SOA Research Institute

CAS

18th Emerging Risk Survey

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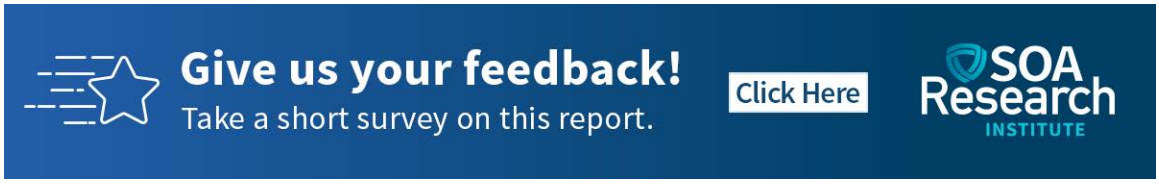

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18th Emerging Risk Survey

Executive Summary

The *18th Survey of Emerging Risks* compiles trends about risks that extend longer than the time horizon used for standard industry planning cycles. This analysis provides helpful ways to understand how actuaries and risk managers disconnect from day-to-day operations, take a long-term view of risk, and see how these views have evolved over time.

Risk manager concerns in the current survey focus on climate, disruptive technology, and wars, continuing previous years' trends. Artificial Intelligence (AI) risks were also surveyed, with concern mainly on cybersecurity and manipulation, and many departments within companies being involved in managing components of these AI risks. In terms of broad categories, it was noteworthy through the survey that geopolitical risks are still a major concern to respondents in total, with technological risks trending up and economic risks receding. The survey indicates optimism for the economic outlook for 2025.

To contextualize this report, the reader should note that surveys were tied to their specific time and environment, with recency bias (a belief that recent events are more likely to recur) always present. The survey response period was between November 7 and 25, 2024, which fell just after the 2024 U.S. elections, sending Donald Trump to the presidency and the Republican party to lead U.S. Congress. The timing of the survey was such that the COVID-19 pandemic was clearly in the rear-view mirror, the Hamas-Israeli hostilities had extended into Lebanon, the Russia-Ukraine war continued, and as the COP29 climate conference in Azerbaijan was taking place. Inflation was continuing its downward trend, and the Federal Reserve had been cautiously lowering its target interest rate in 2024. Hurricanes Milton and Helene had battered the U.S. Atlantic coast in succession, highlighting the climate change impact on property insurance in the public discourse. The survey period was prior to the regime change in Syria, the California wildfires, the murder of Brian Thompson (UnitedHealthcare CEO), and any actions of the Trump administration.

1 Background and Methodology

Using the foresight of risk managers to identify relative changes to responses across consistent topics, the annual study is sponsored by the Casualty Actuarial Society (CAS) and the Society of Actuaries Research Institute (SOA). Questions are both quantitative and qualitative, maintaining response options to show how risk management perceptions are evolving. The survey results, especially the comments, provide risk managers with a way to network with peers.

Respondents were asked to choose their top current risk, top five emerging risks, overall top emerging risk, and risk combinations from 23 risks allocated to five categories.[1] Results have been trended since the initial survey in 2008.[2] A shortened version of this survey (e.g., not asking combination questions) has been offered in May since 2023, showing slightly more volatile results than the yearly full survey. A user's guide was produced in 2022 that walks the reader through the data and shows how it can be used to incorporate foresight into risk analysis.[3]

The survey went on to ask questions about practices related to enterprise risk management (ERM), AI, staffing challenges, and other current topics. Open-ended qualitative questions were used to directly ask for current thoughts about risk management practices. The survey, completed in November 2024, included 201 participants. The online survey respondents were primarily based in North America (95%), with additional responses from Europe, Asia, Africa, and the Caribbean and Bermuda regions.

The reader should remember that the choices between one risk and another are relative and do not necessarily mean that one risk has dissipated or increased, but rather that the chosen risk(s) were considered less or more important than the other choices. Incomplete surveys for a given question, or the selection of "Other" were removed from the numerical results[4]. To illustrate trends, we are using the absolute percentage-point changes convention: an increase from 10% to 15% is a 5% increase (not 50% increase). This survey should be read directionally, without misplaced trust in the precision of the results due to inherent noise in survey data.

Survey questions focused on four ways of looking at risk, from which we measure the frequency a given risk was chosen:

- Top current risk (participants vote for one);
- Top five emerging risks (vote for five);
- Top emerging risk (vote for one); and
- Top emerging risk combinations (vote for three combinations of two risks).

The 23 risks were presented to the participants (list and definitions in appendix A), and participants could add an alternative risk, except for the combination questions. These risks are grouped into five categories: economic, environmental, geopolitical, societal, and technological.

The *18th Annual Survey of Emerging Risks Key Findings* report issued in January 2025 presented the major quantitative findings from the survey. This full report covers the *18th Survey of Emerging Risks*, with complete updates and analysis of open-ended questions.

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[1] A glossary of risks and definitions are provided to respondents and are replicated in appendix A.
[2] Reports on past surveys can be found at https://www.soa.org/resources/research-reports/2024/17th-survey-emerging-risks/. To learn more about the past surveys, including a discussion of last year's report, please visit https://www.pathlms.com/cas/courses/80928.
[3] Rudolph, Max J., Emerging Risks Survey: Guide for Use. August 2022. https://www.soa.org/4a2a24/globalassets/assets/files/resources/research-report/2022/15th-survey-emerging-risks-guide.pdf
[4] Non-responses are not immaterial in the demography section and will be shown when relevant.

Trends are as important as absolute responses in helping risk managers contemplate individual risks, threat multipliers and how to plan for future scenarios. The survey responses, especially the comments, give risk managers a way to share innovative ways they think about and deal with risk.

The main sections contain the curated insights from the survey. The appendices contain detail background and historical perspective, as well as the raw information to allow the reader to perform further analysis if interested. A separate source of information has been provided in a Tableau program[5] that allows the reader to look at some of the results by year or by risk. A companion document, referred to as the Guide for Use report, was released with the 15th survey (data is updated through 2021) and walks the reader through ways to make the document useful to practitioners.

[5] The Tableau data can be accessed here:
https://tableau.soa.org/t/soa-public/views/EmergingRisks17thReport/1_HeatMapTimeSeries

2 Key Findings

2.1 RISK MANAGER CONCERNS FOCUS ON CLIMATE, DISRUPTIVE TECHNOLOGY, AND WARS

The context of 2024 is of continued trends of severe storms and hail, heat waves and drought, a weakened but continuing respiratory infection pandemic, and geopolitical concerns within and among countries. AI is expected to revolutionize business unless the technology facilitates a doomsday scenario.

Across all four questions, the *Climate change* risk used to dominate, but is now joined at the top by *Wars (including civil wars)* and *Disruptive Technology*. The *Failed and failing states* risk has been in steady decline from its high in the early 2010s until 2023 but steeply increased since. The *Asset price collapse* risk, as well as the *Financial volatility* risk, also reached a new low. *Loss of freshwater services*, *Tropical storms*, *Earthquakes*, *Severe weather*, *Terrorism*, *Weapons of mass destruction* and *Chronic diseases/medical delivery* risks are not favored by respondents. The Geopolitical category, led by *Wars (including civil wars)*, rose to the highest level and the Societal category dropped to the lowest level as the *Pandemic/infectious diseases* risk continued to mean revert following a surge due to COVID-19.

Keep in mind that current risks tend to be impacted by recency bias for new highs and are potential contrarian indicators for new lows. Also, mid-year surveys tend to show more volatile results.

Table 1
HIGHEST RANKED WHEN CHOOSING TOP FIVE EMERGING RISKS, 2021–2024

	2024		2024m	2023	2023m	2022	2021
1	War (including civil wars)	Climate change	Disruptive technology	Climate change	Disruptive technology	Climate change	Climate change
2			Cyber/networks	Wars (including civil wars)	Climate change	Wars (including civil wars)	Cyber/networks
3	Disruptive technology		Wars (including civil wars)	Disruptive technology	Cyber/networks	Cyber/networks	Pandemics/ infectious diseases
4	Cyber/networks		Climate change	Demographic shift	Wars (including civil wars)	Financial volatility	Disruptive technology
5	Demographic shift		Financial volatility	Cyber/networks	Financial volatility	Demographic shift	Financial volatility

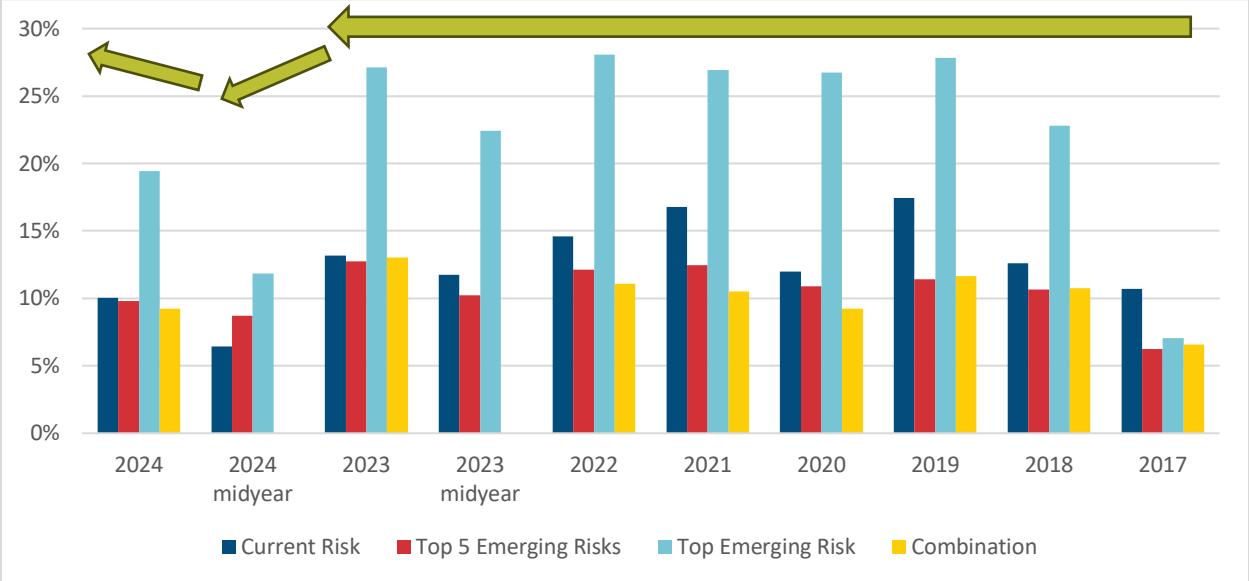
Focusing on the top five emerging risks, this table shows the relative evolution of the leading results over time. *Climate change* reclaims the first spot, shared with *Wars (including civil wars)*, and *Disruptive technology* completing the leading trio. *Cyber/network* and *Demographic shift* complete the table. Compared to 2023, the only evolutions are the tie for first place and the flip of #4 and #5. It is interesting to see that *Financial volatility* is considered less critical by respondents. *Pandemics/infectious diseases* is likely to disappear from this table as the COVID-19 pandemic becomes more distant.

Wars, *Climate* and *Disruptive Technology Risks* are three elevated risks with interesting evolutions. The following graphs represent the results over time across the four questions: current risk, top five emerging risks, top emerging risk, and top combination.[6]

Climate change risk has several observations to note:

- The green arrows capture the general trend, based on the emerging risk response (light blue bars), and show a slight dip from previous highs, but remains as a top emerging risk. Note that the 2024 midyear and 2023 midyear numbers are slightly out of trend as these are based on the flash survey results, a shorter version of the survey conducted in May, not the full survey conducted in November.
- The current risk in dark blue shows a similar trend, a slight dip from recent history but remains high. Note that *Climate change* is the third current risk after *Wars (including civil wars)* and *Financial volatility*.
- *Climate change* was chosen frequently when the respondents picked their top five risks (red bars), but also a slight dip compared with historical trends. Note that *Climate change* is the most popular choice, tied with *Wars (including civil wars)*.
- Remaining elevated after a slight decrease is the trend shown by the yellow bars, representing the relative number of times *Climate change* was selected in risk combinations. This risk was one of the most selected within these combinations, just after *Wars* and *Financial volatility*. Note that the mid-year flash surveys do not ask for combinations of risk, thus present no yellow bars.

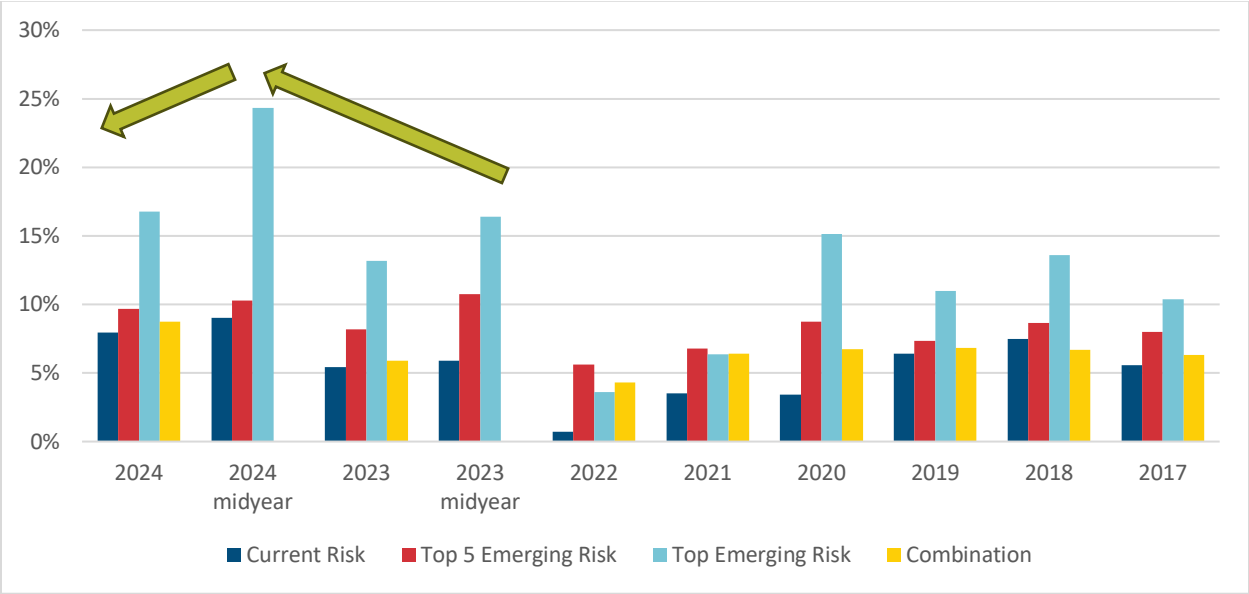
Figure 1
CLIMATE CHANGE, 2017–2024



[6] The ranking shows which risks were chosen most within these combinations.

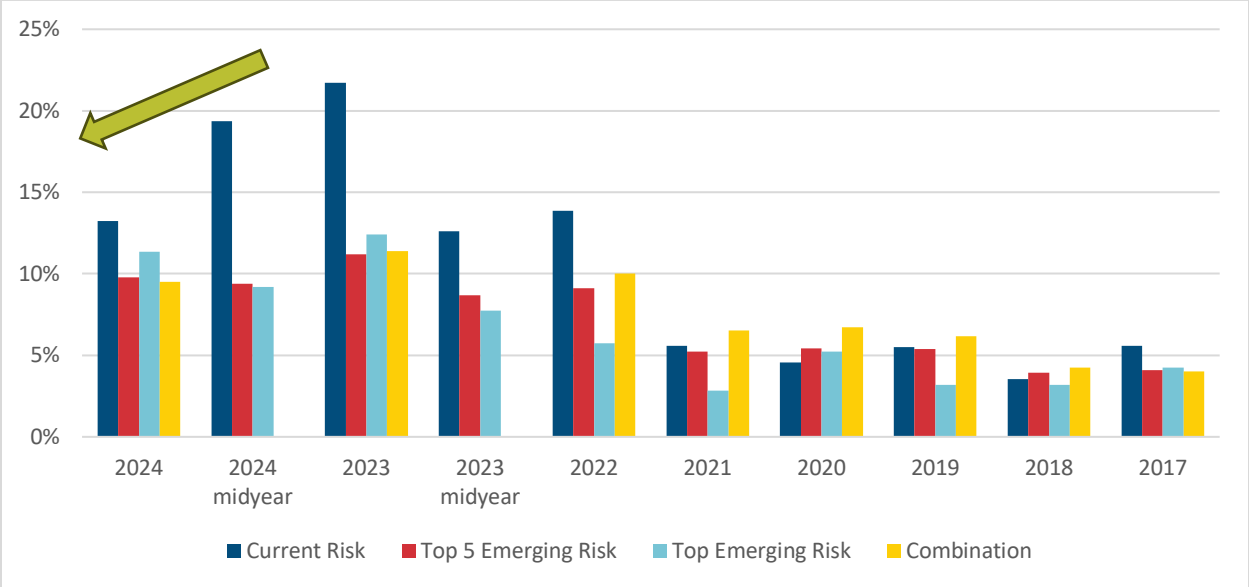
AI (Artificial Intelligence) and Generative AI (GenAI) are helping to bring the *Disruptive technology* risk to the forefront. While this risk is down from the peak seen in the midyear survey, it remains one of the top concerns, likely due to the rapid development and adoption of AI and GenAI.

Figure 2
DISRUPTIVE TECHNOLOGY, 2017–2024



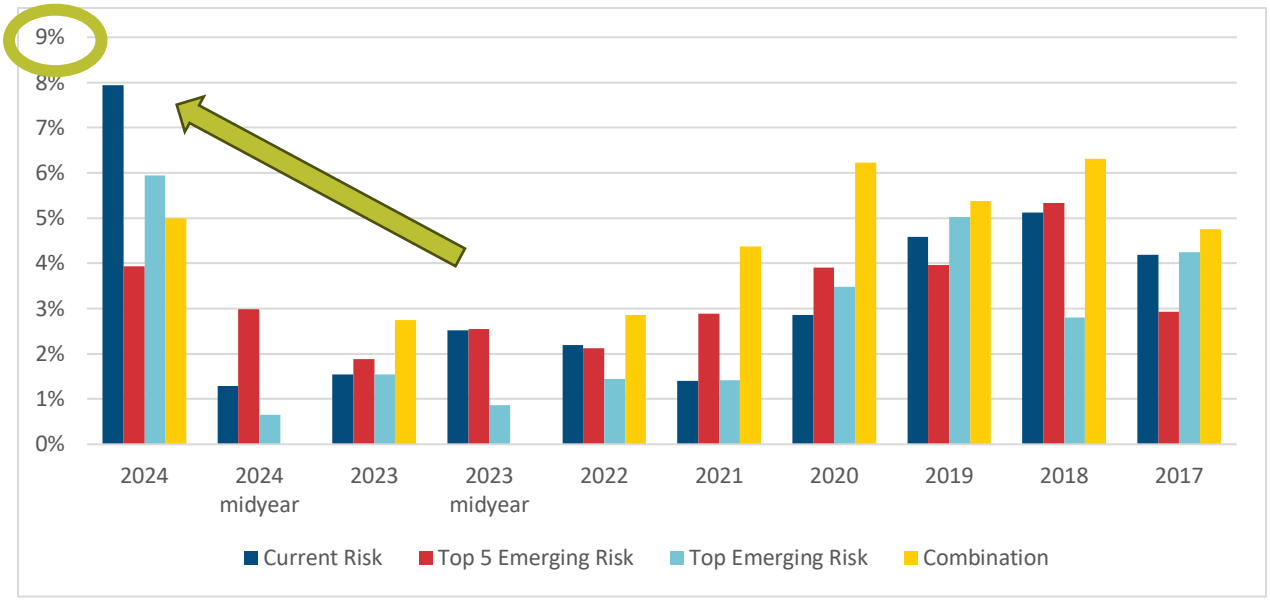
Wars (including civil wars) dropped from its recent high as current risk, potentially due to the change in U.S. administration's approach in the Middle East and/or Ukraine conflicts. Regardless, risk managers definitely consider this risk to be higher, relative to other risks, than a few years ago as an emerging risk.

Figure 3
WARS (INCLUDING CIVIL WARS), 2017–2024



Another risk showing an interesting evolution is *Failed and failing states*. While the risk is not at the same level as the three previous risks (please note the different Y-axis scale), it is coming back into risk managers' minds, but not to the extent it was at its peak in 2011 (not shown: 12%, 10%, 13%, 9% for Current risk, Top five risks, Emerging risk and Combination, respectively). It should be noted that some responses of "Other" in which the text field indicated political uncertainty in the U.S. (political instability, the results of the U.S. election, immigration, etc.) were reclassified as *Failed and failing states*.

Figure 4
FAILED AND FAILING STATES

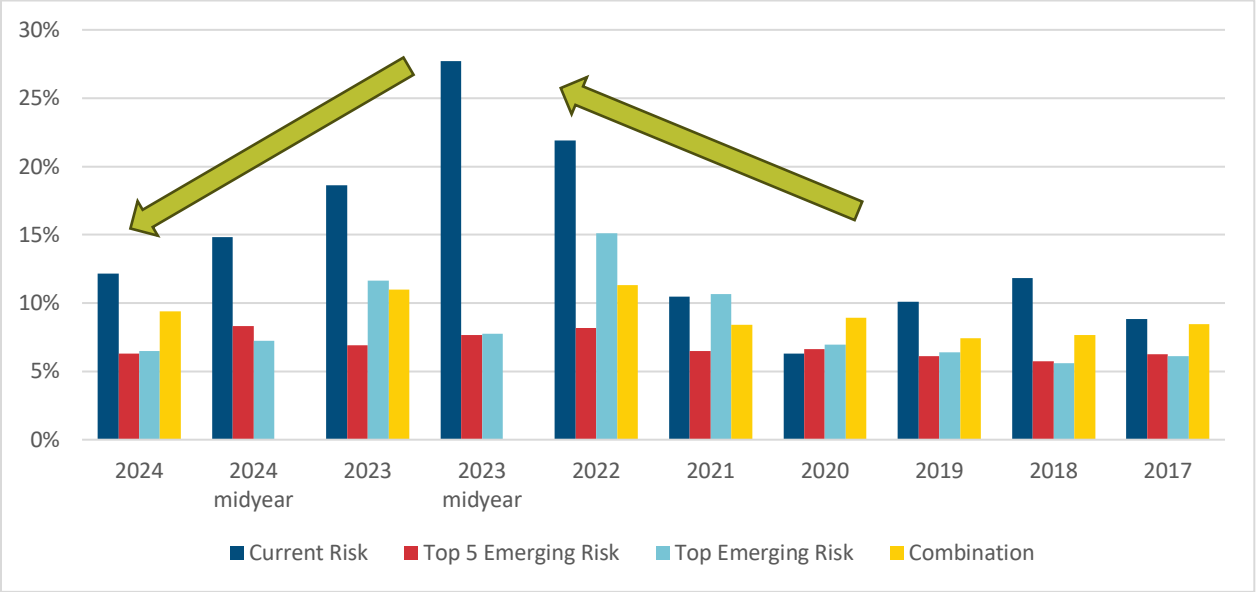


The fate of the *Financial volatility* risk is also insightful, bellwether of the economic category. It was extremely high in 2011 when the risk was introduced (not shown on the graph, but data in the appendix), due to the financial crisis at that time. The 2023 mid-year peak corresponded to the demise of the Silicon Valley Bank, from which the risk has been receding. The current risk variations are larger than the variations on other metrics, but the up-down pattern remains. Even if 2024 is a low point, it remains one of the largest risks for a given metric or year and its variations shift the economic category.

While this information reflects the insights provided by the November 2024 survey, the Flash survey conducted in May 2025 paints a drastically different picture.

Because the risk is at a recent low, one could think of contrarian leading indicators, i.e., something one should not forget about as it could rapidly reappear.

Figure 5
FINANCIAL VOLATILITY



2.2 CYBERSECURITY AND MANIPULATION CONCERNS ARE MAJOR ASPECTS OF AI RISKS

A series of questions regarding the risks posed by AI and GenAI was introduced this year.

Survey participants were asked to rank the various AI risks on a scale from 1-10. From this prioritization, a few metrics[7] were created to test if some risks are chosen more often than others. Respondents are clearly selecting the pair *Cybersecurity* and *AI manipulation* as the top two AI risks, and the quartet *Synthetic data degradation*, *Hallucinations*, *Copyright issues*, and *Risk of not using AI* are deemphasized. The exact order within these groups depends on the metric used. The table below shows how often a risk is selected in the top three. An "Other" option was provided but rarely used, so we can surmise that risk managers view this list as currently capturing the most recalled risks when considering AI.

[7] How often a risk is selected as the top one, how often a risk is selected within the top five, or a point system based on the 1-11 ranking

Table 2
TOP AI RISKS

Rank	Risk	Selected 1-3
1	AI rank - Increased Cybersecurity	94
2	AI rank- Manipulation leveraging AI capabilities, including Deepfakes	90
3	AI rank- Bias and discrimination	61
4	AI rank- Overreliance on AI responses	51
5	AI rank- Lack of transparency	44
6	AI rank- Impact on workforce with AI replacing positions	36
7	AI rank- Risk of not using AI	26
8	AI rank- Synthetic data (Using AI to train AI) degrading the quality of the response	25
9	AI rank- Hallucinations	24
10	AI rank- Copyright infringement	22

Survey participants were asked which department(s) is(are) involved in managing AI risk. IT is involved for almost 80% of the respondents, consistent with cybersecurity impact being a major component of the AI risk. Some ”Other” responses indicate that an ad-hoc department has been created.

Figure 6
WHICH DEPARTMENT(S) IS(ARE) RESPONSIBLE FOR AI RISK MANAGEMENT (CHECK ALL THAT APPLY)

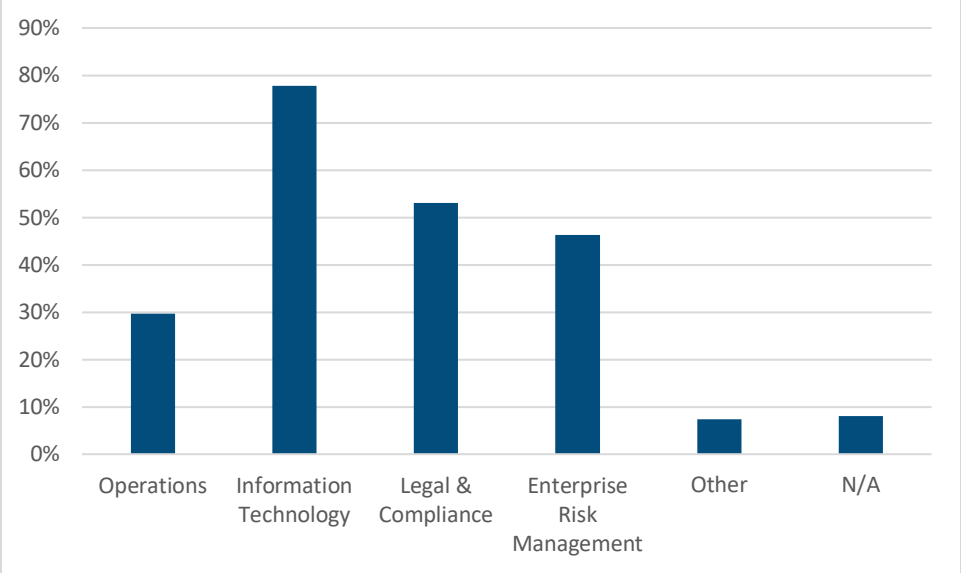
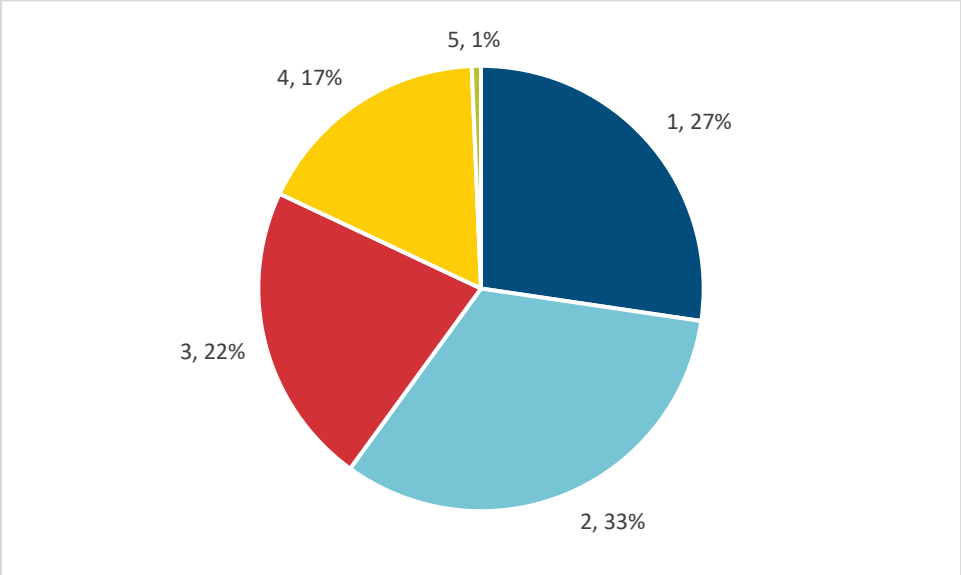


Figure 6 shows respondents indicating a single department responsibility only 27% of the time, which can be due to the multifaceted aspect of this risk. For example, legal and compliance may be responsible for the AI risk as the department performing the reporting to the regulators on the topic, and IT may be involved in the cybersecurity aspect of that same risk.

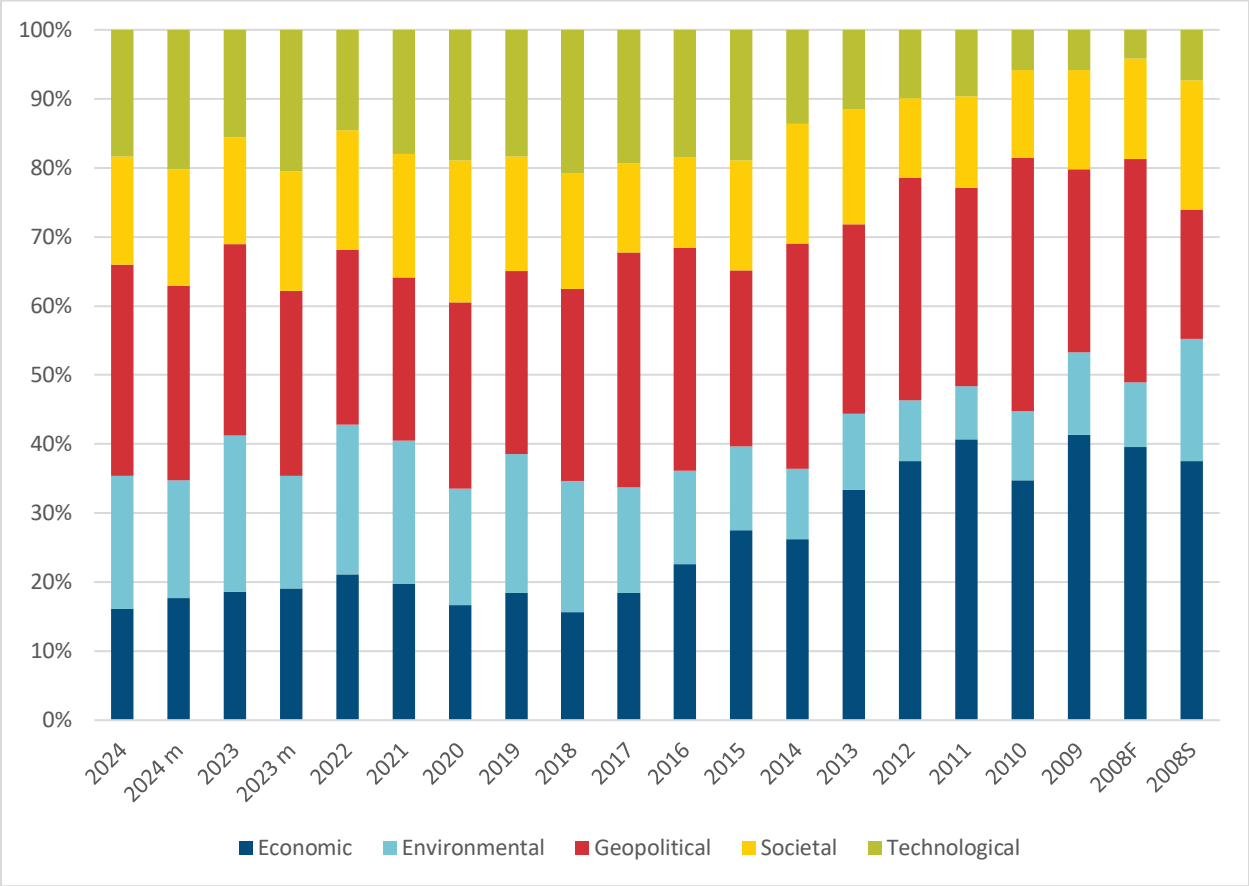
Figure 7
COUNT OF DEPARTMENTS IN FIGURE 5 INVOLVED IN COMPANY AI RISK MANAGEMENT



2.3 GEOPOLITICAL RISKS STILL LEAD IN TOTAL, TECHNOLOGICAL RISKS TRENDING UP, AND ECONOMIC RISKS RECEDING

For the top five emerging risks in this year's survey, the geopolitical category rose at the expense of the economic category. The societal and technological categories, increasing from the fall 2023 to the spring 2024, are reversing course with an increase from 2024m to 2024. This may mean that risk managers consider these risks less prominent (e.g., AI risks are being addressed now) or as seasonal (e.g., hurricanes taking place in the fall). Similarly, the environmental category, declining from the fall of 2023 to the spring of 2024, is now reversing course. Geopolitical remains the top ranked category, driven by *Wars (including civil wars)* and *Failed and failing states*.

Figure 8
EMERGING RISKS BY CATEGORY (UP TO FIVE RISKS CHOSEN PER SURVEY)

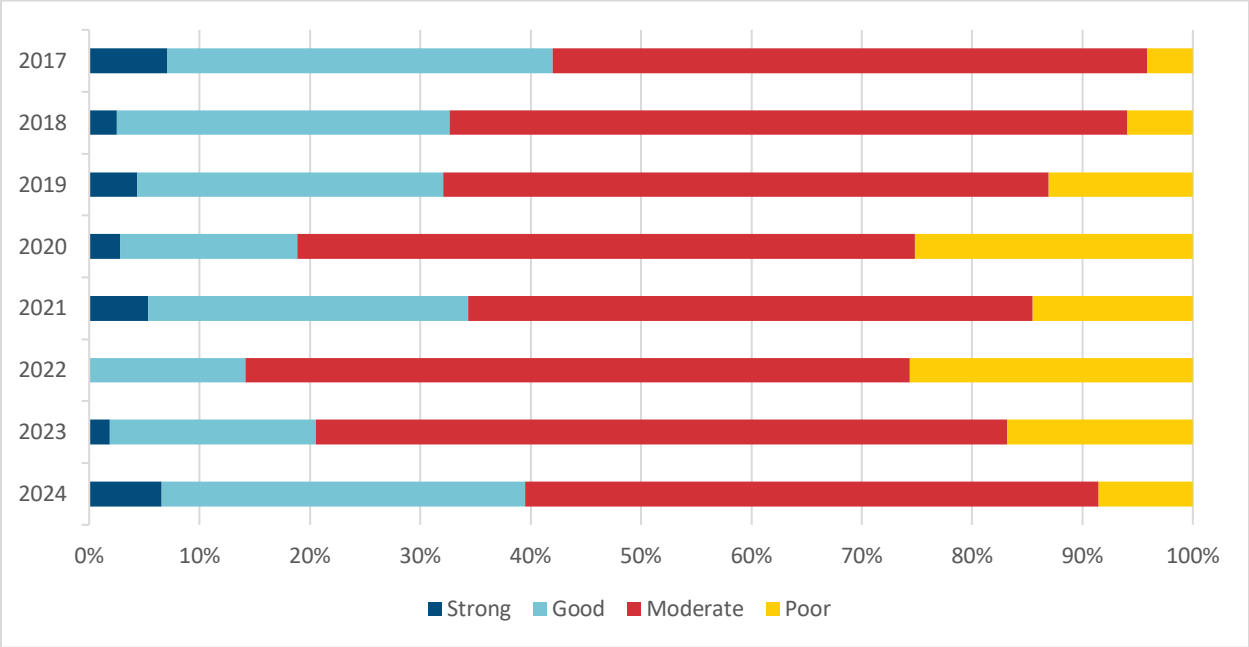


In the graph above for visual and in the appendix for numerical value, we can see that the multi-year trend on economic risks is resolutely downwards. The recent multi-year trend shows an upward trend for the geopolitical risk. The more distant multi-year trend shows an increase in environmental risks, which has now stabilized at a level above average. Societal and technological categories are trending around their recent levels.

2.4 GLOBAL ECONOMIC OUTLOOK – IMPROVING 2025 EXPECTATIONS

The U.S. Federal Reserve led a global central bank initiative to raise short-term interest rates by tightening monetary policy as the world exited the pandemic era. The U.S. Federal Reserve is lowering interest rates. In response, survey participants may feel the U.S. is no longer in a recession. However, global economic expectations are higher, with more respondents having positive views compared to the previous survey. Similar results are seen elsewhere in the survey, with fewer concerns about risks such as *Financial volatility* and *Asset price shock*.

Figure 9
GLOBAL ECONOMIC EXPECTATIONS FOR THE FOLLOWING YEAR



This year's survey shows a very strong optimism (7% Strong, 33% Good, and only 9% Poor), almost to the level of the heights of 2017 (7% Strong, 35% Good, and only 4% Poor), and far from the lows of 2011 (1% Strong, 5% Good, and a significant 51% Poor; not shown here). Overall, the results of this question have demonstrated volatility over the years.

3 Additional Results

This section shows the curated insights from each question[8] of the survey in the order of the survey.

3.1 GREATEST STRATEGIC IMPACT

We asked respondents to define "greatest strategic impact," which will underpin how they selected their top current or top emerging risks in the following questions of the survey, either as disruption or financial impact on either lives, habitat, or safety, to me personally or my firm/industry, or to the world economy.

This question didn't yield significant insight as the responses scattered around the six options, and the cross analysis with other responses yielded expected insights: Respondents selecting a definition pertaining to lives, habitat and safety were biased toward environmental risks, and respondents selecting a definition pertaining to the world economy were leaning toward economic risk.

3.2 CURRENT RISK

This is one of the lead questions of the survey: The respondent should select the top current risk (participants vote for one) among the list of 23 risks (list and definitions in appendix A), and participants could add an alternative risk. These risks are grouped into five categories: economic, environmental, geopolitical, societal, and technological. The current risk selection can be analyzed through different lenses. Worth noting is that this question shows large volatility year over year that is much greater than the emerging risk questions. It is appropriate as the emerging risk view should carry a longer time horizon, less subject to the current developments.

- The categorical view shows the economic category continuing its relative decline, the environmental category recapturing the ground lost at mid year, the geopolitical risk also regaining the ground lost at mid year, the societal category becoming (almost) irrelevant since the COVID years, and the technological category losing the ground made at mid year.

- The year-over-year view shows the largest variations in *Financial volatility*, *Wars (including civil wars)*, and *Failed and failing states*. The same graph shows that *Wars (including civil wars), Financial volatility*, and *Climate change* risks are the main ones for both years and are all downward from 2023. *Tropical storm* and *Severe weather* risks are both growing, and when combined together more than offset the decline of *Climate change* risk. Also visible in this graph is the concentration of responses: The three risks that carried 53% of the answers in 2023 – 22%, 19%, and 13% for *Wars (including civil wars)*, *Financial volatility* and *Climate change*, respectively – are less dominant in 2024, representing 35% of the responses – 13%, 12%, and 10% for *Wars (including civil wars)*, *Financial volatility* and *Climate change*, respectively.

The entire historical data has been placed in the Default Question Block.

[8] Some AI questions and Economic expectation are not covered as they are appropriately covered in the Key Findings section.

Figure 10
CURRENT RISKS BY CATEGORY

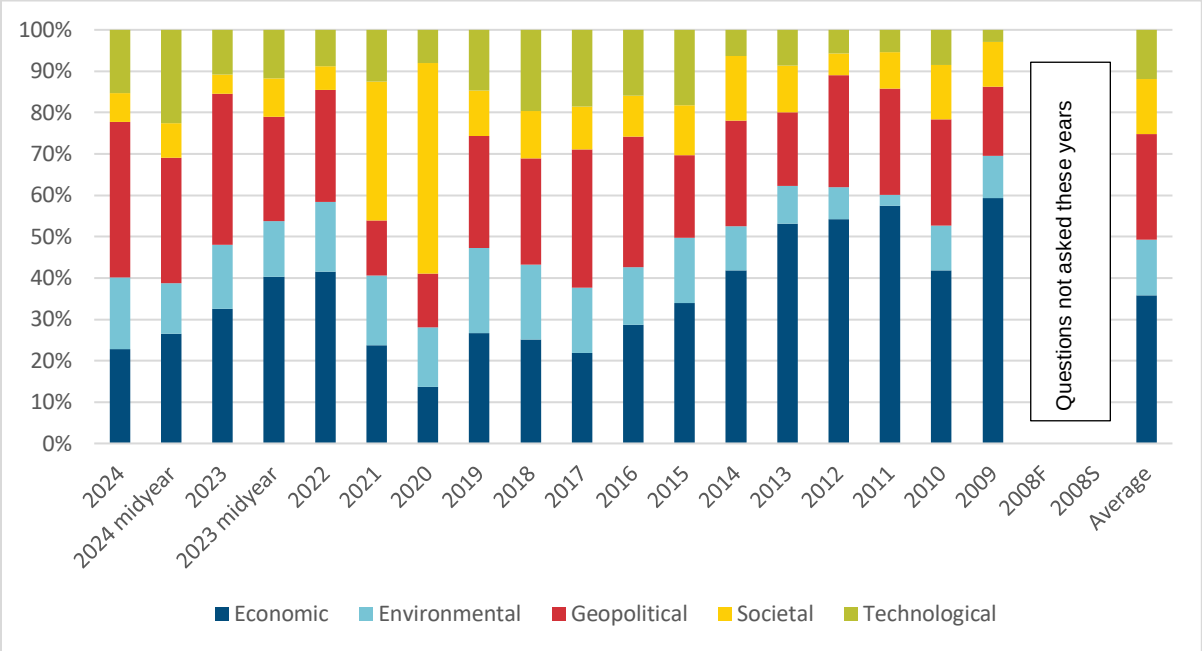
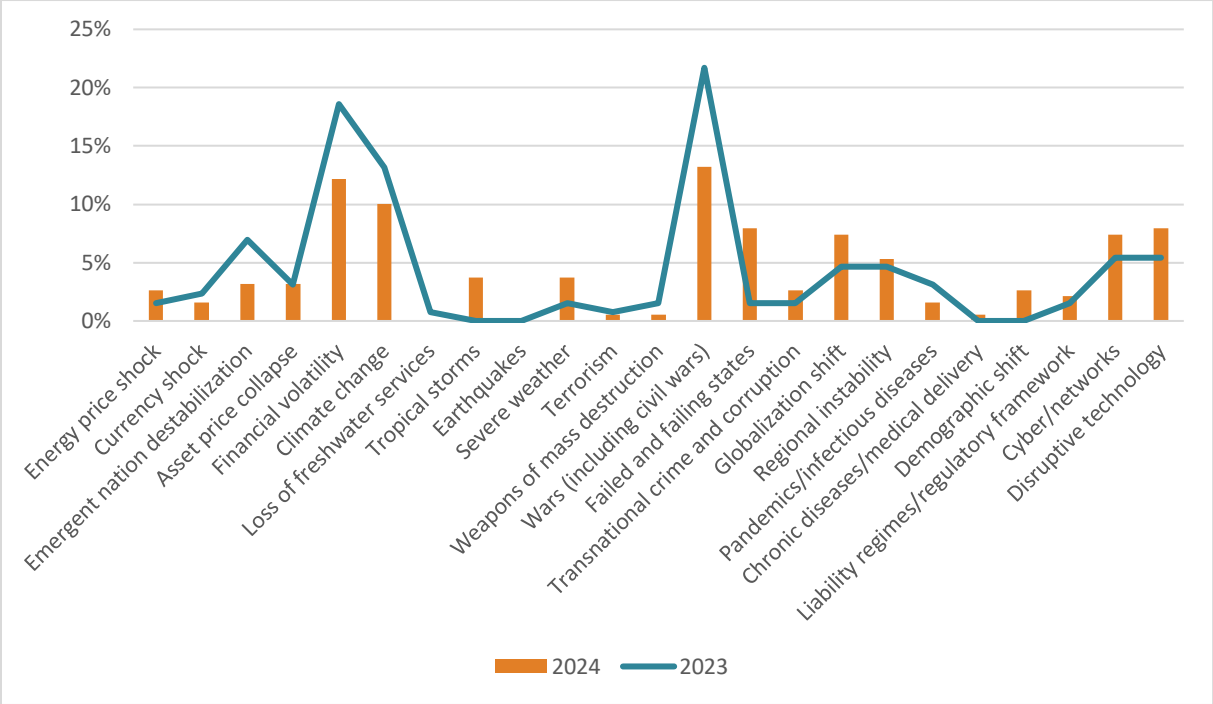


Figure 11
CURRENT RISKS FOR 2024 AND 2023



3.3 TOP FIVE EMERGING RISKS

Similar to asking survey respondents about their top current risk, asking them about their top five emerging risks is one of the lead questions and the same types of graphs are shown here for consistency purposes.

- The categorial view shows the economic category continuing its relative decline (same as current risk), the environmental category recapturing the ground lost at mid year (same as current risk), the geopolitical risk also gaining the ground lost at mid year (but contrary to current risk, it was flat between 2023 and 2024m), the societal category is roughly recently flat around the historical average, and the technological category losing the ground made at mid year (same as current risk).

- The year-over-year view doesn't show significant variation. The largest variation, *Climate change,* dropped by 3% and *Failed and failing states* gained 2%. The variations of these two risks are covered in Risk Manager Concerns Focus on Climate, Disruptive Technology, and Wars

- As seen in **Table *1,*** HIGHEST RANKED WHEN CHOOSING TOP FIVE EMERGING RISKS, 2021–2024, the highest ranked risks are relatively stable over time.

All historical data can be found in Section A: Emerging Risks.

Figure 12
EMERGING RISKS BY CATEGORY (UP TO FIVE RISKS CHOSEN PER SURVEY)

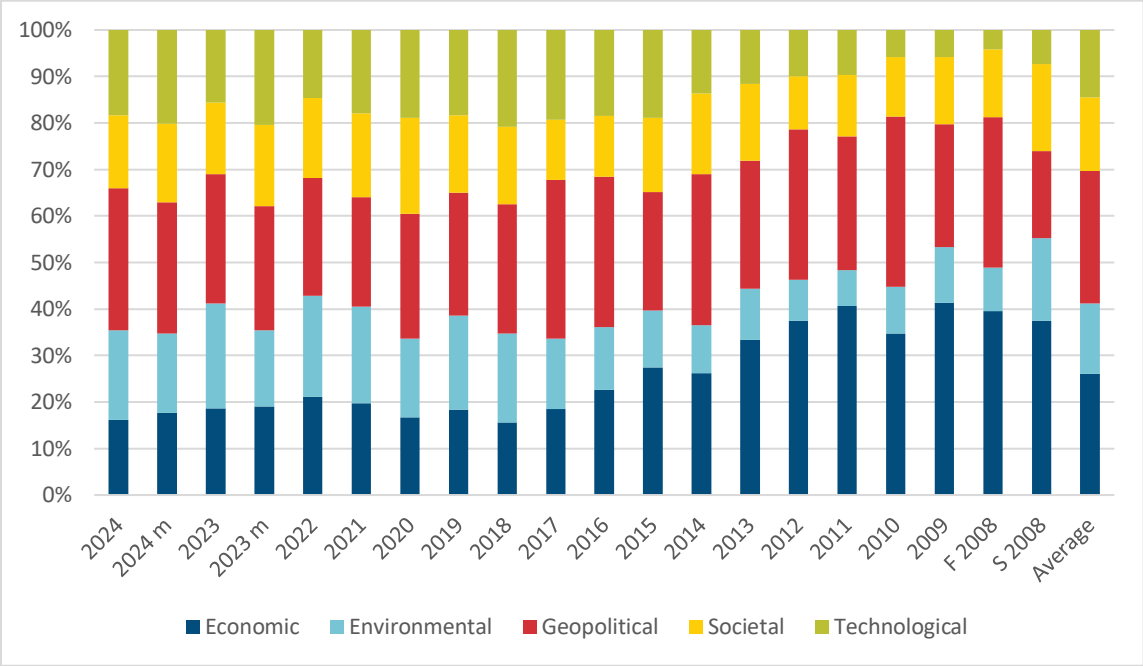
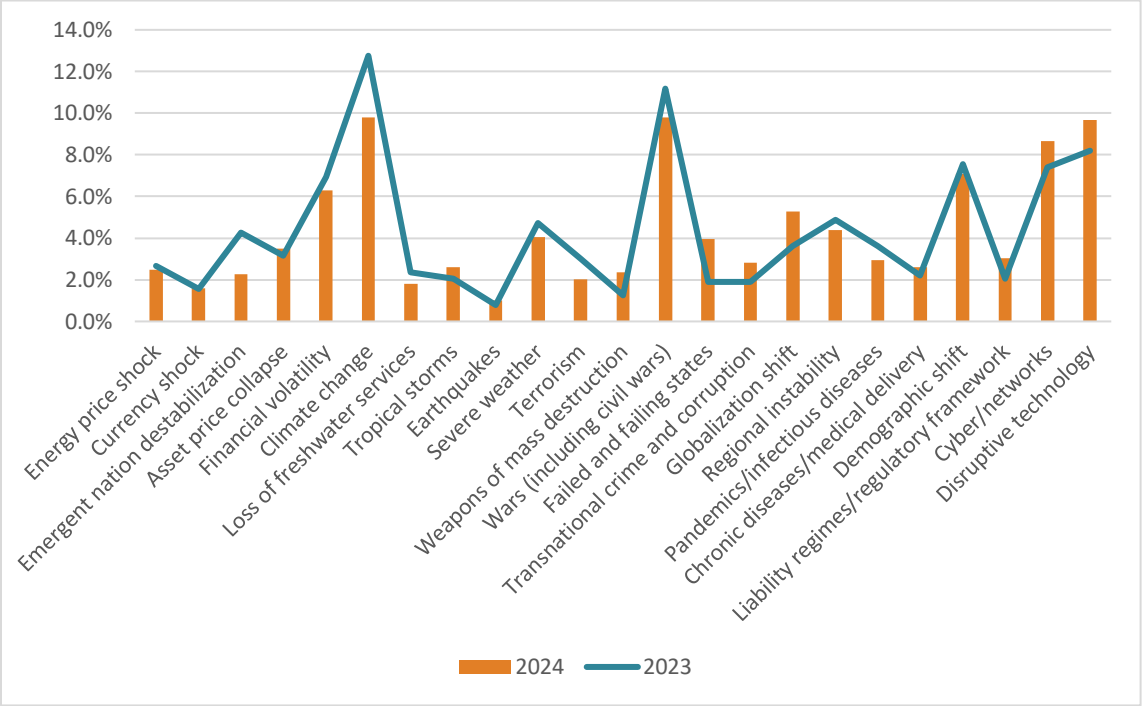


Figure 13
EMERGING RISKS FOR 2023 AND 2024 (UP TO FIVE RISKS CHOSEN PER SURVEY)



3.4 TOP EMERGING RISK

This is another lead question, asking survey respondents to choose one among the five risks selected in the previous question. The results are more volatile than the top five, but less than the current risk.

- The categorial view shows the economic category having a small rebound from its recent declining trend, the environmental category recapturing the ground lost at mid year (same as current risk and top five emerging risk), the geopolitical risk also gaining more ground than lost at mid year, the societal category is very roughly recently flat around the historical average, and the technological category losing some of the ground made at mid year.

- The year-over-year view shows more variation than the top five emerging risk, with the largest variations being *Climate change* dropping by 8%, and *Liability regimes/regulatory framework* gaining 4%. Also visible in this graph is the concentration of the responses on a few risks: most risks are around or below 5%, whereas a handful are above 10%.

Figure 14
TOP EMERGING RISKS BY CATEGORY

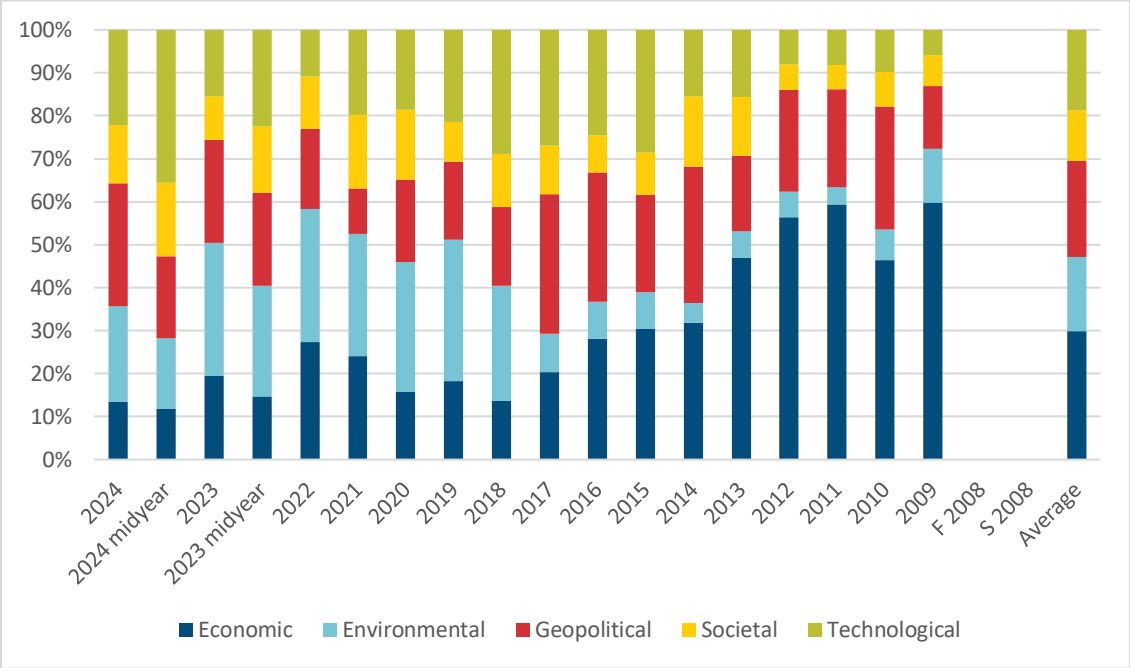
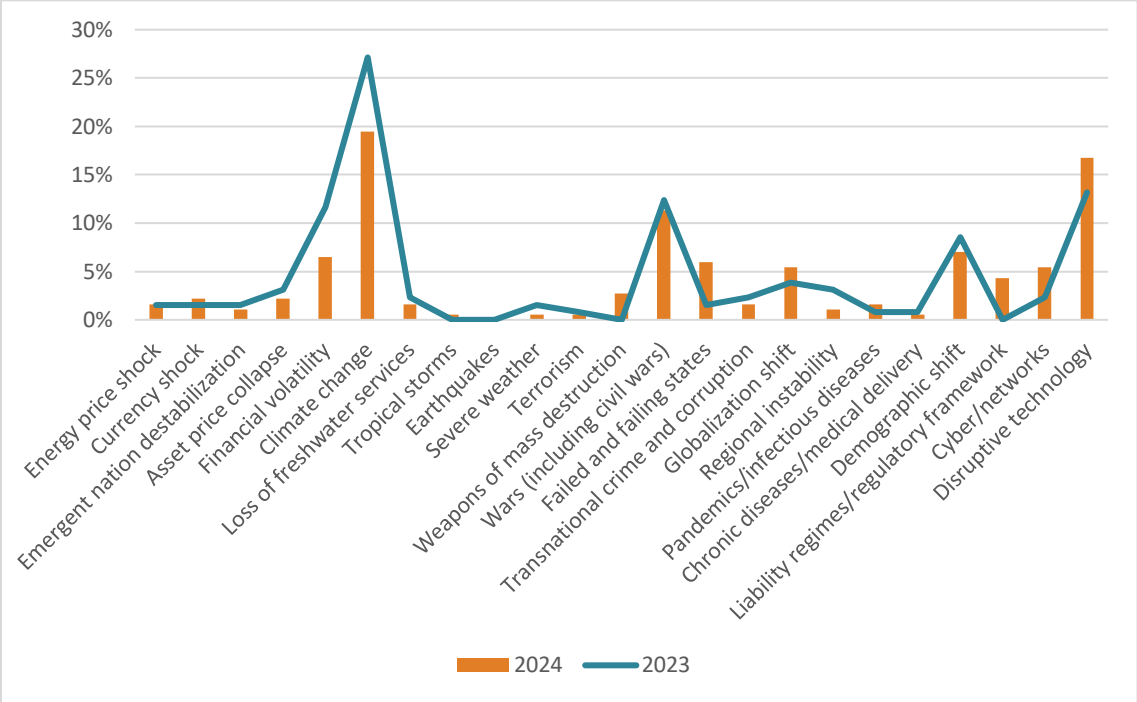


Figure 15
TOP EMERGING RISKS FOR 2023 AND 2024



3.5 RISK COMBINATIONS

There are several ways to think of risk combinations. Compound risks are correlated risks that impact a specific result. An example of this would be the interaction between climate change, energy cost and conflicts that cascade across geographical regions and financial sectors. Risk clusters do not require correlation, looking at multiple risks that an organization, like an insurer or reinsurer, could incur either in parallel or sequentially. These could be independent, but do not have to be, with examples like financial volatility and earthquakes. Risk combination results can be insightful, as readers can review which risks other risk managers think work together in material ways. The top overall results seem to predict threat multipliers that broaden the impact of other risks.

Regardless of the counterpart risks it is paired with, counting the number of times a risk is selected allows us to build similar graphs. The analysis is somewhat biased as the number of risks is not identical across categories. The evolution through the years is similar with a downward trend for the economic category, an increase of the environmental category, a relative stability of both the geopolitical and the societal categories, and a slow growth of the technology category. However, the level is not: in 2024, the economic category collects 19% of the responses in combination, but only 14% as top emerging risk.

Figure 16
TOP COMBINATION BY CATEGORY

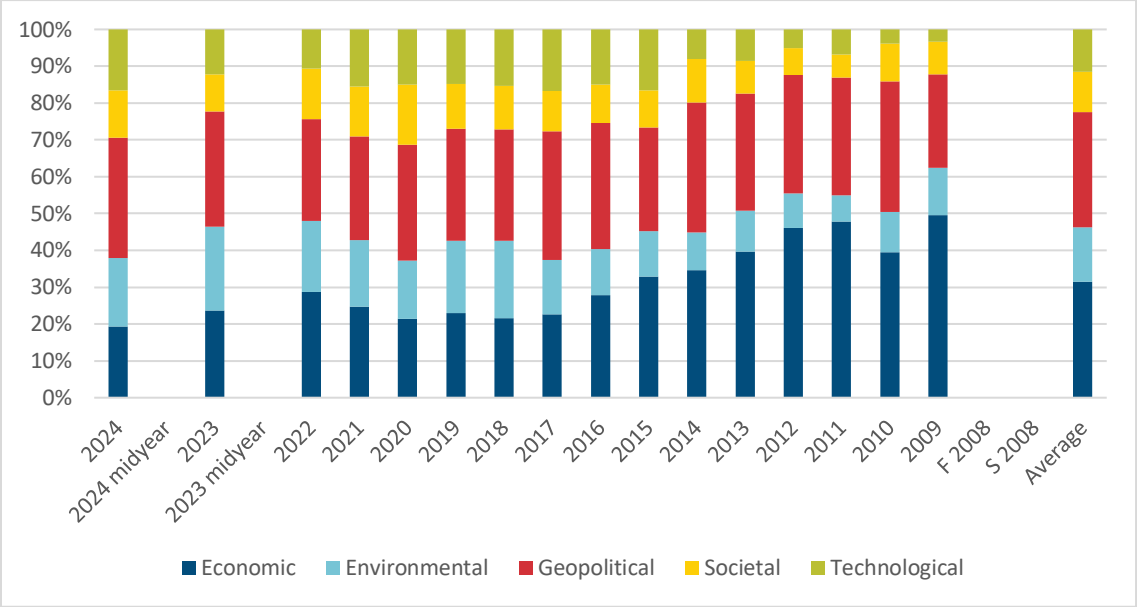
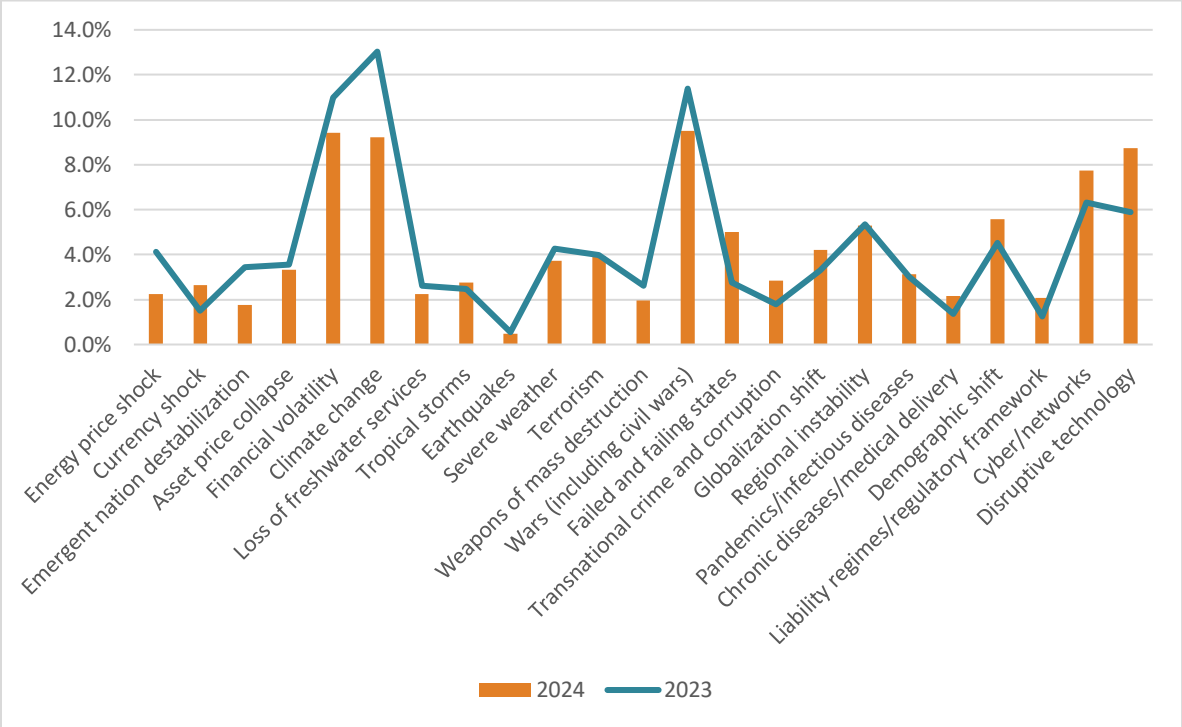


Figure 17
TOP COMBINATIONS FOR 2023 AND 2024



A few interesting observations looking at the highest combinations:

- The top three risks chosen in combination (across any partners) were *Wars (including civil wars)*, *Financial volatility*, and *Climate change*.
- These selections are relatively stable. Out of 23*22/2=253 possible combinations, the highest 2024 trio is the same, albeit in a different order. The highest five combinations collect more than 20% of the responses.
- Except for the (Terrorism x Cyber/networks) combinations, the highest combinations are of two risks within the same category.

Table 3
FIVE LARGEST COMBINATIONS

Rank	Highest Combinations 2024		2024 Rate	Highest Combinations 2023	2023 Rate
1	Cyber/networks Disruptive technology		7%	Climate change Natural disasters: severe weather	6%
2	Climate change Natural catastrophe: severe weather		4%	Cyber/networks Disruptive technology	5%
3	Asset price shock Financial volatility		4%	Asset price shock Financial volatility	4%
4	Climate change Natural catastrophe: tropical storms		3%	Climate change Loss of freshwater services	3%
5	Failed and failing states Wars (including civil wars)	Terrorism Cyber/networks	3%	Terrorism Wars (including civil wars)	3%

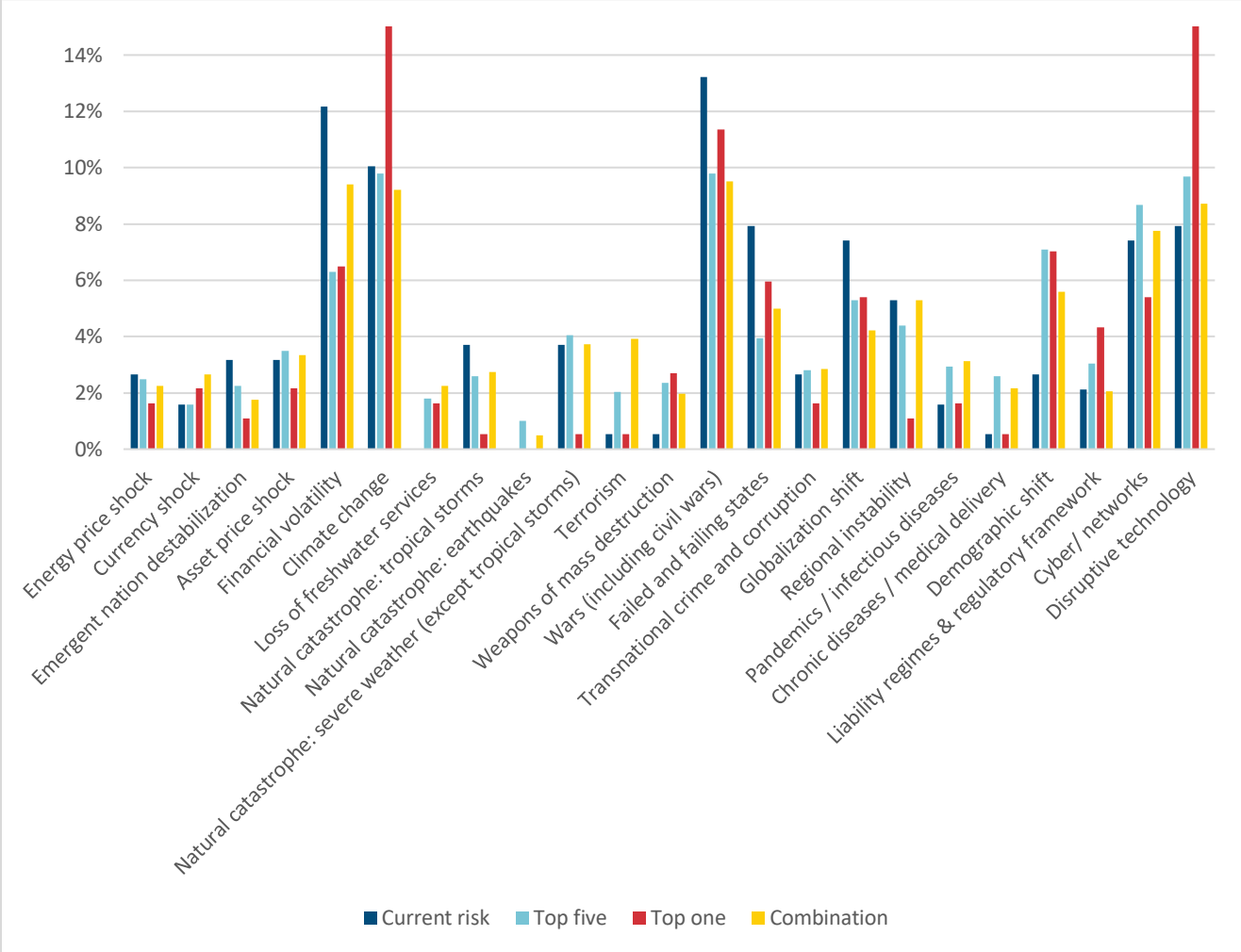
3.6 COMPARISON OF CURRENT RISK, EMERGING RISK (CHOOOSE UP TO FIVE), EMERGING RISK, AND COMBINATIONS

Figure 18 compares the current risk results with the top five emerging risks, top emerging risk, and risk combinations at the individual risk level. Hypothesizing why there are discrepancies is useful, and readers may come to different conclusions. (Ed. note: This chart includes information that is located earlier in the report but visually highlights the top risks and those that vary.)

- *Financial volatility* risk shows the greatest disparity favoring the current risk. The researcher's interpretation is that this is more of a tactical risk (based on the economic environment) or a risk amplifier (in combination) rather than potentially triggering a regime-switching[9] event.
- *Climate change* and *Disruptive technology* risks show great disparity favoring the top emerging risk. The researcher's interpretation is that these could trigger an upcoming regime switch.
- Many risks were selected fewer times, like *Loss of freshwater services*, *Natural catastrophe: tropical storms*, *Natural catastrophe: earthquakes*, and *Natural catastrophe: severe weather (except tropical storms).* These were selected in combination or within the top five emerging risks, but not as the primary selection. The researcher's interpretation is that these are well-known risks, secondary to the lead in their category.

[9] Regime switching is an event that triggers a rapid change in paradigm. World Wars I and II, the Great Depression or, more recently, the arrival of the Internet should be considered regime switching.

Figure 18
RISK COMPARISON ACROSS FOUR QUESTIONS
% of Responses to Given Question (Ed. note: the maximum value for a response has been truncated at 15% to better display differences among the risks)



3.7 AI LESSONS

The quantitative insight on AI is a key finding articulated in subsection 3.2. Additional views were logged in an open text question, which can't be summarized in a graph. While all responses can be found in the appendix, the following bullets capture the conundrum that can be inferred from the responses.

- Implementation is challenging and risky: Governance, validation, monitoring, overreliance, control, and privacy are some recurring themes.
- There is an arms race: Competitions, bad actors, and other stakeholders will use the technology. Those who do not will be left behind.
- Who has influence over the societal debate: Political groups claiming expertise may not have a real technical understanding. They nonetheless are pushing for their cause: either over- or under-regulation.
- Climate impact.

3.8 ADDITIONAL RISKS

The open text question asked if other risks should be considered for future surveys. While all responses can be found in the appendix, the following observations capture the ideas that the researcher read from the responses.

The one theme appearing in various forms is around the erosion of the foundation of the democratic system: This mainly includes fears around dictatorship rising in the U.S. and around the world, political polarization, political uncertainty, and corruption. This also includes the degradation of human rights and other western values. This could warrant an adaptation of the definition of the risk, *Failed and failing states*.

3.9 POSITIVE/NEGATIVE IMPACT OF ERM IN YOUR COMPANY

The numerical part of this question is confirmatory in nature. Risk managers believe ERM has a positive impact on their company and 2024 is no different and in line with historical averages. 'Positive,' 'Neutral,' 'Negative,' and 'Not sure' are 64%, 19%, 1%, and 16%, respectively.

More insightful are the open comments around the following themes:

- *Cost benefit is hard to measure*
- *Breaking silos, better view of risk, transparency to management,*
- *Second pair of eyes, second opinion, on micro elements (e.g. model validation) and macro picture*
- *Codified existing good governance*
- *Avoided a few pitfalls*
- *ERM has its cost if it asks the wrong questions*

3.10 INSIGHTS FROM SCENARIO TESTING

The use of scenarios to inform risk insights within a company was the subject of an open-ended question and the main insights are:

- *Deterministic scenarios provide insight into whether a concern needs additional attention and provides point estimates usable for analysis in other areas. Very useful for crisis management planning (business continuity, disaster recovery, incident management, etc.), as well as for interrelated risks. Usually easier to understand.*
- *Stochastic scenarios provide information about the distribution of possible outcomes.*
- *Helpful but limited impact.*

3.11 ERM ACTIVITY AND RESOURCES

Responses to several questions indicate a stabilization of ERM activities and resources. Sixty-five percent of the respondents indicated a level amount of ERM-focused activities for the current year, 69% indicated a level number of staff, 69% expected identical funding levels, and 55% expected the same amount of activity for the upcoming year.

The last number being slightly lower indicates that some respondents will have to do more with identical staff and fundings.

3.12 ERM CLOUT

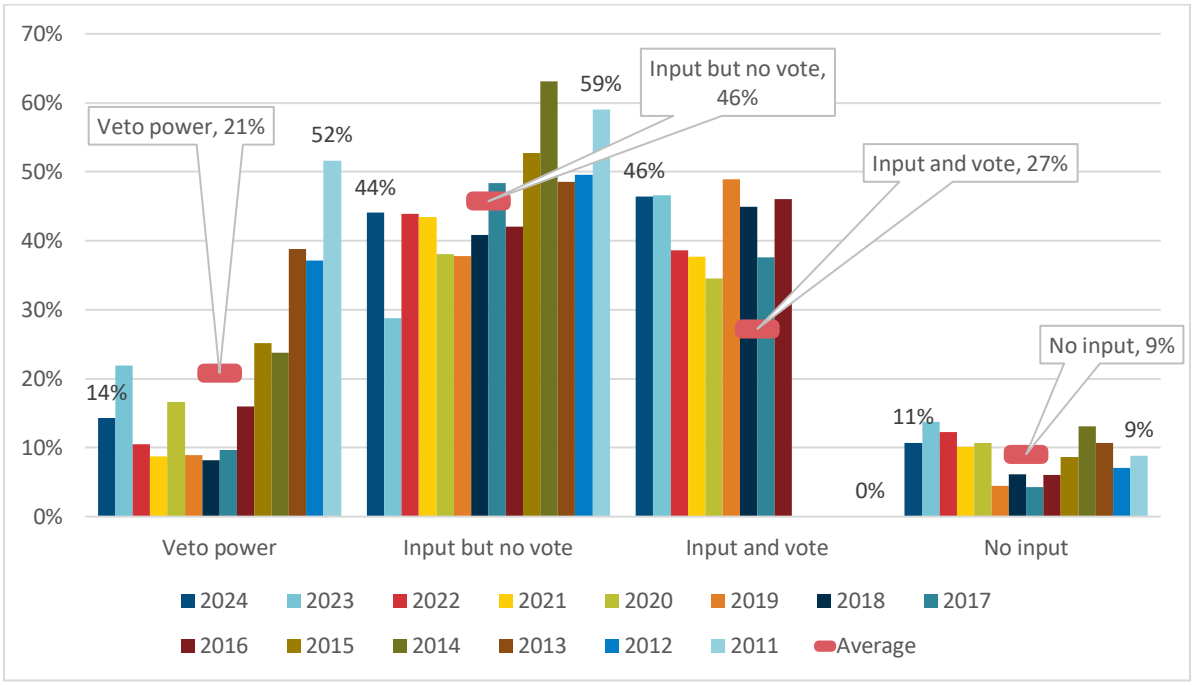
The evolution of the responses through time since the introduction provide the following insights:

- *Our ERM function can say no to a strategic opportunity* (shortened to Veto power in the graph) started at 52%, dropped quickly, and somewhat stabilized around 15% since 2016. The average is higher as a legacy of the high starting point.
- *Our ERM function has input but not a vote when a strategic opportunity is being considered* (shortened to Input but no vote) stabilized around 45%, with 2023 being an outlier.
- *Our ERM function has input and a vote when a strategic opportunity is being considered* (shortened to Input and vote) was not selected in the first few years. It also stabilized around 45%, with a low average as a legacy of the zero starting years.
- *Our ERM function has no input when a strategic opportunity is being considered* (shorten to No input) remains around 10%, aligned with history.

Figure 19

ERM CLOUT THROUGH THE YEARS

The researcher backed out percentages from respondents who stated that the question is not applicable to them.



3.13 ERM AS STRATEGIC OPPORTUNITY

"Some risk managers seek ways to exploit risk by finding opportunities that are mispriced or provide diversification. Which, if any, emerging "opportunities" do you monitor?" This open-ended question provides insight on strategic opportunities uncovered by ERM. The themes are:

- *Some niche technical opportunities*
  - *Regulatory differences between jurisdictions,*
  - *Risk adjustment framework in affordable Care Act, which is not "risk neutral", influenced by lobbying, and become a complex game-theory play for the right level of adverse morbidity*
- *Taxation, regulation (including regulatory arbitrage, affordable care act), and inefficiencies in incentives*
- *Timing of new product lines launch*
- *Technology (including AI)*
- *Climate risk*
- *Financial market for asset class investing, as well as for new product lines*
- *M&A and reinsurance transaction (assumed or ceded)*

3.14 EMPLOYER-EMPLOYEE FRICTION POINTS

This open-ended question is an evolution of the Great resignation line of questions and provides the following insights:

- *Adjustment due to the change in HR policies: Remote employee being recalled, talent acquisition challenges, office space*
- *Regular IT lapses*
- *Culture and integration challenges, carrier path impact*
- *Divergence of preference and perception between senior management and employees*

3.15 DEMOGRAPHICS

Due to the sponsoring organization footprint, the respondents were predominantly actuaries, and predominantly from the sponsoring organizations. About half responded to this survey in the past.

The seniority level of the respondents is mixed, with many not indicating seniority[10] as a risk manager. Most of the responses are from North America[11]. The split by line of practices is in line with credentials[12]: Most respondents work in the insurance/retirement industry[13].

[10] Thirty-two percent responded, 'Not applicable/not a risk manager/student,' 29% responded 'More than 10 years,' 24% did not respond to the question, and the remaining 14% responded '3 - 10 years' or 'Less than 3 years.'
[11] Seventy-three percent North America, 3% other geographies, and 23% blank.
[12] Life represents 29%, followed by Health 19%, P&C 10%, and other practices 16%, with blank representing 24%.
[13] Insurance/retirement represents 50%, Consultant represents 29%, all other options represent 17%, and blank 24%.

4 Future Recommendations

This survey should continue to use open-ended questions to learn from practitioners. Using the experience of the Project Oversight Group (POG) has worked well to develop questions and should continue. The survey should seek to expand distribution beyond North America and outside the insurance industry. Here are specific suggestions made by the researcher, POG, and respondents:

- Consider:
  - Adjusting the definition of Failing states and Regulatory regime
  - Removing unused options in the demographic questions (e.g., military), adjust questions to capture retiree or actuarial students and regroup less used options
  - Question - what types of narrative scenarios do you consider?
  - Consider adding a choice of industry-specific scenarios (e.g., massive mortality event, main supplier drop), asking to spell out the scenario further, share evaluation method, and share high level impact
  - Add something like a consumer sentiment index to the Intro section
  - Question about risk metrics
  - Consider integrating a country-specific survey
  - Consider refreshing the user guide
  - Consider asking about company-specific scenarios and/or questions around the ERM process

5 Acknowledgments

The researchers' deepest gratitude goes to those without whose efforts this project could not have come to fruition: the Project Oversight Group for their diligent work overseeing, reviewing and editing this report for accuracy and relevance. Any errors remain the responsibility of the author.

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Appendix A: Glossary of Risks – Fall 2024

These 23 risks and a description of each form the core of the Emerging Risk Survey.

A.1 ECONOMIC RISKS

- Energy price shock—Price instability and extremes of energy prices.
- Currency shock—Material disruptions to currency equilibrium, including central bank devaluations (currency wars), de-dollarization, and digital currencies.
- Emergent nation destabilization—Fast growing country's economic growth slows, potentially as a result of protectionism, demographics, internal politics, and/or economic difficulties.
- Asset price shock—Price instability and extremes of assets such as housing and equities.
- Financial volatility—Price instability and extremes of sectors, including commodities, equities, or interest rates.

A.2 ENVIRONMENTAL RISKS

- Climate change—Change in climate patterns generates both extreme events and changes in trend, impacting infrastructure, agricultural yields, soil degradation, ocean currents, ecosystem biodiversity (e.g., insects, shellfish), and human lives. Drivers of physical and transition risks include, but are not limited to, space weather, pollution, and release of greenhouse gases.
- Loss of freshwater services—Water shortages impact agriculture, businesses, and human lives. Drivers include, but are not limited to, climate change and human influence (e.g., pollution, aquifer depletion).
- Natural catastrophe: tropical storms—Hurricanes, typhoons, and cyclones lead to disruption, catastrophic economic losses, and/or high human loss of life.
- Natural catastrophe: earthquakes—Strong seismic/volcanic activity leads to disruption, catastrophic economic losses, and/or high human loss of life.
- Natural catastrophe: severe weather—Meteorological phenomena lead to disruption, catastrophic economic losses, and/or high human loss of life. Includes inland flooding, tornados, thunderstorms, heatwaves, drought, wildfires, high winds, snowstorms, and dust storms.

A.3 GEOPOLITICAL RISKS

- Terrorism—Attacks lead to disruption, catastrophic economic losses, and/or high human loss of life.
- Weapons of mass destruction—Nuclear, biological, radiological, or chemical technologies lead to disruption, catastrophic economic losses, and/or high human loss of life.
- Wars (including civil wars)—Wars erupt between or within countries, leading to disruption, catastrophic economic losses, and/or high human loss of life.
- Failed and failing states—The trend of a widening gap between order and disorder or widening social rifts.
- Transnational crime and corruption—Corruption is endemic. Non-government entities successfully penetrate the global economy.
- Globalization shift—Preference changes to imports and immigration. Changes include populism, democracy, socialism, communism, religiosity, and political uncertainty. Changes in use of technological platforms allow misinformation and disinformation to spread. Countries retrench and become more nationalistic and protectionist or open up their economies to outsiders. Inequality, privacy, and food insecurity challenge the concepts of fairness and egalitarianism.

- Regional instability—Unstable regions cause widespread political and other crises.

A.4 SOCIETAL RISKS

- Pandemics/infectious diseases—A pandemic emerges with high mortality/incidence of diseases such as HIV/AIDS, Ebola, coronavirus, or influenza. Antimicrobial resistance becomes common.
- Chronic diseases/medical delivery—Diseases such as obesity, diabetes, cardiovascular, and substance abuse become widespread or treatments appear. Material changes to medical delivery or financing.
- Demographic shift—Evolving populations size and mix (e.g., age, size, race, fertility rate, mortality rate, migration, skills, workplace environment) drive changes in economic growth and levels of government intervention.
- Liability regimes/regulatory framework—Costs increase faster than GDP, with increases in the spread and size of litigiousness (e.g., social inflation, climate litigation, systemic liabilities due to chemicals, microplastics or hazardous waste) and speed of regulatory revisions. Material changes in tax policy.

A.5 TECHNOLOGICAL RISKS

- Cyber/networks—A major disruption in the availability, reliability and resilience of critical information infrastructure caused by cyber risks, terrorist attacks, or technical failure. Results are felt in supply chains, major infrastructure: power distribution, water supply, transportation, telecommunication, emergency services, and/or finance.
- Disruptive technology—Unintended consequences of technology lead to abrupt change (e.g., artificial intelligence, drones, self-driving cars, additive manufacturing, internet of things, nanoparticles). Models become more complex but less descriptive over long time horizons.

A.6 EVOLUTION OF RISKS

The survey has attempted to maintain consistent risk definitions as much as possible. Many changes have been made based on suggestions from respondents and POG members, along with the researcher. The full survey and the following flash survey use the same definitions.

Spring 2008—23 risks generated by the WEF's *Global Risks 2007*

Fall 2008—No change to risks, minor changes to definition wording.

2009—No changes

2010—Some definitional changes:

- Changed *Oil price shock/energy supply interruptions* to *Oil price shock.*
- Changed *U.S. current account deficit/fall in U.S. dollar* to *Fall in value of US$.*
- Changed *Blow up in asset prices/excessive indebtedness* to *Blow up in asset prices.*
- Changed *Middle East instability—The Israel–Palestine conflict and Iraqi civil war continue* to *Regional instability* (a variety of hot spots are prevalent around the world. These include the Middle East and the Korean Peninsula).
- Changed *Infectious diseases in the developing world* to *Infectious diseases.*
- Changed *Chronic disease in the developed world* to *Chronic disease.*
- Changed *Emergence of risks associated with nanotechnology* to *Nanotechnology.*

2011—More substantive changes, but with an attempt to maintain trends and simplify:

- Moved *Fiscal crises caused by demographic shift* from the Economic to Societal category and renamed it *Demographic shift*; updated trend data to make it consistent going forward.
- Added *Financial volatility—price instability of core products such as commodities, energy, or currency* to the Economic category.
- Combined *Pandemic* and *Infectious diseases* to make *Pandemics/infectious diseases* (A pandemic emerges with high mortality/incidence of diseases such as HIV/AIDS spreads geographically.)
- Changed *Breakdown of critical information infrastructure (CII)* to *Cybersecurity/interconnectedness of infrastructure.*
- Changed *Nanotechnology* (Studies indicate health impairment due to unregulated exposure to a class of commonly used nanoparticles—used in paint, nanocoated clothing, cosmetics or health care—exhibiting unexpected, novel properties and easily entering the human body.) to *Technology/space weather* (Health is impaired due to exposure to nanoparticles, unintended consequences of technology or disruptions caused by geomagnetic storms, meteorites and other phenomena originating from beyond the earth.)
- Changed definition of *International terrorism* from "Attacks disrupt economic activity, causing major human and economic losses. Indirectly, attacks aid retrenchment from globalization" to "Attacks disrupt economic activity, causing major human and economic losses."
- Changed the definition of *Regional instability* from "A variety of hot spots are prevalent around the world. These include the Middle East and the Korean peninsula" to "Certain unstable areas may cause widespread political and other crises. These include, but are not limited to, the Middle East and the Korean peninsula."
- Changed definition of *Liability regimes* from "U.S. liability costs rise by multiples of GDP growth, with litigiousness spreading to Europe and Asia" to "Liability costs rise by multiples of GDP growth, with the spread of litigiousness."

2012—No changes

2013—Changes to two definitions:

- Changed *Natural catastrophe: inland flooding* to *Natural catastrophe: severe weather (except tropical storms)* and the definition to "Meteorological phenomena with the potential to cause significant economic losses, fatalities, and disruption. Includes inland flooding from all causes, tornados, thunderstorms, drought, wildfires, high winds, snowstorms, and dust storms."
- Changed *Liability regimes* to *Liability regime and regulatory framework*, and the definition to "Costs rise by multiples of GDP growth, with the spread of litigiousness and regulatory revisions."

2014—Changes to the names of two risks:

- Changed *Fall in value of US$* to *Currency trend.*
- Changed *Blow up in asset prices* to *Asset price collapse.*

2015—Changes to the names of four risks:

- Changed *Currency trend* to *Currency shock.*
- Changed *Climate change* to *Climate change (includes space weather).*
- Changed *International terrorism* to *Terrorism.*
- Changed *Technology/space weather* to *Technology* to reflect that space weather is a cause of cyclical climatic variations.

2016—Changes to the names of two risks and updates to the definitions of eight risks, mainly to adopt a consistent method of describing the negative results of a risk. Definition changes were meant to add clarity. Specifically, *Demographic shift* added migration as a specific factor:

- Changed definition of *Natural catastrophe: tropical storms* from "A hurricane or typhoon passes over heavily populated areas, leading to catastrophic economic losses and/or high human death tolls" to "A hurricane or typhoon leads to disruption, catastrophic economic losses, and/or high human loss of life."
- Changed *Natural catastrophe: earthquakes* from "Strong earthquake(s) occurs in heavily populated areas" to "Strong earthquake(s)/volcanic eruptions lead to disruption, catastrophic economic losses and/or high human loss of life."
- Changed *Natural catastrophe: severe weather (except tropical storms)* from "Meteorological phenomena with the potential to cause significant economic losses, fatalities, and disruption. Includes inland flooding from all causes, tornados, thunderstorms, drought, wildfires, high winds, snowstorms, and dust storms" to "Meteorological phenomena lead to disruption, catastrophic economic losses, and/or high human loss of life. Includes inland flooding, tornados, thunderstorms, drought, wildfires, high winds, snowstorms, and dust storms."
- Changed *Terrorism* from "Attacks disrupt economic activity, causing major human and economic losses" to "Attacks lead to disruption, catastrophic economic losses, and/or high human loss of life."
- Changed both name and definition from *Proliferation of weapons of mass destruction (WMD)*—"Treaty on the non-proliferation of Nuclear Weapons is no longer effective, leading to the spread of nuclear technologies" to *Weapons of mass destruction*—"Nuclear, biological, radiological and chemical technologies are held by unstable groups, leading to disruption, catastrophic economic losses, and/or high human loss of life."
- Changed *Demographic shift* from "Aging populations in developed economies drive economic stagnation by forcing governments to raise taxes or borrow" to "Evolving populations (e.g., age, size, migration trends) drive economic stagnation and governmental interventions."
- Changed both name and definition from *Cybersecurity/interconnectedness of infrastructure*—"A major disruption of the availability, reliability and resilience of a critical information infrastructure caused by cybercrime, terrorist attack or technical failure. Results are felt in the major infrastructure: power distribution, water supply, transportation, telecommunication, emergency services and finance" to *Cyber/interconnectedness of infrastructure*—"A major disruption of the availability, reliability and resilience of critical information infrastructure caused by cyber risks, terrorist attack or technical failure. Results are felt in major infrastructure: power distribution, water supply, transportation, telecommunication, emergency services, and finance." Comments in previous surveys had noted that cybersecurity did not cover all cyber risks.
- Changed *Technology* from "Health is impaired due to exposure to nanoparticles or unintended consequences of technology" to "Includes drones, self-driving cars, additive manufacturing (3-D printing), the internet of things, exposure to nanoparticles, or other unintended consequences of technology that lead to disruption and/or catastrophic economic losses."

2017—Changes to the names of two risks and update to the definitions of seven risks, partly to show risk as two-sided:

- Changed both name and definition from *Climate change (includes space weather)*—"Climate change generates both extreme events and gradual changes, impacting infrastructure, agricultural yields, and human lives. (Drivers are unspecified; examples include space weather and human influence.)" to *Climate change*—"Change in climate patterns generates both extreme events and gradual changes, impacting infrastructure, agricultural yields, and human lives. (Drivers include, but are not limited to, space weather and human influence.)"
- Changed the definition of *Natural catastrophe: tropical storms* from "A hurricane or typhoon leads to disruption, catastrophic economic losses, and/or high human loss of life" to "Hurricanes and typhoons lead to disruption, catastrophic economic losses, and/or high human loss of life."
- Changed the definition of *Natural catastrophe: earthquakes* from "Strong earthquake(s)/volcanic eruptions lead to disruption, catastrophic economic losses, and/or high human loss of life" to

"Strong earthquake(s)/seismic activity lead to disruption, catastrophic economic losses, and/or high human loss of life."

- Changed the definition of *Weapons of mass destruction* from "Nuclear, biological, radiological and chemical technologies are held by unstable groups, leading to disruption, catastrophic economic losses, and/or high human loss of life" to "Nuclear, biological, radiological or chemical technologies are held by unstable groups, leading to disruption, catastrophic economic losses, and/or high human loss of life."
- Changed both the name and definition from "*Retrenchment from globalization*—Rising concerns about cheap imports and immigration sharpen protectionism in developed countries. Countries become more nationalistic and state-oriented" to "*Globalization shift*—Preference changes to imports and immigration. Countries retrench and become more nationalistic and protectionist or open up their economies to outsiders."
- Changed the definition of *Demographic shift* from "Evolving populations (e.g., age, size, migration trends) drive economic stagnation and government interventions" to "Evolving populations (e.g., age, size, migration trends) drive changes in economic growth and levels of government intervention."
- Changed the definition of *Technology* from "Includes drones, self-driving cars, additive manufacturing (3-D printing), the internet of things, exposure to nanoparticles, or other unintended consequences of technology that lead to disruption and/or catastrophic economic losses" to "Unintended consequences of technology leads to disruption and/or catastrophic economic losses (e.g., drones, self-driving cars, additive manufacturing, the internet of things, exposure to nanoparticles)."

2018—Changes to the names of two risks and update to the definitions of six risks:

- Changed definition for *Natural catastrophe: earthquakes* to reflect seismic/volcanic activity rather than earthquake/seismic to clarify that volcanic activity should be included with this risk.
- Changed name from *Chinese economic hard landing* to *Chinese destabilization.*
- Changed definition of *Transnational crime and corruption* to refer to non-state entities rather than organized crime.
- Definition of *Globalization shift* adds "Inequality challenges the concept of fairness and egalitarianism."
- Definition of *Pandemics/infectious diseases* expanded to include "Antimicrobial resistance becomes common."
- Definition of *Demographic shift* adds race as an example of an evolving population.
- Changed name of *Cyber/interconnectedness of infrastructure* to *Cyber/network infrastructure.*
- Changed definition of *Technology* to list nanoparticles rather than exposure to nanoparticles.

2019—Changes to the names of five risks and update to the definitions of six risks:

- Changed definition of *Chinese destabilization* to include demographics.
- Changed definition of *Climate change* to include ecosystem biodiversity (e.g., insects, shellfish).
- Changed name of *Natural catastrophe: severe weather (except tropical storms)* to *Natural catastrophe: severe weather.*
- Changed name and definition of *Interstate and civil wars* to clarify that all wars were included. The risk is now called *Wars (including civil wars).*
- Definition of *Globalization shift* adds "Political uncertainty."
- Updated name and definition of *Chronic diseases* to incorporate medical delivery (e.g., change to single-payer system).
- Changed definition of *Liability regimes/regulatory framework* to include increases in the spread and size of litigiousness.
- Changed name of *Cyber/network infrastructure* to *Cyber/networks*, but definition is unchanged.

- Changed name of *Technology* to *Disruptive technology* due to suggestions in prior survey.

2020—No changes to the names of any risks but updates to the definitions of seven risks:

- Definition of *Currency shock* added "Central banks may engage in currency wars."
- Definition of *Loss of freshwater services* added "(Drivers include climate change and human influence.)"
- Definition of *Wars (including civil wars)* added wording to be consistent with *Weapons of mass destruction*…"leading to disruption, catastrophic economic losses, and/or high human loss of life."
- Definition of *Failed and failing states* added "or widening social rifts."
- Definition of *Globalization shift* specifically added references to populism, trade wars and food insecurity.
- Definition of *Pandemics/infectious diseases* added reference to coronavirus.
- Definition of *Liability regimes/regulatory framework* added example of social inflation under litigiousness.

2021—Change to the name of one risk and updates to definitions of four risks:

- Definition of *Currency shock* added reference to digital currencies.
- Name of *Chinese destabilization* modified to *Emergent nation destabilization* to reflect other potentially disruptive nations.
- Definition of *Climate change* expanded to specifically list TCFD (Task force on Climate-related Financial Disclosures) categories of physical and transition risks.
- Definition of *Chronic diseases/medical delivery* expanded to include substance abuse.
- Definition of *Demographic shift* list of examples expanded to include skills shortages.

2022—Change to the name of no risks and updates to definitions of 12 risks:

- Definition of *Energy price shock* changed from "Energy prices change abruptly" to "Price instability and extremes of energy prices."
- Definition of *Climate change* updated to include soil degradation and incorporate physical and transition risks directly.
- Definition of *Loss of freshwater services* updated to reference pollution.
- Definition of *Weapons of mass destruction* updated so possession is not limited to unstable groups.
- Definition of *Transnational crime and corruption* simplified from "continues to be endemic" to "is endemic."
- Definition of *Globalization shift* increased examples to include democracy, socialism, communism, and religiosity. Privacy was added to inequality and food insecurity as a concept of fairness and egalitarianism.
- Definition of *Regional instability* updated from "unstable areas" to "unstable regions."
- Definition of *Chronic diseases/medical delivery* updated to include treatments. The term "material trends" was updated to "material changes."
- Definition of *Demographic shift* was clarified by adding size and mix prior to the examples, and "skill shortages" was shortened to "skills."
- Definition of *Liability regimes/regulatory framework* was expanded to add climate litigation and tax policy.
- Definition of *Cyber/networks* was expanded to include supply chains.
- Definition of *Disruptive technology* was clarified by changing "the internet of things" to "internet of things."

2023—Change to the name of one risk and updates to definitions of 15 risks:

- Definition of *Currency shock* expanded to include de-dollarization.
- Definition of *Emergent nation destabilization* updated to reflect that more than one of the listed concerns could happen at the same time.
- Name of *Asset price collapse* modified to *Asset price shock* to enhance consistency with other Economic risks and reflect the two-sided nature of the risk. Definition now notes price instability and extremes to be consistent with other risks.
- Definition of *Financial volatility* deletes specific reference to inflation/deflation since other examples are not shown.
- Definition of *Climate change* made several changes. “Gradual changes” is now “changes in trend.” Ocean currents are added as an example. “Human influence” is replaced with “pollution, and release of greenhouse gases.”
- Definition of *Loss of freshwater services* added aquifer depletion.
- Minor grammatical change made to definition of *Natural catastrophe: earthquakes*.
- Definition of *Natural catastrophe: severe weather* expanded to include heatwaves.
- Minor grammatical change made to definition of *Weapons of mass destruction*.
- Definition of *Transnational crime and corruption* updated from “Non=state entities” to “Non-government entities.”
- Definition of *Globalization shift* updated to include “Changes in use of technological platforms allow misinformation and disinformation to spread.”
- Definition of *Demographic shift* - add examples of fertility rate, mortality rate, workplace environment.
- Definition of *Liability regimes/regulatory framework* updated to include systemic liabilities due to chemicals, microplastics or hazardous waste.
- Minor grammatical change made to definition of *Cyber/networks*.
- Definition of *Disruptive technology* examples updated to include artificial intelligence.

2024—No changes

Appendix B: Historical Context

The following data is not presented to the respondents but is useful in the analysis since recency bias has been identified as a contributing factor to the results.

Table 4
MACROECONOMIC TRENDS

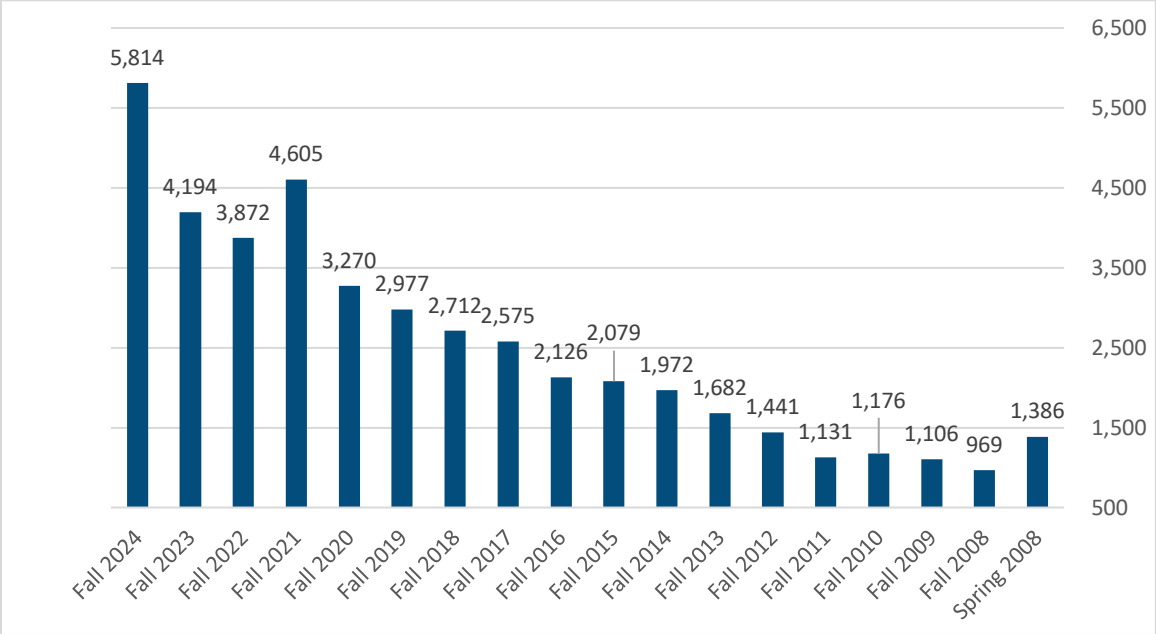
Date	Survey Date	S&P 500	Oil Price	Currency
End of April	Spring 2008	1,385.59	113.70	1.56
End of October	Fall 2008	968.75	68.10	1.27
December 11	Fall 2009	1,106.41	77.04	1.48
October 15	Fall 2010	1,176.19	84.49	1.40
End of September	Fall 2011	1,131.42	78.93	1.34
End of September	Fall 2012	1,440.67	92.18	1.29
End of September	Fall 2013	1,681.55	102.36	1.35
End of September	Fall 2014	1,972.29	91.17	1.26
End of October	Fall 2015	2,079.36	46.60	1.10
End of October	Fall 2016	2,126.15	46.83	1.10
End of October	Fall 2017	2,575.26	54.36	1.16
End of October	Fall 2018	2,711.74	65.31	1.14
End of October	Fall 2019	2,976.74	54.09	1.09
End of October	Fall 2020	3,269.96	35.64	1.16
End of October	Fall 2021	4,605.38	83.50	1.16
End of October	Fall 2022	3,871.98	86.54	0.99
End of October	Fall 2023	4,193.80	81.64	1.06
End of October	Fall 2024	5,813.67	69.58	1.09

Sources:
S&P 500 https://fred.stlouisfed.org/series/SP500
Oil price ($ per barrel) www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RWTC&f=D
EUR/USD http://www.federalreserve.gov/releases/h10/Hist/dat00_eu.htm

The initial survey was completed in April 2008, soon after Bear Stearns lost its independence. At that time, the S&P 500 stood at 1,385.59, the price of a barrel of oil was US$113.70 and one euro cost US$1.56. The price of oil was high, the stock market was at then record levels and the dollar was cheap relative to the euro. The table had been set for the financial crisis that soon followed. Today's survey reflects a near quadrupling of the S&P 500, much lower prices for oil and a much stronger U.S. dollar since before the survey began.

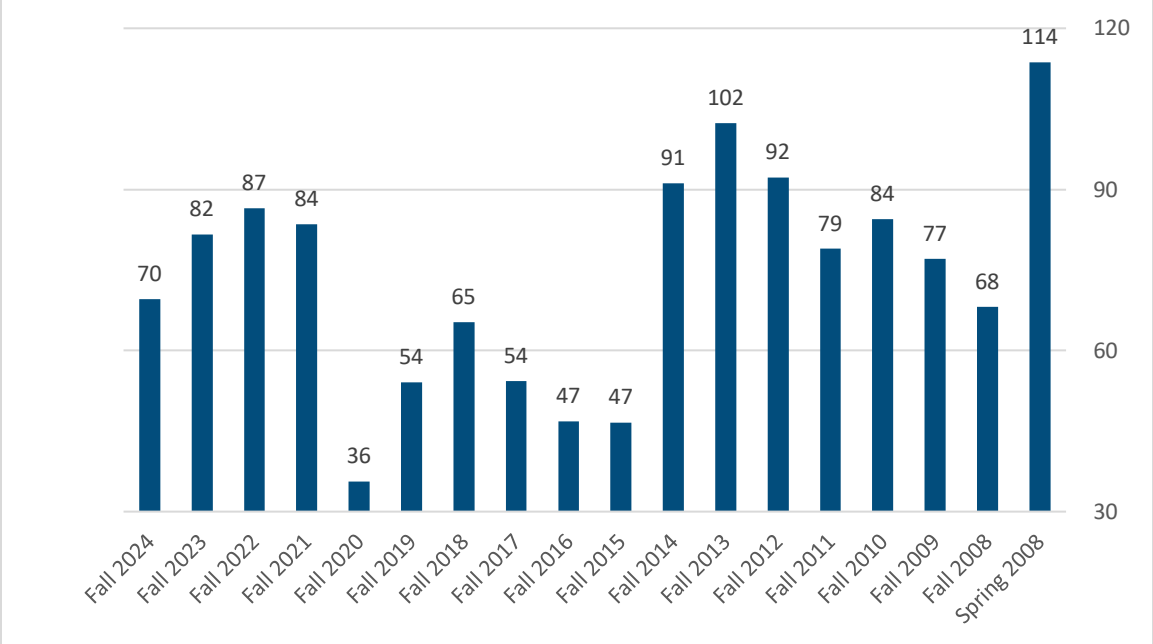
The following graphs are a visual representation of table 4.

Figure 20
S&P 500, 2008–2023



Source: S&P Dow Jones Indices LLC, S&P 500 [SP500], retrieved from FRED, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/series/SP500, April 5, 2024.

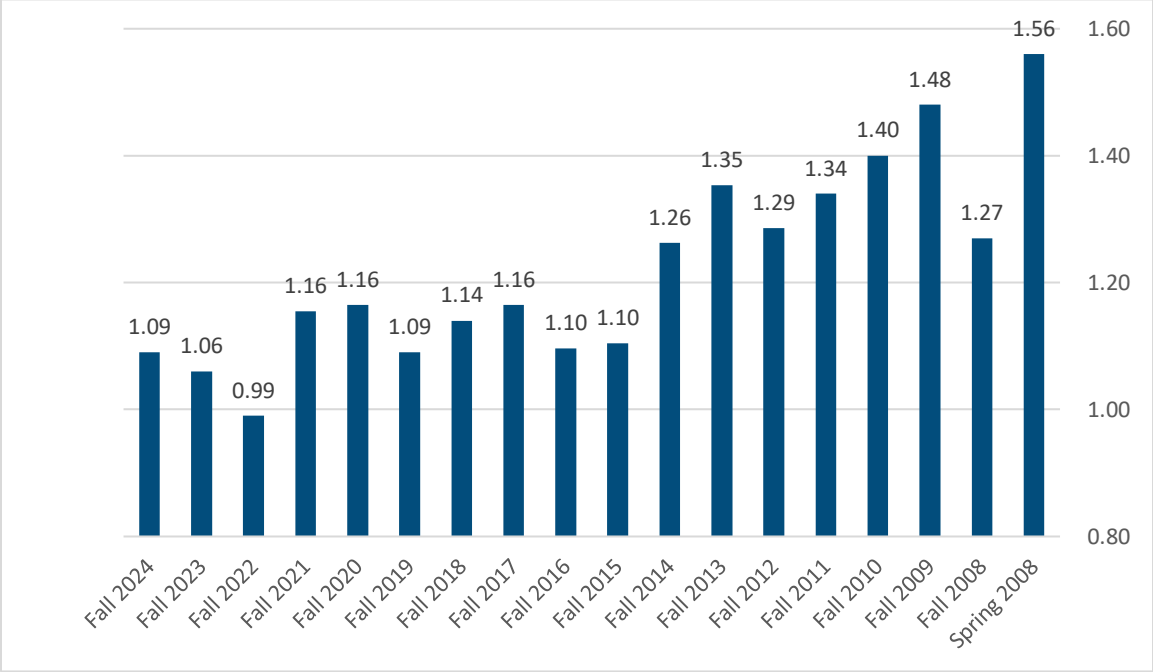
Figure 21
PRICE OF OIL, 2008–2023
US$ per barrel



Source: U.S. Energy Information Administration, Cushing, OK WTI Spot Price FOB, www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RWTC&f=D

Figure 22

EXCHANGE RATE, U.S. DOLLARS PER EURO, 2008–2023



Source: Board of Governors of the Federal Reserve System, Foreign Exchange Rates (H.10): Historical Rates for the EU Euro, www.federalreserve.gov/releases/h10/Hist/dat00_eu.htm

Appendix C: Survey Results 2023 and Earlier

Detailed results for prior surveys can be found at www.soa.org/resources/research-reports/2015/research-emerging-risks-survey-reports/

The previous surveys were distributed in April 2008, November 2008, December 2009, October 2010, October 2011, October 2012, October 2013, October 2014, November 2015, November 2016, November 2017, November 2018, November 2019, November 2020, November 2021, November 2022, and November 2023. Flash surveys were completed in May 2023 and May 2024 with a shortened set of questions. Articles, podcasts, and previous research reports can be found at:

www.soa.org/resources/research-reports/2015/research-emerging-risks-survey-reports/

April 2008—First survey

- Max J. Rudolph, International Survey of Emerging Risks, International News (SOA), August 2008, pages 18–21: http://soa.org/library/newsletters/international-section-news/2008/august/isn-2008-iss45.pdf
- Article (reprint): pages 17–20 of *Risk Management*, March 2009 issue: http://soa.org/library/newsletters/risk-management-newsletter/2009/march/jrm-2009-iss15.pdf

November 2008—Second survey

- Research report: www.soa.org/research-reports/2009/research-2009-emerging-risks-survey/

December 2009—Third survey

- Research report: www.soa.org/research-reports/2010/research-2009-emerging-risks-survey/
- Article: pages 12–14 of *The Actuary*, August/September 2010 issue: www.soa.org/library/newsletters/the-actuary-magazine/2010/august/act-2010-vol7-iss4.pdf

October 2010—Fourth survey

- Research report: www.soa.org/research-reports/2011/research-2010-emerging-risks-survey/
- Article: pages 6–9 of *Risk Management*, August 2011 issue: www.soa.org/library/newsletters/risk-management-newsletter/2011/august/jrm-2011-iss22-rudolph.pdf

October 2011—Fifth survey

- Research report: www.soa.org/research-reports/2012/research-2011-emerging-risks-survey/

October 2012—Sixth survey

- Research report: www.soa.org/research-reports/2013/research-2012-emerging-risks-survey/
- Risky Business Bulletin, June 2013: https://www.soa.org/globalassets/assets/files/newsroom/erb-2013-06.pdf
- Article: pages 12–17 of *Risk Management*, August 2013 issue: https://soa.org/Library/Newsletters/Risk-Management-Newsletter/2013/august/jrm-2013-iss27.pdf

October 2013—Seventh survey

- Research report and Key Findings: www.soa.org/research-reports/2014/2013-emerging-risks-survey/
- Article: pages 34–35 of *Risk Management*, August 2014 issue: www.soa.org/globalassets/assets/librar

y/newsletters/risk-management-newsletter/2014/august/jrm-2014-iss30.pdf

October 2014—Eighth survey

- Research report: www.soa.org/research-reports/2015/2014-emerging-risks-survey/
- Article: pages 5–6 of *Risk Management*, April 2016 issue: www.soa.org/globalassets/assets/library/newsletters/risk-management-newsletter/2016/april/rm-2016-iss-35.pdf

November 2015—Ninth survey

- Research report: www.soa.org/research-reports/2016/2015-emerging-risks-survey/

November 2016—10th survey

- Research report: www.soa.org/research-reports/2017/10th-emerging-risks-survey/
- SOA News Canada blog, *Lessons from the* Masters, September 2017: www.soa.org/Files/Research/Projects/erm-lessons-master.pdf
- Summary of findings: www.soa.org/Files/Research/Projects/10th-emerging-risks-survey-summary.pdf

November 2017—11th survey

- Research report, Key Findings report and Research Insights podcast: www.soa.org/resources/research-reports/2018/11th-emerging-risk-survey/
- SOA News Canada blog, February 2019

November 2018—12th survey

- Research report and Key Findings: www.soa.org/resources/research-reports/2019/12th-emerging-risks-survey/

November 2019—13th survey

- Research report and Key Findings: https://www.soa.org/resources/research-reports/2020/13th-emerging-risk-survey/

November 2020—14th survey

- Research report, Key Findings, Video and Data Visualizations: https://www.soa.org/resources/research-reports/2021/14th-annual-survey/

November 2021—15th survey

- Research report, Key Findings, Video, Podcast and Data Visualizations, Guide for Use: https://www.soa.org/resources/research-reports/2022/15th-survey-emerging-risks/

November 2022—16th survey

- Key Findings, Podcast: https://www.soa.org/resources/research-reports/2023/16th-survey-emerging-risks/

November 2023 – 17th survey and flash survey

- Key Findings, Podcast: https://www.soa.org/resources/research-reports/2024/17th-survey-emerging-risks/

Appendix D: 18th Survey Results (Compiled Fall 2024)

This appendix includes the survey as well as the responses. There were 201 respondents. Not all the respondents answered every question. The percentages reflect the number of responses received, divided by the number who answered that specific question. Totals shown may not add to 100% due to rounding. All tables of response percentages for recurring questions include the most recent results, starting with the current survey and working backward through the given number of surveys.

Responses to open-ended questions have been lightly edited, but original intent is unchanged. Comments are identified using *italics*. Occasionally, a comment is highlighted using boldface type to reflect those the researcher found particularly thought-provoking.

Many of the charts and tables contain only the most recent data. The accompanying Tableau data includes all 18 data points.

The following text introduced the survey to recipients via email:

> **Participate in the 18th Survey of Emerging Risks**
>
> Dear xxx,
>
> We are now gathering responses for the 18th Survey of Emerging Risks, an annual research project sponsored by the Casualty Actuarial Society (CAS) and the Society of Actuaries (SOA) Research Institute. This online survey helps the actuarial profession understand individual risk managers' perspectives on current and emerging risks. We value insights from all levels of experience and backgrounds and invite you to participate in this important survey.
>
> **Please complete this survey by November 25, 2024.** The survey should take about 15 minutes to complete. Please share your thoughts and experiences in the comment boxes. **Responses from more than one risk manager within the same company are encouraged.** All responses are anonymous.
>
> Click Here to Participate
>
> If you have questions about the survey, please email research@soa.org.
>
> Thank you for your participation.

Once inside the survey, the respondent is greeted with the following:

> **2024 Emerging Risks Survey**
> Emerging risks have either not previously occurred or have not occurred for so long that they are not taken into account. The lack of credible historical data creates a formidable challenge for risk managers. While completing the survey, please consider a time horizon that extends beyond a business plan time frame (often 3-5 years).
>
> Please respond no later than Monday, November 25, 2024. A glossary of terms is available for reference: Glossary of Risks 2024.
>
> Responses are anonymous and multiple responses from an organization are encouraged. Please distribute this survey to other risk managers or persons who think about risk, especially those from other than traditional actuarial careers.
>
> Upon completion of the survey, you will be offered a printable report of your survey responses.
>
> This survey is sponsored by the Casualty Actuarial Society and the Society of Actuaries Research Institute. The complete results will be available at www.casact.org and www.soa.org.

D.1 DEFAULT QUESTION BLOCK

Strategic impact can be thought of using time horizon. There are current risks that require immediate action, tactical risks that are accounted for in a 3–5-year plan, and strategic risks that are not expected to occur until after that time horizon but remain important.

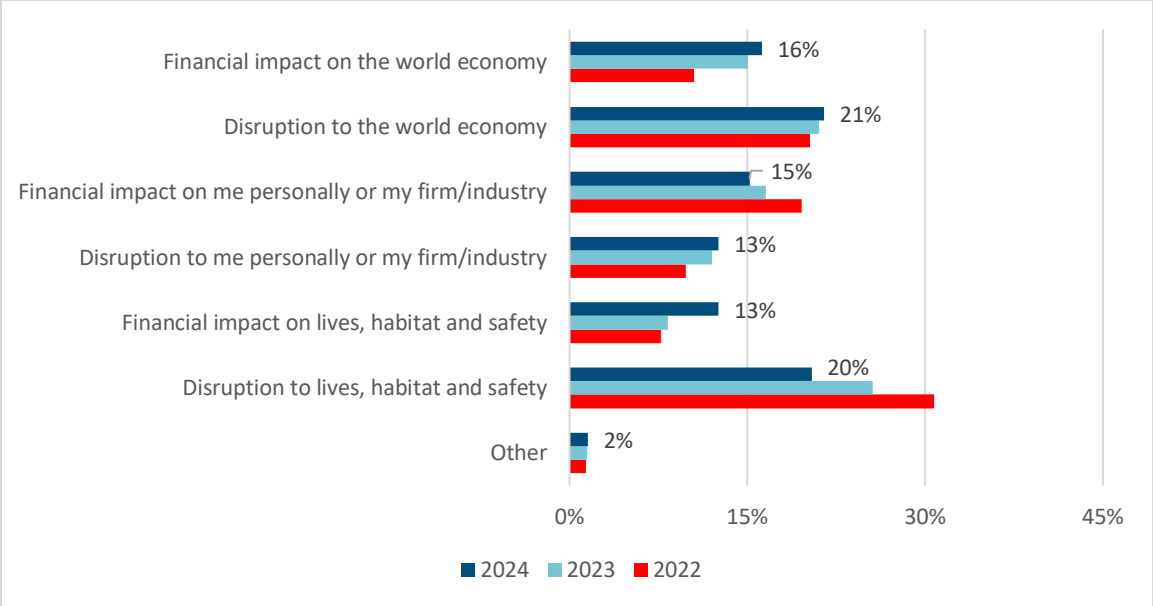
Previous surveys have found that respondents tend to be anchored in the present with their responses. It is thought that knowledge of this cognitive bias will help to understand and compensate for it, so we will start by asking you about today's current risks. The following questions will ask you to identify current and emerging risks that you expect to have the greatest strategic impact currently and in the future.

There is a balance required between keeping the list of risks current and being able to show trends. The *Survey of Emerging Risks* has tried to maintain stability for trending purposes, although the list has evolved over time, as described in appendix A.

Question 1. Greatest strategic impact related to risk can have various meanings. How do you define it?

Greatest Strategic Impact

Figure 23
GREATEST STRATEGIC IMPACT



191 total responses

Table 5
GREATEST STRATEGIC IMPACT

	2024	2023	2022	2021
Financial impact on the world economy	16%	15%	10%	10%
Disruption to the world economy	21%	21%	20%	22%
Financial impact on me personally or my firm/industry	15%	17%	20%	18%
Disruption to me personally or my firm/industry	13%	12%	10%	14%
Financial impact on lives, habitat, and safety	13%	8%	8%	10%
Disruption to lives, habitat, and safety	20%	26%	31%	21%
Other	2%	2%	1%	4%

Other:

- *A deviation from expected losses*
- *I have no idea what you are asking*
- *Under the presumption our profession is valued for its high standards of analytical rigor and its focus on solving problems using a variety of professional tools - I define "greatest strategic impact" risk as based in reputational risk and relevance risk. If the public does not view our services as credible, relevant, or demonstrably valuable, this could entail numerous risks including financial impacts and disruptions due to poor risk management and less-informed decisions making.*

Later in this analysis, some of the survey results will be segregated between how respondents answered this question.

Question 2. What is the risk that currently has the greatest impact? (Please select one.) [14] [15]

Current Risk as Percentage of Total

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																	(d)
Current Risk				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock	0%	1%	1%	3%	2%	2%	3%	8%	1%	1%	0%	0%	1%	2%	4%	4%	1%	6%	3%	5%	5%	0%	0%	3%
Currency shock	-2%	-2%	-1%	2%	4%	2%	2%	1%	1%	2%	1%	2%	0%	0%	2%	1%	6%	4%	2%	12%	17%	0%	0%	3%
Emergent nation destabilization	-1%	1%	-4%	3%	2%	7%	0%	1%	4%	1%	6%	3%	1%	2%	5%	4%	4%	4%	8%	9%	6%	0%	0%	4%
Asset price collapse	-7%	-1%	0%	3%	4%	3%	8%	9%	8%	4%	10%	8%	10%	11%	11%	18%	13%	13%	7%	16%	31%	0%	0%	10%
Financial volatility	-3%	-3%	-6%	12%	15%	19%	28%	22%	10%	6%	10%	12%	9%	13%	12%	15%	29%	28%	36%	0%	0%	0%	0%	15%
Total Economic	**-13%**	**-4%**	**-10%**	**23%**	**26%**	**33%**	**40%**	**42%**	**24%**	**14%**	**27%**	**25%**	**22%**	**29%**	**34%**	**42%**	**53%**	**54%**	**57%**	**42%**	**59%**	**0%**	**0%**	**36%**
Climate change	0%	4%	-3%	10%	6%	13%	12%	15%	17%	12%	17%	13%	11%	10%	8%	6%	4%	3%	1%	6%	8%	0%	0%	10%
Loss of freshwater services	-1%	-1%	-1%	0%	1%	1%	0%	1%	0%	1%	0%	1%	1%	1%	2%	1%	3%	3%	1%	3%	2%	0%	0%	1%
Tropical storms	3%	2%	4%	4%	1%	0%	1%	0%	0%	0%	1%	3%	2%	0%	1%	1%	1%	0%	1%	1%	0%	0%	0%	1%
Earthquakes	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	1%	1%	1%	1%	1%	0%	1%	0%	0%	0%
Severe weather	2%	0%	2%	4%	4%	2%	1%	1%	0%	2%	1%	2%	0%	1%	3%	2%	1%	0%	0%	1%	0%	0%	0%	1%
Total Environment	**4%**	**5%**	**2%**	**17%**	**12%**	**16%**	**13%**	**17%**	**17%**	**14%**	**21%**	**18%**	**16%**	**14%**	**16%**	**11%**	**9%**	**8%**	**3%**	**11%**	**10%**	**0%**	**0%**	**14%**
Terrorism	-3%	-1%	0%	1%	1%	1%	0%	1%	1%	1%	2%	4%	7%	6%	6%	8%	4%	3%	2%	5%	3%	0%	0%	3%
Weapons of mass destruction	-2%	-1%	-1%	1%	1%	2%	1%	1%	1%	1%	2%	3%	6%	4%	2%	1%	2%	3%	1%	5%	3%	0%	0%	2%
Wars (including civil wars)	6%	-6%	-8%	13%	19%	22%	13%	14%	6%	5%	6%	4%	6%	4%	5%	3%	3%	3%	3%	5%	3%	0%	0%	8%
Failed and failing states	4%	7%	6%	8%	1%	2%	3%	2%	1%	3%	5%	5%	4%	5%	2%	6%	4%	9%	12%	5%	3%	0%	0%	4%
Transnational crime and corruption	1%	1%	1%	3%	1%	2%	3%	1%	1%	1%	4%	2%	2%	1%	0%	0%	1%	0%	0%	1%	1%	0%	0%	1%
Globalization shift	4%	5%	3%	7%	3%	5%	3%	4%	2%	3%	6%	5%	4%	9%	1%	1%	1%	1%	3%	4%	1%	0%	0%	3%
Regional instability	2%	2%	1%	5%	3%	5%	3%	3%	1%	0%	3%	3%	5%	0%	4%	8%	4%	7%	5%	2%	3%	0%	0%	4%
Total Geopolitical	**12%**	**7%**	**1%**	**38%**	**30%**	**36%**	**25%**	**27%**	**13%**	**13%**	**27%**	**26%**	**33%**	**32%**	**20%**	**26%**	**18%**	**27%**	**26%**	**26%**	**17%**	**0%**	**0%**	**26%**
Pandemics/infectious diseases	-6%	-2%	-2%	2%	3%	3%	3%	4%	29%	48%	2%	2%	3%	4%	3%	8%	3%	2%	4%	4%	3%	0%	0%	7%
Chronic diseases/medical delivery	0%	-1%	1%	1%	1%	0%	2%	0%	0%	1%	3%	2%	1%	0%	0%	0%	0%	0%	1%	2%	0%	0%	0%	1%
Demographic shift	0%	0%	3%	3%	3%	0%	1%	1%	3%	0%	4%	4%	2%	2%	3%	2%	3%	1%	3%	8%	8%	0%	0%	3%
Liability regimes/regulatory framework	0%	1%	1%	2%	1%	2%	4%	1%	1%	2%	2%	3%	4%	3%	5%	6%	6%	1%	1%	0%	0%	0%	0%	2%
Total Societal	**-6%**	**-2%**	**2%**	**7%**	**8%**	**5%**	**9%**	**6%**	**34%**	**51%**	**11%**	**11%**	**10%**	**10%**	**12%**	**16%**	**11%**	**5%**	**9%**	**13%**	**11%**	**0%**	**0%**	**13%**
Cyber/networks	-1%	-6%	2%	7%	14%	5%	6%	8%	9%	5%	8%	12%	13%	11%	15%	6%	8%	6%	4%	9%	3%	0%	0%	8%
Disruptive technology	4%	-1%	3%	8%	9%	5%	6%	1%	3%	3%	6%	7%	6%	4%	3%	0%	1%	0%	1%	0%	0%	0%	0%	4%
Total Technological	**3%**	**-7%**	**4%**	**15%**	**23%**	**11%**	**12%**	**9%**	**13%**	**8%**	**15%**	**20%**	**19%**	**16%**	**18%**	**6%**	**9%**	**6%**	**5%**	**9%**	**3%**	**0%**	**0%**	**12%**

(a)-(d) is the difference between 2024 (full survey in the fall) and the average response for that risk.
(a)-(b) is the difference between 2024 (full survey in the fall) and the mid-year 2024 survey for that risk.
(a)-(c) is the difference between 2024 (full survey in the fall) and the 2023 (full survey in the fall) survey for that risk.

[14] In 2008, the survey was collected in both the spring (S) and fall (F).
[15] Respondents could select 'Other' if none of the 23 risks captured their intention. This option, as well as the non-responses, have been removed from these numbers.

Current Risk - Highest Five

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																		(d)
Current Risk				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																								
Currency shock																								
Emergent nation destabilization																								
Asset price collapse																								
Financial volatility	-3%	-3%	-6%	12%	15%	19%	28%	22%	10%	6%	10%	12%	9%	13%	12%	15%	29%	28%	36%	0%	0%	0%	0%	15%
Total Economic																								
Climate change	0%	4%	-3%	10%	6%	13%	12%	15%	17%	12%	17%	13%	11%	10%	8%	6%	4%	3%	1%	6%	8%	0%	0%	10%
Loss of freshwater services																								
Tropical storms																								
Earthquakes																								
Severe weather																								
Total Environment																								
Terrorism																								
Weapons of mass destruction																								
Wars (including civil wars)	6%	-6%	-8%	13%	19%	22%	13%	14%	6%	5%	6%	4%	6%	4%	5%	3%	3%	3%	3%	5%	3%	0%	0%	8%
Failed and failing states	4%	7%	6%	8%	1%	2%	3%	2%	1%	3%	5%	5%	4%	5%	2%	6%	4%	9%	12%	5%	3%	0%	0%	4%
Transnational crime and corruption																								
Globalization shift																								
Regional instability																								
Total Geopolitical																								
Pandemics/infectious diseases																								
Chronic diseases/medical delivery																								
Demographic shift																								
Liability regimes/regulatory framework																								
Total Societal																								
Cyber/networks																								
Disruptive technology	4%	-1%	3%	8%	9%	5%	6%	1%	3%	3%	6%	7%	6%	4%	3%	0%	1%	0%	1%	0%	0%	0%	0%	4%
Total Technological																								

Removing most data and leaving the information for the most selected risks highlights the evolution of these risks.

How to read: *Wars (including civil wars)* tops the current risk selection at 13%, 6% above its 8% average but with a sensible drop from recent values (-8% from mid year, -6% from 2023). *Financial volatility* is also high at 12%, even if well below its historical average (-3%). *Climate change*, *Failed and failing states* and *Disruptive technology* are also getting high scores (10%, 8%, and 8%, respectively). Worth noting is that some respondents selected the risk *Other* but their comments pointed to political uncertainty in the USA (political instability, the results of the US election, immigration…) and were reclassified as *Failed and failing states.*

Current Risk – Category

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																		(d)
Current Risk				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																								
Currency shock																								
Emergent nation destabilization																								
Asset price collapse																								
Financial volatility																								
Total Economic	**-13%**	**-4%**	**-10%**	**23%**	**26%**	**33%**	**40%**	**42%**	**24%**	**14%**	**27%**	**25%**	**22%**	**29%**	**34%**	**42%**	**53%**	**54%**	**57%**	**42%**	**59%**	**0%**	**0%**	**36%**
Climate change																								
Loss of freshwater services																								
Tropical storms																								
Earthquakes																								
Severe weather																								
Total Environment	**4%**	**5%**	**2%**	**17%**	**12%**	**16%**	**13%**	**17%**	**17%**	**14%**	**21%**	**18%**	**16%**	**14%**	**16%**	**11%**	**9%**	**8%**	**3%**	**11%**	**10%**	**0%**	**0%**	**14%**
Terrorism																								
Weapons of mass destruction																								
Wars (including civil wars)																								
Failed and failing states																								
Transnational crime and corruption																								
Globalization shift																								
Regional instability																								
Total Geopolitical	**12%**	**7%**	**1%**	**38%**	**30%**	**36%**	**25%**	**27%**	**13%**	**13%**	**27%**	**26%**	**33%**	**32%**	**20%**	**26%**	**18%**	**27%**	**26%**	**26%**	**17%**	**0%**	**0%**	**26%**
Pandemics/infectious diseases																								
Chronic diseases/medical delivery																								
Demographic shift																								
Liability regimes/regulatory framework																								
Total Societal	**-6%**	**-2%**	**2%**	**7%**	**8%**	**5%**	**9%**	**6%**	**34%**	**51%**	**11%**	**11%**	**10%**	**10%**	**12%**	**16%**	**11%**	**5%**	**9%**	**13%**	**11%**	**0%**	**0%**	**13%**
Cyber/networks																								
Disruptive technology																								
Total Technological	**3%**	**-7%**	**4%**	**15%**	**23%**	**11%**	**12%**	**9%**	**13%**	**8%**	**15%**	**20%**	**19%**	**16%**	**18%**	**6%**	**9%**	**6%**	**5%**	**9%**	**3%**	**0%**	**0%**	**12%**

Focusing on the categories is also insightful, noticing which are above/below their historical average, has large variation from mid year or last year.

The comments attached to the selection of the risk *Other* were reclassified.

Table 6
RECLASSIFICATION OF RISK OTHER

Comments	Reclassification	Category
Illegal immigration into The United States of America	Failed and failing states	Geopolitical
US national debt	Liability regimes & regulatory framework	Societal
Political regime change	Failed and failing states	Geopolitical
Biased impact of perceived experts that undue influence	Disruptive technology	Tech
Marxism and Adjacent Ideologies	Failed and failing states	Geopolitical
US Isolationism/tariffs/worldwide inflation and economic stagnation	Failed and failing states	Geopolitical
Political instability	Failed and failing states	Geopolitical
Political trade disruption (tariffs, trade barriers, etc.)	Failed and failing states	Geopolitical
The Results of the US election and its impact on destabilizing the US economy, climate change, NATO and democracy in the US	Failed and failing states	Geopolitical
Climate change	Climate change	Environmental
Social unrest, divisiveness in political landscape globally	Failed and failing states	Geopolitical
Global political - risk to democracy from a Trump presidency	Failed and failing states	Geopolitical
Terrorism affecting essential services such as electricity.	Terrorism	Geopolitical
Change in US regime	Failed and failing states	Geopolitical
The significant erosion of trust in information-based institutions and fragmented information systems (e.g., news platforms, government agencies, scientific bodies) - under the hypothesis that the transaction costs of communication and coordination (bedrocks for resolving conflict) are increased in such an environment, and the risks increase for miscommunication, misinformation, and overall lack of coordination around values and objectives centered around public welfare. When the tools for resolving conflict are weakened, the risks are increased for further conflict and the inability to solve existing and new problems in a wholistic, sustainable manner.	Disruptive technology	Tech
U.S. risk to democracy	Failed and failing states	Geopolitical
The rise of authoritarianism around the world	Failed and failing states	Geopolitical
American and Global Disinformation/Misinformation/Propaganda	Disruptive technology	Tech
Mismanagement by the SOA to better safeguard our profession from the rise of data science	Other (please specify)	Other
Distribution risk and price competition	Other (please specify)	Other

The *Other* selections remaining after this reclassification were removed from the numerical results.

D.2 SECTION A: EMERGING RISKS

Question 1. Please choose up to five (5) emerging risks that you feel will have the greatest strategic impact in the future. (please select no more than five)

892 total responses from 201 surveys, average of 4.43 risks selected per survey (4.83 in prior survey)

Number of responses selected (maximum of 5):

Table 7
NUMBER OF EMERGING RISK SELECTED

Number of Risks Selected	Surveys	%
0 selected	13	6%
1 selected	2	1%
2 selected	2	1%
3 selected	9	4%
4 selected	16	8%
5 selected	159	79%
Total	201	100%

Top Five Emerging Risks as Percentage of Total[16] [17]

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																	(d)
Top Five Emerging Risks				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock	-2%	1%	0%	2%	2%	3%	3%	5%	4%	1%	1%	1%	1%	2%	3%	3%	2%	7%	7%	9%	10%	8%	14%	4%
Currency shock	-3%	-1%	0%	2%	2%	2%	1%	2%	2%	2%	1%	1%	1%	2%	3%	1%	6%	6%	6%	11%	14%	10%	9%	4%
Emergent nation destabilization	-3%	1%	-2%	2%	2%	4%	2%	2%	3%	3%	5%	3%	3%	4%	5%	6%	6%	7%	7%	9%	7%	6%	9%	5%
Asset price collapse	-2%	0%	0%	3%	4%	3%	5%	4%	4%	4%	5%	4%	6%	5%	7%	7%	7%	5%	5%	7%	10%	15%	5%	6%
Financial volatility	-1%	-2%	-1%	6%	8%	7%	8%	8%	7%	7%	6%	6%	6%	9%	10%	9%	13%	13%	15%	0%	0%	0%	0%	7%
Total Economic	**-10%**	**-2%**	**-2%**	**16%**	**18%**	**19%**	**19%**	**21%**	**20%**	**17%**	**18%**	**16%**	**18%**	**23%**	**28%**	**26%**	**33%**	**38%**	**41%**	**35%**	**41%**	**40%**	**38%**	**26%**
Climate change	2%	1%	-3%	10%	9%	13%	10%	12%	12%	11%	11%	11%	6%	6%	6%	4%	4%	4%	3%	5%	6%	5%	9%	8%
Loss of freshwater services	-1%	-1%	-1%	2%	2%	2%	3%	4%	3%	2%	3%	3%	2%	2%	2%	2%	2%	2%	1%	2%	2%	2%	3%	2%
Tropical storms	1%	1%	1%	3%	1%	2%	1%	2%	1%	2%	2%	2%	3%	2%	1%	1%	2%	1%	1%	1%	2%	1%	2%	2%
Earthquakes	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	1%	1%	1%	2%	1%	1%	1%	0%	1%	1%	1%	1%	2%	1%
Severe weather	2%	0%	-1%	4%	4%	5%	2%	3%	3%	2%	3%	3%	2%	2%	2%	2%	2%	0%	1%	0%	1%	0%	1%	2%
Total Environment	**4%**	**2%**	**-3%**	**19%**	**17%**	**23%**	**16%**	**22%**	**21%**	**17%**	**20%**	**19%**	**15%**	**14%**	**12%**	**10%**	**11%**	**9%**	**8%**	**10%**	**12%**	**9%**	**18%**	**15%**
Terrorism	-3%	-3%	-1%	2%	5%	3%	2%	2%	4%	4%	4%	5%	9%	8%	8%	9%	6%	6%	4%	9%	6%	6%	4%	5%
Weapons of mass destruction	0%	1%	1%	2%	2%	1%	2%	2%	1%	2%	2%	3%	4%	2%	2%	2%	1%	3%	2%	4%	3%	3%	4%	2%
Wars (including civil wars)	5%	0%	-1%	10%	9%	11%	9%	9%	5%	5%	5%	4%	4%	4%	4%	4%	3%	3%	2%	2%	2%	2%	3%	5%
Failed and failing states	-1%	1%	2%	4%	3%	2%	3%	2%	3%	4%	4%	5%	3%	4%	4%	6%	6%	7%	10%	8%	4%	6%	2%	5%
Transnational crime and corruption	1%	1%	1%	3%	2%	2%	3%	2%	2%	2%	3%	3%	3%	2%	1%	2%	2%	1%	1%	3%	2%	2%	2%	2%
Globalization shift	1%	2%	2%	5%	3%	4%	5%	4%	4%	5%	4%	4%	4%	7%	1%	2%	3%	3%	3%	5%	4%	5%	2%	4%
Regional instability	-1%	0%	0%	4%	4%	5%	3%	4%	4%	4%	5%	4%	7%	5%	6%	8%	6%	9%	7%	5%	6%	7%	1%	5%
Total Geopolitical	**2%**	**3%**	**3%**	**31%**	**28%**	**28%**	**27%**	**25%**	**24%**	**27%**	**27%**	**28%**	**34%**	**32%**	**26%**	**33%**	**27%**	**32%**	**29%**	**37%**	**26%**	**32%**	**19%**	**29%**
Pandemics/infectious diseases	-2%	-1%	-1%	3%	4%	4%	6%	6%	8%	10%	5%	5%	3%	3%	4%	6%	4%	3%	3%	5%	6%	7%	8%	5%
Chronic diseases/medical delivery	1%	-1%	0%	3%	3%	2%	3%	2%	2%	3%	3%	2%	2%	1%	2%	1%	1%	1%	2%	1%	1%	1%	2%	2%
Demographic shift	1%	0%	0%	7%	7%	8%	6%	6%	5%	5%	7%	7%	5%	5%	6%	5%	7%	7%	7%	6%	6%	5%	6%	6%
Liability regimes/regulatory framework	0%	0%	1%	3%	3%	2%	3%	3%	3%	3%	2%	3%	3%	3%	5%	5%	5%	2%	2%	1%	1%	1%	2%	3%
Total Societal	**0%**	**-1%**	**0%**	**16%**	**17%**	**15%**	**17%**	**17%**	**18%**	**21%**	**17%**	**17%**	**13%**	**13%**	**16%**	**17%**	**17%**	**11%**	**13%**	**13%**	**14%**	**15%**	**19%**	**16%**
Cyber/networks	0%	-1%	1%	9%	10%	7%	10%	9%	11%	10%	11%	12%	11%	11%	14%	12%	10%	9%	9%	5%	4%	3%	5%	9%
Disruptive technology	4%	-1%	1%	10%	10%	8%	11%	6%	7%	9%	7%	9%	8%	7%	5%	1%	1%	1%	1%	1%	1%	1%	2%	5%
Total Technological	**4%**	**-2%**	**3%**	**18%**	**20%**	**16%**	**20%**	**15%**	**18%**	**19%**	**18%**	**21%**	**19%**	**18%**	**19%**	**14%**	**12%**	**10%**	**10%**	**6%**	**6%**	**4%**	**7%**	**14%**

(a)-(d) is the difference between 2024 (full survey in the fall) and the average response for that risk.
(a)-(b) is the difference between 2024 (full survey in the fall) and the mid-year 2024 survey for that risk.
(a)-(c) is the difference between 2024 (full survey in the fall) and the 2023 (full survey in the fall) survey for that risk.

[16] In 2008, the survey was collected in both the spring (S) and fall (F).
[17] Respondents could select 'Other' if none of the 23 risks captured their intention. This option, as well as the non-responses, have been removed from these numbers.

Top Five Emerging Risks – Highest Five

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																		(d)
Top Five Emerging Risks				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																								
Currency shock																								
Emergent nation destabilization																								
Asset price collapse																								
Financial volatility																								
Total Economic																								
Climate change	2%	1%	-3%	10%	9%	13%	10%	12%	12%	11%	11%	11%	6%	6%	6%	4%	4%	4%	3%	5%	6%	5%	9%	8%
Loss of freshwater services																								
Tropical storms																								
Earthquakes																								
Severe weather																								
Total Environment																								
Terrorism																								
Weapons of mass destruction																								
Wars (including civil wars)	5%	0%	-1%	10%	9%	11%	9%	9%	5%	5%	5%	4%	4%	4%	4%	4%	3%	3%	2%	2%	2%	2%	3%	5%
Failed and failing states																								
Transnational crime and corruption																								
Globalization shift																								
Regional instability																								
Total Geopolitical																								
Pandemics/infectious diseases																								
Chronic diseases/medical delivery																								
Demographic shift	1%	0%	0%	7%	7%	8%	6%	6%	5%	5%	7%	7%	5%	5%	6%	5%	7%	7%	7%	6%	6%	5%	6%	6%
Liability regimes/regulatory framework																								
Total Societal																								
Cyber/networks	0%	-1%	1%	9%	10%	7%	10%	9%	11%	10%	11%	12%	11%	11%	14%	12%	10%	9%	9%	5%	4%	3%	5%	9%
Disruptive technology	4%	-1%	1%	10%	10%	8%	11%	6%	7%	9%	7%	9%	8%	7%	5%	1%	1%	1%	1%	1%	1%	1%	2%	5%
Total Technological																								

Removing most data and leaving the information for the most selected risks highlights the evolution of these risks.

How to read: *Climate change* risk runs 2% above its mean, gains 1% from mid year but drops 3% from 2023. *Disruptive technology* risk runs 4% above its means, drops 1% from mid year but gains 1% from 2023. *Wars (including civil wars)* risk runs 5% above its average as its rises is more recent. *Cyber/networks* and *Demographic shift* show variations of +/-1% over recent surveys.

Top Five Emerging Risks – Category

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																		(d)
Top Five Emerging Risks				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																								
Currency shock																								
Emergent nation destabilization																								
Asset price collapse																								
Financial volatility																								
Total Economic	**-10%**	**-2%**	**-2%**	**16%**	**18%**	**19%**	**19%**	**21%**	**20%**	**17%**	**18%**	**16%**	**18%**	**23%**	**28%**	**26%**	**33%**	**38%**	**41%**	**35%**	**41%**	**40%**	**38%**	**26%**
Climate change																								
Loss of freshwater services																								
Tropical storms																								
Earthquakes																								
Severe weather																								
Total Environment	**4%**	**2%**	**-3%**	**19%**	**17%**	**23%**	**16%**	**22%**	**21%**	**17%**	**20%**	**19%**	**15%**	**14%**	**12%**	**10%**	**11%**	**9%**	**8%**	**10%**	**12%**	**9%**	**18%**	**15%**
Terrorism																								
Weapons of mass destruction																								
Wars (including civil wars)																								
Failed and failing states																								
Transnational crime and corruption																								
Globalization shift																								
Regional instability																								
Total Geopolitical	**2%**	**3%**	**3%**	**31%**	**28%**	**28%**	**27%**	**25%**	**24%**	**27%**	**27%**	**28%**	**34%**	**32%**	**26%**	**33%**	**27%**	**32%**	**29%**	**37%**	**26%**	**32%**	**19%**	**29%**
Pandemics/infectious diseases																								
Chronic diseases/medical delivery																								
Demographic shift																								
Liability regimes/regulatory framework																								
Total Societal	**0%**	**-1%**	**0%**	**16%**	**17%**	**15%**	**17%**	**17%**	**18%**	**21%**	**17%**	**17%**	**13%**	**13%**	**16%**	**17%**	**17%**	**11%**	**13%**	**13%**	**14%**	**15%**	**19%**	**16%**
Cyber/networks																								
Disruptive technology																								
Total Technological	**4%**	**-2%**	**3%**	**18%**	**20%**	**16%**	**20%**	**15%**	**18%**	**19%**	**18%**	**21%**	**19%**	**18%**	**19%**	**14%**	**12%**	**10%**	**10%**	**6%**	**6%**	**4%**	**7%**	**14%**

The comments attached to the selection of the risk *Other* were reclassified.

Table 8
RECLASSIFICATION OF RISK OTHER

Comments	Reclassification	Category
Open borders allowing illegal immigrants	Failed and failing states	Geopolitical
Political Instability	Failed and failing states	Geopolitical
Political risk	Failed and failing states	Geopolitical
Political gridlock	Failed and failing states	Geopolitical
Ignorance among leaders and complacency	Failed and failing states	Geopolitical
American Fascism	Failed and failing states	Geopolitical
Overspending & debt for Keynesian impact	Liability regimes & regulatory framework	Societal
Political instability in the US	Failed and failing states	Geopolitical
Low economic growth	Asset price shock	Economic
Corruption of the deep state	Failed and failing states	Geopolitical
AI	Disruptive technology	Tech
The significant erosion of trust in information-based institutions and fragmented information systems (e.g., news platforms, government agencies, scientific bodies) - under the hypothesis that the transaction costs of communication and coordination (bedrocks for resolving conflict) are increased in such an environment, and the risks increase for miscommunication, misinformation, and overall lack of coordination around values and objectives centered around public welfare. When the tools for resolving conflict are weakened, the risks are increased for further conflict and the inability to solve existing and new problems in a wholistic, sustainable manner.	Disruptive technology	Tech
Breakdown of general insurance markets	Other (please specify)	Other
Loss of democracy in U.S. and repercussions	Failed and failing states	Geopolitical
American & Global Disinformation/Propaganda	Failed and failing states	Geopolitical
US Debt/Deficit Spending	Liability regimes & regulatory framework	Societal

The *Other* selections remaining after this reclassification were removed from the numerical results.

Question 2. Of the emerging risks selected in the previous question, what one (1) would you rank number one as having the greatest strategic impact in the future? (Please select one.)

Top Emerging Risk as Percentage of Total

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																	(d)
Emerging Risk (top one)				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock	-1%	2%	0%	2%	0%	2%	0%	5%	2%	1%	1%	0%	0%	1%	3%	2%	1%	5%	3%	10%	7%			3%
Currency shock	-2%	0%	1%	2%	2%	2%	2%	0%	2%	2%	0%	1%	0%	1%	2%	1%	5%	7%	2%	12%	27%			4%
Emergent nation destabilization	-3%	0%	0%	1%	1%	2%	2%	1%	4%	4%	4%	2%	2%	2%	7%	5%	6%	5%	5%	14%	4%			4%
Asset price collapse	-5%	0%	-1%	2%	2%	3%	3%	6%	6%	2%	6%	5%	12%	11%	5%	10%	9%	10%	7%	11%	22%			7%
Financial volatility	-6%	-1%	-5%	6%	7%	12%	8%	15%	11%	7%	6%	6%	6%	14%	13%	14%	25%	30%	42%	0%	0%			12%
Total Economic	**-16%**	**2%**	**-6%**	**14%**	**12%**	**19%**	**15%**	**27%**	**24%**	**16%**	**18%**	**14%**	**20%**	**28%**	**31%**	**32%**	**47%**	**56%**	**59%**	**46%**	**60%**			**30%**
Climate change	5%	8%	-8%	19%	12%	27%	22%	28%	27%	27%	28%	23%	7%	6%	6%	3%	5%	5%	2%	4%	7%			14%
Loss of freshwater services	0%	-1%	-1%	2%	3%	2%	3%	2%	0%	2%	3%	2%	0%	0%	0%	0%	0%	0%	0%	2%	3%			1%
Tropical storms	0%	0%	1%	1%	1%	0%	0%	0%	0%	1%	0%	1%	0%	1%	0%	1%	0%	1%	1%	1%	2%			1%
Earthquakes	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%			0%
Severe weather	0%	-1%	-1%	1%	1%	2%	1%	1%	1%	1%	2%	1%	0%	2%	1%	1%	1%	0%	0%	0%	0%			1%
Total Environment	**5%**	**6%**	**-9%**	**22%**	**16%**	**31%**	**26%**	**31%**	**28%**	**30%**	**33%**	**27%**	**9%**	**9%**	**8%**	**5%**	**6%**	**6%**	**4%**	**7%**	**13%**			**17%**
Terrorism	-2%	-1%	0%	1%	1%	1%	1%	0%	1%	1%	2%	2%	9%	4%	6%	9%	4%	1%	2%	4%	2%			3%
Weapons of mass destruction	1%	2%	3%	3%	1%	0%	1%	1%	1%	1%	1%	1%	2%	3%	2%	2%	1%	1%	2%	7%	5%			2%
Wars (including civil wars)	6%	2%	-1%	11%	9%	12%	8%	6%	3%	5%	3%	3%	4%	4%	4%	3%	2%	3%	1%	5%	1%			5%
Failed and failing states	2%	5%	4%	6%	1%	2%	1%	1%	1%	3%	5%	3%	4%	5%	3%	9%	5%	8%	13%	8%	2%			4%
Transnational crime and corruption	0%	-1%	-1%	2%	3%	2%	2%	2%	1%	1%	2%	2%	1%	2%	0%	0%	1%	0%	0%	0%	1%			1%
Globalization shift	2%	3%	2%	5%	3%	4%	7%	6%	2%	5%	3%	4%	4%	10%	0%	2%	1%	3%	2%	3%	1%			4%
Regional instability	-2%	-1%	-2%	1%	2%	3%	3%	2%	1%	2%	2%	3%	7%	4%	6%	8%	4%	8%	4%	1%	3%			4%
Total Geopolitical	**6%**	**10%**	**5%**	**29%**	**19%**	**24%**	**22%**	**19%**	**11%**	**19%**	**18%**	**18%**	**33%**	**30%**	**23%**	**32%**	**18%**	**24%**	**23%**	**29%**	**14%**			**22%**
Pandemics/infectious diseases	-1%	-1%	1%	2%	3%	1%	3%	1%	6%	9%	2%	4%	0%	2%	1%	3%	1%	1%	2%	4%	2%			2%
Chronic diseases/medical delivery	0%	-2%	0%	1%	3%	1%	2%	1%	1%	1%	0%	2%	1%	1%	0%	0%	0%	1%	0%	1%	0%			1%
Demographic shift	2%	-2%	-2%	7%	9%	9%	7%	8%	7%	4%	5%	5%	3%	3%	1%	4%	3%	2%	3%	4%	5%			5%
Liability regimes/regulatory framework	1%	1%	4%	4%	3%	0%	4%	2%	4%	2%	2%	2%	7%	3%	7%	9%	10%	2%	1%	0%	0%			4%
Total Societal	**2%**	**-4%**	**3%**	**14%**	**17%**	**10%**	**16%**	**12%**	**17%**	**16%**	**9%**	**12%**	**11%**	**9%**	**10%**	**16%**	**14%**	**6%**	**6%**	**8%**	**7%**			**12%**
Cyber/networks	-5%	-6%	3%	5%	11%	2%	6%	7%	13%	3%	11%	15%	17%	17%	23%	15%	15%	8%	7%	10%	5%			11%
Disruptive technology	9%	-8%	4%	17%	24%	13%	16%	4%	6%	15%	11%	14%	10%	8%	5%	1%	1%	1%	1%	0%	1%			8%
Total Technological	**3%**	**-13%**	**7%**	**22%**	**36%**	**16%**	**22%**	**11%**	**20%**	**19%**	**21%**	**29%**	**27%**	**25%**	**29%**	**16%**	**16%**	**8%**	**8%**	**10%**	**6%**			**19%**

(a)-(d) is the difference between 2024 (full survey in the fall) and the average response for that risk.
(a)-(b) is the difference between 2024 (full survey in the fall) and the mid-year 2024 survey for that risk.
(a)-(c) is the difference between 2024 (full survey in the fall) and the 2023 (full survey in the fall) survey for that risk.

This question was not asked in 2008.

Top Five Emerging Risks – Highest Five

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																	(d)
Emerging Risk (top one)				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																							
Currency shock																							
Emergent nation destabilization																							
Asset price collapse																							
Financial volatility	-6%	-1%	-5%	6%	7%	12%	8%	15%	11%	7%	6%	6%	6%	14%	13%	14%	25%	30%	42%	0%	0%			12%
Total Economic																							
Climate change	5%	8%	-8%	19%	12%	27%	22%	28%	27%	27%	28%	23%	7%	6%	6%	3%	5%	5%	2%	4%	7%			14%
Loss of freshwater services																							
Tropical storms																							
Earthquakes																							
Severe weather																							
Total Environment																							
Terrorism																							
Weapons of mass destruction																							
Wars (including civil wars)	6%	2%	-1%	11%	9%	12%	8%	6%	3%	5%	3%	3%	4%	4%	4%	3%	2%	3%	1%	5%	1%			5%
Failed and failing states																							
Transnational crime and corruption																							
Globalization shift																							
Regional instability																							
Total Geopolitical																							
Pandemics/infectious diseases																							
Chronic diseases/medical delivery																							
Demographic shift	2%	-2%	-2%	7%	9%	9%	7%	8%	7%	4%	5%	5%	3%	3%	1%	4%	3%	2%	3%	4%	5%			5%
Liability regimes/regulatory framework																							
Total Societal																							
Cyber/networks																							
Disruptive technology	9%	-8%	4%	17%	24%	13%	16%	4%	6%	15%	11%	14%	10%	8%	5%	1%	1%	1%	1%	0%	1%			8%
Total Technological																							

Removing most data and leaving the information for the most selected risks highlights the evolution of these risks.

How to read: *Climate change* risk runs 5% above its mean, gains 8% from mid year but drops 8% from 2023. *Disruptive technology* risk runs 9% above its means, drops 8% from mid year but gains 4% from 2023. *Wars (including civil wars)* risk runs 6% above its average as its rise is more recent. *Demographic shift* is more stable over time. *Financial volatility* was historically high and runs well below its historical average.

Top Five Emerging Risks – Category

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																		(d)
Emerging Risk (top one)				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																								
Currency shock																								
Emergent nation destabilization																								
Asset price collapse																								
Financial volatility																								
Total Economic	**-16%**	**2%**	**-6%**	**14%**	**12%**	**19%**	**15%**	**27%**	**24%**	**16%**	**18%**	**14%**	**20%**	**28%**	**31%**	**32%**	**47%**	**56%**	**59%**	**46%**	**60%**	**0%**	**0%**	**30%**
Climate change																								
Loss of freshwater services																								
Tropical storms																								
Earthquakes																								
Severe weather																								
Total Environment	**5%**	**6%**	**-9%**	**22%**	**16%**	**31%**	**26%**	**31%**	**28%**	**30%**	**33%**	**27%**	**9%**	**9%**	**8%**	**5%**	**6%**	**6%**	**4%**	**7%**	**13%**	**0%**	**0%**	**17%**
Terrorism																								
Weapons of mass destruction																								
Wars (including civil wars)																								
Failed and failing states																								
Transnational crime and corruption																								
Globalization shift																								
Regional instability																								
Total Geopolitical	**6%**	**10%**	**5%**	**29%**	**19%**	**24%**	**22%**	**19%**	**11%**	**19%**	**18%**	**18%**	**33%**	**30%**	**23%**	**32%**	**18%**	**24%**	**23%**	**29%**	**14%**	**0%**	**0%**	**22%**
Pandemics/infectious diseases																								
Chronic diseases/medical delivery																								
Demographic shift																								
Liability regimes/regulatory framework																								
Total Societal	**2%**	**-4%**	**3%**	**14%**	**17%**	**10%**	**16%**	**12%**	**17%**	**16%**	**9%**	**12%**	**11%**	**9%**	**10%**	**16%**	**14%**	**6%**	**6%**	**8%**	**7%**	**0%**	**0%**	**12%**
Cyber/networks																								
Disruptive technology																								
Total Technological	**3%**	**-13%**	**7%**	**22%**	**36%**	**16%**	**22%**	**11%**	**20%**	**19%**	**21%**	**29%**	**27%**	**25%**	**29%**	**16%**	**16%**	**8%**	**8%**	**10%**	**6%**	**0%**	**0%**	**19%**

Question 3, 4, and 5. Questions 3, 4 and 5 should be considered at the same time. Of the 23 emerging risks, are there combinations that you believe will have a large strategic impact in the future? These could occur at the same time (concurrent) or follow each other (sequential). Please select a combination of TWO risks for each response.

Top Combination as Percentage of Total

	(a)-(d)		(a)-(c)	(a)	(b)	(c)																	(d)
Combo				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock	-3%		-2%	2%		4%		6%	5%	2%	2%	2%	2%	2%	4%	4%	3%	9%	9%	9%	13%			5%
Currency shock	-2%		1%	3%		2%		2%	3%	1%	2%	2%	2%	3%	4%	2%	8%	6%	6%	13%	18%			5%
Emergent nation destabilization	-3%		-2%	2%		3%		3%	2%	3%	5%	3%	3%	4%	5%	5%	6%	7%	8%	10%	8%			5%
Asset price collapse	-4%		0%	3%		4%		7%	6%	6%	6%	7%	7%	7%	8%	10%	7%	8%	6%	7%	11%			7%
Financial volatility	0%		-2%	9%		11%		11%	8%	9%	7%	8%	8%	11%	12%	13%	16%	15%	19%	0%	0%			10%
Total Economic	**-12%**		**-4%**	**19%**		**24%**		**29%**	**25%**	**21%**	**23%**	**22%**	**23%**	**28%**	**33%**	**35%**	**40%**	**46%**	**48%**	**40%**	**50%**			**31%**
Climate change	2%		-4%	9%		13%		11%	11%	9%	12%	11%	7%	5%	4%	4%	4%	4%	2%	4%	6%			7%
Loss of freshwater services	0%		0%	2%		3%		4%	3%	2%	3%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%			2%
Tropical storms	1%		0%	3%		2%		2%	2%	2%	2%	3%	3%	2%	2%	1%	2%	1%	1%	2%	2%			2%
Earthquakes	0%		0%	0%		1%		0%	0%	0%	0%	1%	1%	1%	1%	0%	0%	1%	2%	1%	1%			1%
Severe weather	1%		-1%	4%		4%		3%	3%	2%	3%	3%	3%	2%	2%	2%	3%	1%	1%	1%	2%			2%
Total Environment	**4%**		**-4%**	**18%**		**23%**		**19%**	**18%**	**16%**	**20%**	**21%**	**15%**	**12%**	**12%**	**10%**	**11%**	**9%**	**7%**	**11%**	**13%**			**15%**
Terrorism	-2%		0%	4%		4%		3%	4%	4%	5%	5%	8%	9%	8%	9%	6%	6%	6%	9%	6%			6%
Weapons of mass destruction	-1%		-1%	2%		3%		2%	2%	2%	2%	3%	4%	2%	2%	2%	4%	4%	2%	4%	4%			3%
Wars (including civil wars)	4%		-2%	10%		11%		10%	7%	7%	6%	4%	4%	4%	4%	4%	4%	4%	3%	4%	1%			5%
Failed and failing states	-1%		2%	5%		3%		3%	4%	6%	5%	6%	5%	5%	5%	7%	6%	8%	9%	8%	3%			6%
Transnational crime and corruption	0%		1%	3%		2%		2%	3%	3%	2%	3%	3%	3%	2%	2%	4%	1%	2%	2%	1%			2%
Globalization shift	0%		1%	4%		3%		4%	3%	5%	4%	4%	5%	6%	1%	3%	3%	3%	3%	4%	3%			4%
Regional instability	0%		0%	5%		5%		4%	5%	4%	6%	5%	7%	6%	5%	7%	6%	7%	7%	5%	6%			6%
Total Geopolitical	**1%**		**2%**	**33%**		**31%**		**28%**	**28%**	**31%**	**30%**	**30%**	**35%**	**34%**	**28%**	**35%**	**32%**	**32%**	**32%**	**35%**	**25%**			**31%**
Pandemics/infectious diseases	-1%		0%	3%		3%		5%	6%	7%	3%	4%	3%	3%	3%	4%	2%	2%	1%	4%	4%			4%
Chronic diseases/medical delivery	1%		1%	2%		1%		2%	3%	3%	2%	2%	2%	1%	1%	1%	0%	1%	1%	0%	1%			2%
Demographic shift	2%		1%	6%		5%		4%	3%	4%	5%	4%	3%	4%	3%	4%	3%	3%	3%	5%	4%			4%
Liability regimes/regulatory framework	0%		1%	2%		1%		2%	2%	2%	2%	1%	3%	2%	3%	3%	4%	1%	1%	0%	1%			2%
Total Societal	**2%**		**3%**	**13%**		**10%**		**14%**	**13%**	**16%**	**12%**	**12%**	**11%**	**10%**	**10%**	**12%**	**9%**	**7%**	**6%**	**10%**	**9%**			**11%**
Cyber/networks	0%		1%	8%		6%		6%	9%	8%	8%	9%	10%	10%	12%	7%	7%	5%	6%	3%	2%			7%
Disruptive technology	5%		3%	9%		6%		4%	6%	7%	7%	7%	6%	5%	5%	1%	1%	1%	1%	0%	1%			4%
Total Technological	**5%**		**4%**	**16%**		**12%**		**11%**	**16%**	**15%**	**15%**	**15%**	**17%**	**15%**	**17%**	**8%**	**9%**	**5%**	**7%**	**4%**	**3%**			**12%**

In a similar format, the table above shows the relative percentage a risk has been selected. This question is not asked mid year.

Top Combination – Highest Five

	(a)-(d)		(a)-(c)	(a)	(b)	(c)																	(d)
Combo				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																							
Currency shock																							
Emergent nation destabilization																							
Asset price collapse																							
Financial volatility	0%		-2%	9%		11%		11%	8%	9%	7%	8%	8%	11%	12%	13%	16%	15%	19%	0%	0%			10%
Total Economic																								
Climate change	2%		-4%	9%		13%		11%	11%	9%	12%	11%	7%	5%	4%	4%	4%	4%	2%	4%	6%			7%
Loss of freshwater services																								
Tropical storms																								
Earthquakes																								
Severe weather																								
Total Environment																								
Terrorism																								
Weapons of mass destruction																								
Wars (including civil wars)	4%		-2%	10%		11%		10%	7%	7%	6%	4%	4%	4%	4%	4%	4%	4%	3%	4%	1%			5%
Failed and failing states																								
Transnational crime and corruption																								
Globalization shift																								
Regional instability																								
Total Geopolitical																								
Pandemics/infectious diseases																								
Chronic diseases/medical delivery																								
Demographic shift																								
Liability regimes/regulatory framework																								
Total Societal																								
Cyber/networks	0%		1%	8%		6%		6%	9%	8%	8%	9%	10%	10%	12%	7%	7%	5%	6%	3%	2%			7%
Disruptive technology	5%	0%	3%	9%		6%		4%	6%	7%	7%	7%	6%	5%	5%	1%	1%	1%	1%	0%	1%			4%
Total Technological																								

Top Combination – Category

	(a)-(d)	(a)-(b)	(a)-(c)	(a)	(b)	(c)																		(d)
Combo				**2024**	**2024 mid**	**2023**	**2023 mid**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**F 2008**	**S 2008**	**Mean**
Energy price shock																								
Currency shock																								
Emergent nation destabilization																								
Asset price collapse																								
Financial volatility																								
Total Economic	**-12%**	**0%**	**-4%**	**19%**	**0%**	**24%**	**0%**	**29%**	**25%**	**21%**	**23%**	**22%**	**23%**	**28%**	**33%**	**35%**	**40%**	**46%**	**48%**	**40%**	**50%**	**0%**	**0%**	**31%**
Climate change																								
Loss of freshwater services																								
Tropical storms																								
Earthquakes																								
Severe weather																								
Total Environment	**4%**	**0%**	**-4%**	**18%**	**0%**	**23%**	**0%**	**19%**	**18%**	**16%**	**20%**	**21%**	**15%**	**12%**	**12%**	**10%**	**11%**	**9%**	**7%**	**11%**	**13%**	**0%**	**0%**	**15%**
Terrorism																								
Weapons of mass destruction																								
Wars (including civil wars)																								
Failed and failing states																								
Transnational crime and corruption																								
Globalization shift																								
Regional instability																								
Total Geopolitical	**1%**	**0%**	**2%**	**33%**	**0%**	**31%**	**0%**	**28%**	**28%**	**31%**	**30%**	**30%**	**35%**	**34%**	**28%**	**35%**	**32%**	**32%**	**32%**	**35%**	**25%**	**0%**	**0%**	**31%**
Pandemics/infectious diseases																								
Chronic diseases/medical delivery																								
Demographic shift																								
Liability regimes/regulatory framework																								
Total Societal	**2%**	**0%**	**3%**	**13%**	**0%**	**10%**	**0%**	**14%**	**13%**	**16%**	**12%**	**12%**	**11%**	**10%**	**10%**	**12%**	**9%**	**7%**	**6%**	**10%**	**9%**	**0%**	**0%**	**11%**
Cyber/networks																								
Disruptive technology																								
Total Technological	**5%**	**0%**	**4%**	**16%**	**0%**	**12%**	**0%**	**11%**	**16%**	**15%**	**15%**	**15%**	**17%**	**15%**	**17%**	**8%**	**9%**	**5%**	**7%**	**4%**	**3%**	**0%**	**0%**	**12%**

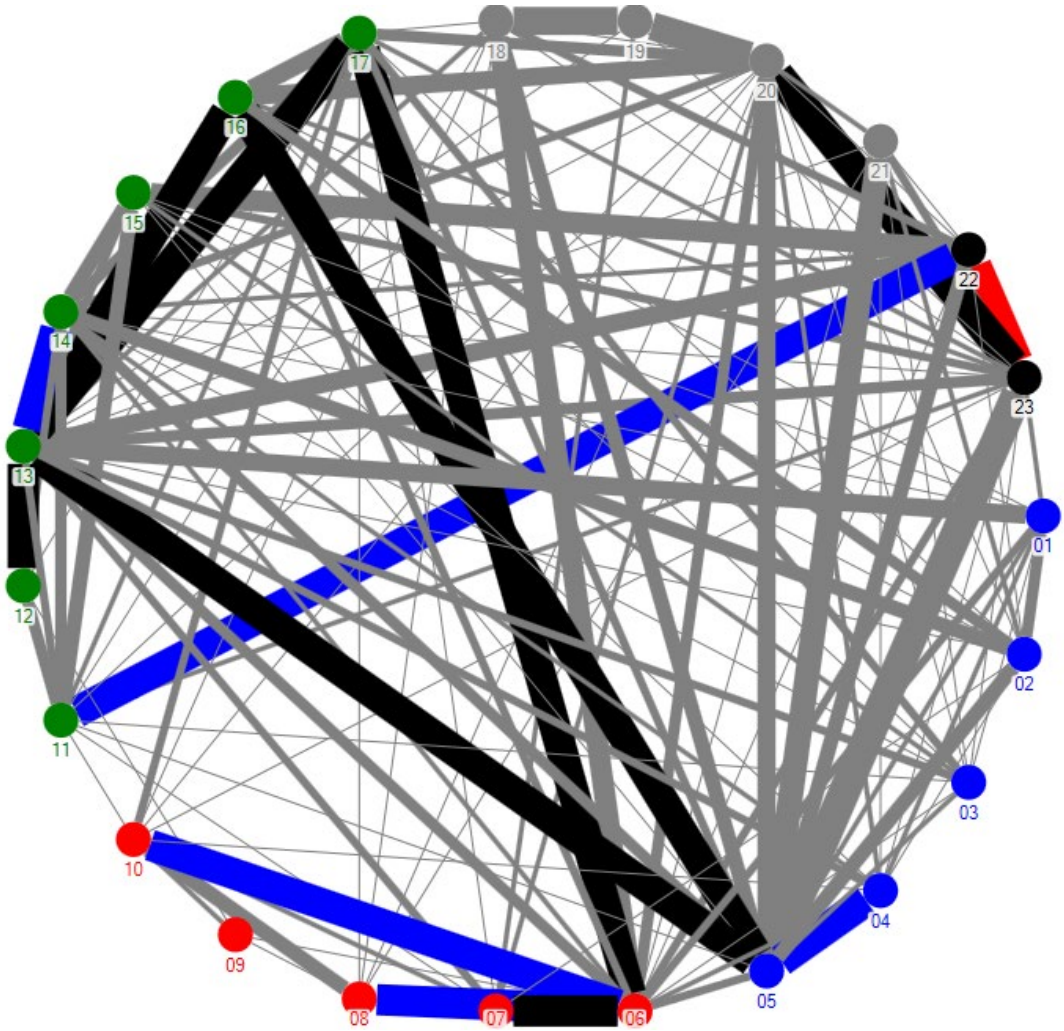
Removing the historical dimension allows a visual representation of the combination selected, for individual risk and by category. The largest ten are highlighted, with a four-way tie for seventh place.

	01.Energy	02.Curren	03.Emerge	04.Asset p	05.Financ	06.Climat	07.Loss of	08.Natura	09.Natura	10.Natura	11.Terrori	12.Weapo	13.Wars (i	14.Failed	15.Transn	16.Global	17.Region	18.Pander	19.Chroni	20.Demog	21.Liabilit	22.Cyber/	23.Disrupt
01.Energy	x	4	1	2	2	3	0	0	0	0	0	0	6	1	1	1	0	0	0	0	0	0	2
02.Curren	x	x	0	1	5	0	1	0	0	0	0	0	1	5	1	4	1	0	0	1	2	1	0
03.Emerge	x	x	x	0	2	1	0	0	0	0	1	0	3	1	2	1	3	0	0	1	1	0	1
04.Asset p	x	x	x	x	18	2	0	0	0	1	0	0	3	2	1	0	0	0	0	2	1	0	1
05.Financ	x	x	x	x	x	3	0	0	0	0	1	0	10	4	1	10	3	5	0	6	8	5	13
06.Climat	x	x	x	x	x	x	10	17	1	21	0	0	4	2	0	3	11	7	0	4	1	1	3
07.Loss of	x	x	x	x	x	x	x	1	0	2	1	0	3	0	0	0	1	0	2	2	0	0	0
08.Natura	x	x	x	x	x	x	x	x	1	5	0	0	0	0	0	0	1	1	0	1	1	0	0
09.Natura	x	x	x	x	x	x	x	x	x	2	0	1	0	0	0	0	0	0	0	0	0	0	0
10.Natura	x	x	x	x	x	x	x	x	x	x	1	0	0	0	0	0	3	1	0	1	0	0	1
11.Terroris	x	x	x	x	x	x	x	x	x	x	x	4	3	4	5	0	2	1	0	1	0	14	2
12.Weapo	x	x	x	x	x	x	x	x	x	x	x	x	11	3	0	0	1	0	0	0	0	0	0
13.Wars (i	x	x	x	x	x	x	x	x	x	x	x	x	x	14	3	10	11	2	1	1	1	6	4
14.Failed	x	x	x	x	x	x	x	x	x	x	x	x	x	x	5	0	4	0	0	3	0	2	1
15.Transn	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	0	0	0	0	0	0	7	3
16.Global	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	6	0	0	6	0	0	2
17.Region	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	1	0	4	0	0	2
18.Pander	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	9	1	0	3	1
19.Chroni	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	9	0	0	1
20.Demog	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	2	1	11
21.Liabilit	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	1	3
22.Cyber/	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	38
23.Disrup	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

	1.Economic	2.Environmental	3.Geopolitical	4.Societal	5.Tech
1.Economic	35	11	67	27	23
2.Environmental	x	60	31	21	5
3.Geopolitical	x	x	86	21	43
4.Societal	x	x	x	21	21
5.Tech	x	x	x	x	38

The graphical representation of the connections below uses blue dots for the economic risks, numbered 01 to 05, red dots for the environmental risks numbered 06 to 10, green dots for the geopolitical risks numbered 11 to 17, gray dots for the societal risks numbered 18 to 21, and black dots for the technological risks numbered 22 to 23. The red link shows the strongest connection, 38, the blue links show the next five strongest connections, the black links show the connections that are above 10, and the gray links showing all other connections.

Figure 19
CIRCLE REPRESENTATION OF THE COMBINATION LINKS



Each year, a specialty question is asked. Traditionally, the question has not been repeated in subsequent surveys, but some may cycle through periodically.

Question 6. The rapid development of Artificial Intelligence (AI) is changing the business world, presenting risks and opportunities. For the following questions on the risk around Artificial Intelligence, please consider the term AI broadly, inclusive of Predictive Modeling Systems (from Generalized Linear Models to more recent modeling techniques), as well as GenAI models (Large Language Model and Picture/Video generation or analysis).

Please rank the following risks associated with AI by dragging the risk from the largest (1) to the smallest (11).

Table 9
RANKING OF AI RISKS

Risk / Rank	1	2	3	4	5	6	7	8	9	10	11
Bias and discrimination	13	20	28	21	11	16	11	14	13	11	1
Copyright infringement	4	9	9	11	18	14	24	17	26	25	2
Increased Cybersecurity risk	42	35	17	17	16	13	8	5	6	0	0
Manipulation leveraging AI capabilities, including Deepfake	43	31	16	16	15	10	11	9	5	2	1
Hallucinations	2	5	17	14	11	18	20	16	15	40	1
Impact on workforce with AI replacing positions	11	11	14	10	20	17	20	21	18	17	0
Overreliance on AI responses	20	10	21	16	30	19	15	15	11	2	0
Risk of not using AI	8	8	10	14	12	14	17	20	28	28	0
Synthetic data (Using AI to train AI) degrading the quality of the response	1	13	11	18	12	20	20	22	24	17	1
Lack of Transparency	14	15	15	21	13	18	13	20	13	17	0
Other	1	2	1	1	1	0	0	0	0	0	153

Table 10
COMMENTS ATTACHED TO THE SELECTION OF OTHER

Comments
Lack of regulation
Organized crime
Current AI is programmed with woke mind biases and errors
AI being used for political disinformation within the US by Government and unfairly by corporations
Devastation of absolute truth
Energy requirements and impact on environment
Cost
Environmental and sustainability impact

Question 7. Which is/are the primary area(s) responsible for managing these AI risks at your organization or for your clients? (please select all that apply)

Figure 20

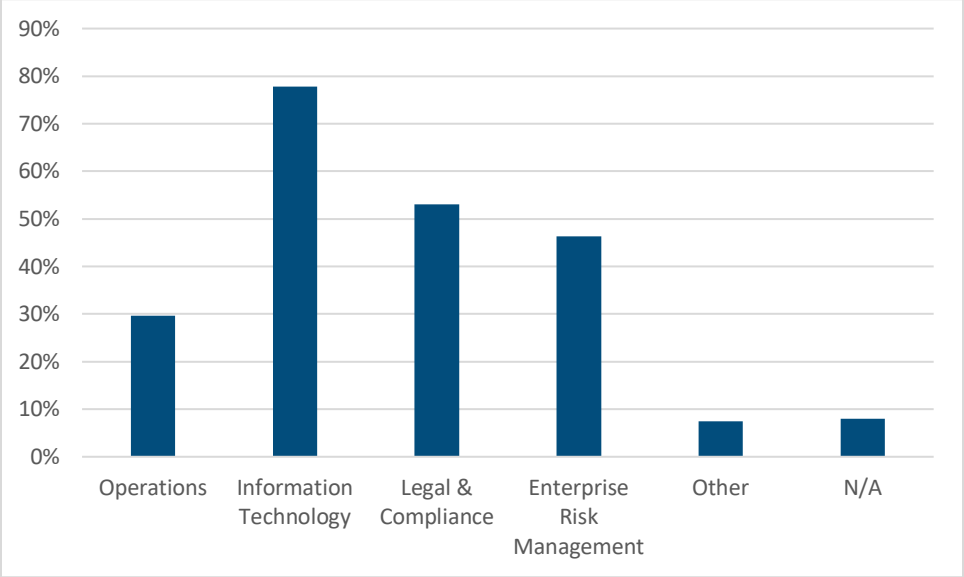
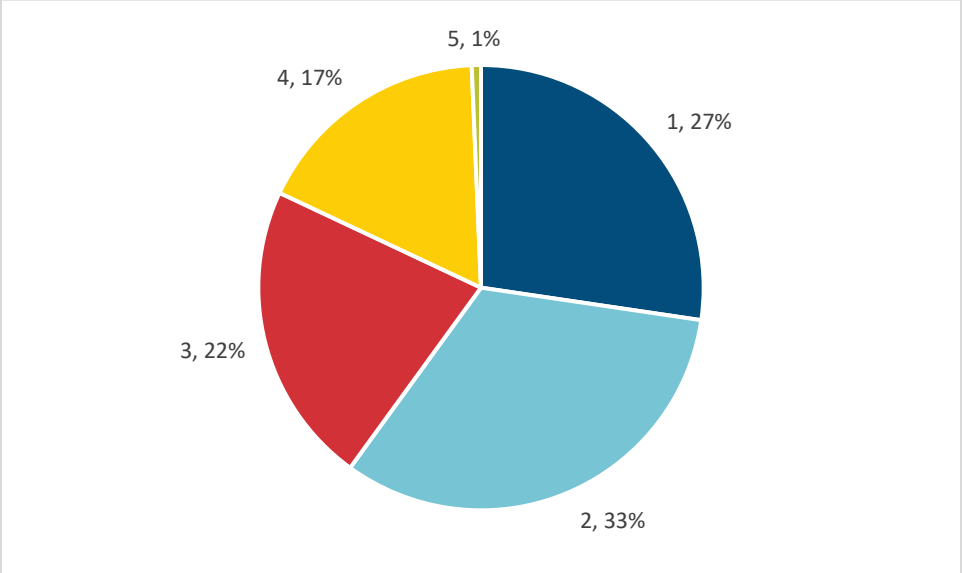


Figure 21

COUNT OF DEPARTMENTS IN FIGURE 5 INVOLVED IN COMPANY AI RISK MANAGEMENT



Question 8. Please share key lessons you have learned and considerations you would like to share about risk management and AI.

- *Still emerging at my organization.*
- *Need to be constantly monitoring to understanding nuances and new issues*
- *Risk of lack of independence as more expertise in AI in the IT department than in the ERM department*
- *Model validation.*
- *There is no overestimating the risk of relying on easy answers and indolence among management. Those who pretend to be experts like the conservative group the Heritage Foundation and other powerful political influencers who have dominated the Trump tenure in office and the Congress with little efforts but who have no applicable expertise will use AI and ignore the reality of problems.*
- *We need to take a measured approach that looks at all of the potential uses of AI to improve our work performance and see what the potential unintended consequences could be. Similarly, we need to evaluate the risks of us not using AI and our competitors doing so. For example, if we are worried about job loss so we decide not to use AI so that we can save jobs, our competitors may use AI to lower costs and then become more cost effective, then take business away from us and we lose even more jobs.*
- *Bad actors will always use AI effectively before most companies catch up*
- *AI is a black box, so the ability to compare results to real-world experience is limited*
- *Over-reliance on AI or the bet that AI will deliver more in the future than it does today is the risk of missed opportunities as the focus is on AI and not on business as usual. Also relying on AI could create a fake confidence in future plans and projections. AI is not ready for prime-time and is too hyped up at this point. No amount of processing power and speed can predict the impact of hundreds of millions of affluent consumers.*
- *AI can be very helpful in the right situations, but it can also be very harmful if there is an over reliance without double checks on the accuracy of what it produces.*
- *AI is rolling out everywhere, making it difficult to control adoption. It is important to create standards before usage is too widespread. At the same time, creating standards too early (before AI use cases are well understood) may lead to inappropriate/ineffective standards.*
- *AI is here to stay. We need to find ways to make it work for us, or be left behind as others adopt its usage.*
- *Existing risk management frameworks for privacy and information security apply to AI products & processes. However, users of AI need to carefully apply existing policies to new ways of operating.*
- *Using AI for repeatable process and productivity will be a game changer, but will require controls for privacy and reliability.*
- *n/a*
- *Have to be very careful about not strangling the baby in the crib - AI is likely to be rapidly over-regulated, stifling innovation*
- *If you don't know how to manage the AI risk, is it okay to use AI to guide you?*
- *Need to be pro-active on establishing proper guardrails; it cannot be avoided but needs to be very closely monitored. This is an awesome opportunity for actuaries to demonstrate their value as Risk Managers*
- *Strong AI governance is the first step towards successful management of AI risk*
- *Greatest risk - The theft or destruction of data by external parties.*
- *One of the main obstacles is rethinking the approach to risk management for AI. As a very different tool, it requires specialized approaches and considerations.*
- *Biggest risk is vulnerability (e.g. data privacy issues); governance around this issue & other AI-related risks is important.*
- *With the proper control environment, AI risk can be managed very effectively*

- *Operational tendency to over-depend upon AI solutions can lead to loss or diminishment of critical thinking oversight...and resources.*
- *AI can influence, positively or negatively, many other risks so you need to consider how its use, internally or externally, is impacting your company and do you (and any third party providers) understand how it is being used.*
- *AI is a technology used by humans. The risk that it completely replace humans is overstated.*
- *AI is a necessary evil. Necessary, to profitability use the vast quantities of data available in business; evil, due to the significant risk of manipulation, bias, and hallucination.*
- *"Establish documented and enforceable governance.*
- *Ongoing Monitoring is critical."*
- *AI is significant opportunity (and therefore risk). Some aspects will be adopted very easily and by the masses; other aspects will be led by innovators, and will take some time to be mainstream. Former: initial drafts of documents; latter: incorporating AI into bespoke workplace processes.*
- *Not requiring checks for reasonableness of results.*
- *Security of data*
- *Insurance industry is behind other industries - this is okay - and should learn from other industries*
- *"The industries best qualified to manage AI risks will be ones with credible experience with the technology, who understand AI's capacity to create various forms of value, who monitor existing and future risks and are leading the development of professional and legal frameworks for the standardizing of measurement and management of those risks, and possibly most importantly, who can communicate effectively with AI companies, their clients, and regulators, keeping numerous perspectives in mind in making decisions. They will use historical experience and analogs to help shape their understanding of our current moment and the discussion of potential future outcomes.*
- *The industries least qualified to manage AI risks will have a narrow focus (for example, primarily championing risk mitigation) and will have a lack of experience with and exposure to the uses for AI. These industries will also lack imagination on potential solution frameworks and will try to work alone rather than viewing this work as a collaborative effort. These industries will lack a first principles approach to understanding the problem and will be guided by self-serving incentives as opposed to public welfare and sustainability."*
- *AI is not a source of truth. AI does not research an answer; it calculates an answer. Therefore, whenever the truth matters, the maxim "trust but verify" is appropriate.*
- *AI is a good tertiary tool. But currently is barely more than a database lookup model.*
- *Effective AI risk management requires a human-centric approach, ensuring trust within the organization and from customers. Continuous monitoring and adaptation are essential due to the dynamic nature of AI development. Staying informed about AI trends helps manage risks and leverage AI's full potential.*
- *Current capabilities for reliance on AI should be on small tasks that can be monitored and followed by humans on a regular basis. Frameworks need to be in place to watch for bias and correction.*
- *n/a*
- *I am concerned about the amount of energy consumed by computers running AI, and the resulting carbon footprint.*
- *AI may make certain things easier but is not always correct. It can be a good tool but the world is already overdependent on it.*
- *ERM should be involved in governing the use of AI and assessing strategic/competitive implications on our customers*
- *Rapid change increases risk.*
- *I was just recently appointed a risk champion, so too early to tell*
- *great tool - needs oversight*
- *Increased fraud using AI for Phishing and phone scams.*

Question 9. No list is ever complete. Are there additional emerging risks you feel are significant that should be considered for future surveys? For reference, here is the current Glossary of Risks 2024.

As noted in the introductory paragraphs of this appendix, some responses are in **boldface** to signify that they are particularly thought-provoking to the researcher.

- *Political and legal uncertainty*
- *Risk of DEI/woke ideology infiltrating science and society*
- *"Poor and inequitable educational systems. Students*
- *untrained in critical thinking and careful analysis. Negative political influence on educational systems and teaching of all kinds and on teachers.*
- *The immergence of a police state and the systematic degradation of human rights and freedoms."*
- *Especially in light of Trump's election to the white house, the risks of fascism at home, resulting in mass deportation and displacement, alliances with our traditional adversaries over our traditional allies (resulting in major power shifts and increasing threats to democracy) can't be overemphasized.*
- *Major disruption of power grid and technology, from physical attacks on grid infrastructure or satellite networks, EMPs, solar flares*
- *"U.S.'s and other first-world countries' government debt growing*
- *Isolationism and growth of tariffs*
- *These together could create stagflation worldwide"*
- *People unable to think for themselves due to over reliance on AI*
- ***There didn't seem to be a good category for instability/conflict within and/or among the large, developed countries of the world.***
- ***Increasingly divisive politics and nationalism.***
- *Corrupt Governments, Increased political regulations, the powerful providing for their allies regardless of "insurability".*
- *With the US election so fresh, the risk of changes in government leadership and policy are top of mind. I believe this is best captured by "Liability Regimes / Regulatory Framework" but perhaps that's not the full intent.*
- *n/a*
- *The US becoming a quasi-failed state under the new administration allowing foreign actors to cause economic and military chaos*
- *An increasingly evil world.*
- *Data Quality and Data Governance*
- *"Globalization Shift - Migration between countries is very important. It influences all aspects of life within the accepting country.*
- *Rise of Dictators - As they get Nuclear Weapons, this will be difficult to ignore.*
- *China's Pending Attack of Taiwan - I suppose that this would fall under ""Regional Instability""?"*
- *Business concentration. For example, the debilitating repercussions of the CrowdStrike fiasco on many customers.*
- ***in the US, continued erosion of perceived value of government/public services***
- *Language skill erosion/diminishment. Language & communication mechanisms do change over time. Arguably, current communications are less precise than 200 years ago where care and resources (e.g. paper) were limited. As certain languages, such as English, revert to symbols and acronyms to communicate -- is there a diminishment of communication that impairs ability to execute?*
- *While I did not choose liability regimes/regulatory framework as one of my top risks, I was glad to see it on the list - it is definitely an issue and while I believe there are significant benefits to regulation, there is a lack of coordination and much waste in what is being done which draws resources away from other more important functions. I do feel it is worthy of a call out.*
- *Inflation Risk was not included.*

- *I would include volcanic eruptions with earthquakes. Undersea or coastal volcanoes can cause significant disruptions or death on very large scales (Azores Volcano, Yellowstone Supervolcano, Krakatoa Volcano. Especially if they create massive tsunamis. Asteroid or other space object hits can cause similar or worse devastation.*
- *"Rise of Nationalism*
- *Immigration Reform*
- *Debt Ceiling*
- *Cashless Society*
- *Environmental Policy (or lack thereof)*
- *Shift in World Superpowers*
- *Anti-Vaccine Sentiment"*
- *Within societal risks, I think there is a risk due to the material rise in mental health issues. It combines elements of demographic shift and chronic disease, but may emerge differently in the work-force and the consumer of the future.*
- *Energy usage/environmental impact and impact on clean water supply from use of AI given its high energy requirements.*
- *Political risks*
- *Food and quality of living vs growth of population*
- *"demographic population imbalance*
- *- the aging of certain populations in conjunction with deceleration of global fertility trends"*
- *US instability and unreliability due to political strife and change*
- *I'd suggest including the Erosion of Trust in Institutional Credibility and Economic Inequality - if these are implied within any of the other categories, I'd recommend distinguishing these as separate items.*
- *Loss of spending power.*
- *"Mental Health Crisis: Increasing prevalence of mental health issues due to social isolation, economic stress, and digital technology impacts.*
- *Antibiotic Resistance: Growing resistance to antibiotics leading to higher mortality rates from treatable infections.*
- *Aging Population: Global aging population impacting healthcare costs, pension systems, and the economy.*
- *AI and Automation: Disruptions in the job market, economic inequality, and ethical concerns due to rapid advancements in AI and automation."*
- *To much control political and financial with a few (oligarchy)*
- *Risk of government paralysis from attempting too much change too fast resulting in significantly negative outcomes for US Markets*
- *I can't think of any right now.*
- *I believe the world is moving towards a complete global currency collapse. I expect all national currencies to be destroyed in some sort of disaster and there will be a movement to shift to a global central bank digital currency as a stable store of value. The BIS has been on record indicating that they will "determine the expression of central bank liability [i.e. the central bank currency]... [and] have the technology to enforce it." The ramifications and implications of this are so far reaching and threaten to the very core of life, liberty, and the pursuit of happiness.*
- *Political risk, democracies fall to deep state autocratic takeover*
- *chaos and lack of ethical decision-making.*
- *no*
- *bias in medical treatment (e.g., abortion, LBGTQ+)*

D.3 SECTION B: ENTERPRISE RISK MANAGEMENT

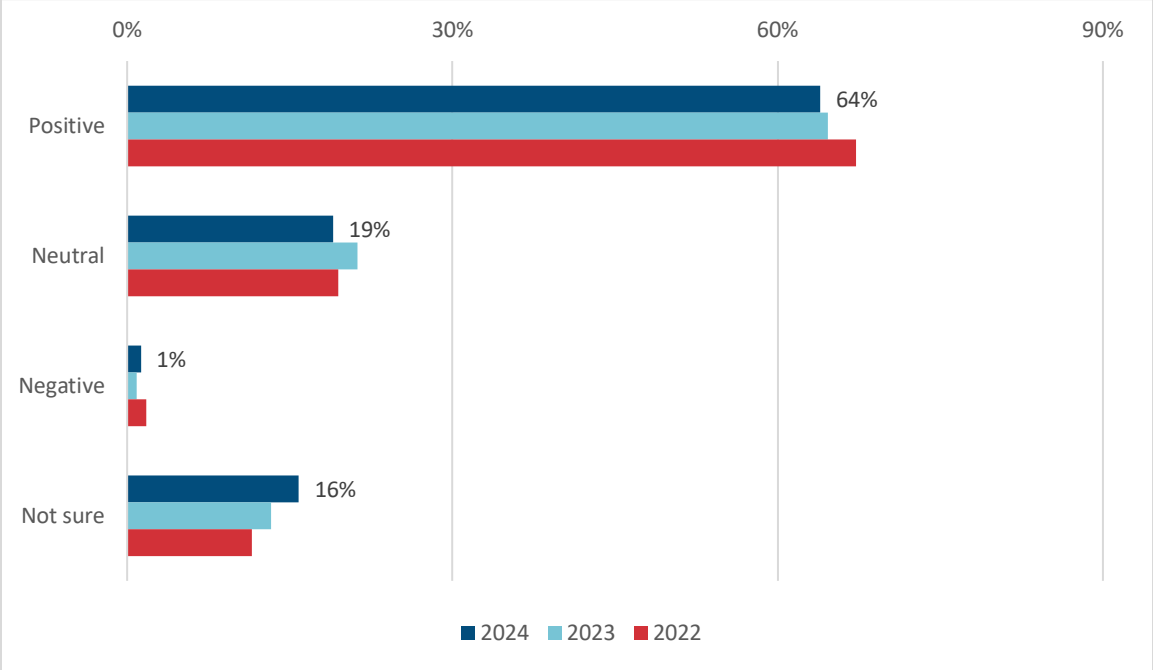
Question 1. Has enterprise risk management had a positive, negative, or neutral effect in your company/industry?

Table 11
ERM IMPACT ON COMPANY

	2024	2023	2022	2021
Positive	**64%**	65%	67%	63%
Neutral	**19%**	21%	19%	21%
Negative	**1%**	1%	2%	1%
Not sure	**16%**	13%	12%	15%

ERM Effect

Figure 22
ERM EFFECT



Question 2. Please comment on the impact the ERM function has on the company's results.

- *My organization still operates with a rudimentary, qualitative ERM program.*
- *Better global view of risks*
- *Second line of defense, and ability to drive coherent enterprise strategy*
- *Impacts include reducing information silos between departments and BUs, optimizing risk adjusted returns, and ensuring that the company remains solvent in a wide variety of economic and industry conditions.*
- ***ERM has codified what was already a pre-requisite for good governance.***
- *Independent review of models helps improve the value of assumptions, calculations and methods*
- *We don't have ERM.*

- *The cost of implementing ERM is often more than the benefits gained from it, which is normally only information confirming or slightly correcting what management was doing.*
- *Transparent risk reporting to senior management*
- *It provides a macro view that may otherwise be lost in the day-to-day.*
- *makes us take the time to look at real risks*
- *It has prevented us from taking unnecessary risks. At the same time, we probably lost some of the rewards as well.*
- *Improved awareness of our risk exposures, leading to better decisions.*
- *ERM has been guiding large enterprise projects related to efficiencies and cost reductions in a way that doesn't introduce additional oversized risk.*
- *ERM is still mostly considered a "check the box" exercise*
- *Better planning for known unknowns.*
- *Made management aware of the magnitude and rank order of various known risks facing life and annuity insurers*
- *Helped point out areas of excessive risk-taking*
- *A good curb; has probably stopped some poor choices that would have otherwise made it through.*
- *It helps better defining what risk appetite really means*
- *Ensures a strong balance sheet to be able to sustain large losses or volatility in the earnings.*
- *Allows select risks to be mitigated, to some extent. Thus, a positive impact.*
- *Besides compliance, having a good risk management framework is viewed favorably by rating agencies.*
- *ERM has produced greater awareness of the consequences of risk and greater attention to managing it. Reduced volatility has generally but not always resulted.*
- *In my current company, the ERM function is immature and overly focused on operational elements, not truly "enterprise" risks.*
- *The function provides perspective and expertise, enabling the business to move forward.*
- *Governance oversight developed carefully and judiciously has been beneficial*
- *Foster risk-aware decision making*
- *Effective ERM has minimized the losses related to risk events - due to planning and mitigation actions.*
- *Holistic risk management identifies risk, savings, and opportunities to positively impact earnings.*
- *Identified risks.*
- *keeps us honest about looking at how our organization operates*
- *Keeping us anticipate risk*
- *ERM has created more formal and centralized leadership. At times this leads to roles challenges with our desire that everyone knows how to identify and manage risk.*
- *Not applicable (I am retired)*
- *We routinely assess the impact on pension for various forms of risk.*
- *The ERM function has an overview of the company as a whole, rather than looking at a single line of business at a time.*
- *Helpful but limited impact.*
- *Our company has a robust program with strong control. This does lead to clear, level headed decisions, but also can slow down progress at times.*
- *Ideally, none -- presumably all the risks that need to be managed would have been managed to, roughly, the same outcome.*
- *Positive yet hard to measure.*
- *Stability of financial performance after years of volatility*
- *awareness of trends*
- *As a regulator a company's ERM program can make us more comfortable that they identify and mitigate risks to their solvency*
- *Identify where risks are too concentrated, and assist in reducing reinsurance costs*

- *I was just recently engaged so too early to tell.*
- *able to communicate ERM results to rating agencies, improving rating*
- *Not sure*

Question 3. How have scenarios, both deterministic and stochastic, been helpful in providing insights that lead to an impact in company management?

- *Not widely used.*
- *Helpful in better understanding risks faced by the company*
- *200-1000*
- *Scenarios provide insight into a company's vulnerabilities and allow managers to proactively address them before it is too late.*
- *Presented a line-item impacts of large risk movements providing a fuller understanding of effects on financial statements.*
- *We don't use these techniques.*
- *The deterministic scenarios provide insight into whether a concern needs additional attention and provides point estimates usable for analysis in other areas. They also are useful for sensitivity and risk assessments. The stochastic scenarios provide information about the distribution of possible outcomes and can be used to determine the expected (mean) and central (median) estimates. It also provides information in the tails for what conditions are most beneficial and most adverse for the company.*
- *Deterministic stress scenarios help management see the impact to financial results*
- *We need to expand the use of total risk analysis (https://www.soa.org/resources/research-reports/2023/calculatedrisk-using-550research), a stochastic method to include all methodologies and areas of practice*
- *managing product line sales volumes and disintermediation risk*
- *Modelling different scenarios help us determine the amount of risk we're comfortable with, and that drives our decision making.*
- ***Deterministic scenarios are very helpful as they provide information that is understandable to the reader. Stochastic scenarios have not proven useful due to difficulty in understanding what the scenarios represent**.*
- ***Deterministic scenarios have been considered in crisis management planning (business continuity, disaster recovery, incident management, etc.) and a few ran as tabletop exercises to pinpoint specific gaps in our company's ability to response to issues. Gaps have been identified, documented, and remediation plans have been created to address most critical ones.***
- *Very helpful*
- *Not used.*
- *It allows for quantification and ranking of risks and prioritization of proactive controls and reactive responses*
- *Helped us understand vulnerabilities and choose a less leveraged path*
- *What-if opportunity evaluation and risk analysis help inform better management decisions.*
- *somewhat useful; shocks not significant enough to force actions and influence business outcomes*
- ***They play a critical role in understanding the potential severity of a risk and in informing what our appetite might be.***
- ***Deterministic/Deliberate scenarios have proven more insightful than complex stochastic scenarios, in many cases**.*
- *Help the company better understand risk & manage capital (i.e. not being overly aggressive or conservative).*
- *Scenarios are used regularly at both management and board level discussions. This has lead to a greater understanding of risks and levers that an help manage risk. A more rational response to risk is one of the consequences.*

- *Scenarios enhance discussion. Though, the influence on decision-making has been less clear. A view of managing for a tail event is somewhat in direct conflict with management optimizing personal outcomes (e.g. compensation). Furthermore, Management is more focused on the self than the enterprise leading to an agency risk when interpreting scenarios to influence decisions that may limit upside in the short-term.*
- *They provide insight into what might or might not materially impact the company and then allows us to focus mitigation efforts in the right area.*
- ***Limited effect***
- *We use scenario planning regularly in our internal risk assessment to support forward-looking risk management.*
- *"Deterministic scenarios are provide the ability to model and see impacts from an interrelated set of risks. I see this as critical - as it is how risks happen.*
- *Stochastic scenarios are helpful to frame likelihood - and provide a sense of the ""worst"" case for the business. "*
- *This is how we determined risks.*
- *These help management understand how bad things could be. But, there is a challenge in interpreting results because it is hard to assign probabilities to deterministic scenarios and while we assign probabilities to stochastic scenarios, reliability for extreme events is dubious.*
- *Modeling has shown to be improved and more robust, and it's a continuous process of improvement.*
- ***Helpful but limited impact.***
- *Scenario analysis has helped move the company out on risk curves as unfavorable outcomes are better defined in terms of likelihood, impact, and cause/source.*
- *Both deterministic and stochastic scenarios are leveraged to inform decisions*
- *thoughtful informed decision making*
- *It varies by company, depending on the maturity of the ERM function and use of models.*
- *Our CFT models heavily rely on scenario testing.*
- *Not sure*

D.4 SECTION C: CURRENT TOPICS

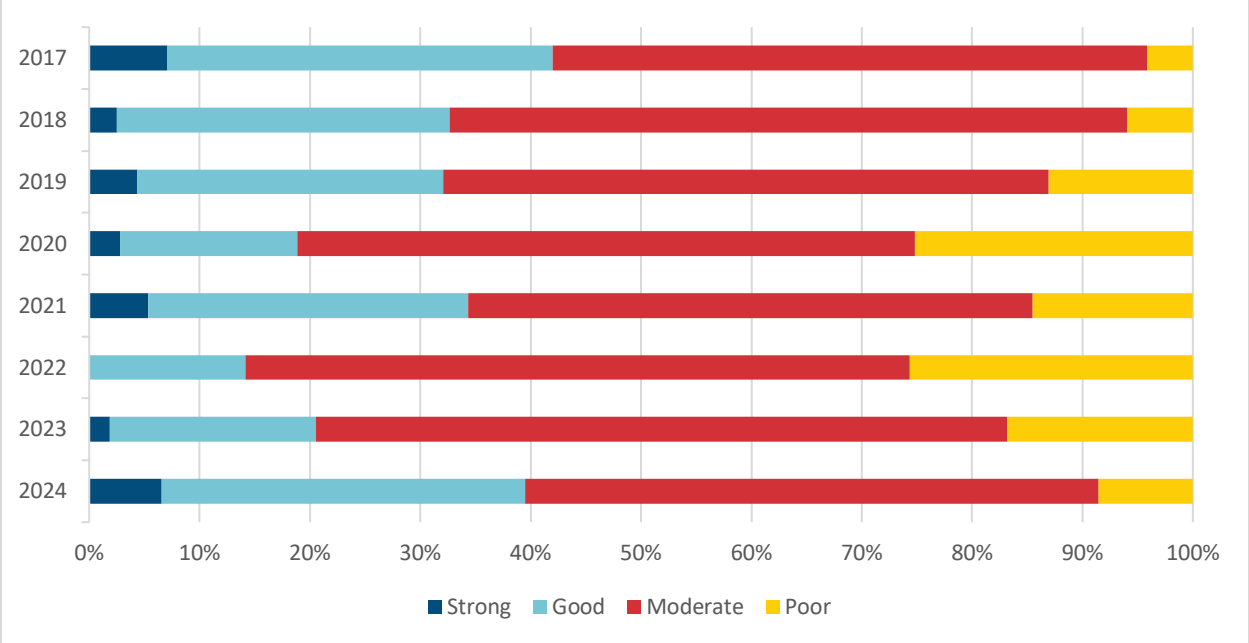
Convention clarification: Some of the questions in this section focus on expectations for the following year. To be consistent with other questions, the data labels 2024, 2023, 2022, and 2021 relate to the data collected in the survey election year 2024, 2023, 2022, and 2021, and are about the expectations for the future years 2025, 2024, 2023, and 2022, respectively.

Question 1. Your expectation for the 2025 global economy is:

Table 12
GLOBAL ECONOMIC EXPECTATION

	2024	2023	2022	2021
Poor	**9%**	17%	26%	15%
Moderate	**52%**	63%	60%	51%
Good	**33%**	19%	14%	29%
Strong	**7%**	2%	0%	5%

Figure 23
GLOBAL ECONOMIC EXPECTATIONS FOR THE FOLLOWING YEAR

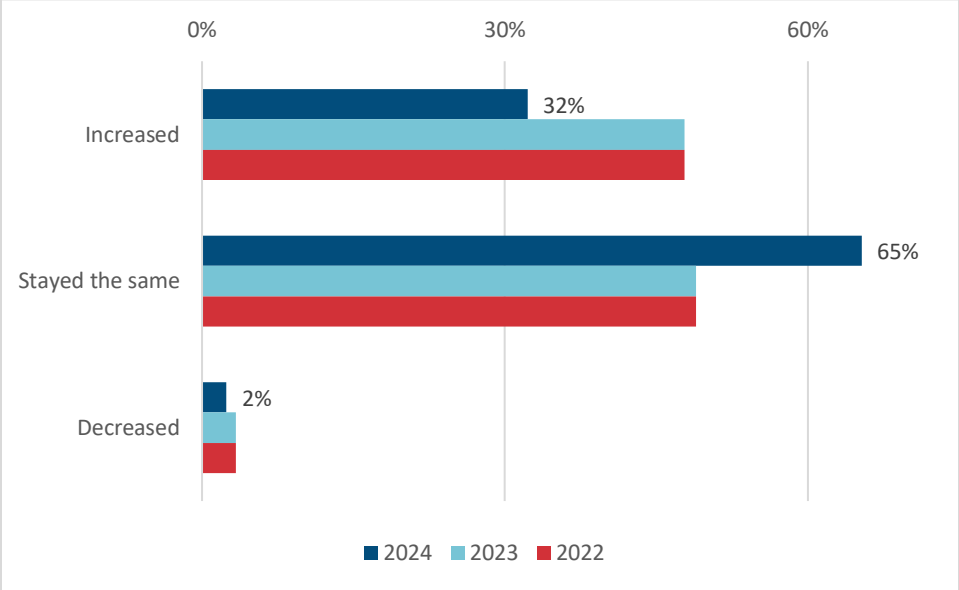


Question 2. Did you experience a change in the level of ERM-focused activities for your organization or clients in 2024?

Table 13
VARIATION IN THE LEVEL OF ERM ACTIVITIES

	2024	2023	2022	2021
Increased	**32%**	48%	48%	50%
Stayed the same	**65%**	49%	49%	45%
Decreased	**2%**	3%	3%	5%

Figure 24
ERM ACTIVITY

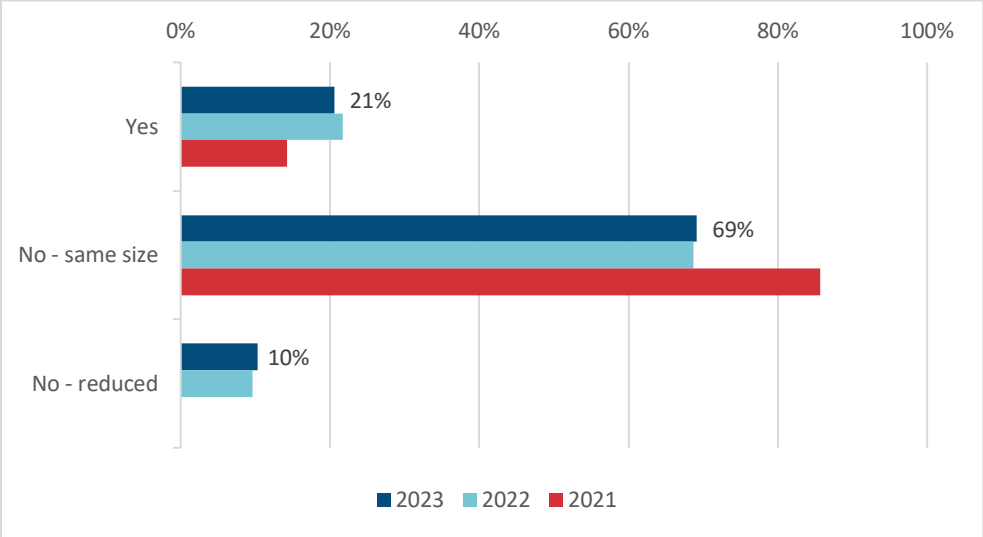


Question 3. Did your internal ERM staff increase in 2024?

Table 14
VARIATION IN THE LEVEL OF ERM STAFF

	2024	2023	2022	2022
Yes	**21%**	22%	14%	20%
No—reduced	**10%**	10%	0%	7%
No—same size	**69%**	69%	86%	73%

Figure 25
ERM INTERNAL STAFF GROWTH



Question 4. Do you anticipate a change in the level of ERM-focused activities for your organization or clients in 2025 relative to 2024?

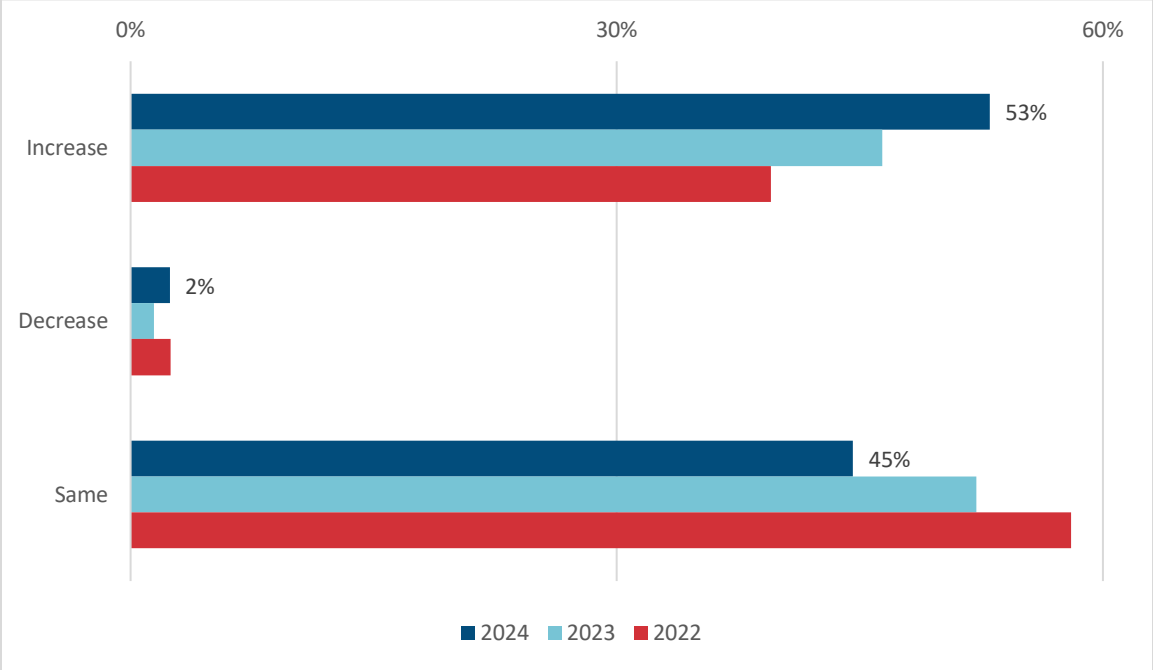
Table 15
FUTURE EXPECTATIONS—ACTIVITY

	2024	2023	2022	2021
Increase	**43%**	53%	46%	40%
Stay the same	**55%**	45%	52%	58%
Decrease	**2%**	2%	1%	2%

The years represent the survey year, thus represent the anticipated level for the following year.

Future Expectations—Activity

Figure 26
FUTURE EXPECTATIONS—ACTIVITY



Question 5. Do you anticipate a change in the level of funding dedicated to ERM-focused activities for your organization or clients in 2025 relative to 2024?

Table 16
VARIATION IN THE LEVEL OF ERM FUNDING

	2024	2023[18]	2022	2021
Increase	**26%**	30%	26%	25%
Stay the same	**69%**	61%	71%	70%
Decrease	**5%**	9%	3%	5%

[18] This column represents the responses to the survey issued in 11/23, thus represent the anticipated level for the following year.

Figure 27
FUTURE EXPECTATIONS—FUNDING

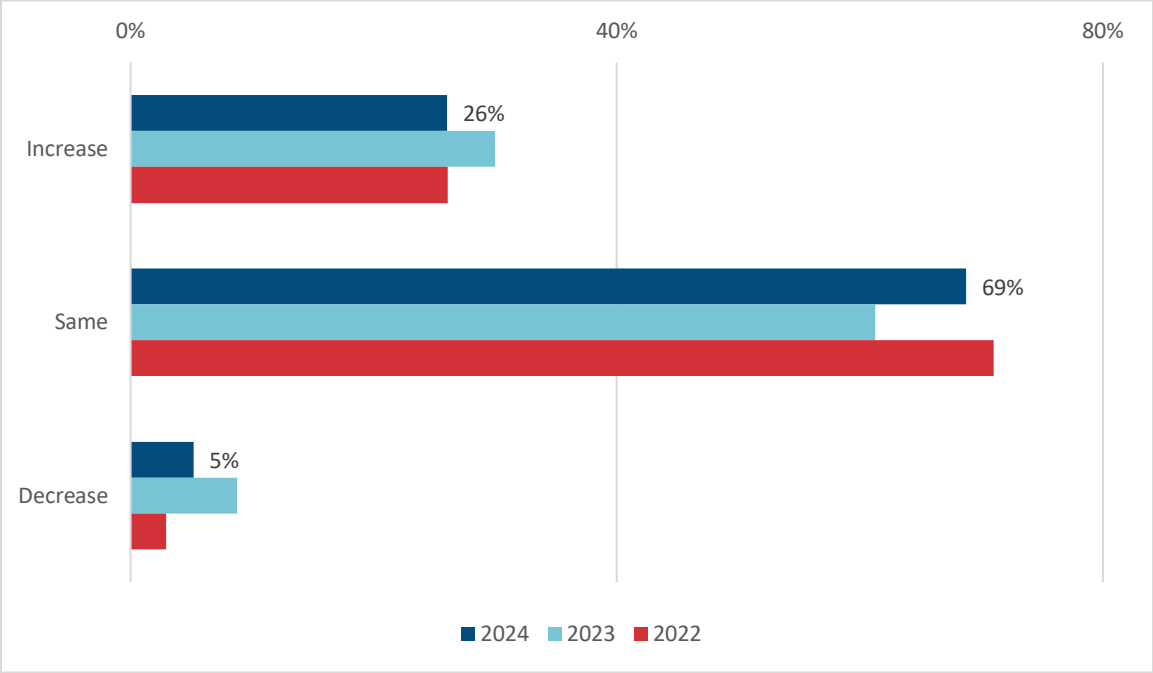


Figure 28
ANTICIPATED ERM LEVELS

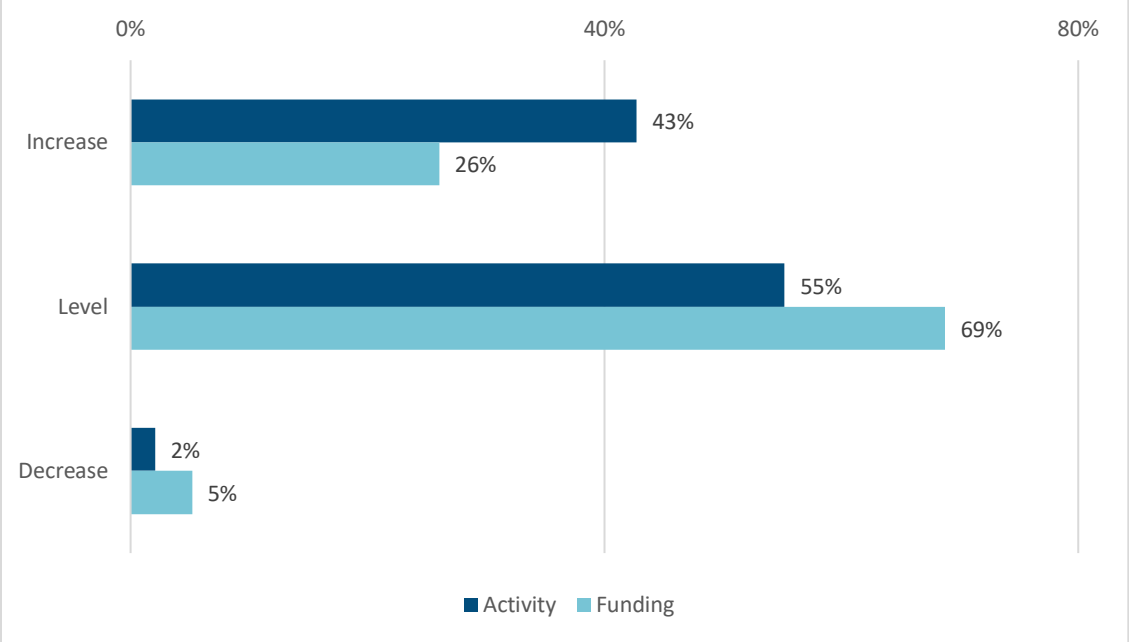
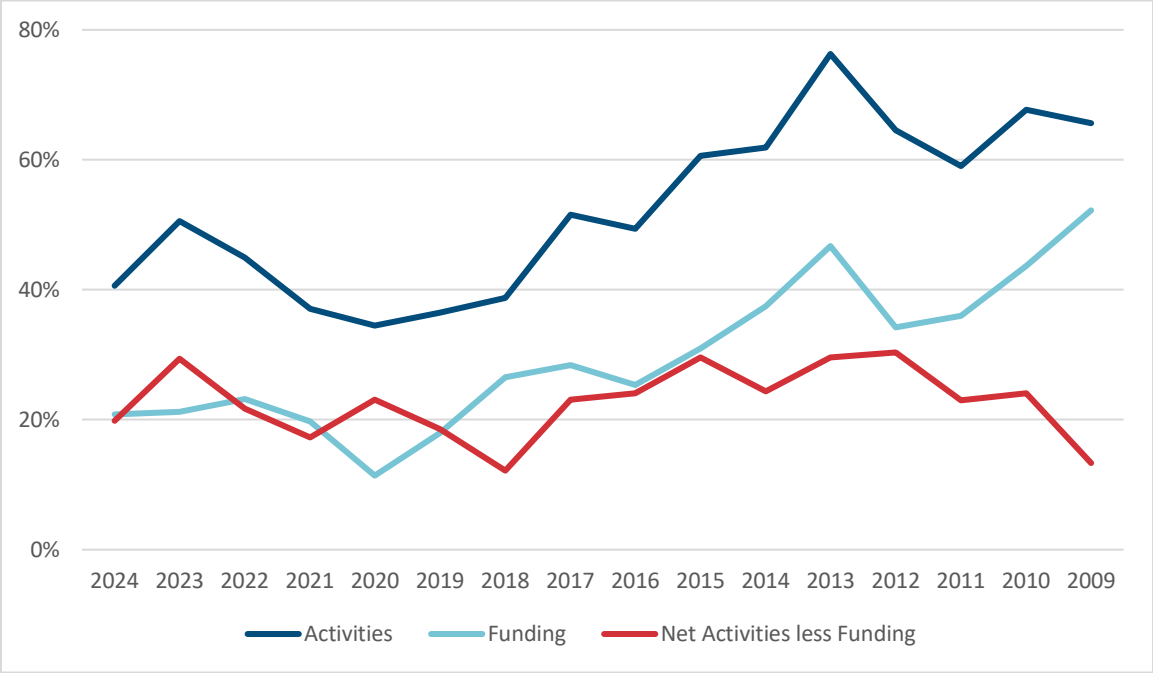


Figure 29
ANTICIPATED ERM ACTIVITY AND FUNDING LEVELS, HISTORICAL



Question 6. The true measure of an ERM program is how it is received by the board and senior management. Which of these is true in your situation? (Please select all that apply.)

The researcher backed out percentages from respondents who stated that the question is not applicable to them.

Table 17
ERM CLOUT

	2024	2023	2022	2021
Our ERM function can say no to a strategic opportunity	**14%**	22%	11%	9%
Our ERM function has input but not a vote when a strategic opportunity is being considered	**44%**	29%	44%	43%
Our ERM function has input and a vote when a strategic opportunity is being considered	**46%**	47%	39%	38%
Our ERM function has no input when a strategic opportunity is being considered	**11%**	14%	12%	10%

A longer historical view is shown in the following graph, with historical average shown in call out.

Figure 30
ERM CLOUT

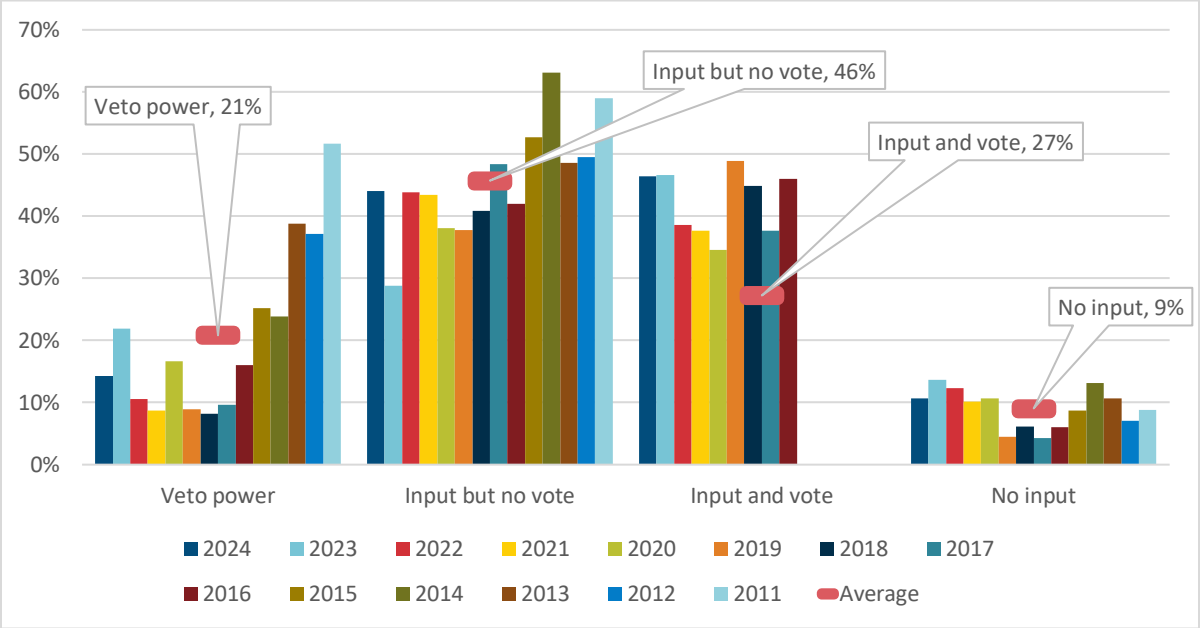
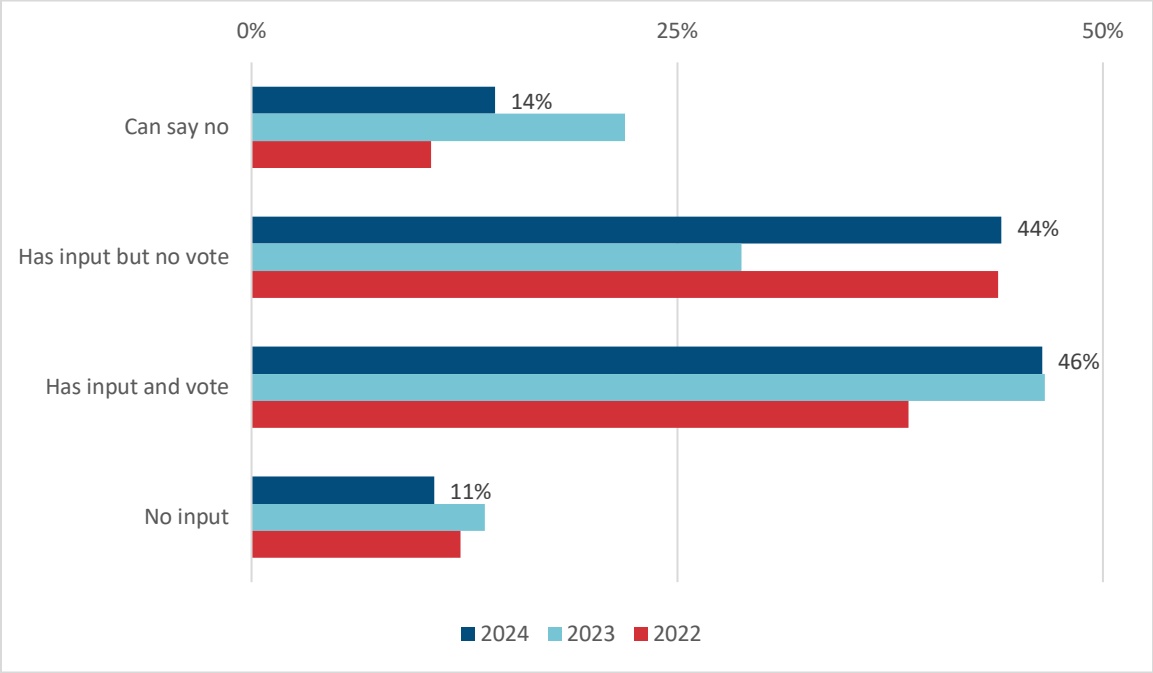


Figure 31
ERM CLOUT



Question 7. Some risk managers seek ways to exploit risk by finding opportunities that are mispriced or provide diversification. Which, if any, emerging "opportunities" do you monitor?

- *Taxation, regulation, and inefficiencies in incentives from stakeholders in publicly owned firms.*
- *we constantly monitor the markets for opportunities to deploy capital*
- *Regulatory arbitrage.*
- *Determining the risk associated with a missed projection... a key component of total risk analysis*
- *new product lines*
- *We monitor the interest rate environment to determine whether we can expand into additional product lines, and we also monitor the accelerated/automated underwriting market space to find opportunities for expansion.*
- *Technology, new invested asset classes/sources.*
- *"1) Profitability pressures for our competitors across the industry*
- *2) Legal/Regulatory/Reputation issues for our competitors across the industry"*
- *asset prices and market interest rates and the volatility of BOTH*
- *Diversification, low-cost risk transfer*
- *Data Quality*
- *Canadian US Dollar exchange rate.*
- *AI, and how to effectively use it to improve performance.*
- *Potential diversification through assumed reinsurance, other risk assumption*
- *The risk adjustment framework embedded in the Affordable Care Act is not "risk neutral" and is directly influenced by lobbying, social bias, etc. It seems that there is an "arbitrage" opportunity where a certain level of adverse morbidity is more profitable than healthful risks. Though there is a game-theory decision element as well as the moves by other market participants has a direct impact on the risk adjustment magnitude. All-in, the "reinsurance" intended by the legal framework is not risk-neutral and seems to drive a possible optimization.*

- *Disruptive technology, market volatility, climate change can provide opportunities. When assessing all risks, we do our best to also put an opportunity lens to them - it is really driven by risk appetite.*
- *Climate risk, AI, technological advancement, population ageing*
- *New types of clients.*
- *possible M&A activity*
- *Most of the opportunities are monitored on the investment side - e.g. a move to credit (slowing equity investments) when rates jumped. We also monitor the environment for differences in bid-ask for block sales/transfers.*
- *Asset indexes, Longevity, Salary growth, Retirement risk*
- *Work force availability*
- *Competitive opportunities associated with the global energy transition*
- *board decisions*
- *secondary guarantee products, equities, demographics*
- *Competition in insurer ratings*

Question 8. As companies settle into their established in-person, remote, and hybrid work environments, what challenges do you see for individuals and employers (e.g., inflation eroding purchasing power, preference for remote work, or other employer-employee friction points)?

- *Regular IT lapses*
- *Preference for remote work*
- *Risk of lower integration of employees and difficulty in managing office spaces*
- ***Challenges would be having an in-person office due to the extra costs borne both by the company (e.g., utilities and property taxes) and individual (e.g., gas and time) lack of productivity at the office, and lack of desire for people to return. Challenges of companies not providing cost of living adjustments that are actually positive in real terms.***
- ***"Fully remote -- This work environment may result in reduced ""water cooler talk"" between colleagues in different departments, which may increase the risk of information silos developing. Developing future leaders may be also difficult and increase the risks of filling more senior positions (I think this can be seen as an emerging risk, as fully remote hasn't been in place for enough time to test this hypothesis).***
- *In-person and hybrid -- Any office attendance mandates risks not having employee buy-in, which might result in lower productivity and increased turnover. These risks can be managed by retaining some work arrangement flexibility as appropriate and providing employee engagement opportunities (such as happy hours, volunteering, and other networking opportunities)."*
- *Cross-department contact and collaboration must be emphasized.*
- *The serious morale reduction caused by a forced back-to-office mandate. Such an act will encourage more staff to leave.*
- *For younger individuals, a lack of access to people who can teach them. For employers, loss of culture and inability to build a culture.*
- ***Remote workers reduce the interpersonal interactions, sense of team, and learning experiences of employees. It is difficult to monitor remote employees without being intrusive. Inflation is driving up expenses and salaries and reducing real profits. There seems to be much emphasis on processes to the detriment of actual knowledge, the production of reasonable results and proper application of models.***
- ***Challenges for remote-only employees as more companies are calling them back to the office. Challenges for in-office-only employers being limited in the hiring pool***
- *How to train younger employees in a remote environment. Lack of employee connection in remote environments. Mental health concerns with always being connected.*
- *Continued friction o remote vs in-person work*

- *friction between executive management who seem to want everyone back int he office, and the working rank-and-file who are doing just fine working in a remote and hybrid environment. Talent acquisition will get harder as more pressure is placed on being in the office.*
- *I think companies competing for employees based on work environment (fully remote vs hybrid) will continue. Depending on the location of the employer, some companies will struggle much more than previously to fill technical roles on a hybrid or in-person basis.*
- *Maintaining culture, encouraging collaboration across teams.*
- *maintaining cohesive risk culture across remote and hybrid work environments across the country AND internationally*
- *Growing a cohesive risk culture when staff is working remotely.*
- *I do not see major issues for my company in a hybrid work environment as we tend to hire employees with prior experience and rely less on training directly out of college.*
- *Operational silos are more prevalent as people are less likely to interact cross-functionally. EE's are less likely to move laterally in the organization since they are unaware of opportunities.*
- *A new US political order that unfetters management to exploit workers due to deregulation*
- *Employers need to be flexible depending on the market for the role.*
- *Actual, perceived or fear of future productivity decrease drives employers to in-person arrangements as solution. Employees revolt, whether the reason for in-person is communicated transparently or not, and productivity decreases with the erosion of employee/employer trust.*
- *Attracting the right talent for increasingly complex business problems*
- *Talent development and establishment of culture are two challenges*
- *Temporary Foreign Workers and/or Illegal Workers - taking away jobs from citizens, driving up housing costs and inflation, etc. I am expecting a backlash in the election results (e.g. Trump against the Woke Agenda, Same will happen in 2025 in Canada).*
- *Technology becomes more important (the ability to log in from anywhere, the ability to have conference calls). Also, keeping employees motivated is more difficult with remote work.*
- *Biggest challenge is the loss of productivity and productivity progress due to remote work. The individual doesn't see the productivity impact and therefore doesn't feel an obligation to contribute but the company feels the overall loss. Society will bear the costs of slow- or no-growth in productivity.*
- *Lack of qualified candidates*
- *Technology enabling successful remote working combined with a decline in financial "bond" between employee and employer (e.g. decline of pensions) may generate a question of what an "employee" is.....increasingly "contractor"-like. In tandem, there is a social dynamic of a group of individuals gathering that if declining may have more impacts on social bonds and social norms than the actual employee-employer relationship. Yet, there may be a co-influence of the social dynamic and the decline of the financial bond that leads to a different employment paradigm.*
- *Definitely a preference for remote work - I see development and growth in new employees appears to be slower as it is less organic and has to be more planned in a remote environment. Concerns about waste - is the right work being done. While we do need to trust employees, lines of sight can provide key insights and help support employees in a more timely manner. There is also a lot of discussion about loneliness and isolation - remote work is not helping with this.*
- *Remote working: difficulty developing relationships more broadly in an organization; limits opportunities to broaden career role. Workers can be highly productive in a remote environment.*
- *Preference for remote work - Some employees will benefit from in-person interaction and guidance. Productivity may not be consistent with average and below average performers.*
- *While WFH flexibility is highly valued by employees, I believe it will also (possibly unfairly) influence career paths for individuals. It is hard to imagine a fully remote work-force having high engagement with the employer. These could lead to shorter tenures for employees and thus less depth of expertise. For some that may be fine, but in the insurance business, we deal with major disruptions infrequently, and having leaders who have weathered previous issues can be helpful.*

- *employer-employee friction, but impact will be determined by the industry job market (other opportunities availability).*
- *Companies demanded all/partial in-office work are having difficulties finding qualified employees willing to do that.*
- *continued 'normalizing' of the hybrid / remote environment. Where we have both hybrid and remote employees, it seems that they are in different 'classes' in regards to organizational visibility and networking opportunities - leading to disparate opportunities for advancement.*
- *Work gossips*
- *The biggest challenge is training and developing younger, newer employees who did not experience years of in person interaction. They tend to struggle to grow in a remote environment where the passive mentoring is less natural.*
- ***Ensuring that the work environment maximizes employees' individual productivity and job satisfaction while simultaneously meeting the company's goals.***
- *Loss of productivity*
- *Preference for remote work, lack of human interactions and harder to build the sense of belonging*
- *We see challenges maintaining team cohesion, managing employee accountability and productivity, as well as ensuring equitable access to resources and opportunities.*
- *available resources due to aging population, brain drain, how can growth continue with fewer consumers*
- ***Simply bringing folks into an office is unhelpful without purpose. Teams that are not co-located may need to be reconstituted to benefit from in-person work. This may not be possible without some (presumably short-term) disruption.***
- *weak bonds & information sharing between team members. Lack of exposure to younger employees new to workforce.*
- *Future of Work arrangement has worked very well*
- *hybrid*
- *As a member of an organization that is 80% remote I see some individuals having very limited interaction with other team members. Miscommunication can lead to dissatisfaction and talent loss to other organizations who handle remote work more effectively (or with more regular face-to-face interactions).*
- *"higher turnover if people can work any place.*
- *Or if companies demand that employees return to work at least 3 or 4 days a week, it can increase turnover for employees who want to WFH"*
- *employers unnecessarily forcing employees back to onsite for positions where the job can be performed completely remotely*
- *teaching culture through the onboarding process is very hard if you are not in the same location to interact regularly*
- *None*

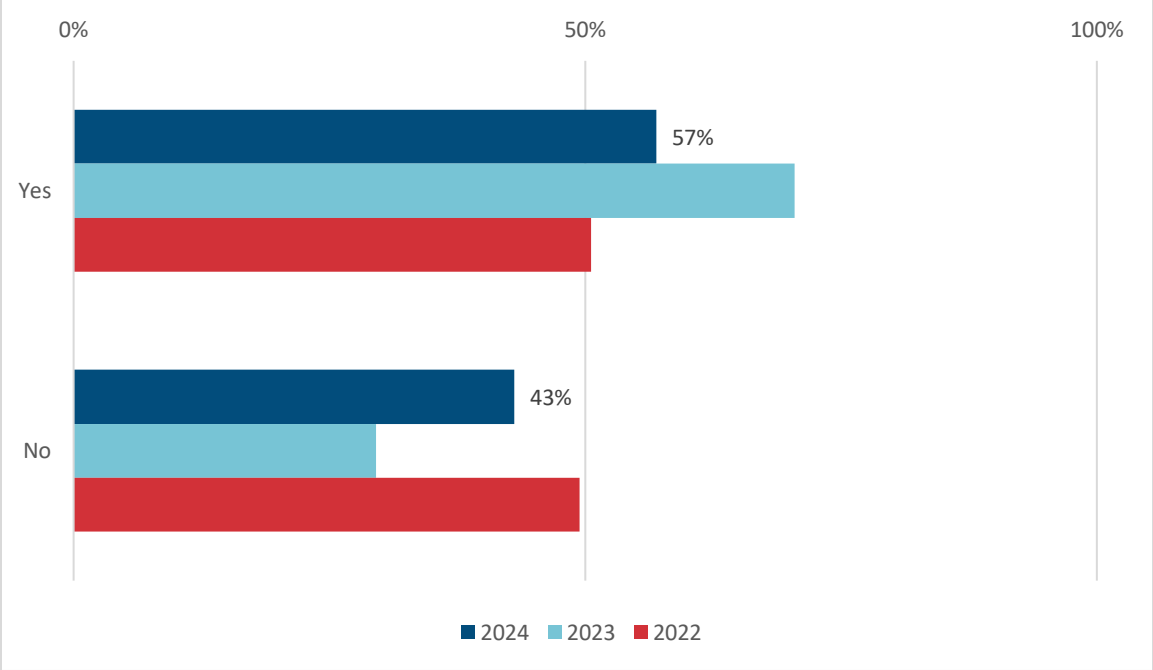
D.5 SECTION D: DEMOGRAPHICS

Question 1. Have you completed this survey in the past?

Table 18
RETURN SURVEY TAKERS

	2024	2023	2022	2021
Yes	**57%**	70%	51%	63%
No	**43%**	30%	49%	38%

Figure 32
PREVIOUS SURVEY PARTICIPANTS



Question 2. What credentials do you currently hold? (Please select all that apply.)

363 responses from 151 surveys (average of 2.4 responses per survey)

Percentages are based on 151 surveys in 2024, which means one-quarter are non-credentialed. The credentialed population is split as follows:

Table 19
CREDENTIALS OF THE SURVEY TAKERS

	2024	2023	2022	2021
CERA	**17%**	26%	17%	18%
FCAS/ACAS	**10%**	5%	5%	6%
FSA/ASA	**89%**	89%	61%	90%
FCIA	**11%**	12%	10%	11%
MAAA	**63%**	50%	35%	61%
PRM	**1%**	1%	1%	2%
FRM	**2%**	5%	1%	3%
CFA	**7%**	8%	5%	3%
FIA	**1%**	0%	2%	3%
FIAA	**0%**	1%	0%	6%
JD	**0%**	1%	1%	1%
MBA	**8%**	7%	3%	4%
CPCU	**2%**	4%	1%	4%
Ph.D.	**1%**	3%	2%	9%
EA	**4%**	4%	3%	13%
FCA	**9%**	5%	3%	4%

151 indicated having a credential out of the 201 respondents. 146 indicated an actuarial credential (134 FSA/ASA, 15 FCAS/ACAS, 17 FCIA, as well as other actuarial credentials) and only five indicated a credential outside the actuarial community.

Other actuarial credentials

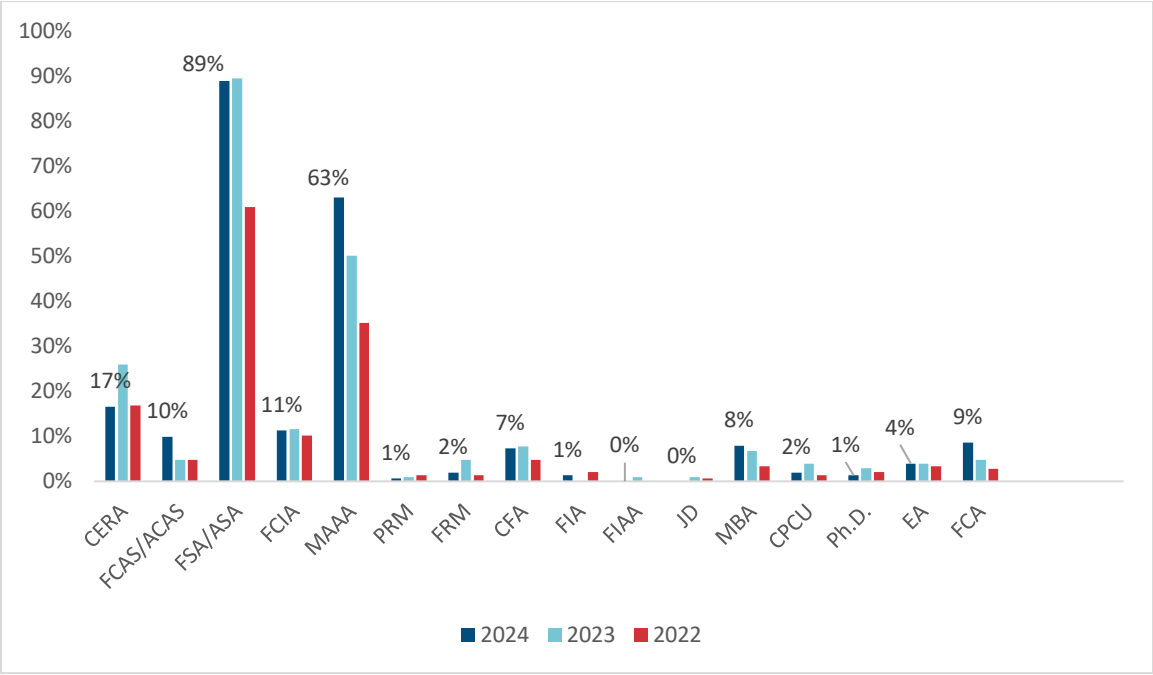
- *FFA*
- *SAA (Swiss Assoc. of Actuaries)*
- *CAA, IAA*
- *Bachelor Actuarial Science*
- *CSPA*

Other non-actuarial credentials

- *FLMI, ChFC, CLU*
- *MA Math*
- *MS in Finance, MS in Mathematics*
- *MS Statistics; M Div*
- *ABCP*
- *CIPP, CIPT, CISM*
- *CPA*
- *FLMI, CLU, ChFC*
- *CIA, CRMA*
- *FLMI and CPA*

- *P.Stat*
- *ICD.D*
- *FLMI, CPA, ACS*
- *ARM, ERMP*
- *PMP, CSSBB*
- *FLMI, AIRC*
- *FLMI*
- *FLMI*
- *FLMI RHU*

Figure 33
CREDENTIALS



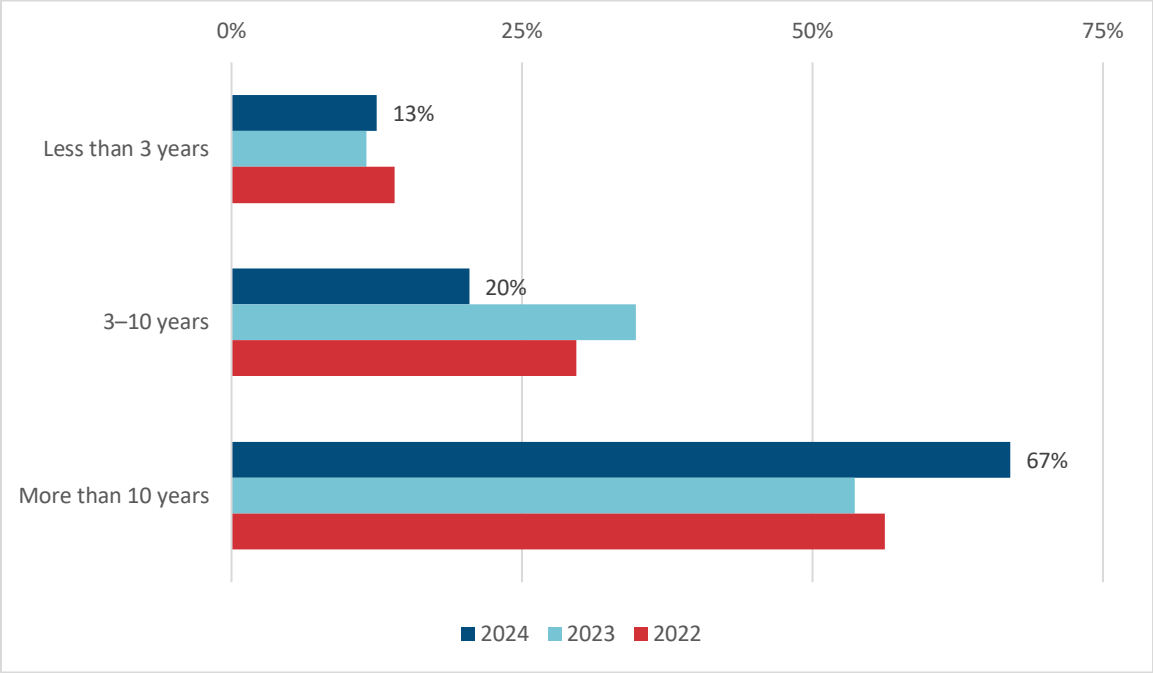
Question 3. How long have you been a risk manager?

This question has 49 non-responses and 64 responding 'Not applicable/not a risk manager/student.' The remaining responses for 2024 are in the table below with previous years computed with the same methodology.

Table 20
EXPERIENCE AS RISK MANAGER

	2024	2023	2022	2021
Less than 3 years	**13%**	12%	14%	15%
3–10 years	**20%**	35%	30%	35%
More than 10 years	**67%**	54%	56%	51%

Figure 34
EXPERIENCE



Question 4. Employer type (please select all that apply).

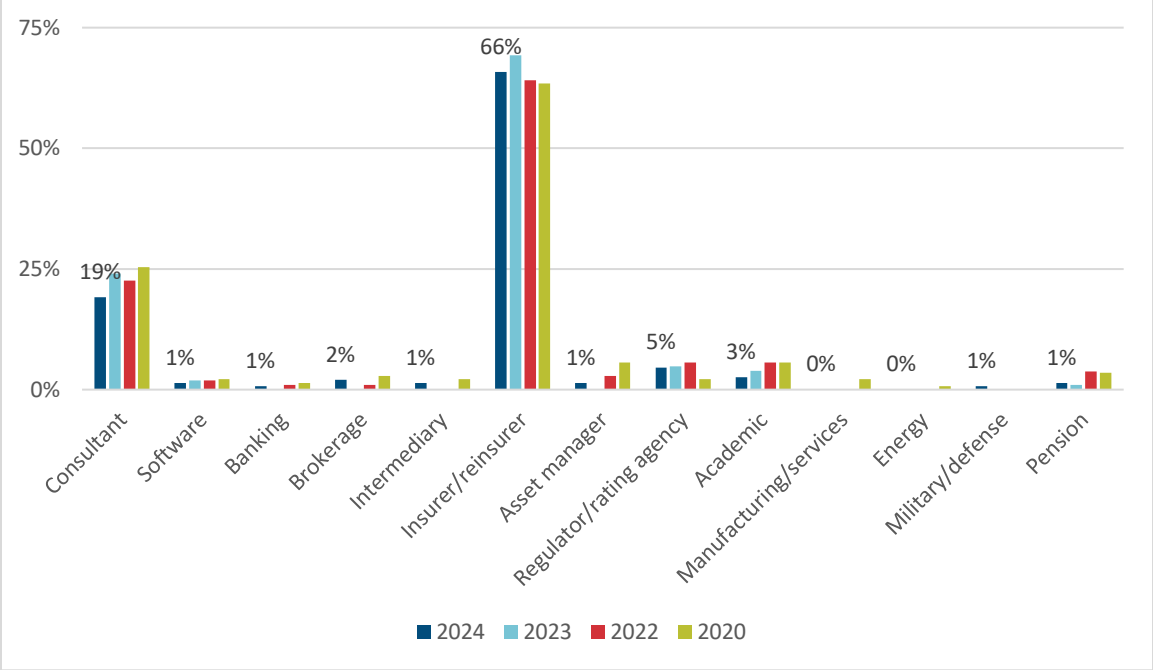
Table 21
EMPLOYER TYPE

	2024	2023	2022	2021
Consultant	19%	24%	23%	24%
Software	1%	2%	2%	2%
Banking	1%	0%	1%	2%
Brokerage	2%	0%	1%	2%
Intermediary	1%	0%	0%	2%
Insurer/reinsurer	66%	69%	64%	62%
Asset manager	1%	0%	3%	4%
Regulatory/rating agency	5%	5%	6%	4%
Academic	3%	4%	6%	5%
Manufacturing/Services	0%	0%	0%	1%
Energy	0%	0%	0%	1%
Military/Defense	1%	0%	0%	0%
CRO (or acting CRO) at CRO Council firm	0%	0%	0%	2%
CRO (or acting CRO) at CRO Forum firm	0%	0%	0%	0%
Pension fund	1%	1%	4%	2%

Other:

- *Health Care Enablement*
- *Analyst*
- *Association*
- *Retired 7 months ago*
- *retired*
- *Retired*
- *Retired, with a small consultancy*
- *Consumer Lending*
- *Retired*
- *Retired*
- *Government*

Figure 35
EMPLOYER TYPE



Question 5. Primary region (please select one). *Out of 154 responses*

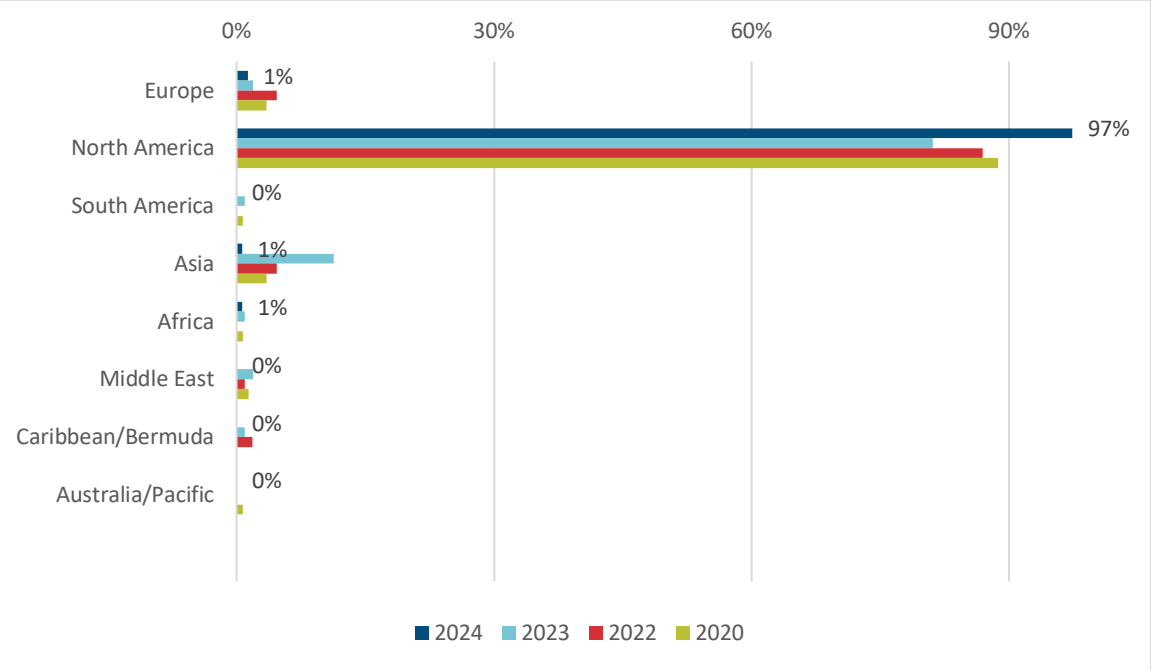
Table 22
REGION

	2024	2023	2022	2021
Europe	1%	2%	5%	3%
North America	95%	81%	87%	91%
South America	0%	1%	0%	1%
Asia	1%	11%	5%	2%
Africa	1%	1%	0%	1%
Middle East	0%	2%	1%	1%
Caribbean/Bermuda	0%	1%	2%	1%
Australia/Pacific	0%	0%	0%	0%

Other:

- *All*
- *North America and Caribbean*
- *Global*

Figure 36
REGION



Question 6. Primary area of practice (please select one).

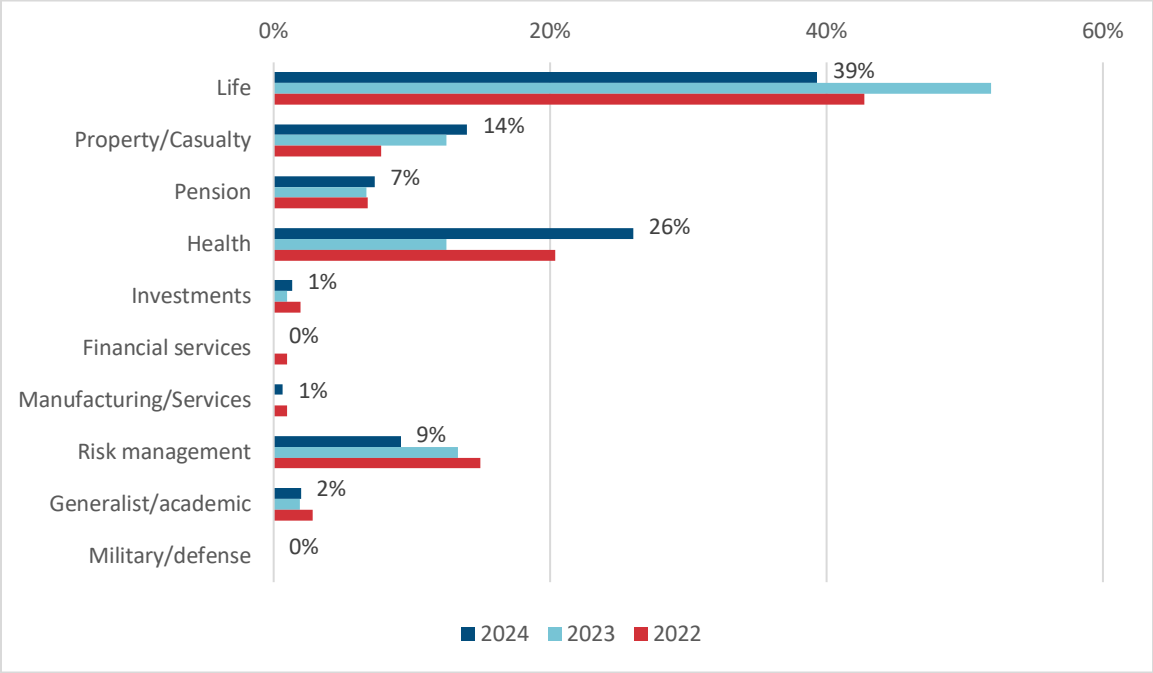
Table 23
PRACTICE AREA

	2024	2023	2022	2021
Life	39%	52%	43%	42%
Property/casualty (general insurance, nonlife)	14%	13%	8%	8%
Pension	7%	7%	7%	6%
Health	26%	13%	20%	23%
Investments	1%	1%	2%	1%
Financial services (noninsurance)	0%	0%	1%	0%
Manufacturing/services	1%	0%	1%	2%
Risk management	9%	13%	15%	14%
Generalist/academic	2%	2%	3%	4%
Military/defense	0%	0%	0%	0%

Other:

- *Life and Health*
- *Tax*

Figure 37
PRACTICE AREA



Question 7. What sources do you find valuable when scanning for emerging risks (list up to three)?

- *SOA Emerging Risks Group, General mainstream, and crowd-sourced news (e.g., Reddit), CRO/ERM Forums and Conferences"*
- *Daily insurance news, Discussions with clients, Discussions within the actuarial organizations*
- *Specialized medias, Professional associations, Industry meetings*
- *SOA articles and webcasts, news.*
- *News/Scientific Journals*
- *Subscription to relevant news sources - daily reading, Podcasts, Industry conferences*
- *Society and Academy literature/webcasts. Consulting firm literature/webcasts.*
- *Attending conference, Reading news and research paper, Talking to peers*
- *Read widely*
- *Input from true profitable business owners.*
- *Capital markets*
- *NAIC*
- *SOA annual survey, ARM Dangerous Risks Survey, Protiviti top risks*
- *SOA research, Google*
- *SOA*
- *SOA Newsletters, Academy newsletters, mainstream news sources*
- *GRI, consulting firm reports, technology vendor white papers*
- *Industry publications (IAPP, ISACA), Regulatory actions*
- *Medicare benchmark rate changes, Medicare cost trend changes, & CMMI program changes.*
- *Gartner, GRC Report, McKinsey*
- *Insurance trade publications, Wall Street Journal, The Economist*
- *Interweb*
- *Industry publications, Professional Association, Webinars*

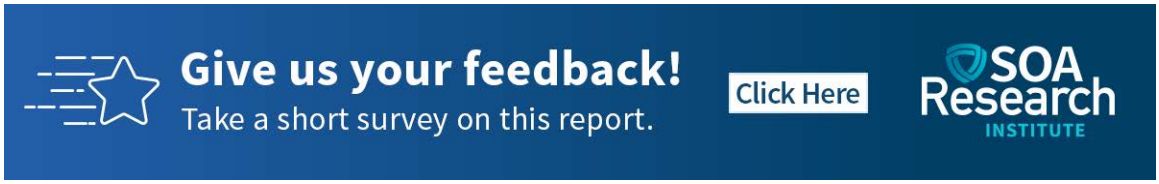
- *Connecting with insurance experts within and outside my company, Industry reports, Everyday news and how they might apply to insurance*
- *Newspapers, Institute of Internal Auditors - Webinars*
- *General news outlets.*
- *SOA website, CRO forum*
- *Bloomberg, TV news, Wired*
- *Triple I, RIMS, PEERS*
- *Various general news sources; industry/profession publications; interacting with other professions*
- *This survey as well as Gartner - those are our main areas but we also look at the others such as world economic forum*
- *Main newspaper, studies by industry associations (Geneva association), reinsurance / insurance company thought leadership articles, SOA publications.*
- *multi-national consultant commentaries, industry surveys, experienced colleagues"*
- *SOA report, Banana Skins report, Director publications*
- *industry e-mails*
- *Actuarial literature, News services like Financial Times, Board discussions*
- *The Economist, Google News (broad based)*
- *Global economic reports, Consultant white papers*
- *Intelligent people who are neurodivergent.*
- *Webcast from many organization (financial, environmental, and governments.)*
- *Business publications (e.g. Fortune), Internal discussions with SMEs, External discussions with SMEs (e.g. industry meetings)*
- *Various newsletters (e.g., from Substack, Medium), Various new orgs (e.g., NYT), Various podcasts (e.g., Amicus)*
- *Consultancy reports, industry and professional publications, research from global agency (e.g., IMF, world bank)*
- *Technology blogs, World news sources, conspiracy theorists (often there is a bit of truth to their theories so then trying to find what those are.*
- *google*
- *Reading many sources of news - oftentimes the conservative and liberal news outlets only provide a single viewpoint - it's important to consider a wider audience and even alternative news sources.*
- *Geopolitical Futures, Peter Zeihan*
- *Industry surveys, AlphaSense, Strategy Team*
- *SOA, CIA, ICD*
- *Industry-focused press, popular press, company publications (e.g., annual reports)*
- *Government and Regulatory Reports, Consultancy Reports, News Articles and Professional Publications*
- *Economist magazine, Smithsonian, National Geographic*

Question 8. Do you have any comments or suggestions for future iterations of this survey?

- *Keep up the great work with this survey!*
- *I feel it is inappropriate to aggregate FSA with ASA ("FSA/ASA"). If they are the same, why do I get paid more, and why did I spend all of the extra time taking additional exams?*
- *One big risk: Unethical behaviour and Immoral within the professions, especially the actuarial profession. Use of the actuarial profession by immoral managers.*
- *no*
- *I think the focus on political and economic instability within and among the largest developed countries in the world will need to become a focus in the very near future.*
- *n/a*

- *My answers are greatly different for the world in general than they are for my business or my personal life. There's effort up-front to recognize this fact, but then it seems like all are left to answer the following questions from whichever perspective they wish. Does this mish-mash of perspective greatly limit the value of the aggregated results?*
- *Have a short and long version to generate more insights*
- *n/a*
- *I liked the focus on one and/or two key risks at a time. More meaningful results.*
- *Glossary was very helpful.*
- *Nothing specific*
- *Inflation was not explicitly identified as a risk.*
- *Including volcanic activity along with earthquakes in the same risk category.*
- *Provide a link to past year results and we can look at the shifts.*
- *Not all risk professionals are involved in enterprise management.*
- *None*
- *To me, the risk combos section was confusing*
- *none*
- *more context*

Thanks for your participation!



About the Casualty Actuarial Society

The Casualty Actuarial Society (CAS) is a leading international organization for credentialing and professional education. Founded in 1914, the CAS is the world's only actuarial organization focused exclusively on property and casualty risks and serves over 9,100 members worldwide. CAS members are experts in property and casualty insurance, reinsurance, finance, risk management and enterprise risk management. Professionals educated by the CAS empower business and government to make well-informed strategic, financial and operational decisions.

The purposes of the Casualty Actuarial Society are:

- To advance the body of knowledge of actuarial science applied to general insurance, including property, casualty and similar risk exposures
- To expand the application of actuarial science to enterprise risks and systemic risks
- To establish and maintain standards of qualification for membership
- To promote and maintain high standards of conduct and competence
- To increase the awareness of actuarial science
- To contribute to the well-being of society as a whole

In principle and in practice, the CAS values and seeks diverse participation within the property/casualty actuarial profession. In support of those values, the CAS encourages an inclusive community where differences are celebrated and all have the opportunity to participate to their fullest potential in its success. The CAS commits time and resources to accomplish this objective.

Actuaries are required to adhere to the high standards of conduct, practice and qualifications of the actuarial profession, thereby supporting the actuarial profession in fulfilling its responsibility to the public.

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About the Society of Actuaries Research Institute

Serving as the research arm of the Society of Actuaries (SOA), the SOA Research Institute provides objective, data-driven research, bringing together tried and true practices and future-focused approaches to address societal challenges and business needs. The institute provides trusted knowledge, extensive experience and new technologies to help effectively identify, predict and manage risks.

Representing the thousands of actuaries who help conduct critical research, the SOA Research Institute provides clarity and solutions on risks and societal challenges. The institute connects actuaries, academics, employers, the insurance industry, regulators, research partners, foundations and research institutions, sponsors and non-governmental organizations, building an effective network which provides support, knowledge and expertise regarding the management of risk to benefit the industry and the public.

Managed by experienced actuaries and research experts from a broad range of industries, the SOA Research Institute creates, funds, develops and distributes research to elevate actuaries as leaders in measuring and managing risk. These efforts include studies, essay collections, webcasts, research papers, survey reports, and original research on topics impacting society.

Harnessing its peer-reviewed research, leading-edge technologies, new data tools and innovative practices, the institute seeks to understand the underlying causes of risk and the possible outcomes. It develops objective research spanning a variety of topics with its strategic research programs: aging and retirement; actuarial innovation and technology; mortality and longevity; diversity, equity and inclusion; healthcare cost trends; and catastrophe and climate risk. The Institute has a large volume of topical research available, including an expanding collection of international and market-specific research, experience studies, models and timely research.

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