform risk-management and finance decision making.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Professional-services firms will need to take advantage of increased access to robust risk and loss data for ongoing quantification and modeling of new and emerging risks. They can target loss prevention and risk controls and measures based on analysis of emerging loss trends and pertinent analytical insights. They will also need to enhance their loss-mitigation plans and incident-response plans to address new and emerging risks.

Risk volatility and catastrophic risk are increasingly difficult to manage, driving a need for actionable and industry-specific risk insights, updates, alerts and analytics; risk quantification and modeling; and traditional and nontraditional risk-financing solutions.

Firms will need to expand or modify their risk-financing strategies to address new and emerging risks, including use of captives, structured prefunding, fronting, direct insurance and/or reinsurance.

Public Sector Partnership

Rank	Current Risk
1	Damage to Reputation/Brand
2	Cyber Attacks/Data Breach
3	Failure to Innovate/Meet Customer Needs
4	Regulatory/Legislative Changes
5	Economic Slowdown/Slow Recovery
6	Business Interruption
7	Pandemic Risk/Health Crises
8	Failure to Attract or Retain Top Talent
9	Increasing Competition
10	Cash Flow/Liquidity Risk

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Damage to Reputation/Brand
3	Failure to Innovate/Meet Customer Needs
4	Economic Slowdown/Slow Recovery
5	Cash Flow/Liquidity Risk

25 percent loss of income — up from 2019

59 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Rapid digitalization of services arising from the COVID-19 pandemic has led to inconsistency in protective controls and lack of cyber maturity, which in turn have led to cyber attacks and data breaches. This issue is prevalent across the public sector.

The COVID-19 crisis has forced the public sector to innovate by adopting technologies to drive significant improvements in governance, public administration and citizen services. These efforts bring not just progress but also an increase in cyber risk.

Surprises in the Top 10 Risks Selected

Surprisingly, pandemic risk and regulatory changes are not among the top three risks. The public sector saw no significant change in the top five risks compared with 2019, although the pandemic substantially disrupted public-sector enterprise operations.

As pandemic-related containment measures are lifted, public policies should shift swiftly to supporting demand for services, incentivizing hiring and repairing balance sheets to mitigate risk associated with the economic slowdown and slow recovery.

Failure to attract or retain top talent is another challenge facing the public sector. Most public-sector organizations are still locked into decades-old workforce policies, such as rigid job classifications, lockstep pay and reliance on seniority instead of capability. Government agencies are increasingly called upon to address society's most complex challenges using workforce approaches rooted in the distant past. This not only makes it hard to recruit talented people but also makes it difficult for public-sector managers to provide their employees with great work experiences.

Most Underrated Risks

Regulatory/Legislative Changes is the most underrated risk, as evidenced by the economic slowdown and public-sector performance in recent years.

Failure to retain or attract top talent also appears underrated. Public-sector enterprises operating in countries with worker shortages, especially in data, digital and IT fields, will face stiff competition for talent. With increasing digitalization across the sector, organizations will be left with unfilled roles that are critical to meeting their strategic goals.

Political risk dropped to rank 12 in 2021 from five in 2019. This risk is underrated considering the recent political events in the U.S. and in some parts of the globe. These events bring uncertainty to the sector and result in a volatile regulatory environment.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Apart from regulatory and legislative challenges, Transparency International's annual publication of the Corruption Perceptions Index puts public enterprises globally at risk of damage to reputation.[72]

The rapid digitalization of organizations triggered by the COVID-19 pandemic will continue to present myriad challenges related to talent, cyber security, customer experience and innovation. Organizations must approach this challenge holistically and implement revised programs that integrate risk management and mitigation strategies to ensure successful implementation.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

As the pace of change accelerates, organizations must embed risk management in their change management processes to ensure that risk is properly understood and managed — not just a "check the box" exercise. Risk management must support change and be a tool to ensure successful implementation.

Organizations need to pay much more attention to resilience by focusing on everything from physical protections to disaster planning and disaster recovery.

Retail and Consumer Goods

Rank	Current Risk
1	Supply Chain or Distribution Failure
2	Cyber Attacks/Data Breach
3	Business Interruption
4	Damage to Reputation/Brand
5	Failure to Innovate/Meet Customer Needs
6	Economic Slowdown/Slow Recovery
7	Increasing Competition
8	Pandemic Risk/Health Crises
9	Commodity Price Risk/Scarcity of Materials
10	Accelerated Rates of Change in Market Factors

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Failure to Innovate/Meet Customer Needs
3	Accelerated Rates of Change in Market Factors
4	Commodity Price Risk/Scarcity of Materials
5	Increasing Competition

34 percent loss of income — up from 2019

57 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Supply-chain risk and cyber risks, especially those associated with digital-transformation strategies, continue to create challenges for the industry. When combined with business interruption, these top risks point to retailers' ongoing concerns about keeping operations running smoothly while minimizing financial surprises such as a long-term reduction in demand due to lasting pandemic effects. Even a relatively early resumption of peak operations is likely to come with a lasting shift to more online purchasing, moving omnichannel strategies to center stage as a way to expand customer reach.

Increased competition in the retail industry remains a top priority. The changes thrust upon the traditional retail business model by the pandemic significantly influenced the pace at which retailers were forced to find innovative solutions to meet their customers' needs, specifically in areas such as staffing, e-commerce and delivery of goods.

Surprises in the Top 10 Risks Selected

Pandemic risk ranks lower than expected considering the impact it has had on demand and supply chains. Additionally, failure to innovate ranks surprisingly low, given the negative impact of the pandemic's disruption on retail organizations with inflexible, one-dimensional strategies — for example, relying on stores only rather than also selling online.

Workforce shortages, in roles ranging from strategists to drivers, warehouse staff and temporary workers, could become a major risk as peak operations resume. Respondents may not have cited this as a top risk because they believe it is temporary and will abate as the pandemic recedes.

Most Underrated Risks

Failure to innovate or meet customer needs arguably should be a top three risk. The sector is transforming quickly, and retailers that are slow to innovate will continue to lose market share. For example, Amazon has changed customer expectations regarding delivery time, and retailers that do not recognize and adapt to those new expectations are at risk. To meet customer needs and remain relevant, companies must include omnichannel strategies in the conversation.

Workforce shortages associated with a historically tight labor market are forcing retailers to close stores completely or operate with reduced hours. Distribution center (DC) workers and truck drivers are also in high demand, as are technical staff needed to install, maintain, troubleshoot and repair complex and increasingly automated DC and e-commerce equipment. Collectively these shortages are exacerbating supply-chain risk and business-interruption risk.

ESG risk is underrated. This could be because retailers are preoccupied with resuming operations disrupted by the pandemic, or because they feel they already have plans in place to manage it.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

The road to retail recovery lies in continued and speedy reinvention as the sector embraces the rapid and seismic shift to online channels. Retailers around the globe are working hard to transform their operations to meet online demand, fast-track digital integration and innovation initiatives to retain customer and shareholder loyalty, and meet increasing revenue projections. Retailers will find it challenging to consolidate business models to craft and implement sustainable, omnichannel strategies and deliver high-level returns to stakeholders.

As reliance on e-commerce grows, the retail sector will confront increasing concerns about cyber risk and ransomware. To address these risks, retailers will need to bolster IT resilience, identify vulnerabilities and assess the potential financial impact of events. Vulnerability of key suppliers and raw materials is expected to undergo even more scrutiny by retailers.

Retailers will also need strategies to become an employer of choice in their geographies, while making investments in labor that have a positive impact on broader financial results. Competition for nontraditional retail talent — such as drivers, technology workers and those with skills to repair and maintain more automated equipment — will intensify as the industry continues to reduce its reliance on brick-and-mortar stores.

Finally, retailers that fail to continually innovate and adapt — especially smaller retailers that may lack available capital — will face significant challenges.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

Too many retailers approach risk management only through the lens of cost management. Few have invested in ERM resources to support risk outside of the typical insurance programs managed by the risk management function. On the plus side, some organizations are starting to see risk leaders as strategic business partners.

Meanwhile, cyber-risk management will require companies to invest in additional resources and systems to proactively reduce exposures, because cyber insurance could become unaffordable or even unavailable due to insurers' concerns about the ability to control this exposure.

Broadly speaking, market conditions are prompting more discussions about alternative risk-financing options as many organizations see their risk transfer costs surge. The trend toward increased retentions will almost certainly lead to more extensive utilization of captives and captive-type vehicles, even by organizations that may have previously discounted this approach for reasons ranging from lack of scale to capital commitment. Given the current market conditions, now is the time for risk managers to rethink the captive concept.

Finally, the past year has demonstrated that businesses need to invest in expertise to manage risk and insurance internally, rather than relegating it to a function managed part time within the treasury, finance, safety or human resources department. Shareholders and investors will continue to intensify pressure on companies to demonstrate effective corporate governance.

5 Technology

Rank	Current Risk
1	Cyber Attacks/Data Breach
2	Economic Slowdown/Slow Recovery
3	Failure to Attract or Retain Top Talent
4	Increasing Competition
5	Failure to Innovate/Meet Customer Needs
6	Damage to Reputation/Brand
7	Data Privacy (including GDPR) Requirements/ Non-Compliance
8	Business Interruption
9	Tech Failure/System Failure
10	Workforce Shortage

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Failure to Attract or Retain Top Talent
3	Increasing Competition
4	Accelerated Rates of Change in Market Factors
5	Disruptive Technologies

35 percent loss of income — up from 2019

59 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Technology companies are a key target for cyber criminals with motives of financial gain via theft of confidential information or money. Many are being targeted not just by traditional malicious actors such as hackers and cyber criminals but also by competing companies and nations engaged in corporate espionage. In an increasingly punitive legal and regulatory environment, and with more frequent contractual requirements for cyber liability insurance, forward-thinking companies are taking proactive steps to better understand their exposures. These include actions by employees, system and program errors, security measures, industry, the nature and quantity of data collected, political or strategic significance, and reliance on technology. As well as having well-established and significant intangible risk exposures, technology companies provide products and services that inherently create, amplify and attract cyber risks. The increasing severity of risks and loss events is challenging traditional approaches. With no consistently agreed-on definition, every organization has different exposures and the potential impact is constantly evolving.

This makes it challenging for technology companies to determine what level and extent of risk management they need for cyber risks, in terms of both coverage and mitigation strategies. Many technology companies have broad technology errors and omissions, media liability and professional indemnity policies, but there's an increasing need for additional insurance covering "first party" or "own costs" risks such as non-damage network or software interruption, notification costs, regulatory costs and consumer redress costs.

Surprises in the Top 10 Risks Selected

The relatively high ranking of increased competition as a risk is a surprise given that most innovations are the by-product of competition. Innovation can flourish when an incumbent is threatened by a new entrant because the threat of losing users to the competition drives product innovation and improvement. Companies need to stay one step ahead as new start-ups are constantly emerging with better products. Technology remains a rapidly evolving market, and market share isn't necessarily an accurate indication of market power. The biggest R&D spenders worldwide are large tech companies that continue to compete based on the fear that they will get replaced in the same way they unseated other companies to get where they are now.

A further surprise is that disruptive technologies and distribution or supply-chain failure have fallen out of the top 10 risks since our last survey. However, they didn't fall far enough to suggest that these are still not critical risk issues. This is especially apparent considering that business interruption (tightly correlated with supply chain failure) and increased competition, failure to attract or retain top talent, and failure to innovate (correlated with disruptive technologies) all remain in the top 10 risk factors. Further, the clear impact of the pandemic on all supply chains, including in the technology sector, mute this result.

Most Underrated Risks

Year after year, the risk management community seems to underplay the risk (and opportunity) around intellectual property. To a large extent, this is likely driven by the historical lack of real solutions and related capacity for this asset category. We acknowledge that this point is anecdotal rather than empirical, but this perspective consistently came up in our discussions with academic and practicing risk experts. Yet this has changed tremendously in the past three years. In fact, the strength of solutions in IP are now one of the fastest-growing solutions in the technology industry.

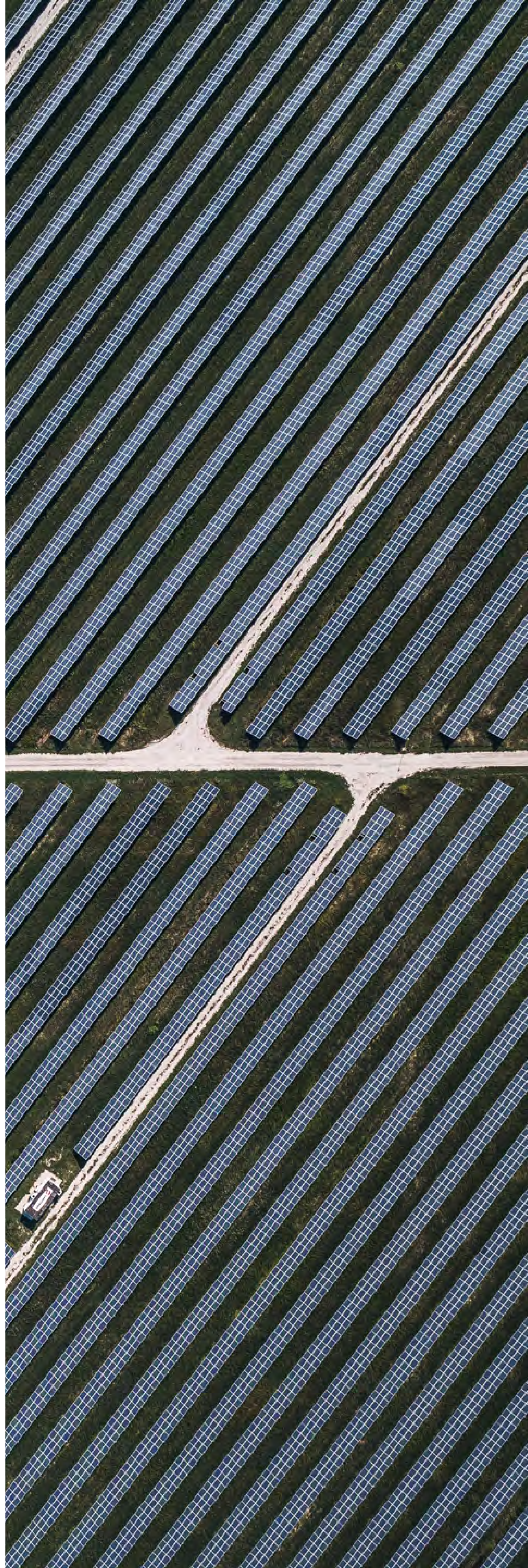
Although identified as an emerging risk, the failure of technology companies to attract and retain top talent is still an underrated risk, particularly as many companies in this sector are seen as digital powerhouses in the growth phase. Talented candidates with exceptional technology experience and skills who can act as “translators” between what the business wants and what technology can actually deliver are receiving multiple offers and can choose among companies vying for their attention. In this competitive market, future innovation and growth opportunities require a clearly defined hiring strategy that addresses culture, opportunities and benefits.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

There’s no shortage of challenges facing the technology sector, and, as the pandemic has shown, tech companies are often called upon to provide immediate solutions. It’s not always about having all the answers; it’s about prioritizing the most pressing issues. Over the next few years companies will have to adapt to customer changes while addressing security and detection response systems and educating their employees about cyber threats. Companies will need to continually spend on innovation to retain a competitive advantage as well as embrace remote methodologies and staff augmentation strategies. These are challenges that also face tech teams today in maintaining a secure, productive work environment. Companies should address regulatory changes along with shareholders’ increasing interest in seeing diversity at the board level and transparent, available policies on ESG and climate change.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

The global pandemic disrupted every organization, and the implications of its impact are still unfolding. More disruptive change could come from anywhere, with political, economic, social, technological, legal and environmental factors all posing unprecedented challenges. Organizations need to identify the gaps between their current operations and where they want to be in a post-pandemic world and determine how to achieve that vision. The technology sector typically has extensive information security measures in place, but evaluating the effectiveness of controls on cyber exposure is challenging because it requires both a detailed understanding of the potential business impacts from cyber events and the ability to quantify and mitigate financial exposures.



Telecom, Media and Entertainment

Rank	Current Risk
1	Cyber Attacks/Data Breach
2	Business Interruption
3	Tech Failure/System Failure
4	Data Privacy (including GDPR) Requirements/ Non-Compliance
5	Disruptive Technologies
6	Regulatory/Legislative Changes
7	Economic Slowdown/Slow Recovery
8	Increasing Competition
9	Failure to Attract or Retain Top Talent
10	Accelerated Rates of Change in Market Factors

Rank	Future Risk
1	Cyber Attacks/Data Breach
2	Regulatory/Legislative Changes
3	Increasing Competition
4	Accelerated Rates of Change in Market Factors
5	Economic Slowdown/Slow Recovery

44 percent loss of income — up from 2019

74 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Cyber attacks and data breaches are a top risk for the industry. These encompass phishing via email, voicemail and SMS; hacking attempts targeting digital vulnerabilities; and ransomware attacks, which require companies to recover data from backup systems or rebuild data sets at great cost. Media and entertainment organizations drive customer engagement via advertising and subscription revenues, so they have collected large volumes of personal data that are vulnerable to data breaches.

Cyber events typically have huge costs in the form of both revenue hits and damage to client relationships and reputation. Global cyber crime costs are expected to grow 15 percent a year over the next five years, reaching $10.5 trillion annually by 2025. In an industry that considers itself digitally advanced, these losses are alarming — and they point to a need for increased cyber vigilance.

As cyber losses have grown, so too have the expertise and capabilities needed to address the challenges. Unprepared companies may be absorbing a higher proportion of the damage, while cyber-savvy organizations are using their knowledge as a distinct market advantage. Many have gone so far as to recruit well-known cyber-security experts to their boards. These companies are also more likely to have developed comprehensive cyber policies, further boosting their resilience.

Surprises in the Top 10 Risks Selected

Business interruption ranks high on the list (number two), primarily as a consequence of the business shutdowns caused by the global pandemic. Disruption to the supply chain and staff shortages have had the most obvious and immediate impact, but cancellations of sports games and other major events affected commercial broadcast networks. Many companies rely on production and inputs from China and Southeast Asia for their consumer-electronics products and services, making the extended shutdown an unprecedented challenge. As a result, the number of disputes around contract breach and termination, export bans, state aid issues and insurance coverage is expected to rise.

Most Underrated Risks

IP is an underrated risk, falling outside the top 10. IP theft in areas related to software piracy, trade secret theft and theft of non-tangible goods is estimated to cost well over $600 billion globally. This includes the transfer and licensing of software and AI technologies as well as e-commerce solutions and blockchain networks. Organizations need to better understand their use of shared services, global information and communications technology (ICT) platforms and cloud services covering licensing and commercialization of trademarks, domain names, trade secrets, copyrights, designs and patents. With increased M&A activity in this sector due to consolidations and business failures, due diligence around IP on protection and value of nonphysical assets as part of an M&A deal is critical. Organizations need to ensure that accurate assessments, quantifications and insurance coverage are in place.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

Organizations need to become more knowledgeable and better equipped to address the challenges facing them in the future. Cyber security will remain a top risk and the biggest "hidden" threat due to the amount of damage it can do in very little time. Companies will have to undertake regular financial benchmarking to identify cost and efficiency opportunities as well as to understand workforce needs and skills shortages. They also need to demonstrate their cultural diversity, equality and inclusion policies and their evolving ESG and climate-change strategies.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

The COVID-19 pandemic has accelerated digital transformation in the industry and is likely to lead to a wave of consolidations and M&A activity. Media and entertainment continues to be among the most severely affected segments, with cinemas, theaters and concert venues confronting the impact of prolonged closures and traditional advertising being replaced by online digital advertising and social media.

Shifts in consumer preferences for on-demand channels are reflected in stock prices globally, with big tech companies registering strong gains in market capitalization. The situation is more complicated for tech start-ups, with many confronting cash-flow and liquidity challenges.

In an era of unprecedented volatility, economic, demographic and geopolitical trends are converging to create a challenging but exciting new operating environment. Companies with high-growth potential but a weak financial situation should focus on managing cash, securing external financing and reviewing cost savings. Those with weak financial situations and low growth may have to find new ways to survive, whether via turnaround strategies, rapid cost reduction, ensuring the support of a strategic partner or selling out. Those with both strong finances and high growth potential can look for expansion opportunities to secure missing capabilities while seizing the best talent on the market.

Transportation and Logistics

Rank	Current Risk
1	Economic Slowdown/Slow Recovery
2	Cyber Attacks/Data Breach
3	Business Interruption
4	Pandemic Risk/Health Crises
5	Political Risk
6	Regulatory/Legislative Changes
7	Supply Chain or Distribution Failure
8	Damage to Reputation/Brand
9	Accelerated Rates of Change in Market Factors
10	Property Damage

Rank	Future Risk
1	Economic Slowdown/Slow Recovery
2	Cyber Attacks/Data Breach
3	Pandemic Risk/Health Crises
4	Business Interruption
5	Political Risk

33 percent loss of income — up from 2019

51 percent risk readiness — up from 2019

Key Issues for the Industry Currently Reflected in the Risk Selection

Economic slowdown and slow recovery is a major challenge for the transportation industry. Amid a slowdown in global economic growth, in part caused by trade tensions between the U.S. and China, the logistics industry remains buoyant.

Supply-chain risk is widespread in the transportation and logistics industry. Supply chains are increasingly interdependent, and disruptions are becoming more frequent and more severe. Meanwhile, risk transfer and management solutions to address these growing risks are limited and immature.

Globally, recovery from the COVID-19 pandemic is proving to be complex, with huge regional disparities in vaccination availability and rates and other factors.

Concerns about cyber attacks and data breaches are an expected result of the pandemic given the massive growth in online traffic and transactions — a trend that appears likely to become permanent.

Logistics companies across the value chain are feeling pressure to prioritize operational efficiencies by investing in technology and innovation. Freight forwarders that offer innovative online solutions in freight matching, custom brokerage and transportation management solutions are now expected to transform the segment with enhanced customer experiences.

Surprises in the Top 10 Risks Selected

Notwithstanding the differences between developed and developing countries, political risk is on the rise around the world and could emerge to disrupt the global economy and supply chains. Formerly a "sleeper" risk, political risk is now firmly on the radar for transportation and logistics leaders.

Surprisingly, workforce shortage risk dropped from number 10 in 2019 to number 15 in 2021. While the pandemic is starting to recede and global markets are finally beginning to stabilize, demands in the logistics industry are still intense, especially when it comes to hiring skilled workers. For example, in the U.S. alone, the Bureau of Labor Statistics forecasts more than 600,000 new job openings in the logistics industry by 2029.[73]

Accelerated rates of change in market factors dropped to number 10 from number five in 2019. This is particularly surprising considering the recent trade war between the U.S. and China, Brexit and other recent developments.

Most Underrated Risks

Transportation and logistics respondents ranked risks associated with supply chain or distribution failure at number seven. Arguably, those risks should rank higher given the industry's substantial challenges related to recent events, including the six-day blockage of the Suez Canal in March 2021 and uneven global vaccine distribution.

At number 35, geopolitical volatility was also underrated considering the impact of the recent trade war between China and the U.S., conflict between China and Australia over the origins of the coronavirus (COVID-19), and the suspension of the EU-China Comprehensive Agreement on Investment and its related impact on the transportation industry.

Challenges the Industry Will Face in the Next 3 Years and What Organizations Can Do to Address Them

The American Trucking Association projects a shortage of more than 100,000 drivers by 2023,[74] caused by an aging workforce and the challenge of recruiting new drivers. An expected increase in demand due to the growth of e-commerce will only exacerbate this risk. Similarly, the aviation industry is projected to need more than 200,000 new pilots in North America alone over the next two decades to accommodate growth and the mandatory retirement age of 65 for pilots.[75]

Risks associated with the industry's dependence on others — for vessels, ports, logistics hubs and more — will only increase, making supply chains more vulnerable.

The COVID-19 pandemic significantly condensed and accelerated changes in consumer habits globally. New habits that might have taken root over a decade became the norm in a matter of months. Now companies will need to determine which new habits will endure and plan accordingly.

ESG (ranked at number 25) and climate change (at number 34) will be big risks for the industry in the next three years. Logistics is a key contributor to climate change; and stakeholders across the board, from customers to the investment community, demand sustainable solutions. Companies need to understand what's at stake due to climate change and set up a road map for decarbonization to comply with upcoming regulations. Greater frequency and severity of climate hazards can create more disruptions in global supply chains, interrupting production, raising costs and prices, and hurting corporate revenues.

How New Challenges Will Require Companies to Change Their Approaches to Risk Management and Mitigation

In addition to traditional risk management approaches, which tend to focus on liabilities and physical loss, organizations will need to prepare for emerging and accelerating risks such as cyber attacks and supply-chain failures.

Given the increasing rate of change and uncertainty, companies that learn to continually adapt and adjust will prove more resilient than those that don't. Although there has never been more data available to assist this effort, learning what data to collect, and interpreting those data to implement solutions, will be key to this broader effort. Using data and analytics for risk management, prediction and mitigation — at ever more granular operational levels — is one of the new sciences behind this industry.

6
Regional Views

Asia

Current Risk Ranking - Asia	Rank
Business Interruption	1
Economic Slowdown/Slow Recovery	2
Cyber Attacks/Data Breach	3
Pandemic Risk/Health Crises	4
Accelerated Rates of Change in Market Factors	5
Increasing Competition	6
Commodity Price Risk/Scarcity of Materials	7
Damage to Reputation/Brand	8
Cash Flow/Liquidity Risk	9
Supply Chain or Distribution Failure	10

Future Risk Ranking - Asia	Rank
Economic Slowdown/Slow Recovery	1
Cyber Attacks/Data Breach	2
Business Interruption	3
Accelerated Rates of Change in Market Factors	4
Pandemic Risk/Health Crises	5

Key Issues Currently Reflected in Risk Selection

The impact of COVID-19 varies widely across Asia, making it difficult to generalize risk. In many countries, tourism contributes up to 10 percent of GDP, which may explain why business interruption and economic recovery are the two highest-ranked risks.

GDP growth in the second half of 2021 is expected to be down compared with last year. This is against a backdrop of regulatory changes under President Xi Jinping, including restructuring and regulating the Chinese tech sector and adding requirements to house Chinese data in China. These and other high-profile changes likely pushed accelerated rates of change in market factors to number 5.

In addition, COVID-19 has exposed the fragility of global supply chains. To mitigate this risk, more companies are looking to move manufacturing closer to their markets, which may prompt a downturn in Asian production. Respondents expect supply-chain risk to drop to number 18 in the future, so respondents likely see this risk as temporary and have confidence Asia is positioned to remain a key production hub in the future.

Workforce shortage, at number 19, and failure to attract and retain talent, at number 13, are pressing risks, although they didn't rise to the top 10. Hospitality, construction, technology, finance, pharmaceuticals and life sciences are competing aggressively for talent, resulting in increased hiring costs and, ultimately, higher prices to customers. In Singapore, which relies heavily on imported labor, worker costs have risen up to 50 percent. Meanwhile, border closures have disrupted both the inflow of workers into Asia and shipping operations, in some cases stranding crews. And many expatriates have left Asia, especially Singapore and Hong Kong, to return home to their families.

Increasing competition (number six now and in the future) and failure to innovate/meet customer needs (number 14 now and moving up to number seven in the future) are tightly connected with talent risks. Talent-related issues including the workplace of the future and global mobility are part and parcel with the top-ranked risks.

Underrated Risks

Climate change ranks at number 23 and is expected to rise to number 11 in three years; however, extreme weather events are occurring regularly in Asia. The region still relies heavily on coal, but the potential of the energy transition to address climate change isn't garnering significant attention — even as activist investor initiatives seek to redirect investments at scale to improve ESG outcomes.

Rising healthcare costs ranks at number 51, rising slightly to number 48 in three years; however, these costs are starting to spike as patients seek nonessential treatments they had deferred during the pandemic. We expect healthcare costs to escalate for all age cohorts, and the long-term effects of COVID-19 are unknown; thus, this is an underrated risk.

Personal liability for directors and officers (D&O) ranks at number 42, yet interest from company boards and C-suite executives in D&O insurance has never been higher. With a recent sharp increase in litigation and regulatory investigations following 20 years of rate reductions, the D&O market is now undergoing an extreme correction. Asian businesses with U.S. listings have borne the brunt of rate volatility and capacity crunches. The impact has been especially acute for companies with U.S. IPO aspirations; for those using special purpose acquisition companies (SPACs), the challenge cannot be overstated.

Future Challenges and How Organizations Can Address Them

Capital investments in Asia and the region's growth potential are tightly linked to questions about long-term economic recovery from the COVID-19 crisis and the full resumption of business activity. Asia is confronting a long list of daunting challenges, including slow vaccine rollouts; delayed infrastructure projects; delayed M&A deals, especially those involving private equity and real estate funds that want to physically inspect assets; aviation and hospitality industries damaged to the point of bankruptcy; container shipment shortages; chip shortages; workforce shortages and movement restrictions; the relocation of manufacturing out of Asia; and increasing ESG pressure.

Companies need to fully map the risks to their businesses and establish their appetite and tolerance for risk. This will give them the tools to prioritize investments broadly and improve decision making to balance growth and protection. This is true not just for physical, tangible assets, but also for human capital and intangible assets. Traditional risk transfer solutions don't offer protection for all risks identified in the survey; companies will have to look for alternative solutions depending on risk appetite. Clients can use data and analytics to help inform decisions, extrapolating from historical data to support decisions.

Engaging stakeholders from across the business is also vital in making decisions about risk. The most successful companies have a chief risk officer (CRO) and elevate risk to the board's agenda. Many CROs are now broadening their range of risk responsibilities to also include environmental, social and governance topics.

Finally, organizations need to meet the challenges associated with attracting, retaining and engaging talent, because this risk has critical knock-on effects for myriad other risks.

Europe, Middle East and Africa

Current Risk Ranking - EMEA	Rank
Business Interruption	1
Economic Slowdown/Slow Recovery	2
Commodity Price Risk/Scarcity of Materials	3
Cyber Attacks/Data Breach	4
Supply Chain or Distribution Failure	5
Damage to Reputation/Brand	6
Increasing Competition	7
Regulatory/Legislative Changes	8
Pandemic Risk/Health Crises	9
Accelerated Rates of Change in Market Factors	10

Future Risk Ranking - EMEA	Rank
Cyber Attacks/Data Breach	1
Commodity Price Risk/Scarcity of Materials	2
Economic Slowdown/Slow Recovery	3
Business Interruption	4
Accelerated Rates of Change in Market Factors	5

Key Issues Currently Reflected in Risk Selection

The EMEA region continues to grapple with broad issues of availability of products, components, ingredients and raw materials. Some of this is a holdover from the height of the pandemic, but Brexit's ongoing impact and some high-profile supply-chain exposures — for example, the chip shortage from Asia and the blockage of the Suez Canal — have also taken a toll. The theme of availability features significantly in the EMEA region's list of top 10 risks, including business interruption (number one), commodity scarcity (number three), and supply-chain or distribution failure (number five).

Companies across most industries in EMEA have accelerated digital-transformation programs as a result of the pandemic. This is reflected in the top 10 risks; for example, cyber attacks and data breach ranked at number five following a huge increase in remote work, and increasing competition ranked at number seven, as new market entrants take advantage of the increasing digitalization of products and services.

Underrated Risks

Workforce shortage ranks surprisingly low at 15. As the pandemic slows, labor markets have rallied across EMEA; some countries now have more open positions than at any time in the recent past and are struggling to fill them. The U.K., for example, is coping with the impact of foreign nationals returning to their countries of origin following Brexit, and industries such as food and drink are trying hard to find workers in driver and factory roles, which correlates with business-interruption risk.

It is also surprising to see climate change far down the list of priorities, given both the commitment of many European countries to the climate-change agenda and the high-profile extreme weather events that have occurred over the past two years in countries such as Germany, the Netherlands, Italy and Belgium.

Future Challenges and How Organizations Can Address Them

Rapid change and the ongoing emergence or acceleration of different forms of volatility — for example, in areas such as ESG, supply-chain complexity and the potential for more health crises — will keep risk front and center on the strategic agenda. Companies need to ensure they understand these risks and their potential impact, allocate appropriate levels of capital to their management and capture them in the overall ERM process.

Latin America

Current Risk Ranking - LatAm	Rank
Economic Slowdown/Slow Recovery	1
Business Interruption	2
Commodity Price Risk/Scarcity of Materials	3
Pandemic Risk/Health Crises	4
Cash Flow/Liquidity Risk	5
Regulatory/Legislative Changes	6
Political Risk	7
Exchange Rate Fluctuation	8
Cyber Attacks/Data Breach	9
Increasing Competition	10

Future Risk Ranking - LatAm	Rank
Economic Slowdown/Slow Recovery	1
Political Risk	2
Commodity Price Risk/Scarcity of Materials	3
Cyber Attacks/Data Breach	4
Business Interruption	5

Key Issues Currently Reflected in Risk Selection

Respondents identified the top three current risks for Latin America as the economic slowdown, business interruption and commodity price risk. They expect political risk to rise from number seven today to number two in three years. Much like other parts of the world, Latin America is still struggling with the impact of the pandemic, which explains why business interruption ranked so high. Business interruption is also vulnerable to risks arising from non-damage exposures such as the pandemic and social unrest. The region is aligned with others in its growing concerns about cyber attacks and data breaches, which are predicted to jump from ninth place to fourth in three years.

Underrated Risks

Businesses across the region are underrating climate-change risk. This risk should be in the top 10, given the combination of weak environmental-preservation policies in Latin America, the growing number of extreme events globally, vast evidence of environmental degradation including deforestation and a shortage of fresh water and other factors. Environmental degradation will have a major impact on the region's economic activity, business environment and risk landscape, and companies should prepare for the potential consequences now by including this risk near the top of their risk registers.

Future Challenges and How Organizations Can Address Them

Companies across Latin America will confront many significant challenges. At the top of the list are managing the region's economic recovery and pursuing ESG agendas to reduce social inequality and increase political stability. To continually assess the key risks associated with these challenges and optimize their plans accordingly, companies can employ a variety of scenario-planning techniques.

North America

Current Risk Ranking - North America	Rank
Cyber Attacks/Data Breach	1
Business Interruption	2
Damage to Reputation/Brand	3
Economic Slowdown/Slow Recovery	4
Failure to Innovate/Meet Customer Needs	5
Supply Chain or Distribution Failure	6
Failure to Attract or Retain Top Talent	7
Regulatory/Legislative Changes	8
Workforce Shortage	9
Commodity Price Risk/Scarcity of Materials	10

Future Risk Ranking - North America	Rank
Cyber Attacks/Data Breach	1
Failure to Attract or Retain Top Talent	2
Economic Slowdown/Slow Recovery	3
Business Interruption	4
Failure to Innovate/Meet Customer Needs	5

Key Issues Currently Reflected in Risk Selection

The risks identified by North American participants are in line with our expectations. Perception of cyber risk was likely influenced by numerous high-profile breaches and the proliferation of new and existing threats. Business interruption is an obvious concern that is also reflected in other risks, including supply chain or distribution failure and workforce shortage. Pandemic risk and health crisis ranked at number 12, and vendor management and third-party risk ranked at number 14. Collectively, these are powerful, interrelated risks for the region.

Also notable is the number-three ranking of damage to reputation or brand. ESG risk did not make the top 20, but it may be reflected in the number-eight ranking of regulatory or legislative changes in 2021 (rising to rank seven in three years' time). These changes are influenced by climate change and other prominent social risks. The thoughts and actions of risk managers seem to be swayed by these prominent risks.

Underrated Risks

Climate change risk is underrated despite a great deal of public attention and mounting evidence of its effects. Millennials take climate risk more seriously than older generations, however, and they will have a growing impact on consumer and employment choices. This dynamic will help bring climate change and other underrated ESG-related risks to the forefront.

Additionally, new ways of working, including remote and hybrid work, ramped up dramatically during the COVID-19 crisis. If the shift becomes permanent, it could support the fight against climate change — but it would also have a big impact on regional and global economies.

Loss of intellectual property and property infringement is another substantial risk that was highly underrated by survey respondents — but that may be because other areas of the respondents' organizations have the responsibility for mitigating and managing it.

Future Challenges and How Organizations Can Address Them

Identifying and quantifying risks remain foundational risk management activities. Articulating the potential impact of those risks in a fundamentally optimistic business culture is a perennial problem. Since the volatility of risks is accelerating, the ability to articulate their potential impact and secure investments for mitigation is perhaps the main challenge faced by organizations today.

Pacific

Current Risk Ranking - Pacific	Rank
Cyber Attacks/Data Breach	1
Damage to Reputation/Brand	2
Failure to Innovate/Meet Customer Needs	3
Business Interruption	4
Failure to Attract or Retain Top Talent	5
Regulatory/Legislative Changes	6
Economic Slowdown/Slow Recovery	7
Cash Flow/Liquidity Risk	8
Pandemic Risk/Health Crises	9
Increasing Competition	10

Future Risk Ranking - Pacific	Rank
Cyber Attacks/Data Breach	1
Failure to Innovate/Meet Customer Needs	2
Damage to Reputation/Brand	3
Economic Slowdown/Slow Recovery	4
Increasing Competition	5

Key Issues Currently Reflected in Risk Selection

Before the COVID-19 pandemic struck in early 2020, Australia had suffered only one technical recession in the past 30 years. But the impact of the pandemic recession was largely deflected by governmental stimulus programs whose financial impact will be felt by future generations. This may explain why economic slowdown and slow recovery does not rank among the top four risks in Australia, as it does in other regions. However, distressed global supply chains, geopolitical tensions and continued uncertainty surrounding the post-COVID-19 recovery could make Australia's national business environment more vulnerable to economic shocks. Indeed, this is evident in respondents' assessments of future risk, with economic slowdown and slow recovery jumping to number four.

Underrated Risks

Commodity price risk and scarcity of raw materials is an underrated risk for the region. Australia's entire economy is supported by a few key commodities, such as coal. If any of those commodities vanish for whatever reason — including pressure from ESG regulations — the country's economy will suffer badly.

Geopolitical situations, particularly China's determination to reduce its dependence on Australian iron ore, color this risk. If coal or iron ore production were to cease across Australia, the economy would plunge into recession. The growing importance of ESG as an economic influencer in the developed world brings this risk into sharp focus for Australian companies.

A second underrated risk is climate change, given its potential impact on Australia's burgeoning and strategic capacity for food production. Climate-change risk exposes Australia to even greater geopolitical risk, so companies should find ways to address and mitigate its impact.

Future Challenges and How Organizations Can Address Them

The future risks that respondents cited as the top five capture the challenges the region will face. Each of these risks contains a mix of elements that companies can control (wholly or partially), influence, or neither control nor influence but still plan for.

Addressing these risks in a methodical manner is clearly critical, but it's equally important to ensure that ERM does not prioritize process over outcomes. Organizations can have excellent processes in place, but without appropriate behaviors — individual, collective and organizational — even the best processes won't serve their intended purpose.

There are numerous ways to improve an organization's focus on outcomes, but one that is fundamental to risk culture is the involvement of — and indeed leadership by — line management. Although perspectives on risk may differ between the boardroom and the shop floor, a common risk ethos must prevail across the entire organization.

7

Approach to Risk Management, Risk Assessment and Cross-Functional Collaboration

7

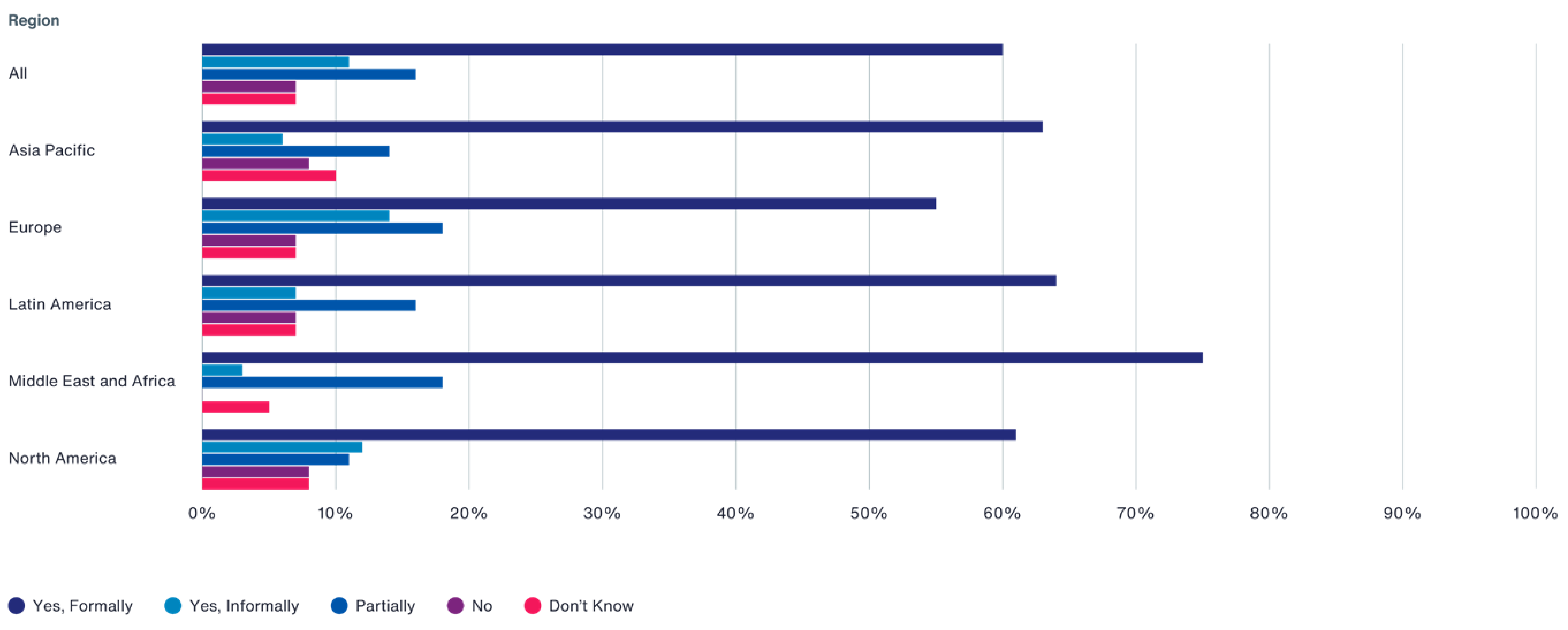
Risk Management Oversight

Globally, 60 percent of respondents said their boards of directors or board committees have formally established policies on risk oversight and management, up from 58 percent in 2019; another 27 percent have informally and partially done so. The total — 87 percent — is the same as in 2019 and mirrors the results in Aon's Risk Maturity Index, which shows that around 82 percent of global companies have formal or informal board oversight for risk.

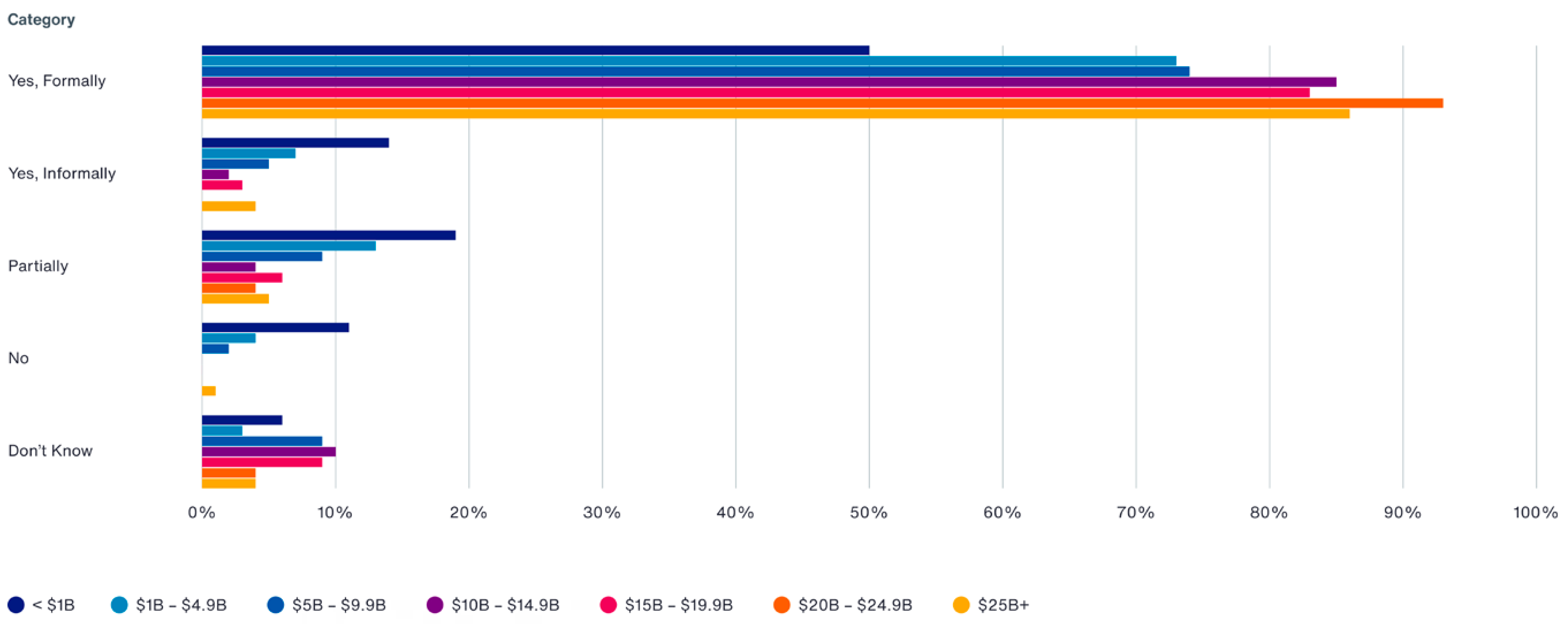
The Middle East saw a significant jump, from 66 percent in 2019 to 75 percent in 2021, in respondents saying their companies have formal policies with a corresponding decline in informal policies — a sign the region is continuing to enhance its overall risk maturity. Latin America and North America improved slightly, while Europe remained steady. Asia Pacific lost ground; 83 percent of 2021 respondents said they have formal, informal or partial policies in place, compared with 89 percent in 2019. Again, these regional variations in results could be explained by differences in company size, rather than a backwards trend in risk management capabilities.

When viewed through a revenue lens, larger companies are more likely to have a board of directors or board committee with formally established policies on risk oversight. Perhaps the most surprising finding was the number of respondents who were not able to report on whether or not they had established risk policies — up to one in 10 in some cohorts. In some cases, this could be because the company has separated the management of insurable risk, often in an insurance department, from management of business or strategic risk.

Policies on Risk Management Oversight by Region



Policies on Risk Management Oversight by Revenue (in $)



Identification of Major Risk by Region and Company Size

Our research shows that companies continue to rely on a range of methods to identify risk, and boards are actively involved through a number of activities. In 2019 and again in 2021, 50 percent of respondents, on average, said their boards conduct formal risk assessments. Another 39 percent said their boards discuss risk during annual planning, and 34 percent said their boards discuss risk at other times.

The percentage of respondents, on average, who said their company relies on senior management judgment and experience jumped from 52 percent in 2019 to 57 percent in 2021; in North America that percentage rose from 67 percent to 72 percent. This increase may have also been due to the unprecedented uncertainty and disruption caused by the COVID-19 pandemic, which required decisive leadership in unusual times.

Although board and senior leadership involvement in risk identification is extremely beneficial, it must be balanced with other internal and external sources of risk information. Companies that formulate their risk profile with input primarily from a few senior leaders — perhaps overlooking a more diverse source of risk information from those working on the ground in the business, their customers, communities and society as a whole — are more apt to fall victim to groupthink or suffer from cognitive bias.

In a different part of the survey, 60 percent of global respondents said their boards of directors or board committee had formally established policies on risk oversight and management. Yet only 40 percent of respondents said their companies have a structured, enterprise-wide process for risk identification. Without a structured process in place to implement and monitor those risk policies, they are unlikely to achieve their intended objectives.

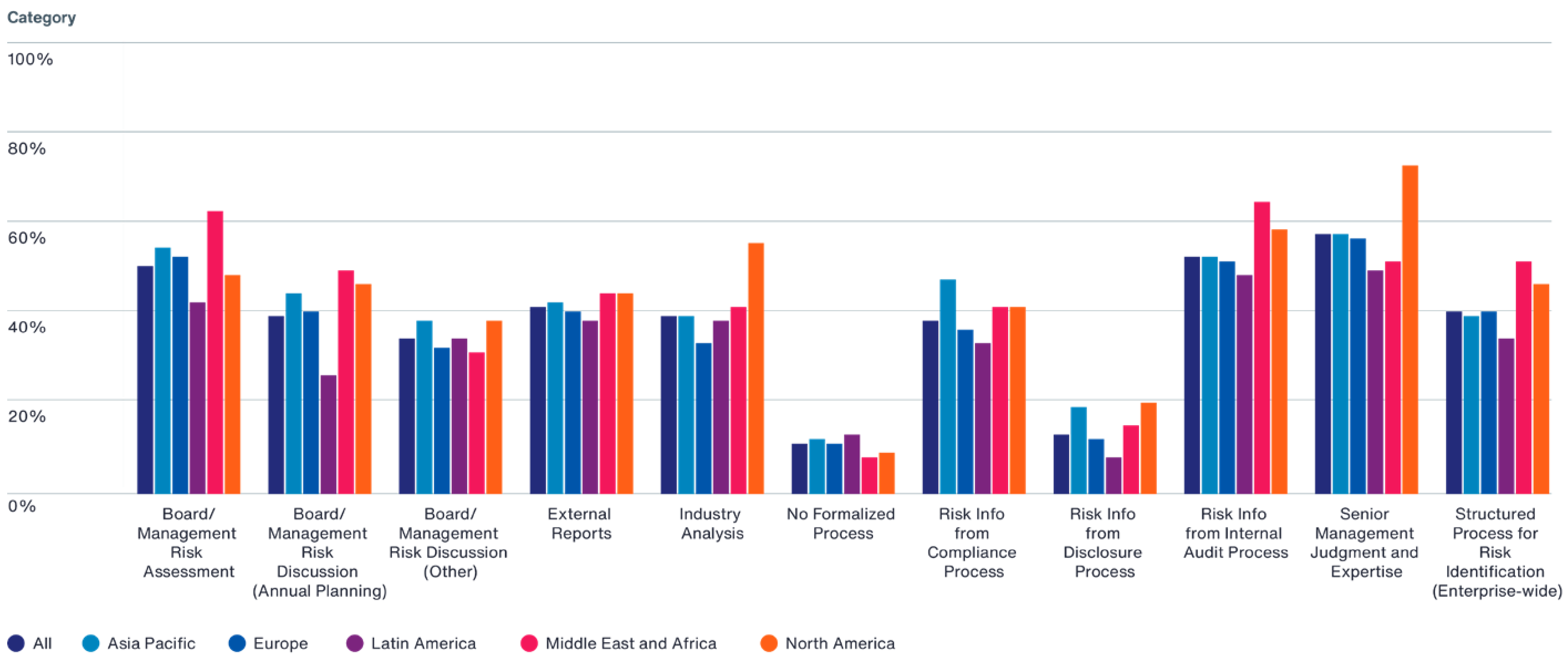
Lack of a structured process also calls into question the reliability of risk information publicly shared in financial reports such as 10-Ks and may even cause risk departments to focus too much on the risk of the moment rather than on risks that truly matter most. Companies that don't have a structured process in place are also more likely to be surprised by every emerging risk and to operate in reactive mode rather than getting ahead of risks.

Internal audit (IA) processes are another key source of information used to identify risks, with 52 percent of respondents indicating they rely on them for this purpose — an increase of 8 percent over last year. Although risk functions and IA need to work together on committees and share information with one another, the functions need to be separate to retain independence. From a risk perspective, IA is naturally more focused on internal controls. Moreover, IA can't be expected to reasonably audit a risk assessment in which it was heavily involved.

Ultimately, risks can't be avoided or mitigated unless they are identified. The more diverse the methods used to identify risks, the more likely it is that risks will be discovered before it's too late. Certain categories of risk, such as changes in market demand or increased competition, can be longer term and speculative in nature and therefore require external perspectives and data. For risks such as these, companies will not have access to traditional and historic data sets from which to size the exposure. Adopting a multipronged approach to risk identification will bolster resilience and protect companies from all manner of harm. According to our survey results, companies still have work to do in this area.

Excluding companies with less than $1 billion in revenues, reliance on various approaches to identifying risks is similar across revenue bands. We continue to see the heaviest reliance on risk information from internal audit processes to identify risks despite the limitations of this approach.

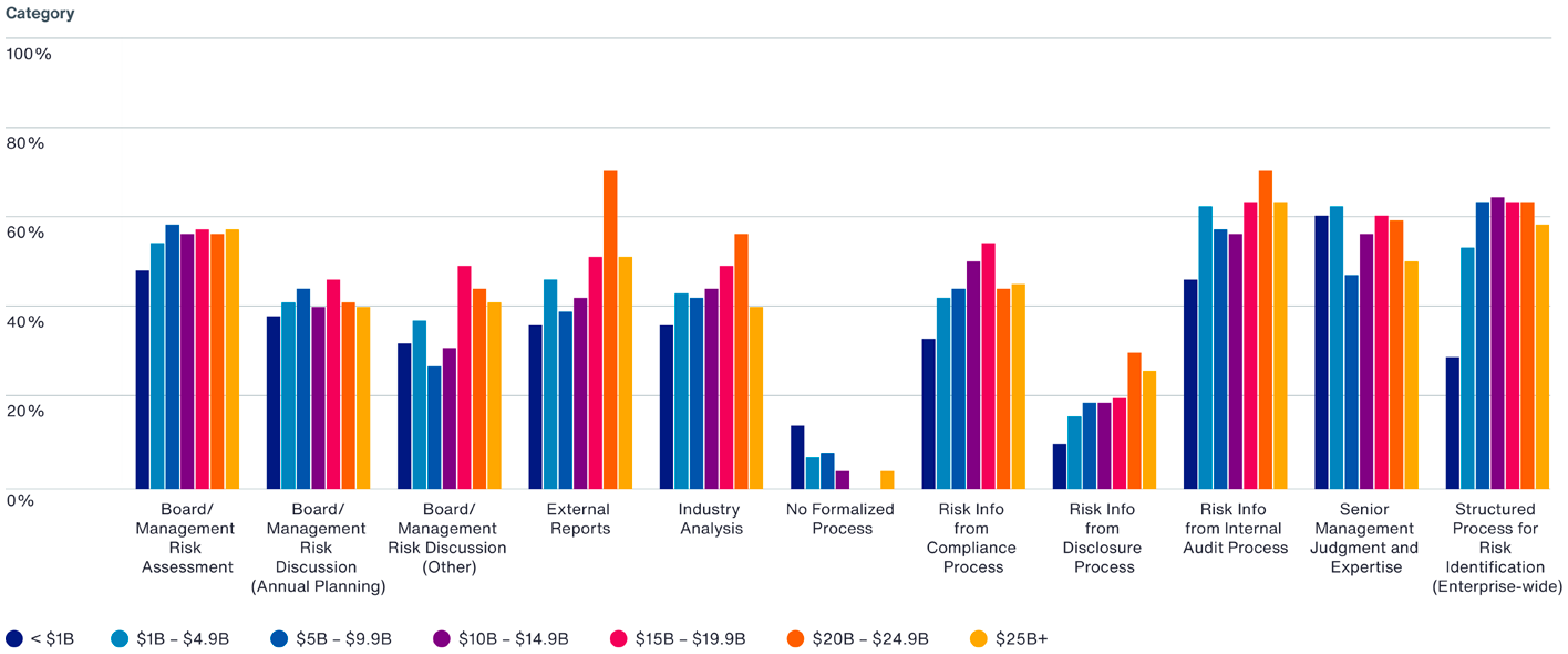
Identification of Major Risks by Region



This year's survey showed a marked increase within certain revenue bands in the percentage of respondents saying their companies have a structured process for risk identification. For example, among companies with $15 billion to $19.9 billion in revenue, the percentage jumped to 63 percent from 41 percent, while among companies with revenues of $10 billion to $14.9 billion, it rose 20 percent to 66 percent. This demonstrates a move by many organizations to formalize risk management in response to more volatile trading conditions and to assure stakeholders that the company runs a resilient operation. In general, companies are becoming more risk mature.

Companies with over $25 billion in revenues increased their board involvement in assessments and discussions compared with 2019, likely due to regulator and stakeholder pressure. The number of respondents reporting that their boards were involved in risk assessments rose by 5 percent to 57 percent. The number of respondents from the largest companies who reported that their boards included risk in their annual planning cycle or similar process increased 7 percent and 9 percent, respectively. In a post-pandemic world, with many companies looking to reshape their corporate strategies, operations and people, understanding the risks associated with such changes will be paramount.

Identification of Major Risks by Revenue (in $)



Effectiveness of Risk Management and Assessment Processes

Methods to Evaluate Effectiveness of Risk Management Programs by Region

Category	All	Asia Pacific	Europe	Latin America	Middle East and Africa	North America
Compare past risk events to risk management efficacy	44%	49%	40%	45%	51%	45%
Compare safety-and-loss control results (e.g. return-to-work speed)	26%	27%	19%	26%	23%	42%
Does not measure	26%	24%	31%	20%	15%	23%
Evaluate risk management considerations in investment/strategy decision	42%	52%	39%	43%	54%	40%
Identify financial benefits due to company captive (e.g. income generated)	18%	21%	12%	20%	18%	25%
Lower the Total Cost of Risk (TCOR)	20%	12%	17%	14%	23%	40%
Other	4%	5%	4%	5%	10%	3%
Track risk-management involvement within firm	29%	35%	25%	35%	41%	24%

The actions companies take to determine the effectiveness of risk management and assessment processes are generally consistent across regions; we see no major outliers here.

In a promising sign, across the board a higher number of respondents than in 2019 said that they compare past risk events to risk management efficacy; however, this approach is insufficient preparation for so-called grey swan events — potential events that companies pay less attention to because there is less precedent for them. The insignificance of the risk of pandemic in most corporate risk registers prior to COVID-19 is probably the best modern-day example of the limitations of using historical data alone to inform predictions for the future. Other forms of evaluation need to be considered to anticipate events, especially those that happen much less frequently.

Methods to Evaluate Effectiveness of Risk Management Programs by Revenue (in $)

Category	< $1B	$1B – $4.9B	$5B – $9.9B	$10B – $14.9B	$15B – $19.9B	$20B – $24.9B	$25B+
Compare past risk events to risk management efficacy	41%	44%	45%	50%	51%	48%	58%
Compare safety-and-loss control results (e.g. return-to-work speed)	22%	31%	32%	34%	34%	26%	35%
Does not measure	31%	22%	21%	14%	20%	15%	8%
Evaluate risk management considerations in investment/strategy decision	38%	45%	48%	66%	54%	63%	58%
Identify financial benefits due to company captive (e.g. income generated)	12%	19%	28%	34%	29%	30%	42%
Lower the Total Cost of Risk (TCOR)	13%	29%	34%	28%	31%	44%	41%
Other	4%	4%	3%	4%	9%	44%	7%
Track risk-management involvement within firm	26%	33%	33%	48%	37%	30%	38%

Overall, 42 percent of respondents said they evaluate risk management considerations in investment and strategy decisions, another sign of a maturing approach that also reflects the most recent Committee of Sponsoring Organizations of the Treadway Commission (COSO) guidance aimed at better linking risk management to strategy and performance. North America leads other regions in comparing safety-and-loss control results, likely a result of companies in the region having greater access to workers' compensation and other data needed to conduct this analysis.

Taking actions to lower the total cost of risk (TCOR) is by far most prevalent in North America, with 40 percent of respondents saying their companies do so. This may be because the region has a more sophisticated approach to risk, a greater concentration of insurable risk or access to higher-quality data.

As with regions, across revenue bands we see a consistent approach to comparing past risk events to risk management efficacy. As expected, larger companies are more likely to evaluate risk management considerations in investment and strategy decisions, likely because they follow more sophisticated processes, driven by shareholder requirements and deal sizes. We also see many more of the largest companies — those with more than $20 billion in annual revenue — taking action to lower their TCOR; smaller companies may limit the definition of TCOR to simply the cost of risk transfer or insurance.

8

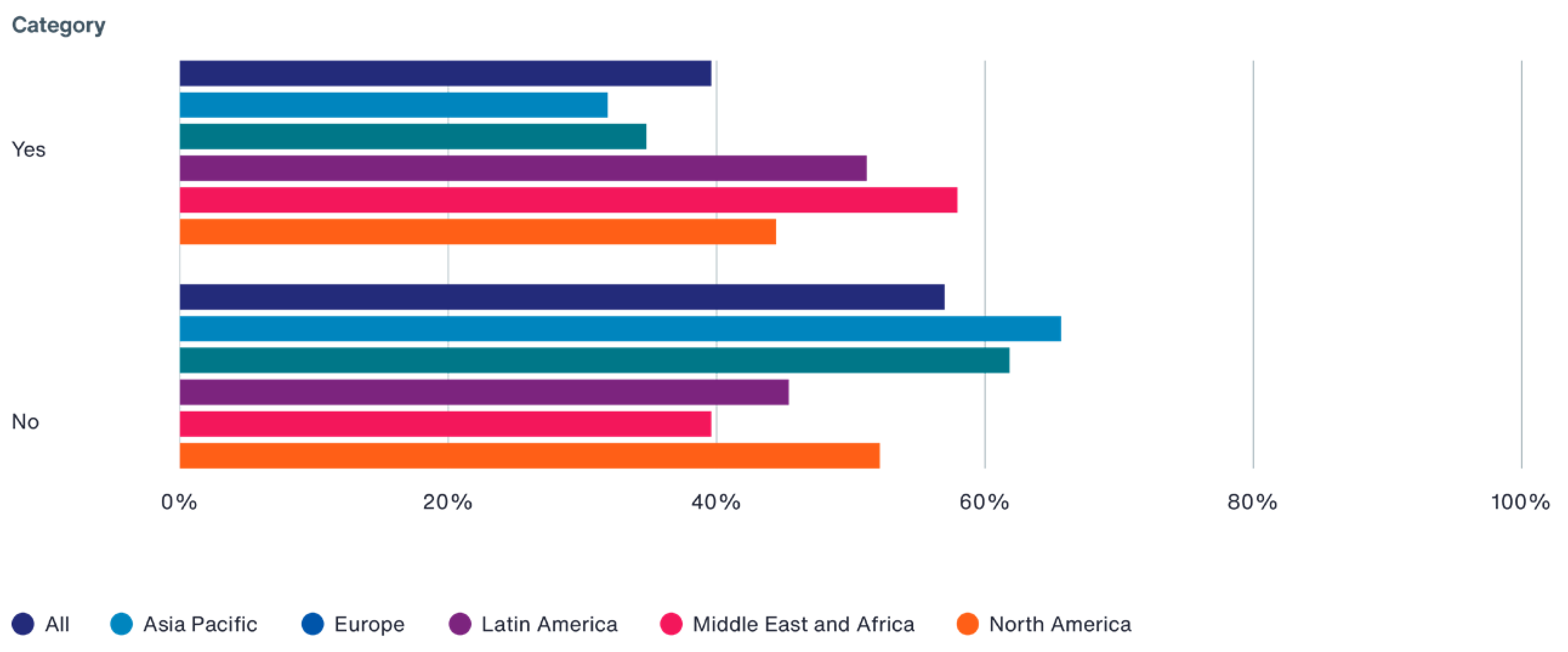
Key Controls and Mitigation

8

Do Companies Measure the Total Cost of Insurable Risk?

In a concerning trend, the number of companies that measure the total cost of insurable risk (TCOIR) continues to decline. In 2021, 41 percent of respondents said their companies measure this cost, down from 43 percent in 2019. The percentage measuring TCOIR is particularly low in Asia Pacific and Europe, at 33 and 36 percent respectively. In the current insurance-market environment, where markets have for the most part firmed and capacity has reduced while rates have increased, companies must balance the risk that they choose to retain and transfer to achieve optimal financial outcomes. Over the coming months, we expect more companies to adopt more scientific approaches to measuring TCOIR, perhaps mirroring respondents in the Middle East and Africa, which is in some respects an outlier in that 60 percent of respondents say their companies measure this cost, up from 53 percent in 2019.

Measurement of Total Cost of Insurable Risk by Region



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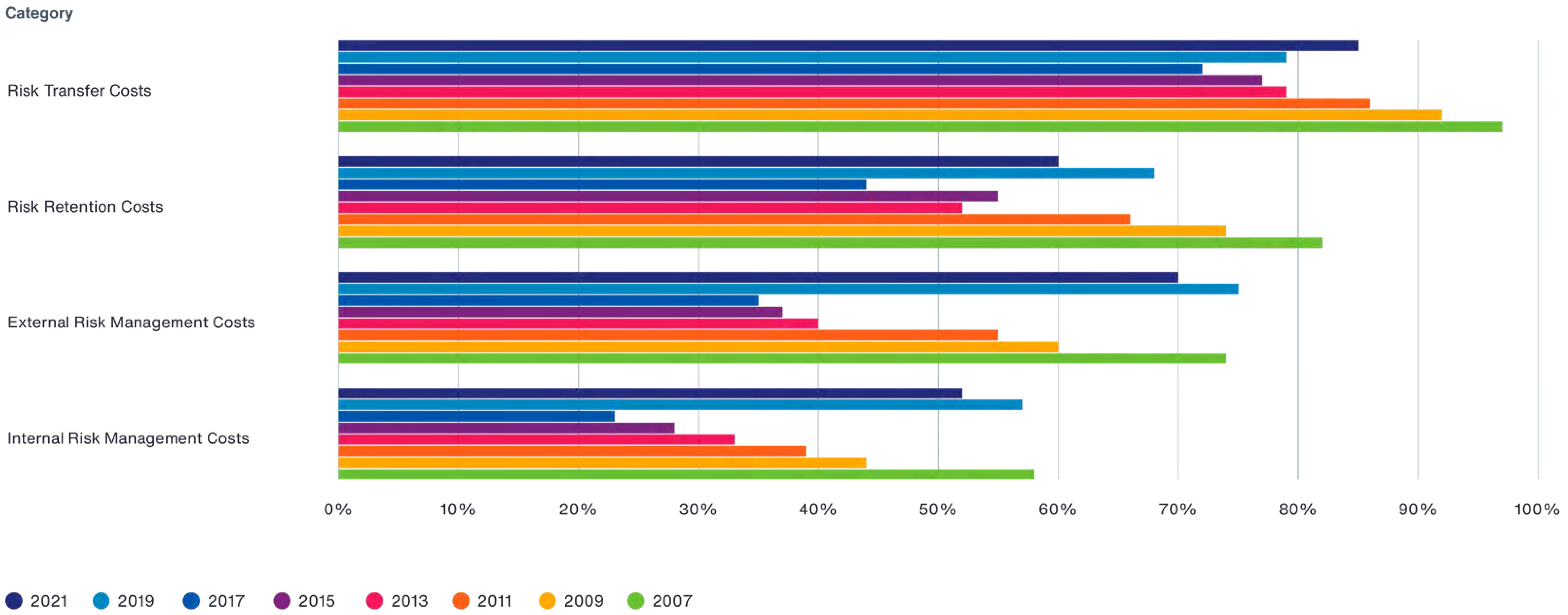
Elements of TCOIR Measured

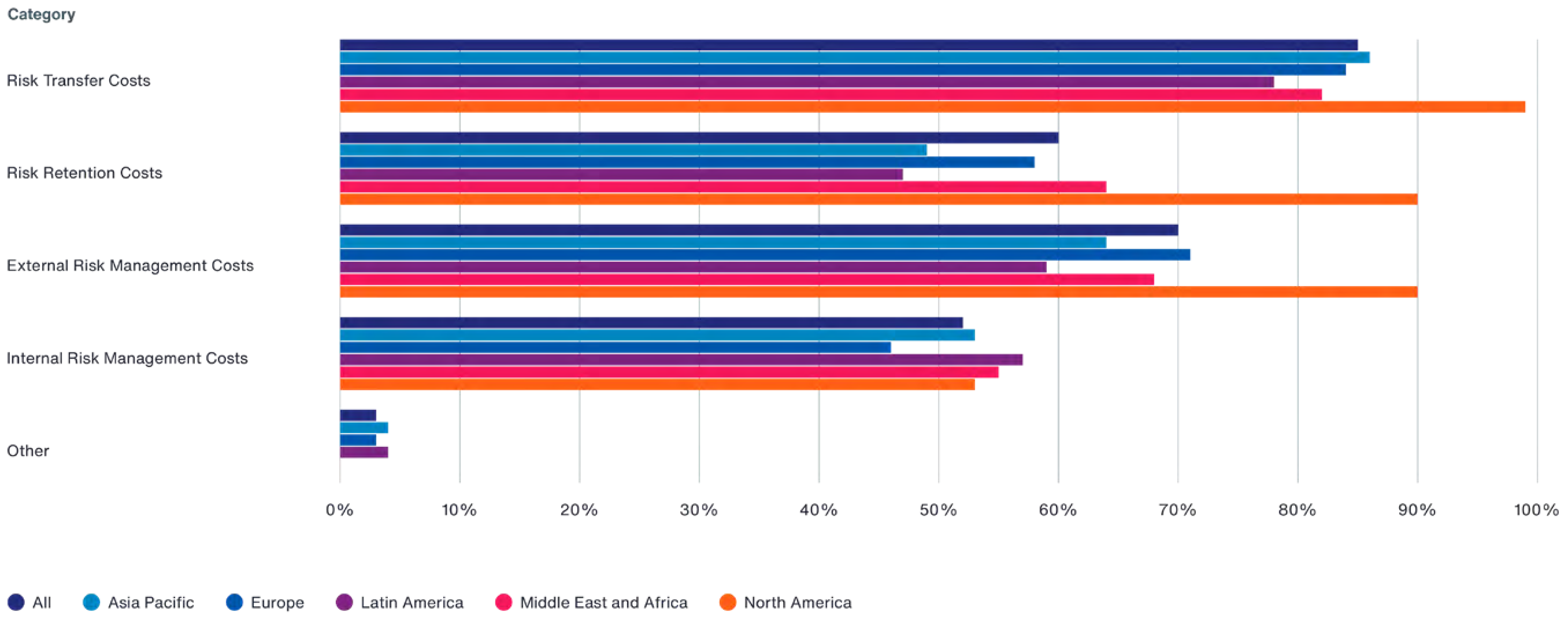
Among companies that measure TCOIR, risk transfer costs are the element most likely to be measured across all regions and company sizes. The number of companies that measure this cost is high, but arguably it should be even higher given that the cost of insurance should be well-known in an organization. Significantly more North American companies are measuring risk transfer costs, retention costs and external risk management costs — a more scientific and data-driven approach — than companies in other regions.

Across the board, more work is needed to measure total cost of insurable risk. While a number of companies continue to focus on driving down broker fees and insurance costs, this might be masking rising or volatile costs elsewhere in the company.

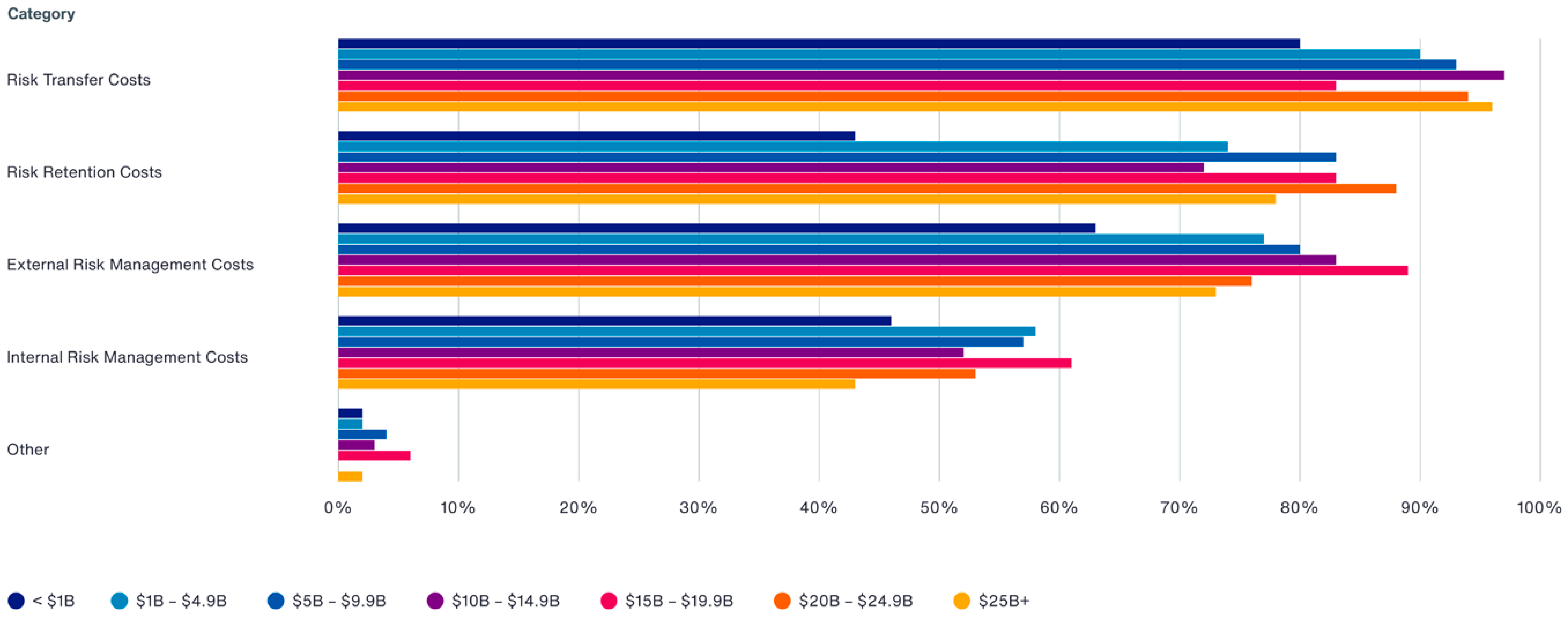
Elements of TCOIR Measured



Elements of TCOIR Measured by Region



Elements of TCOIR Measured by Revenue (in $)



8

Is the Total Cost of Insurable Risk Increasing or Decreasing?

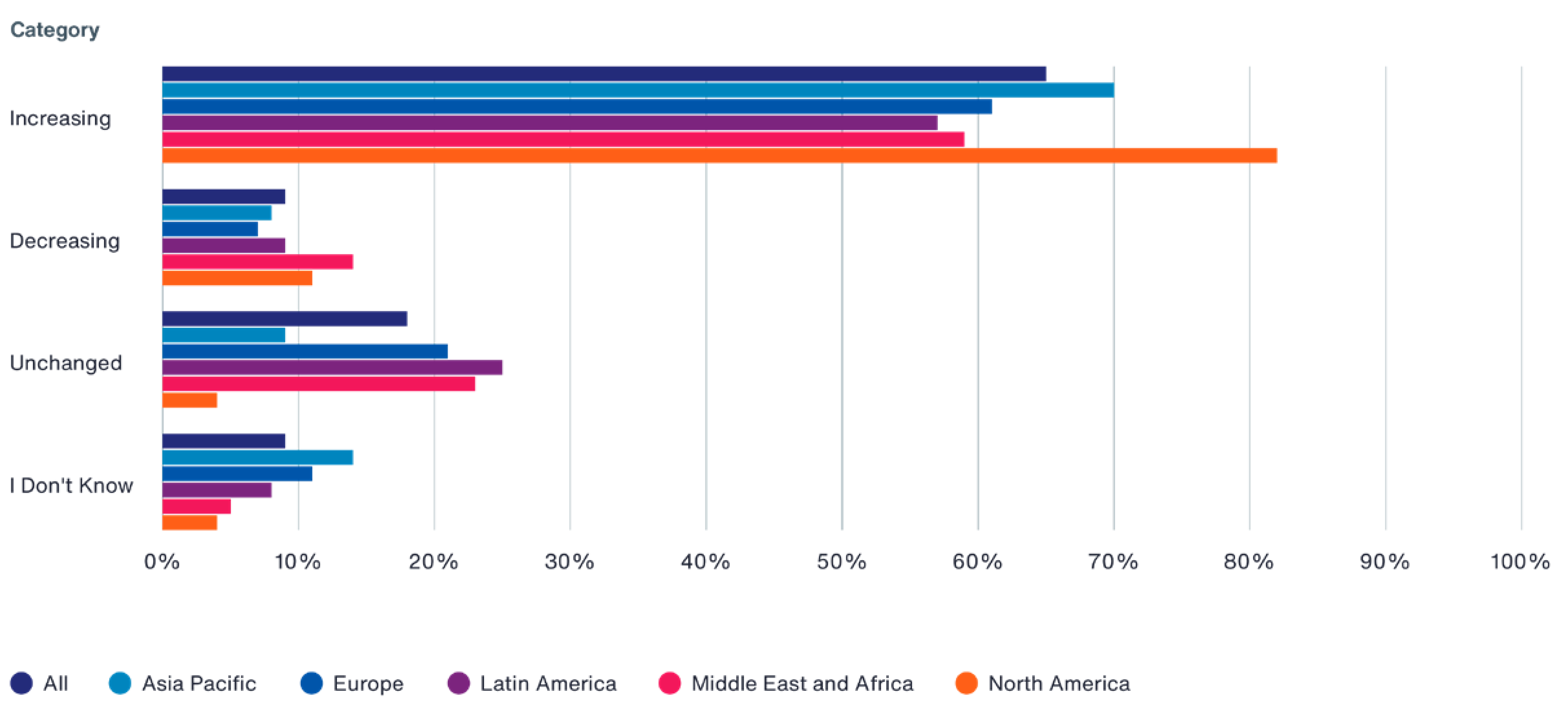
Since our last survey, companies across the world have had to face a perfect storm — a challenging insurance market with pressure on capacity, coverage and cost, coupled with the emergence and acceleration of risks that are difficult to understand and address. This has increased the total cost of risk for many companies through a combination of steeper insurance costs and exposure to new risks, such as the pandemic, that are not necessarily insurable.

To an extent, this year's survey reflects these developments, with 65 percent of all respondents reporting an increase in their total cost of risk and increases prevalent across all geographies and company sizes. Surprisingly, 9 percent reported that their total cost of risk has reduced. This could be caused by a variety of factors:

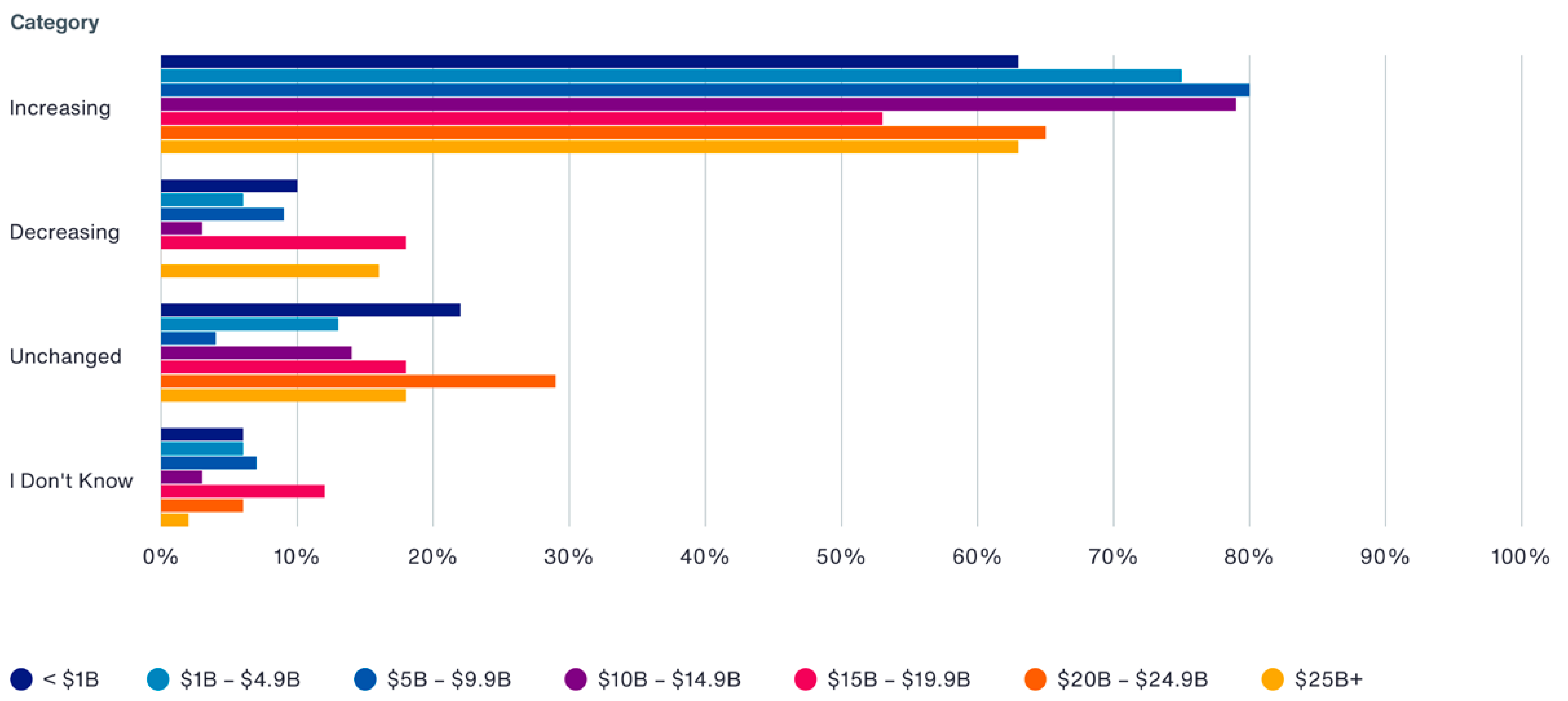
- The company may have reduced in size or consolidated its strategy and operations over the past two years, leading to a reduced risk profile.
- The company may have used market conditions to analyze its program design and levels of risk retention for the first time in a number of years, identifying opportunities to take more risk or use vehicles such as captive insurance companies to reduce its overall insurance spend.
- The company may have limited oversight of its total cost of risk; for example, it may only be capturing insurance spend, as opposed to retained risk and losses. Cost of risk could be increasing without the company's knowledge.

Whatever the explanation, we expect to see an increasing number of companies across all industry sectors take a data-driven and analytical approach to reducing total cost of risk while these underlying headwinds persist.

Total Cost of Insurable Risk by Region



Total Cost of Insurable Risk by Revenue (in $)



9

Captives

9 Organizations That Use Captives

Captives continue to provide companies with a valuable tool to navigate volatile market conditions, including hardening insurance markets and also as a means of financing especially challenging risks such as cyber.

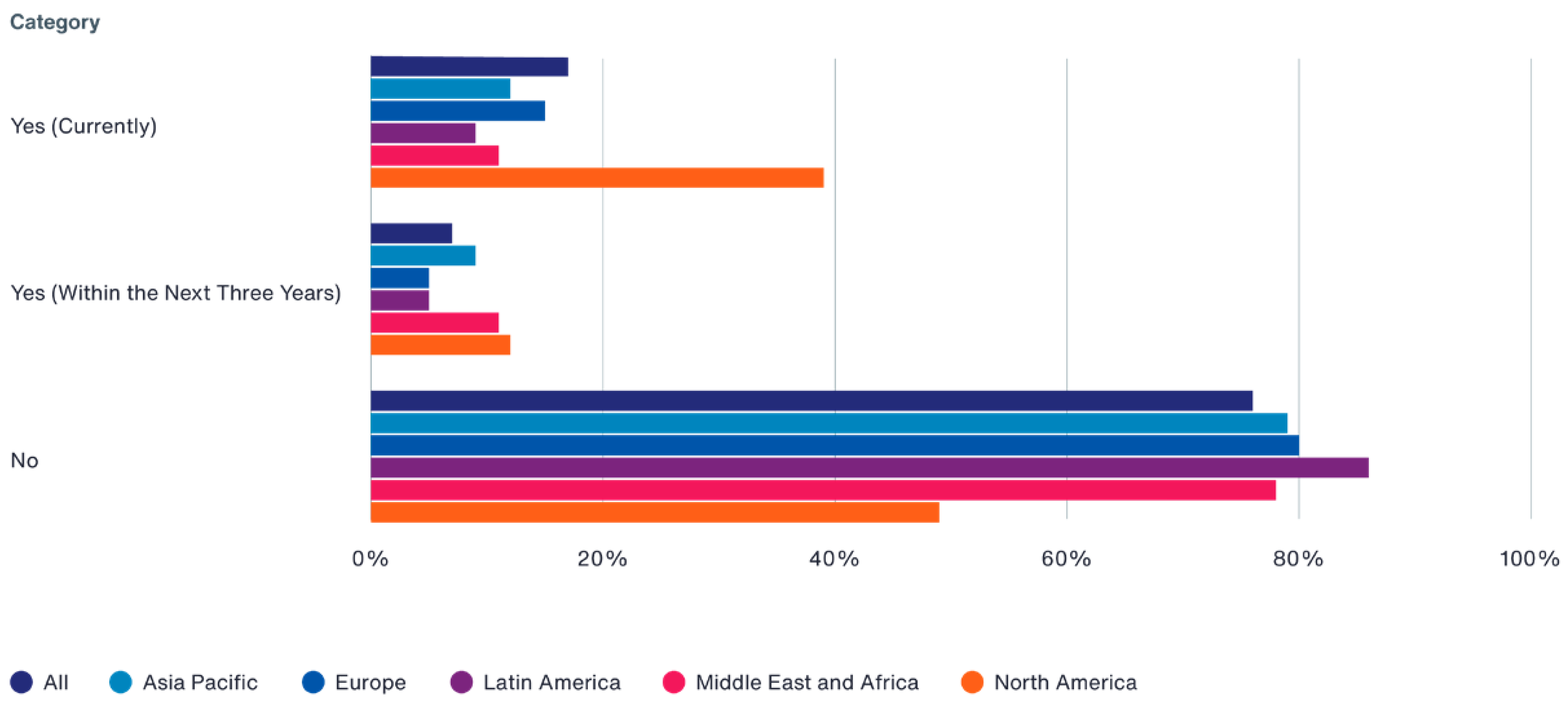
Globally, reliance on captives remains steady from 2019 at 17 percent in 2021, according to the survey results. Regionally, the captive (re)insurance industry is dominated by North America, followed by Europe. Together, the two regions account for as much as 80 percent of total captive premiums underwritten.

North America — already the global leader in the captive (re) insurance market — saw a pronounced increase in organizations that currently have a captive or an active cell in a protected cell company (PCC), to 39 percent in 2021, up from 27 percent in 2019. Although some year-over-year variations are to be expected, use of captives in the U.S. is higher than ever before. This trend is further supported by the fact that an additional 12 percent of North American respondents to the 2021 survey said their organization is planning to create a new or additional captive or cell in a PCC in the next three years. Although 49 percent of respondents answered “no” to this question, we expect more of these companies will fit the profile of a captive user as the market continues to challenge risk transfer placements.

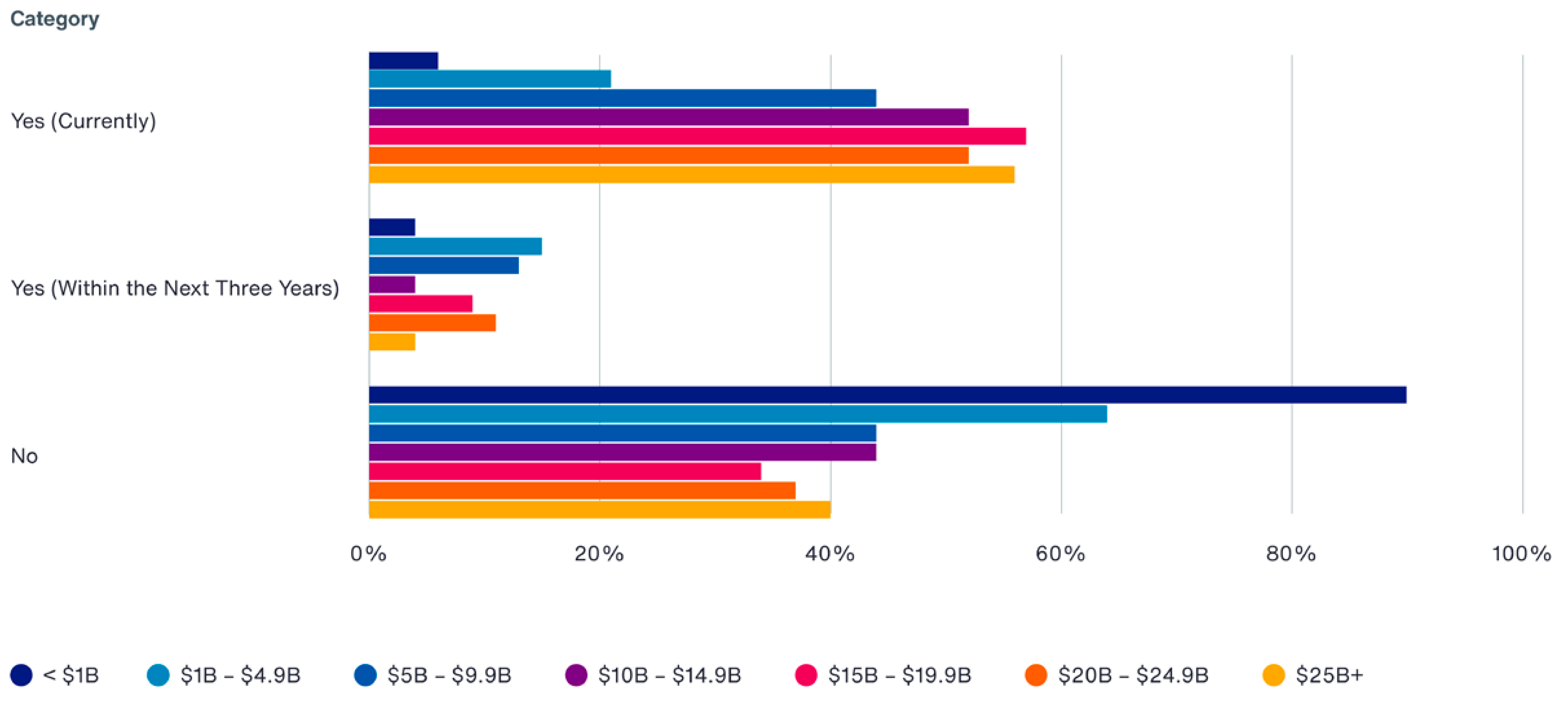
Europe, the region with the second-highest reliance on captives, saw a 4 percent jump since 2019 to 15 percent, with another 5 percent planning to create new or additional captives in the next three years.

Companies that may only now be considering adding captives to their risk-financing toolkits should start by assessing their total cost of risk and the optimal program design to balance risk retention and risk transfer.

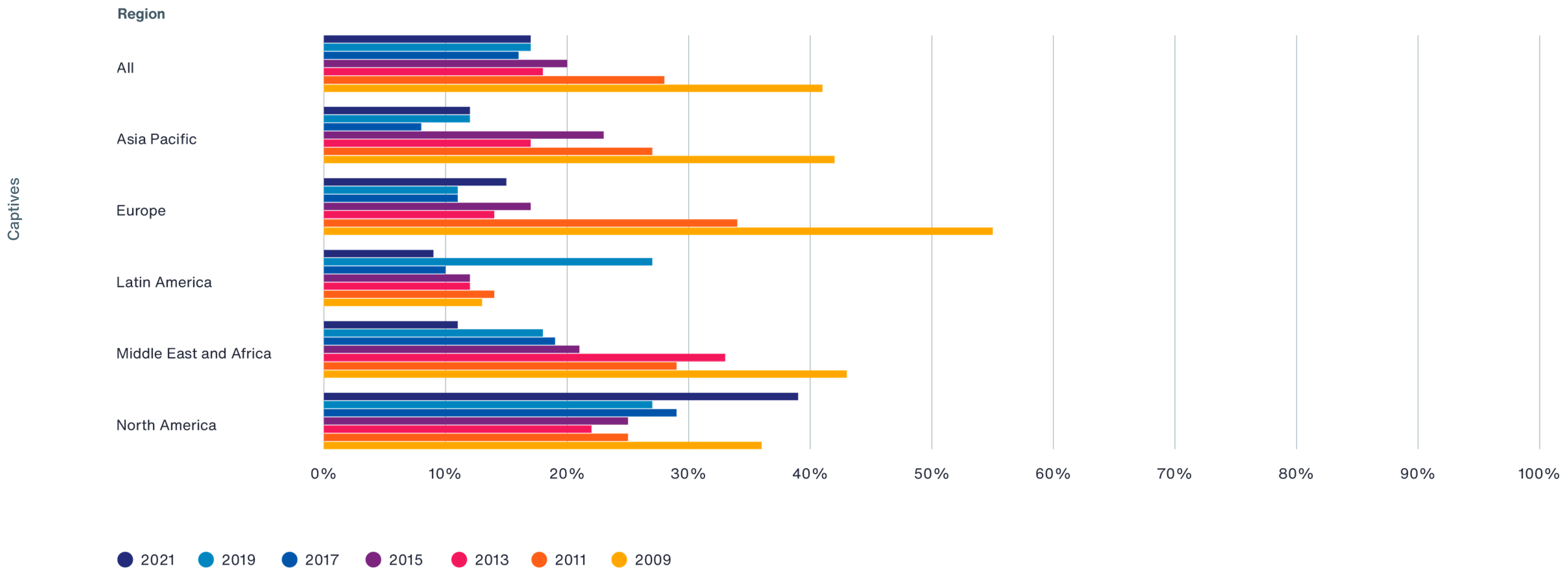
Organizations that have, or are considering creating, a captive insurance company or cell by region



Organizations that have, or are considering creating, a captive insurance company or cell by revenue in $



Organizations with a Captive or Cell, by Region



9 Key Risks Underwritten

Globally, organizations are using captives to underwrite risks as expected, with 62 percent covering property, 48 percent covering general liability (GL) and 35 percent covering workers compensation, according to this year's survey. North America is likely to show an even higher percentage of respondents saying their organizations cover these three risks in addition to auto.

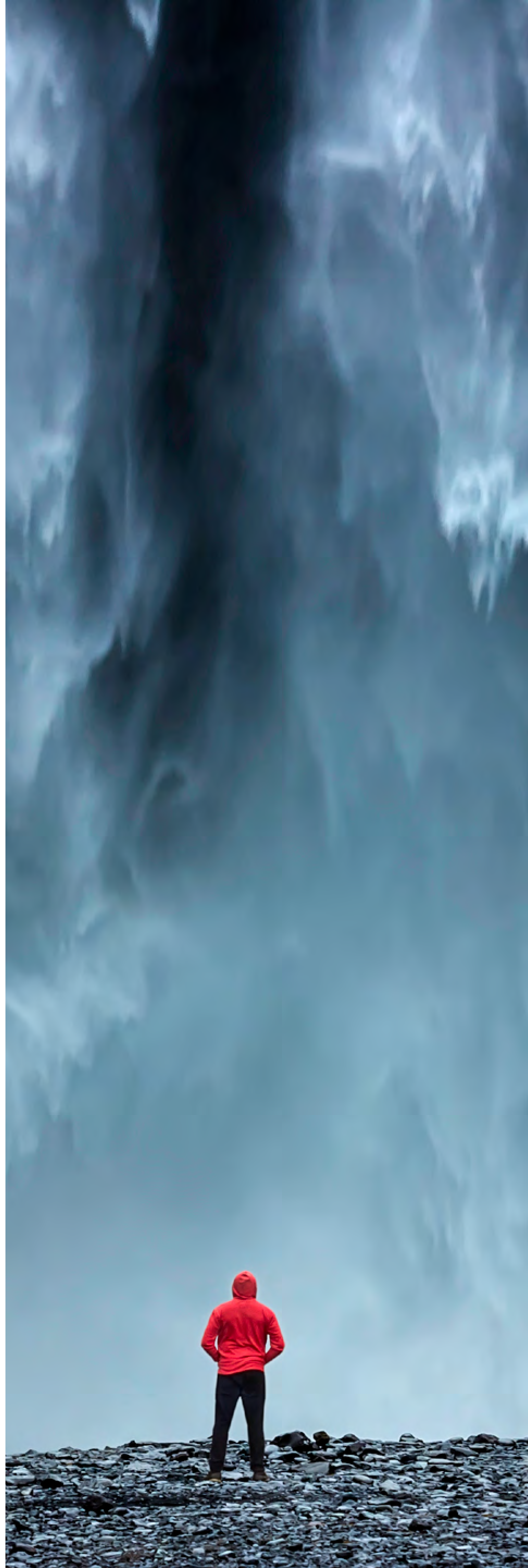
Beyond those expected findings, we find that not only is use of captives rising — sharply in North America and moderately in Europe — but the risk being retained within captives has also increased. Over the past two years, companies have turned to captives to a greater degree to fill gaps in coverage caused by market pricing and capacity constraints.

For example, survey results show an increase in premiums being underwritten with captives for hard-to-place cyber risks, from 16 percent in 2019 to 31 percent in 2021, a finding that's in line with our underlying captive benchmark data. The percentage of organizations using captives as part of their cyber-risk financing programs has been increasing at roughly 10 percent per year for the past five years. As a result, our 2021 Captive Benchmarking survey shows a massive 600 percent increase in cyber liability premiums. Moreover, organizations that had previously expressed an intent to use captives in this way are following through on their plans; in the last edition of this survey, 34 percent of survey respondents said their organizations planned to use captives to cover cyber risk within three years.

Conditions are coalescing to increase the appeal of captives to cover cyber risk. First, cyber liability is increasing, influenced by the growth in high-profile cyber crimes and ransomware attacks in recent years. Second, cyber insurance prices have skyrocketed, with much more restrictive terms and much higher attachment points. Additionally, cyber insurers prefer to see an alignment of interests; that is, they expect companies to carry some cyber risk themselves, either on the parent balance sheet or via captives. Third, organizations are doing a better job of quantifying their cyber risks (46 percent in 2021 compared with 41 percent in 2019). Finally, using a captive allows a company to control its data and better understand cyber risk over time. Companies can use benchmark data to analyze their cyber risk relative to peers and use this information to better articulate their risk to the reinsurance market.

They can also use the data to make operational adjustments aimed at reducing risk going forward. Thirty percent of respondents said their companies are underwriting directors' and officers' (D&O) liability risk within captives in 2021, compared with 24 percent in 2019. More captive owners likely want to write more coverage elements of D&O in their captives. Country or state regulations can make this challenging but not impossible. Organizations that cannot find a viable commercial option to cover D&O risk can find a way to do so with captives, as evidenced by the roughly one-third that already are doing so. This trend is likely to continue to increase.

Meanwhile, 19 percent of respondents are writing employee benefits (EB) within their captives in 2021, up from 15 percent in 2019. This steady growth, which we expect to continue, reflects companies' efforts to gain flexibility and control costs in response to an underlying trend of rising EB costs in Europe and the U.S.



Lines of Business Underwritten in a Captive or Cell by Region

Captive Coverage 2021	All	Asia Pacific	Europe	Latin America	Middle East and Africa	North America
Property (Property Damage/ Business Interruption)	62%	49%	73%	70%	63%	53%
General/Third-Party Liability	48%	24%	54%	41%	50%	53%
Employers Liability/Workers Compensation	35%	29%	30%	26%	38%	45%
Cyber Liability/Network Liability	31%	24%	34%	46%	25%	26%
Auto Liability	31%	12%	23%	35%	13%	44%
Directors and Officers Liability	30%	39%	29%	44%	50%	21%
Product Liability and Completed Operations	28%	18%	37%	28%	25%	23%
Professional Indemnity/Errors and Omissions Liability	26%	20%	29%	19%	13%	27%
Marine	23%	28%	36%	19%	25%	10%
Catastrophe	23%	20%	23%	39%	38%	17%
Health/Medical	21%	18%	22%	22%	50%	19%
Crime/Fidelity	19%	22%	23%	26%	13%	13%
Employee Benefits (Excluding Health/Medical and Life)	19%	14%	23%	20%	38%	15%
Environmental/Pollution	19%	10%	27%	26%	13%	12%
Employment Practices Liability	18%	12%	21%	19%	13%	17%
Life	17%	14%	19%	33%	50%	8%
Terrorism	16%	12%	14%	26%	25%	14%
Credit/Trade Credit	15%	6%	21%	26%	63%	5%
Other	13%	6%	13%	13%	25%	15%
Warranty	9%	8%	6%	24%	13%	7%
Product Recall/Tampering	9%	4%	16%	2%	13%	6%
Contractor-Controlled Insurance Program	8%	8%	12%	7%	38%	5%
Financial Products	8%	10%	8%	15%	25%	3%
Aviation	7%	18%	7%	4%	13%	6%
Third-Party Business	7%	12%	6%	11%	25%	5%
Owner-Controlled Insurance Program	7%	2%	10%	11%	25%	3%
Subcontractor Default Insurance	5%	4%	5%	4%	13%	5%

An increase in the use of captives to cover health and medical — from 13 percent in 2019 to 21 percent in 2021, according to the survey — bolsters our belief that captives can provide enhanced coverage in this tight labor environment.

With respect to environmental risk, the survey shows only a slight uptick in reliance on captives, from 17 percent in 2019 to 19 percent in 2021. However, attention is increasingly focused on environmental risk, and with a rising sense of urgency, specifically with respect to climate change. Often this aligns with the ESG aspirations of multinational parent companies. Moreover, in 2018 just 12 percent of survey respondents thought their organizations would use captives to cover environmental risk within three years, whereas 19 percent have actually done so. Finally, climate concerns may also be reflected in responses related to the high use of captives to cover property and business interruptions (again, 62 percent) and catastrophes (23 percent).

In addition, we have seen captive owners use their captives to self-insure their risk rather than accept premium increases that are not supported by losses. For example, the large number (62 percent) of organizations that use captives to retain property risk reflects growing confidence in their ability to track their total cost of insurable risk (TCOIR) and, of course, their investment in loss control. By retaining more risk in their captives, organizations can also fill coverage gaps for challenging risks, such as wildfires, while maintaining control of their overall premium spend. We also see a marked increase in the use of protected cells, as well as stand-alone captives to access reinsurance market capacity, either to obtain more competitive terms and pricing or to cover risks no longer covered by the insurance market.

Lines of Business Underwritten in a Captive or Cell

Captive Coverage	All 2021	All 2019	Difference
Cyber Liability/Network Liability	31%	16%	15%
Property (Property Damage/ Business Interruption)	62%	48%	14%
Health/Medical	21%	13%	8%
Product Liability and Completed Operations	28%	21%	7%
Crime/Fidelity	19%	13%	6%
Employment Practices Liability	18%	12%	6%
Employers Liability/Workers Compensation	35%	30%	6%
Directors and Officers Liability	30%	24%	5%
Life	17%	12%	5%
Other	13%	8%	5%
Marine	23%	18%	5%
Employee Benefits (Excluding Health/Medical and Life)	19%	15%	4%
Warranty	9%	6%	3%
Product Recall/Tampering	9%	6%	3%
Credit/Trade Credit	15%	13%	2%
Environmental/Pollution	19%	17%	2%
Professional Indemnity/Errors and Omissions Liability	26%	24%	1%
Aviation	7%	7%	0%
Financial Products	8%	7%	0%
Subcontractor Default Insurance	5%	4%	0%
Owner-Controlled Insurance Program	7%	7%	0%
General/Third-Party Liability	48%	50%	-1%
Third-Party Business	7%	9%	-2%
Terrorism	16%	18%	-3%
Contractor-Controlled Insurance Program	8%	11%	-3%
Auto Liability	31%	34%	-4%
Catastrophe	23%	28%	-5%

9

Captive Utilization by Industry

Overall, roughly one in four (24 percent) respondents to this year's survey said their organization already has, or is considering creating, a captive insurance company, or is using a protected cell within a PCC.

The responses to this question are similar even within many sectors. For example, 25 percent of respondents in the food, agribusiness and beverage industry say their organizations either use or plan to use captives. Given the hard market conditions for FAB risk, we expect this trend to continue.

Healthcare respondents reported the highest current usage of captives within their organizations (30 percent). However, a regional breakdown is likely to reveal that these answers came mostly from the U.S., which is heavily reliant on captive utilization, particularly in the healthcare industry. Physicians and hospital groups turned to captives — through professional indemnity programs — about 15 years ago to fill the gap left when insurers withdrew capacity from the sector. Over the past 18 months, this already hard market has hardened even more, prompting those healthcare companies that heretofore have not relied on captives to do so in greater numbers. Again, these current market conditions suggest this trend will continue.

Respondents working in industries that arguably are most affected by this year's top risks — cyber, business interruption and the economic slowdown — are also most likely to report that their organizations use or plan to use captives. This includes healthcare (39 percent), life sciences (31 percent), energy, utilities, natural resources (31 percent) and professional services (29 percent). The healthcare sector also suffered the effects of the pandemic more than any other industry and so may be turning to captives to bolster resilience.

The vast majority of respondents across all sectors said that their captives and PCCs are active — meaning not dormant, in run-off or set to close with the next three years.

In conclusion, the hard market conditions are reminiscent of the late 1990s, and captives are seeing a similar resurgence in use of existing and new setups. There are some differences this time, however, in that we are seeing significant growth in PCCs and cell use as well as increasingly sophisticated and accessible risk modeling to support informed decision making on risk financing alternatives and total cost of risk program optimization. As captive owners are becoming increasingly prepared to retain larger portions of traditional property and casualty risks, clients are also grappling with the emerging risks mentioned above.

Deciding what to keep, what to spend on risk and loss mitigation, and what to transfer out to the commercial market is a significant challenge for the risk management community. There is little doubt that captives, including PCC cells, will play a pivotal role.

Current and Planned Captive or Cell Utilization by Industry

Industry	Yes (Currently)	Yes (Within the next three years)	No
Food, Agribusiness and Beverage	19%	6%	75%
Construction and Real Estate	15%	7%	78%
Energy, Utilities and Natural Resources	21%	10%	69%
Financial Institutions	12%	6%	82%
Healthcare Providers and Services	30%	9%	61%
Hospitality, Travel and Leisure	9%	13%	78%
Industrials and Manufacturing	16%	6%	78%
Insurance	15%	6%	79%
Life Sciences	23%	9%	68%
Private Equity	17%	0%	83%
Professional Services	21%	8%	71%
Public Sector Partnership	5%	4%	91%
Retail and Consumer Goods	13%	5%	81%
Technology	11%	6%	84%
Telecom, Media and Entertainment	13%	13%	74%
Transportation and Logistics	22%	7%	71%

10

The Role of Risk Management in M&A and Divestitures

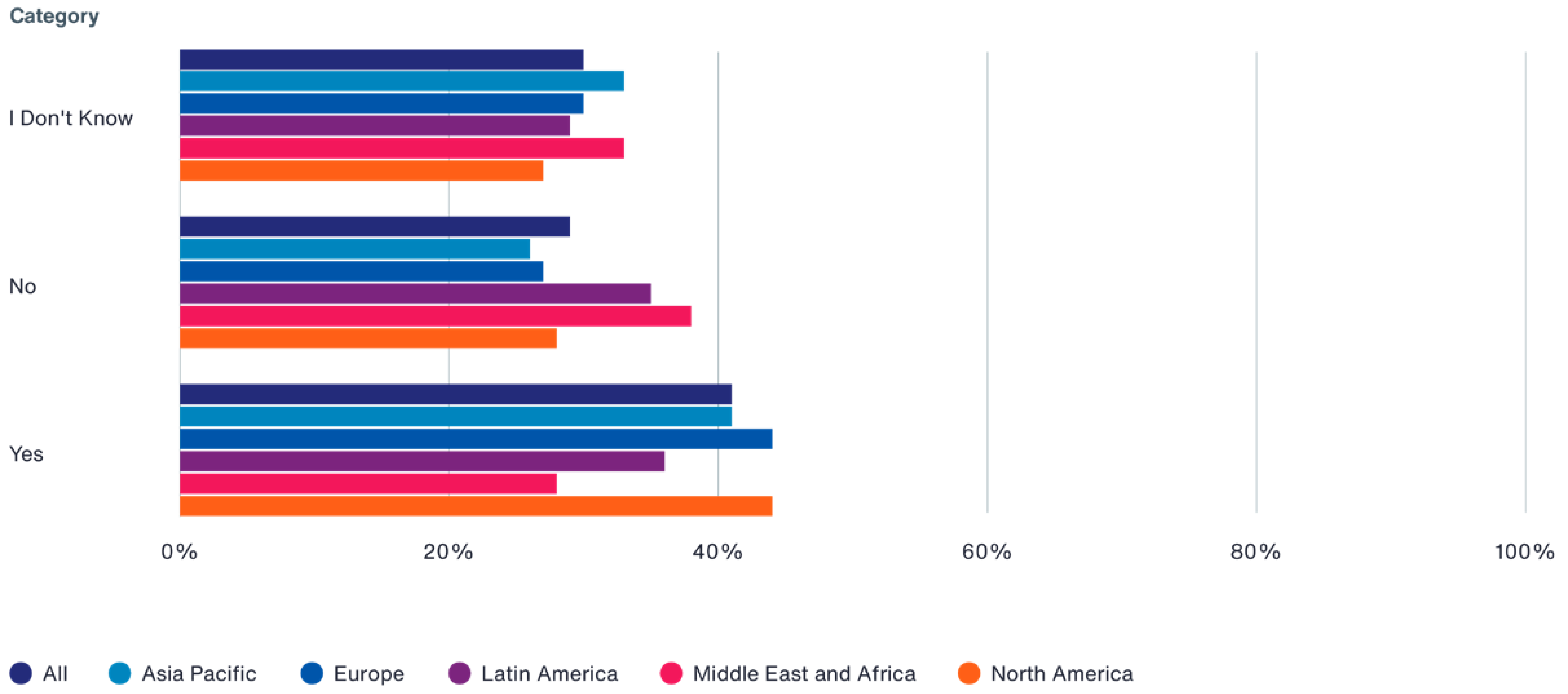
Plans to Acquire or Divest Assets Within the Next 12 Months

Few, if any, dealmakers foresaw the events of 2020. The abrupt opening and closing of parts of the economy and the human cost of the pandemic have had an acute impact on companies. Amid the upheaval, corporate investors have had to reappraise their strategies for M&A and divestitures and determine the best course of action moving forward.

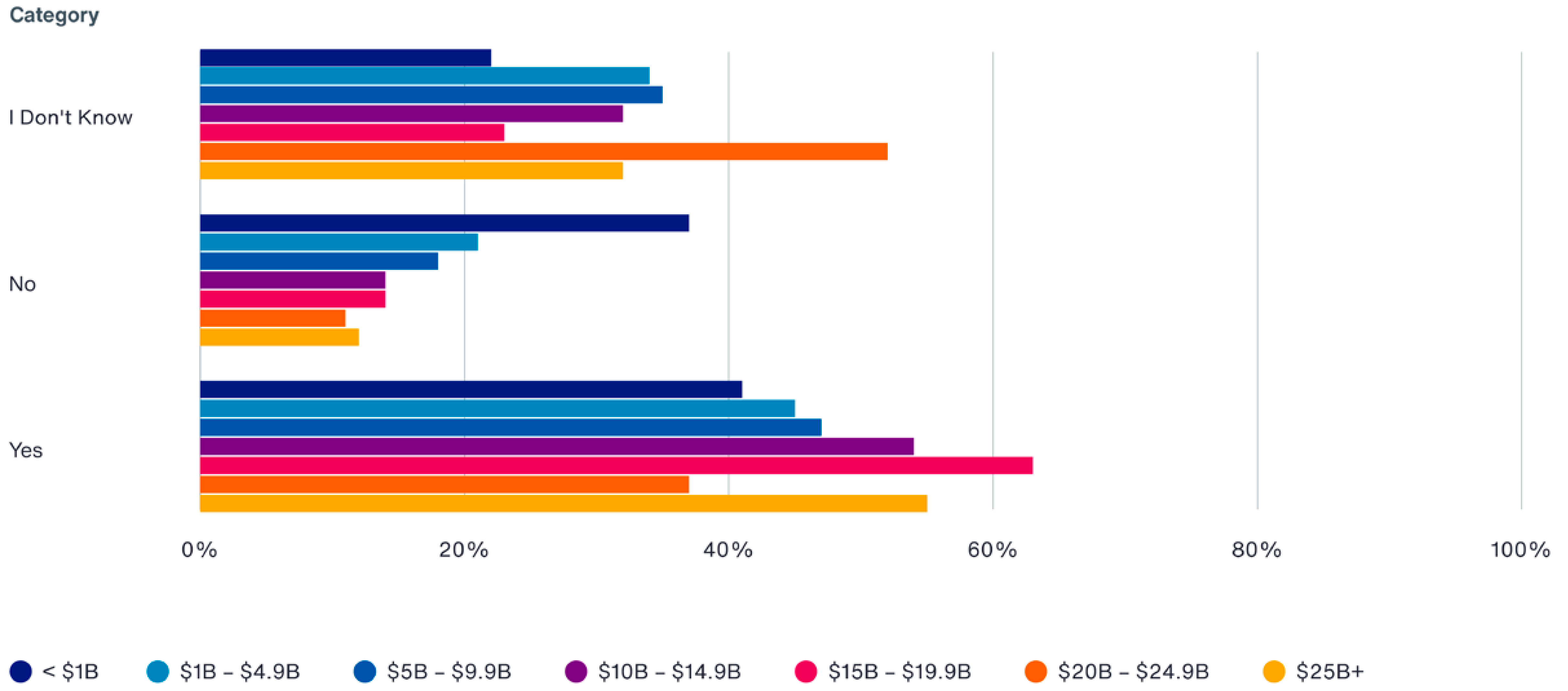
Against this backdrop, this year's Global Risk Management Survey includes a new section that examines whether the overall elevated risk outlook has led to increased involvement from risk management departments in M&A and divestitures.

The results show that most companies across all industries and sizes still do not proactively assess their most critical and emerging risks as part of the deal making process, likely because risk management is generally not an integral part of the planning processes for M&A and divestitures. This lack of risk oversight of corporate deal-making leaves much room for improvement.

Plan to Acquire or Divest Assets Within the Next 12 Months, by Region



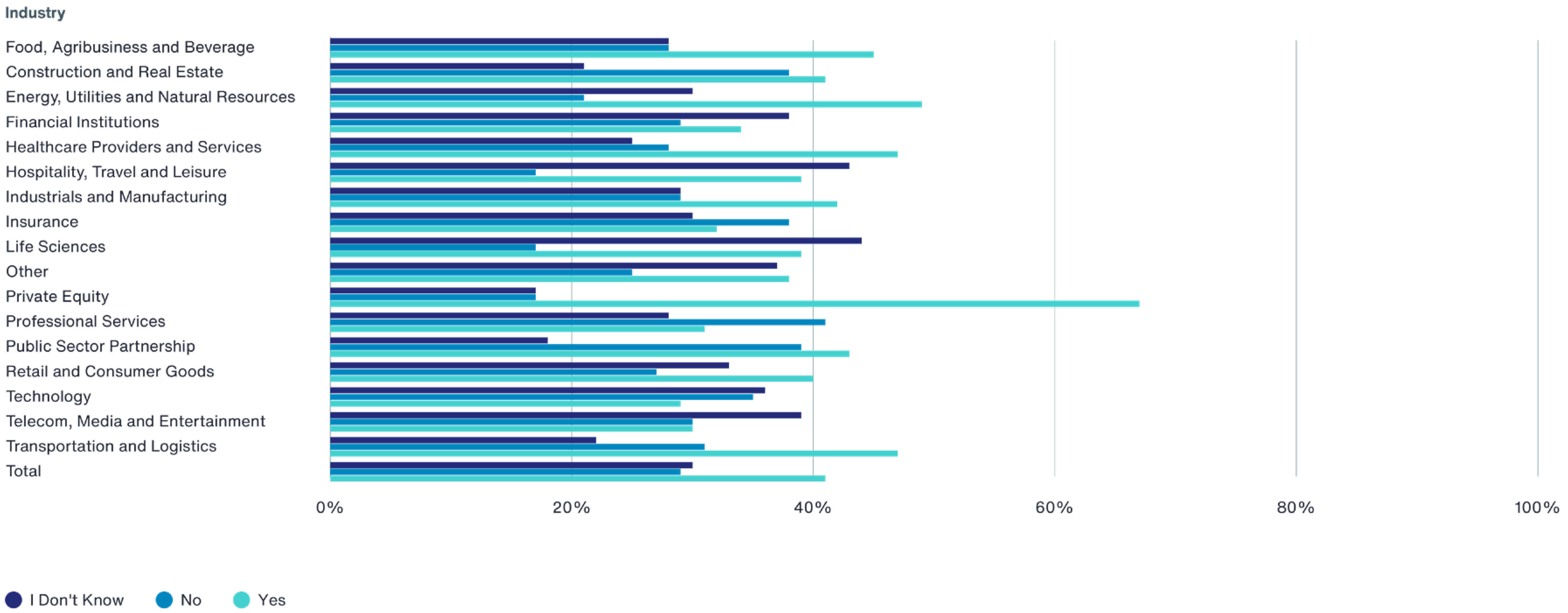
Plan to Acquire or Divest Assets Within the Next 12 months, by Revenue in $



Nearly one-third of respondents across all regions did not know if their company planned to acquire or divest assets within the next 12 months. This lack of knowledge appears across respondents irrespective of company size, indicating that risk professionals are not as closely aligned as they could or should be with the core strategic decision makers inside their organizations.

Meanwhile, 41 percent of survey respondents across all regions say their company plans to acquire or divest assets within the next 12 months. This finding largely aligns with those published by Aon in Risk in Review 2020-21: Global M&A and Transaction Solutions. According to this report, which is based on a survey of 50 senior executives from corporate development teams, private equity firms and investment banks, over half (52 percent) believe that deal making will stay at similar levels or increase somewhat over the next 12 months.[76]

Plan to Acquire or Divest Assets Within the Next 12 Months, by Industry



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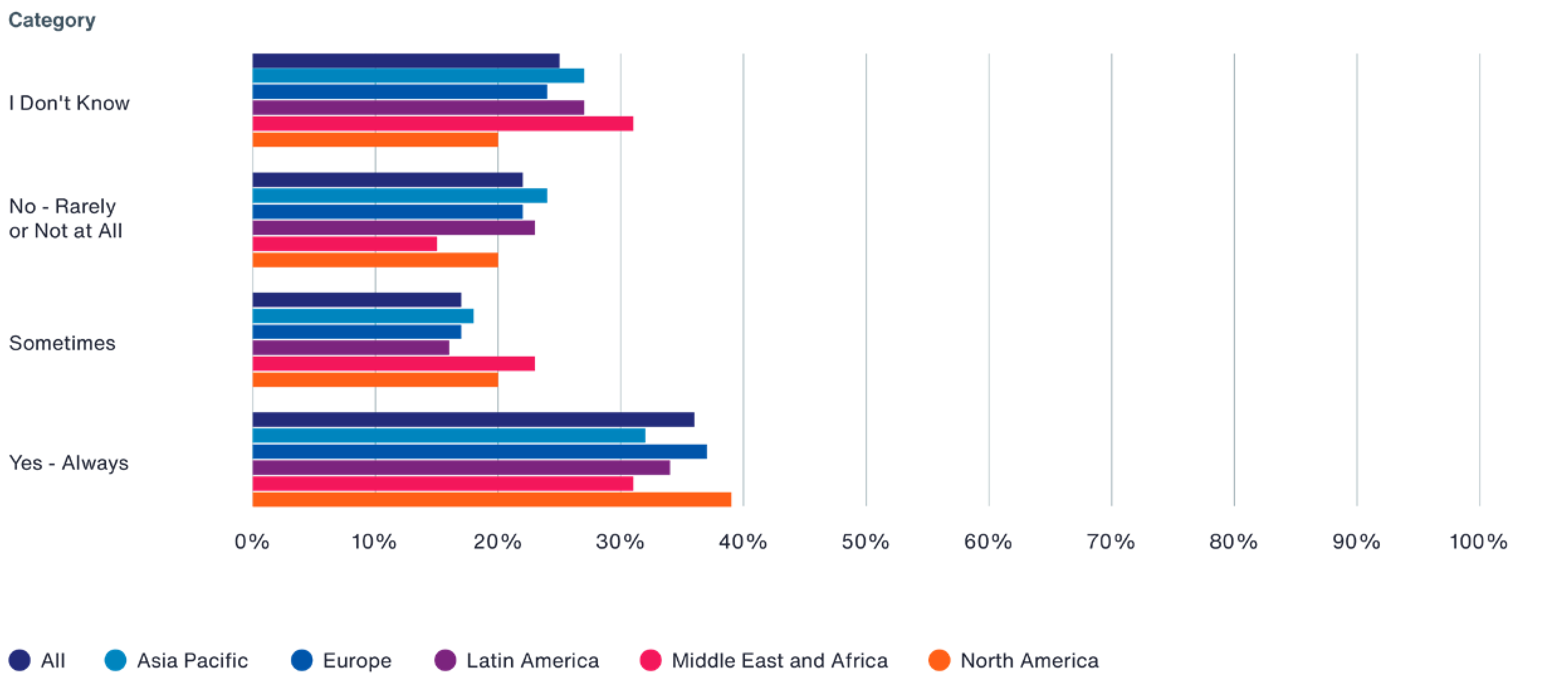
Proactive Assessment of Most Critical and Emerging Risks Through M&A and Divestiture Processes

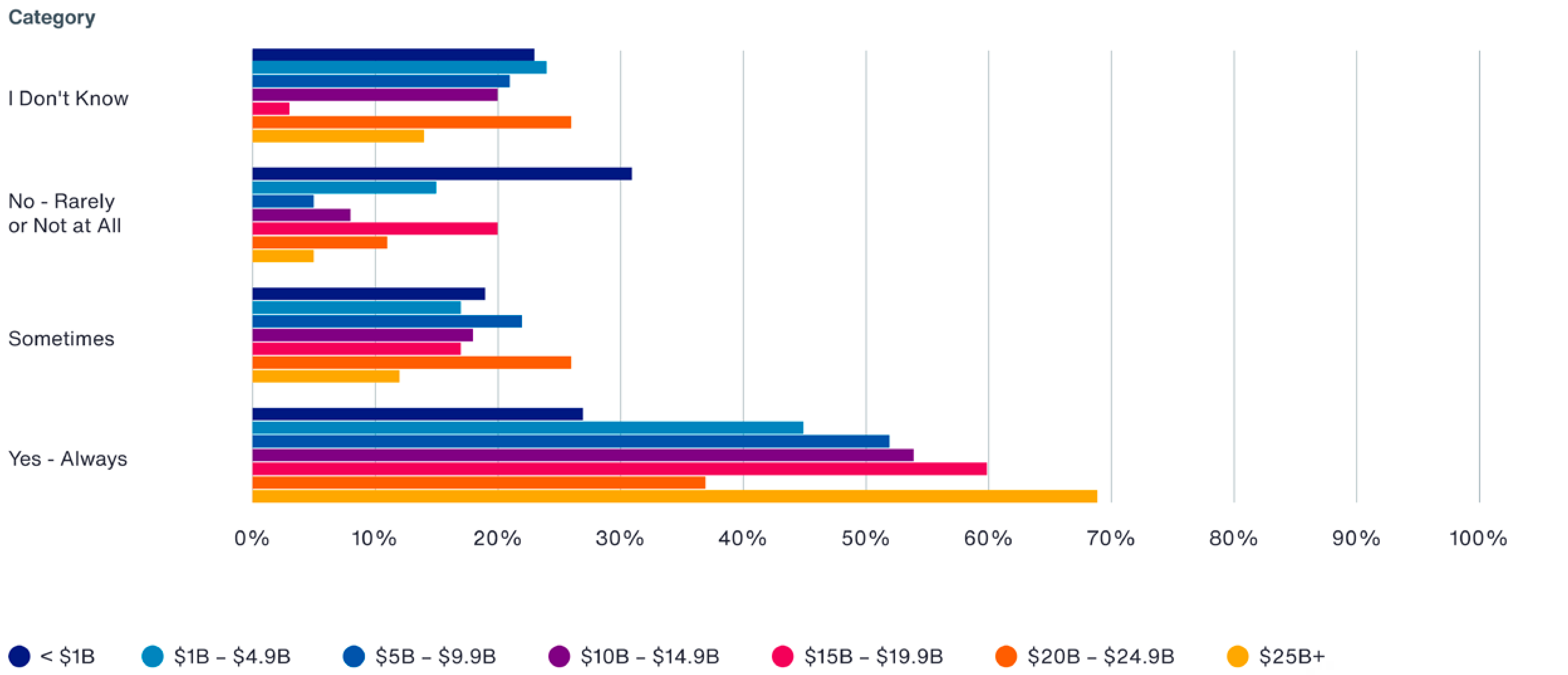
Across all regions, 53 percent of respondents said their company always or sometimes proactively assesses its most critical and emerging risks as part of the deal-making process. More respondents in North America (59 percent) than in any other region said their company always or sometimes takes this action. This finding is in line with the general perception that North America is more litigious than other regions and that doing business there creates a heightened risk profile.

The vast majority (81 percent) of respondents working for the very largest companies (those with over $25 billion in revenues) said their company always or sometimes proactively assesses their most critical and emerging risks during acquisitions or divestitures.

Proactive Assessment of Most Critical and Emerging Risks Through M&A and Divestiture Processes by Region



Proactive Assessment of Most Critical and Emerging Risks Through M&A and Divestiture Processes by Revenue (in $)



The survey results show that some industries are much more likely than others to always or sometimes proactively assess their most critical and emerging risks as part of their M&A and divestiture processes.

At the high end, 78 percent of respondents working in private equity and 71 percent working in life sciences say their company always or sometimes takes this action, compared at the low end to 40 percent working in retail and 46 percent working in transportation and logistics. On average, 36 percent of respondents say their company always takes this step; another 17 percent say they sometimes do. Since risk is a key driver of many divestitures in particular, it is surprising that only a handful of industries seem to place great importance on it during the deal-making process.

Proactive Assessment of Most Critical and Emerging Risks Through M&A and Divestiture Processes by Industry

Industries	I Don't Know	No - Rarely or Not at All	Sometimes	Yes - Always
Food, Agribusiness and Beverage	21%	20%	23%	37%
Construction and Real Estate	22%	30%	22%	26%
Energy, Utilities and Natural Resources	20%	16%	20%	44%
Financial Institutions	26%	16%	17%	42%
Healthcare Providers and Services	22%	25%	19%	34%
Hospitality, Travel and Leisure	26%	17%	9%	48%
Industrials and Manufacturing	26%	22%	15%	37%
Insurance	34%	30%	11%	25%
Life Sciences	21%	8%	9%	62%
Other	34%	20%	13%	33%
Private Equity	17%	0%	17%	67%
Professional Services	21%	31%	20%	28%
Public Sector Partnership	23%	48%	20%	10%
Retail and Consumer Goods	36%	24%	14%	26%
Technology	20%	18%	13%	49%
Telecom, Media and Entertainment	22%	13%	26%	39%
Transportation and Logistics	27%	27%	16%	30%

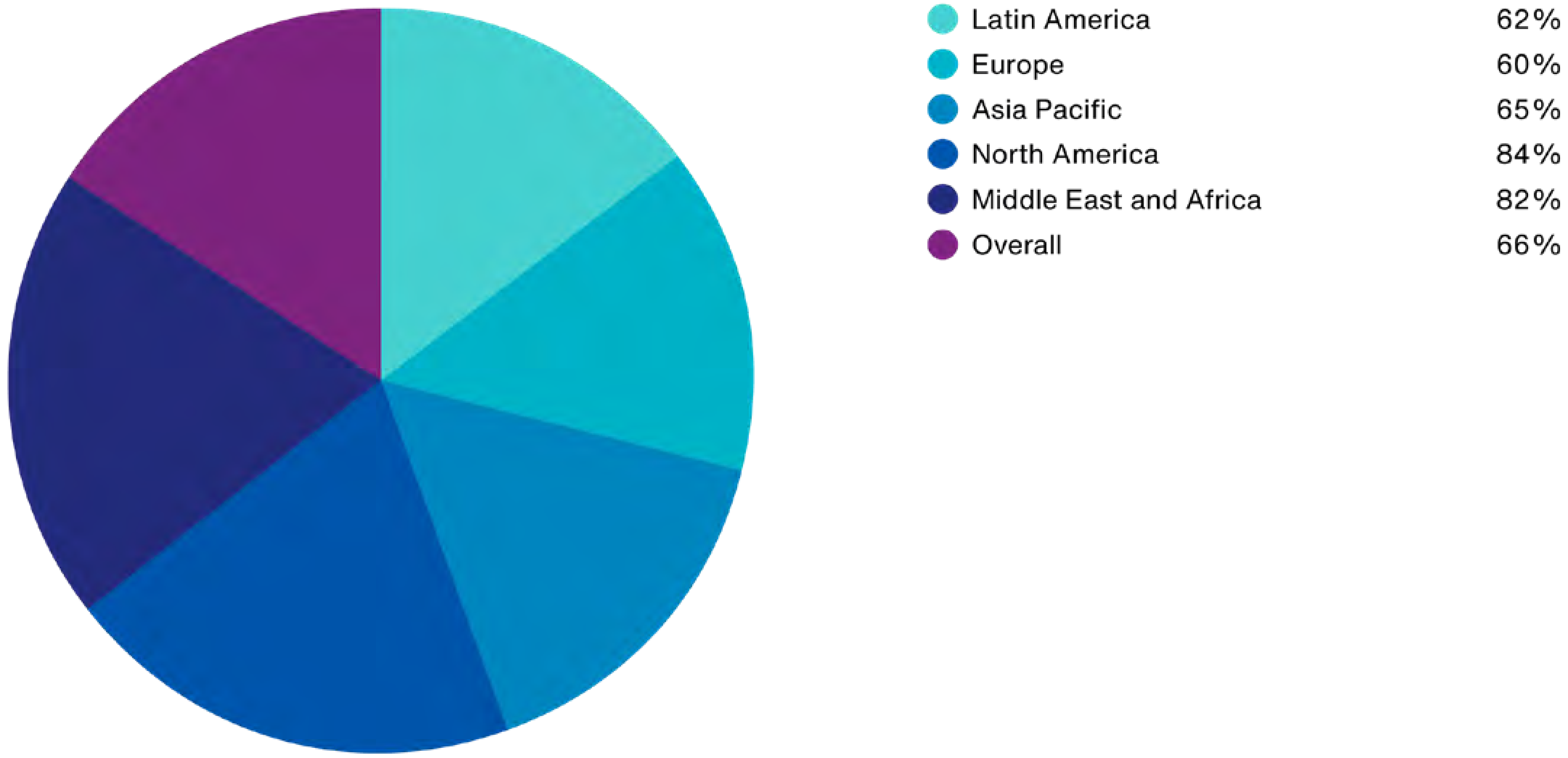
11

Risk Management Department and Function

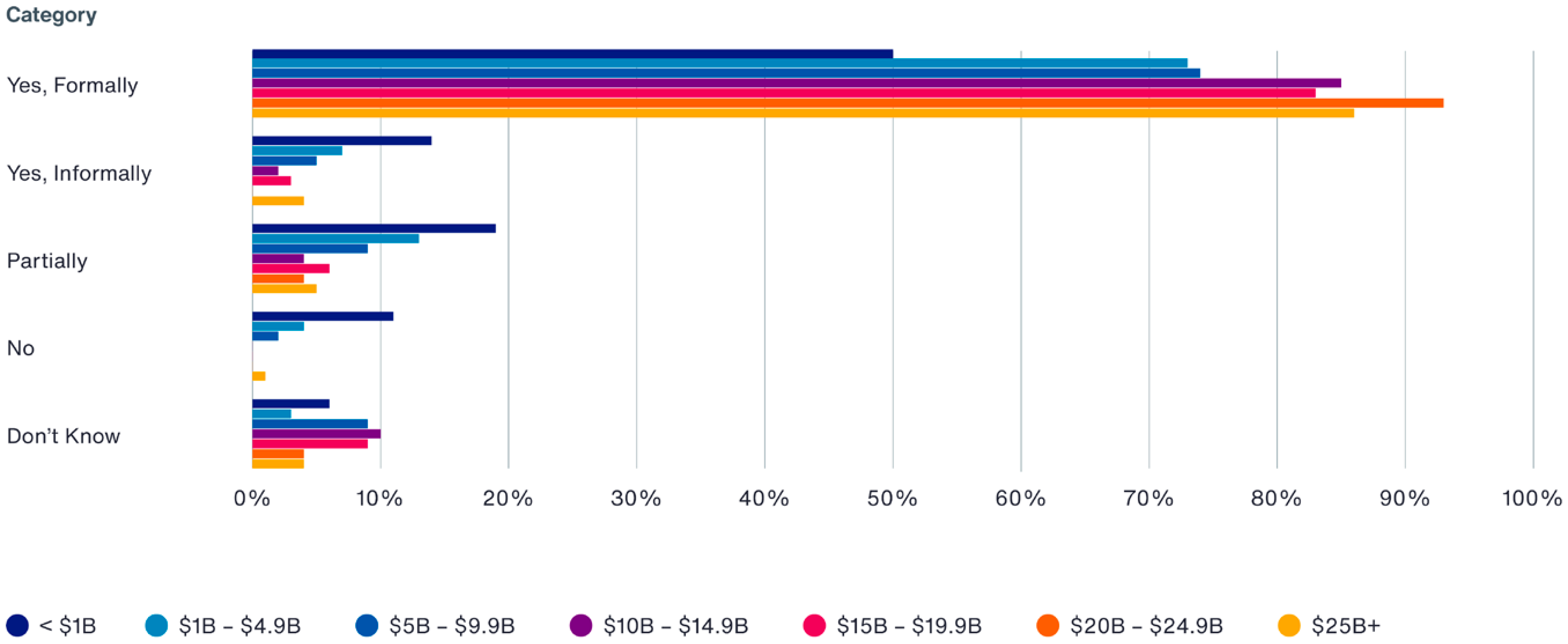
Who Is Handling Risk?

A large majority of companies with over $1 billion in annual revenues have formal risk management or insurance departments. A considerably higher number of respondents in North America and the Middle East and Africa said they have a formal department (84 percent and 82 percent, respectively), than respondents in other regions. The high number of North American companies that have formal risk departments is unsurprising given the region's notable insurable risk challenges, such as catastrophic events and workers compensation. Companies in the Middle East continue to invest heavily in their risk departments as they look to build governance frameworks that align with those in more established risk management territories.

Formal Risk Management Departments by Region



Formal Risk Management/Insurance Department by Revenue (in $)

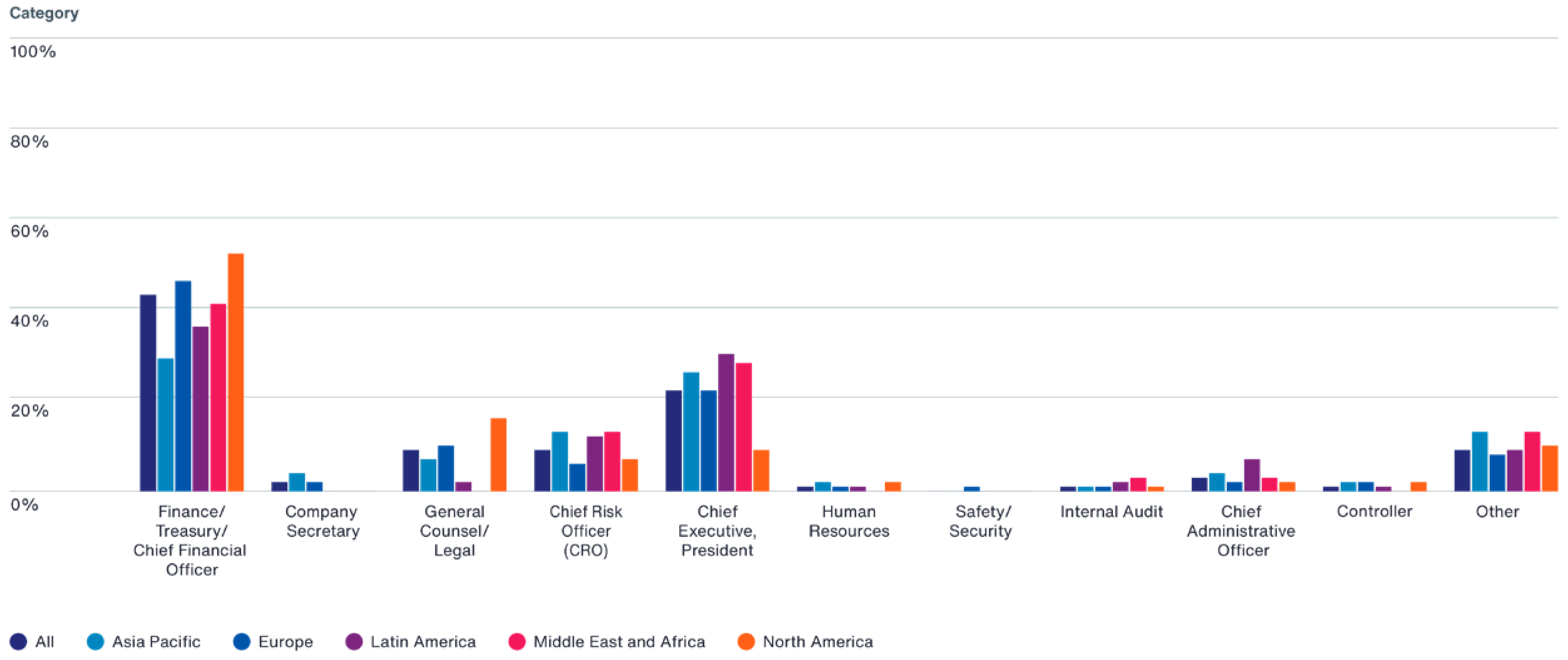


The number of respondents who report to a CRO function is almost immaterial at 9 percent. Notwithstanding the fact that some respondents were themselves CROs reporting further up the organization, formal CROs continue to be the exception rather than the norm. According to this year's respondents, more risk management departments (43 percent) report to finance, treasury or the CFO than to any other department. Given that most risk management departments focus on risk financing, there is a certain logic to this structure; however, it also increases the likelihood that wider strategic or nonfinancial issues — in such areas as reputation, people and compliance — will receive insufficient attention or be overlooked altogether. In North America, 52 percent of risk management departments report to finance, again reflecting the necessary focus of many of these teams on insurable risk.

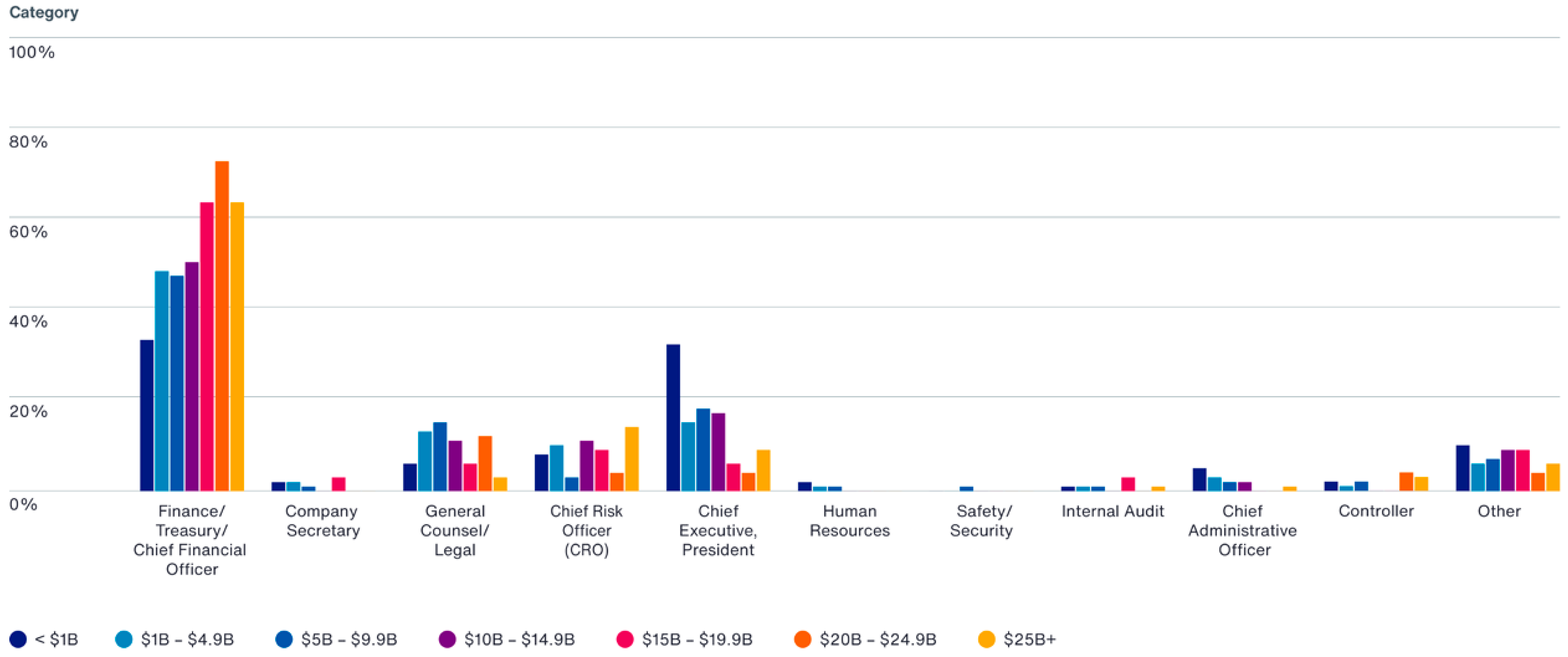
In a positive trend, almost no respondents said their risk departments report to IA. Most stock-exchange guidance to listed firms recommends the separation of risk and audit to ensure true independence. That said, there must be collaboration across functions, with the business always operating as the first line of defense and the risk function working collaboratively with the front line on risk oversight, support, policies and mitigation. IA operating as the last line of risk defense.

Globally, 22 percent of respondents said that risk reports to the CEO or president. Most companies with this structure either have less than $1 billion in revenues or are based in regions — such as Asia Pacific, Latin America, or the Middle East and Africa — in which risk management is still a newer discipline and receives considerable executive attention.

Organizational Reporting for Risk Management by Region



Organizational Reporting for Risk Management by Revenue (in $)



11

The Size of the Risk Management Department

Across all regions, 40 percent of respondents indicated that their organizations have one or two people working in risk; another 32 percent said they have three to five employees dedicated to risk.

Companies operating in more highly regulated industries or industries where risk and compliance are often consolidated — such as financial services, energy and professional services — are most likely to be included in the 23 percent of $25 billion-plus companies with risk teams of 41 people or more.

There is an interesting debate as to whether larger risk management teams are always more effective. Recognized international standards for risk management, such as COSO and ISO31000, stress the importance of embedding risk disciplines and behaviors into day-to-day operations. The existence of a larger, centralized risk team may create the impression that the central team is “responsible” for risk management, rather than risk being the responsibility of all. That said, many multinational companies need a centralized team of 10 to 12 people to harmonize policies and otherwise help achieve risk objectives across the board.

As expected, respondents from highly regulated industries or sectors that tend to consolidate risk and compliance teams into one unit — including financial institutions (16 percent), insurance (19 percent) and professional services (11 percent) — were most apt to say they had over 40 employees working in risk functions. By contrast, 82 percent of those working in hospitality, travel and leisure said they have risk teams of eight or fewer people; in the tech industry, that figure is 81 percent.

Size of Risk Management Department by Revenue (in $)

Number of Employees	<$1B	$1B – $4.9B	$5B – $9.9B	$10B – $14.9B	$15B – $19.9B	$20B – $24.9B	$25B+
1 - 2	55%	38%	20%	7%	19%	16%	12%
3 - 5	31%	33%	44%	37%	22%	28%	25%
6 - 8	6%	11%	15%	20%	3%	12%	15%
9 - 11	2%	6%	5%	17%	13%	12%	7%
12 - 15	2%	2%	5%	4%	6%	4%	9%
16 - 20	1%	3%	5%	7%	3%	16%	6%
21 - 25	1%	1%	5%	0%	3%	0%	0%
26 - 30	0%	0%	0%	2%	3%	0%	4%
31 - 35	0%	1%	0%	0%	3%	4%	0%
36 - 40	0%	1%	0%	0%	6%	0%	0%
41 +	2%	5%	3%	7%	19%	8%	23%

Size of Risk Management Department by Industry

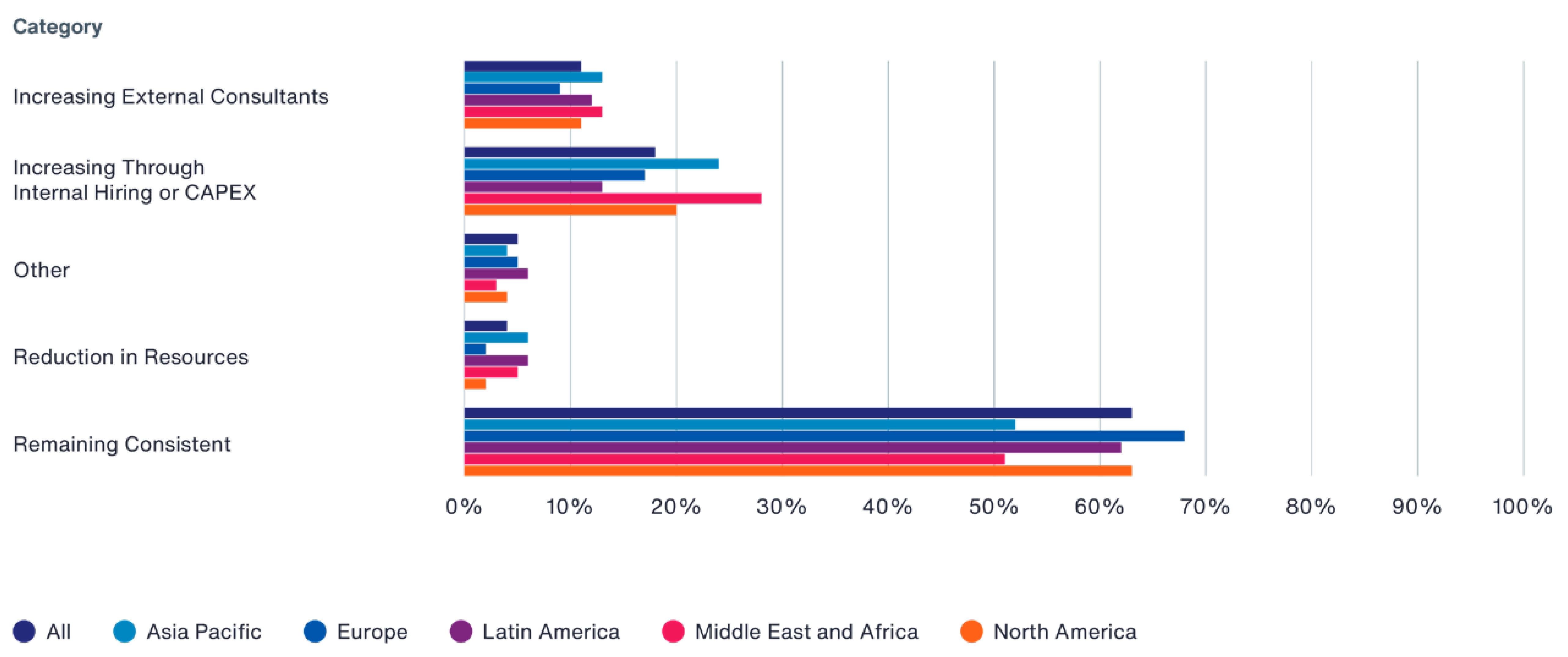
Industry	1 - 2	3 - 5	6 - 8	9 - 11	12 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 +
Food, Agribusiness and Beverage	44%	31%	10%	5%	4%	3%	1%	0%	0%	0%	2%
Construction and Real Estate	42%	31%	8%	8%	2%	5%	1%	0%	0%	0%	1%
Energy, Utilities and Natural Resources	37%	38%	9%	6%	2%	2%	1%	1%	1%	0%	3%
Financial Institutions	17%	31%	9%	7%	5%	6%	4%	0%	2%	2%	16%
Healthcare Providers and Services	32%	32%	11%	3%	5%	8%	0%	0%	5%	3%	0%
Hospitality, Travel and Leisure	38%	19%	25%	6%	0%	6%	0%	0%	0%	0%	6%
Industrials and Manufacturing	52%	28%	9%	3%	2%	2%	1%	1%	0%	0%	2%
Insurance	31%	24%	7%	7%	5%	2%	0%	2%	2%	0%	19%
Life Sciences	30%	35%	23%	0%	2%	5%	0%	0%	0%	0%	5%
Private Equity	60%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Professional Services	34%	32%	11%	0%	2%	6%	2%	2%	0%	0%	11%
Public Sector Partnership	54%	37%	5%	2%	2%	0%	0%	0%	0%	0%	0%
Retail and Consumer Goods	49%	31%	2%	7%	2%	3%	3%	0%	0%	2%	2%
Technology	28%	36%	17%	3%	6%	3%	0%	3%	3%	0%	3%
Telecom, Media and Entertainment	39%	33%	6%	6%	0%	6%	6%	0%	0%	0%	6%
Transportation and Logistics	44%	27%	13%	4%	5%	0%	1%	0%	0%	0%	6%

11 Planned Investment Changes in Risk Management Resources

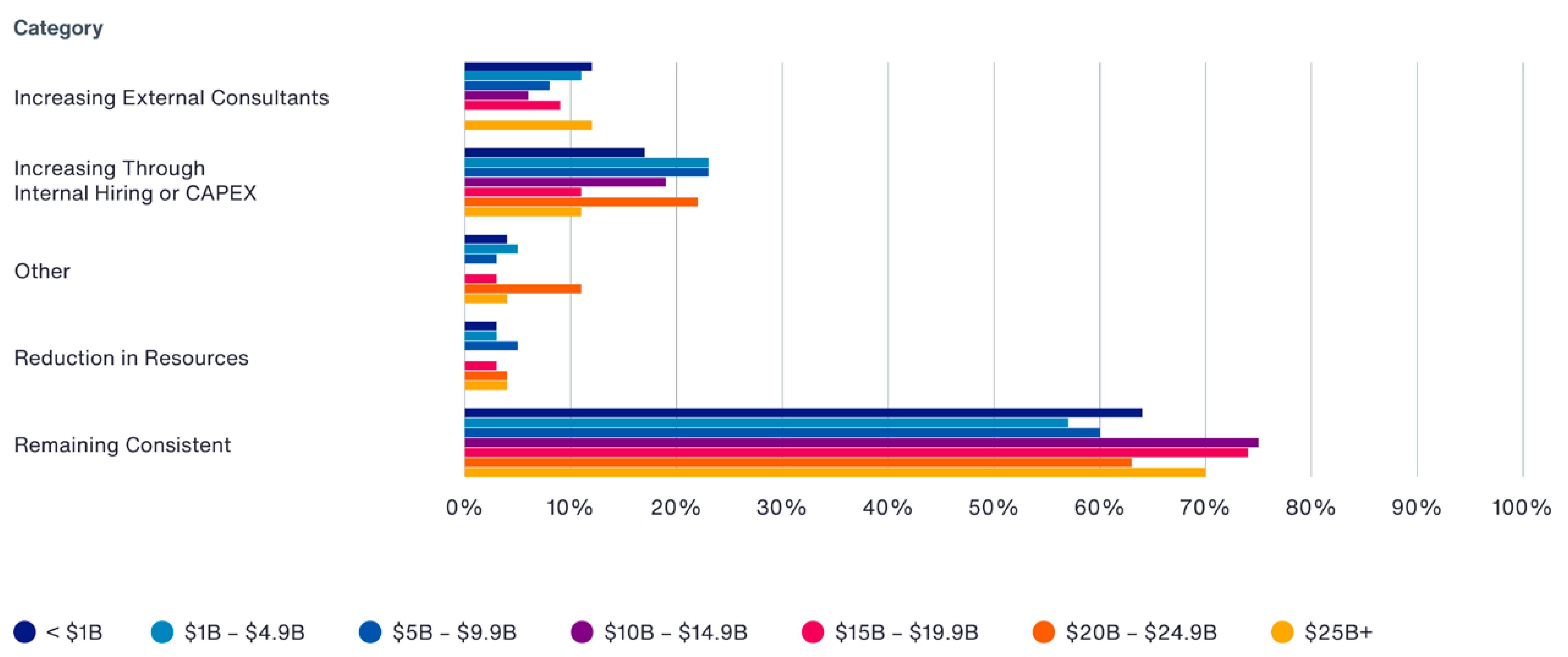
For the first time in 2021, the survey included a question about planned investment in risk management resources. Sixty-three percent of respondents across the globe and 64 percent across all revenue bands said they expect their companies to maintain consistent investment levels in risk management resources over the next 12 months. Respondents from smaller companies, those with less than $1 billion in revenue, expressed a slightly greater interest in hiring more risk staff, perhaps because they are now recognizing the value of such investments or are simply in the position of playing catch-up. External services providers have an opportunity to develop offerings targeted to small- to medium-size companies, as this segment also strongly expects to use more external advisors.

Although very few respondents said their companies intend to cut risk resources, risk teams invariably will be required to do more with less given the continually expanding scope of their activities and the general state of the global economy and employment markets.

Planned Investment Changes in Risk Management Resources by Region



Planned Investment Changes in Risk Management Resources by Revenue (in $)



12
People Risk

Overview

A recurring theme in this year's report relates to a category of risk we can broadly describe as "people risk." Although the survey posed no questions about people risk as such, this risk goes hand in hand with two risks in the top 15: failure to attract or retain top talent (ranked at number 13) and workforce shortages (ranked at number 14). Another 10 risks in the list of 60 also involve people risks. These include work injuries, an aging workforce, absenteeism, inadequate succession planning, fraud or embezzlement, theft, harassment or discrimination, gender pay gaps, extortion, and kidnap and ransom. Furthermore, numerous other risks — for example, rising healthcare costs, loss of intellectual property risk and, most importantly, cyber risk — also include a people-risk component.

The confluence of the remote workforce, heightened stress and employee disengagement during the pandemic have only reinforced the axiom that workers are the weakest link in cyber security. Working from home has distributed greater responsibility for maintaining good cyber-security practices to workers. In addition, stressed and disengaged employees are more likely to make mistakes when using technology or deliberately circumvent cyber-security measures. These actions expose employers to a range of risks, including loss of intellectual property, punitive regulatory action or reputational harm. The number of cyber-security incidents attributed to insiders has increased by 47 percent since the start of the pandemic.[77] Now more than ever, these interconnected people risks highlight the increasing importance of collaboration between risk leaders and the chief human resources officer (CHRO) in managing these risk topics.

When viewed through this broader lens, the magnitude of people risks becomes clearer. People risks are underestimated within organizations and should be elevated on the agenda for risk managers and C-suite executives. This is especially true in light of another theme that arose from this year's report: that people assets are more important than ever.

Concerns about workforce shortages ranked at number 14 in 2021, up from 29 in 2017. Workforce shortages frequently result from a mismatch between required skills and available talent. Unlike jobs of the past, which demanded physical aptitude and basic communications and computational skills, today's jobs increasingly require a mix of specific technical skills, data and analytics fluency, a creative mindset, agility, curiosity and emotional competencies.

The COVID-19 crisis exacerbated the talent mismatch by accelerating digital transformation in many industries, heightening the need for new skills and competencies. Additionally, accelerated industry convergence resulting from digital transformation has meant increased competition for the same talents. For example, finance companies are reinventing their employee value propositions to compete for digital talent with the technology sector, which is known for offering high salaries, attractive equity opportunities and innovative workspaces and benefits.

Meanwhile, the pandemic forced many companies to shift to remote or hybrid work models — a trend that seems likely to endure. On the one hand, companies benefit from this trend through access to global talent pools; workers in countries such as China, Singapore and South Korea that have invested heavily in digital are in especially high demand. On the other hand, countless other companies are also competing for access to this same workforce.

The pandemic also prompted an employee reckoning, with workers quitting their jobs in record numbers. An article published by the World Economic Forum cites Microsoft surveys showing that 41 percent of workers globally are thinking about leaving their current companies — a trend known as "the great resignation."

Companies in many industries are redesigning their workforce strategies to attract and retain talent and stay relevant as employers. This includes organization design, location strategy, remote-work policies, talent requirements for the future world of work and plans for developing, attracting and retaining people. Companies that do not have winning strategies in the competition for talent are at high risk of decline.

People Risk by Region

Aging workforces and related health issues ranked at number 35 on the list of risks this year; however, this is a prevailing trend in many G-20 countries, no doubt contributing to the more highly ranked workforce-shortage risk. According to a report by the International Labour Office and the OECD, during the next decade the labor force will shrink in China, France, Germany, Italy, Japan, Korea, Russia and Spain.

Meanwhile, Australia, Brazil, India, Indonesia, Mexico, Saudi Arabia, South Africa and Turkey have more young people than jobs available for them. "Turning the demographic dividend into skilled workforce for attracting investments and creating jobs will be crucial in these countries," the report authors note.

Respondents from only two regions, North America and Asia Pacific, include failure to attract top talent among their lists of top 10 risks. U.S. companies in particular responded aggressively to the COVID-19 crisis by moving to furlough or lay off employees. Now many of those same companies are struggling to refill their ranks amid an overall war for talent. U.S. companies also are more likely to use hiring as a core strategy to acquire new skills compared with European organizations, which are more likely to address a mismatch with retraining.

Europe has lagged the U.S. and Asia Pacific in the digital-transformation journey, which may explain why respondents in EMEA rank this risk lower (at number 14) than their regional counterparts do. An article in Euronews reports that fewer than one-fifth of companies in Europe are "highly digitized," and only 12 percent use big data analytics, according to the European Commission. Indeed, the combined market capitalization of all European technology companies founded since 2000 is less than either Amazon or Apple alone, Tech Monitor reports.

Meanwhile, Asia has the potential to leapfrog the rest of the world in digital transformation based on the scale of its markets and investment and the huge proportion of STEM graduates in the region. Yet demand for talent with the necessary skills and competencies is outstripping supply, and multinational companies present serious competition for the region's talent.

Talent challenges are holding back Asia's growth potential. Japan has the toughest demographic challenges in light of its declining and aging population. China, which also has a shrinking labor force and rapidly aging society, will soon confront a shortage of professionals to fill technology roles. India has one of the world's largest working-age populations; however, it also has one of the lowest rates of women in the workforce in the world. Additionally, India is known for a disparity between classroom learning and practical application, with education that does not meet global standards. Indonesia, with 250 million people, has the fourth largest population in the world, but it also has too many unskilled workers and not enough skilled ones. This mismatch affects as much as 25 percent of the labor force and is expected to endure, according to the OECD.

Finally, neither failure to attract top talent nor workforce shortages ranked among the top 10 risks in Latin America or the Middle East and Africa. More prevalent risks in these regions include economic slowdown, business interruption, commodity price risk and exchange-rate fluctuation.

12 People Risk by Role

Survey respondents in C-suite roles ranked failure to attract top talent higher in their lists of top risks than risk managers or finance managers did. All C-suite respondents included this risk among their top 10 risks, with CEOs and presidents ranking it highest at number three. By comparison, none of the respondents in manager roles included this risk among their top 10, pointing at a less than integrated risk management approach between corporate and people risks.

13
Methodology

Methodology

This report was based on a web-based survey that addressed both qualitative and quantitative risk issues. Responding risk managers, CROs, CFOs, treasurers and others provided feedback and insights into their insurance and risk management choices, interests and concerns.

The Aon Centre for Innovation and Analytics conducted, collected and tabulated the responses. Other Aon insurance and industry specialists provided supporting analyses and helped interpret the findings.

All responses for individual organizations are confidential, with only the consolidated data incorporated into this report. Percentages for some of the responses may not add up to 100 percent due to rounding or the ability for respondents to select more than one answer. All revenue amounts are shown in U.S. Dollars ($).

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