17th Annual Survey of Emerging Risks: Mid-Year Flash Report

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CAS

17th Annual Survey of Emerging Risks

Mid-Year Flash Report

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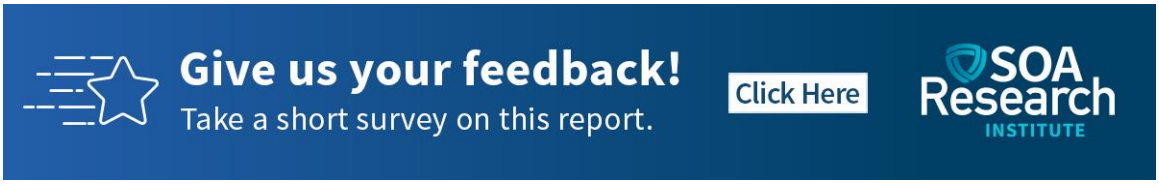

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17th Annual Survey of Emerging Risks

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Introduction

Emerging risks evolve over time (e.g., climate change), return after a long absence (e.g., earthquakes), or are new (e.g., disruptive technology). They often sneak up on us and are at least partially ignored when modeling based on historical data. Recent examples, respectively, include (de)globalization, pandemics, and artificial intelligence. Many of these risks interact as threat multipliers, making it even more important to consider events tied to these risks over longer time horizons.

The *17th Annual Survey of Emerging Risks*[1], sponsored jointly by the Casualty Actuarial Society (CAS) and the Society of Actuaries (SOA) Research Institute, is part of an annual effort to identify the current thinking of risk managers. As the pace of change and challenges to risk managers appears to be increasing, the data collected in November 2023 has been supplemented by a flash survey in May 2024. Questions for this short survey were quantitative and designed for a quick response.

Survey questions focused on three ways of looking at risk:

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

The 23 risks are presented to the participants, shown with definitions in appendix A of the full report,[2] and they have the option to add an alternative risk. These risks are grouped into five categories: economic, environmental, geopolitical, societal, and technological. Results are trended from 2008. A user's guide was produced with the 15th survey that walked the reader through the data and showed how it could be used to incorporate foresight into risk analysis.[3] The flash surveys also ask a two-part question about scenarios risk managers are concerned about and which ones were stress tested.

The May 2024 flash survey included 164 participants. The online survey was mostly spread across the life, health, risk management, and property/casualty practice areas. Among those who were risk managers it was an experienced group.

Surveys are tied to their specific time and circumstances, with recency bias[4] always present. Except for the very first survey, conducted in the spring of 2008, all the other full surveys were completed in the fall. It appears that the time of year impacts environmental risks, likely due to the Atlantic hurricane season occurring in the late summer and early fall.

The May 2024 flash survey collected data early in the fifth year of the COVID-19 pandemic, two years following the Russian invasion of Ukraine and six months after the Hamas/Israeli conflict began, with events tied to inland

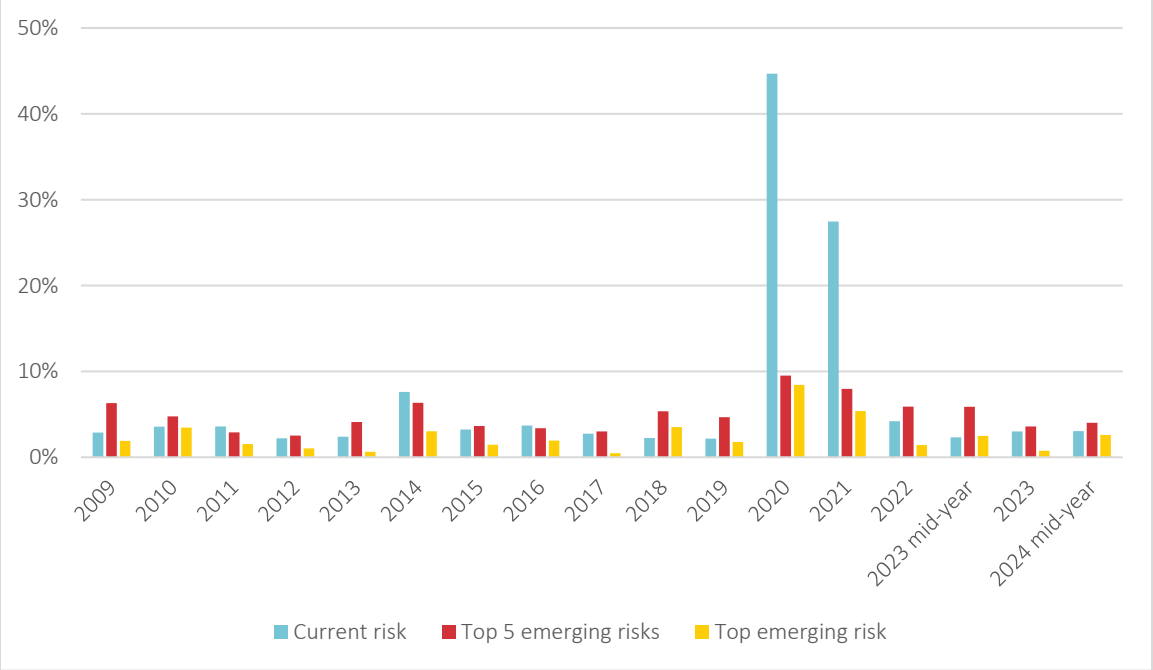
[1] Rudolph, Max J. *17th Annual Survey of Emerging Risk*. July 2024. https://www.soa.org/resources/research-reports/2024/17th-survey-emerging-risks/
[2] Ibid.
[3] Rudolph, Max J. 15th Emerging Risk Survey. August 2022. https://www.soa.org/resources/research-reports/2022/15th-survey-emerging-risks/
[4] Recency bias is a cognitive bias that overemphasizes the importance of recent events over older ones.

flooding, severe weather and heat waves occurring early in the year. Countries continue to battle inflation and low economic growth with varying levels of success.

The survey generates relative results, so the sum is 100%, and a choice to vote for one risk means you forfeit the opportunity to vote for another. The COVID-19 pandemic began near the beginning of 2020, resulting in a surge in responses for *Pandemics/infectious diseases* in 2020 and 2021, especially for the top current risk question (see figure 1). This surge has nearly reverted back to what had been normal before that period. As these responses fell, risks rose primarily in the technological category.

Figure 1

PANDEMICS/INFECTIOUS DISEASES – HISTORICAL RESULTS, 2009–2024 MID-YEAR

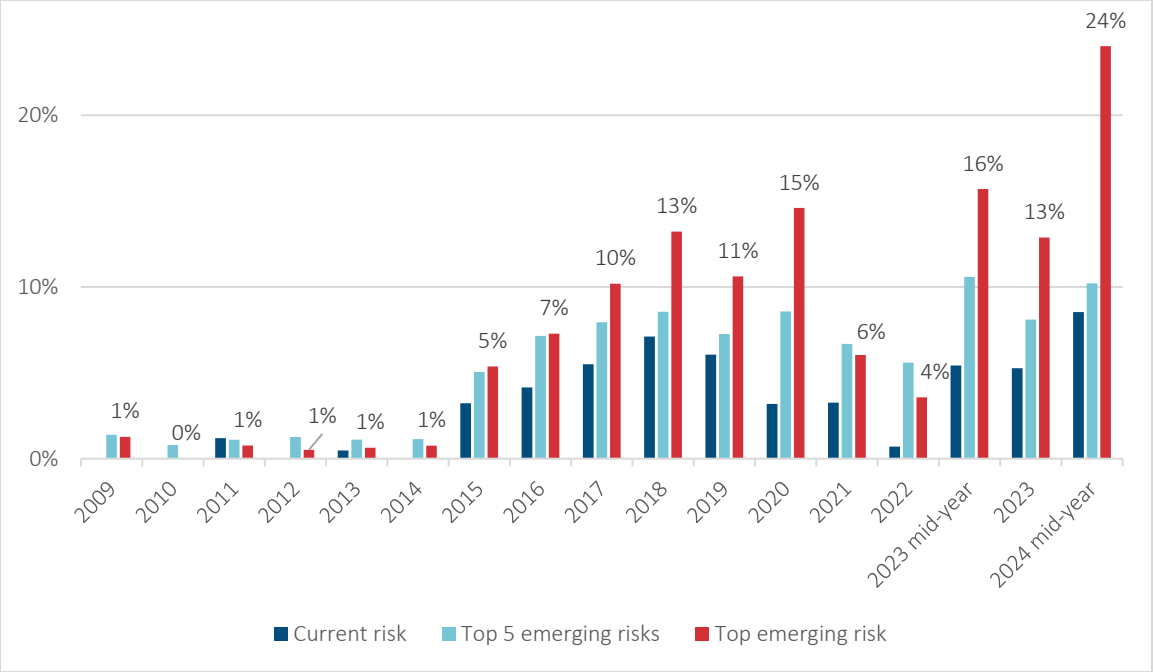


Key Finding 1: Risk Manager Concerns Focus on Technology Risks with Seasonality of Climate Change Results

The first half of 2024 has seen convective storms and inland flooding, along with geopolitical concerns around the globe, with concentrated equity gains, while global elections loom. Unsurprisingly, the *Disruptive technology* risk spiked, but figure 2 shows an inconsistent path taken over the history of the survey. During the pandemic, risk managers backed off the risk and showed how a survey of relative risks that are consistently in the spotlight could still be volatile.[5]

Figure 2

DISRUPTIVE TECHNOLOGY – HISTORICAL RESULTS, 2009–2024 MID-YEAR

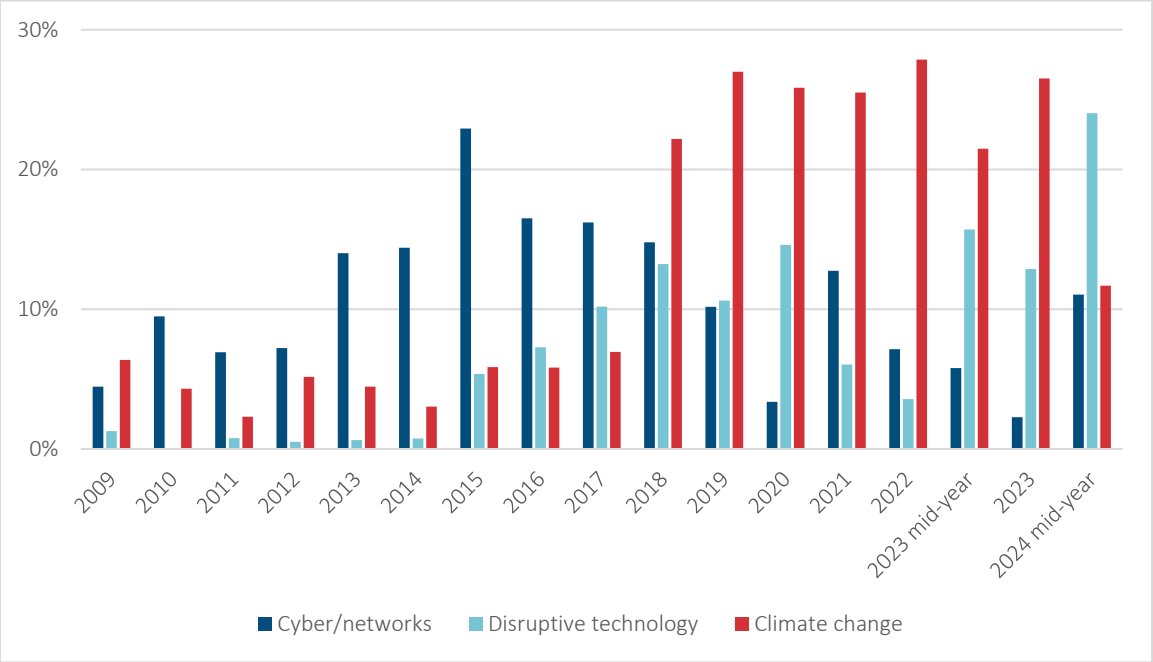


[5] Percentages for the top five emerging risks shown in figure 2 are based on the number of respondents, so they add up to more than 100%. Other results, except for rounding, total 100%. All values are absolute, i.e., none of the data reflects a percentage change from a previous result.

As an example of relative survey results and how outcomes ebb and flow, three of the leading risks are shown in figure 3. They demonstrate how recent events and perceptions can lead to surges, but the data also appears to show seasonality. This is the second year that a spring flash survey has been completed. As seen in figure 3, both times the *Climate change* risk has fallen off and one or both technology risks *Cyber/networks* and *Disruptive technology*, had offsetting gains.

Figure 3

TRENDS FOR TOP FIVE EMERGING RISKS AMONG LEADING RISKS, 2009–2024 MID-YEAR



Key Finding 2: Top Five Emerging Risks

The last two years have seen multiple emerging risk surveys per year (see table 1). Over that period only six risks have appeared in the top five rankings for the question asking about respondent's top five emerging risks. What is intriguing is the order of the ranking as *Climate change* appears first for both surveys completed in the fall but falls in the spring surveys. Both times it is replaced at the top by *Disruptive technology* and *Demographic shift* falls out of the top five.

In the most recent survey, although all five ranked risks are within 10% of the leader, *Climate change* falls all the way to fourth. Is this recency bias, with hurricanes in the news prior to the fall survey and other news items prevalent early in the year? Whether this is another example of cognitive bias will be interesting to research going forward.

Table 1
TOP FIVE EMERGING RISKS, 2022–2024 MID-YEAR

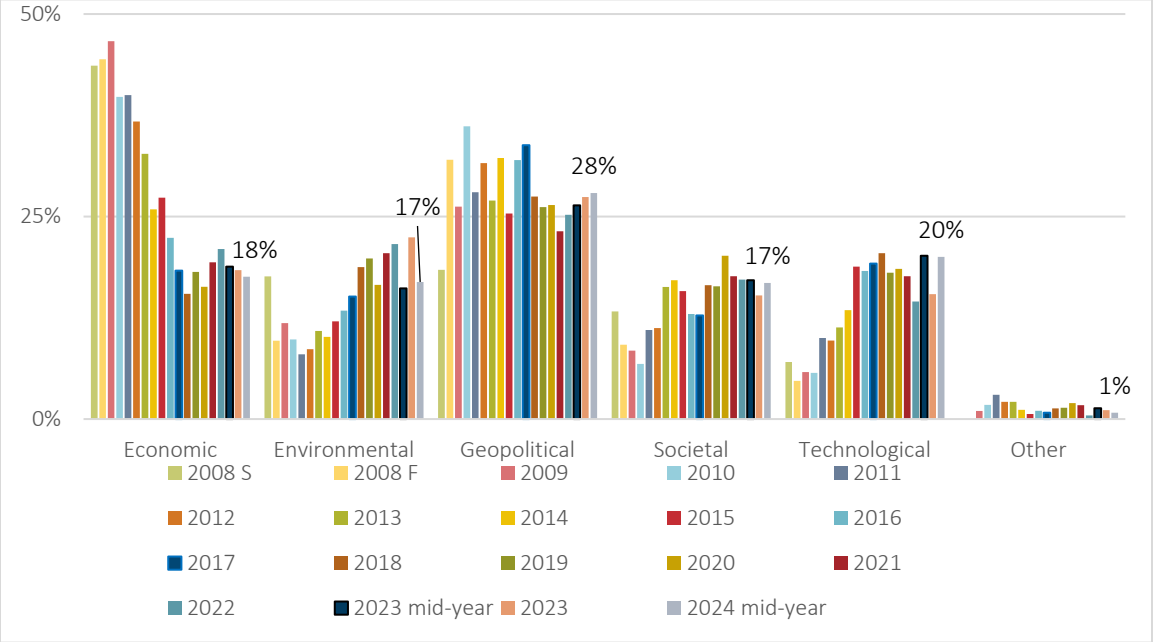
	2024 mid-year	2023	2023 mid-year	2022
1	Disruptive technology	Climate change	Disruptive technology	Climate change
2	Cyber/networks	Wars (including civil wars)	Climate change	Wars (including civil wars)
3	Wars (including civil wars)	Disruptive technology	Cyber/networks	Cyber/networks
4	Climate change	Demographic shift	Wars (including civil wars)	Financial volatility
5	Financial volatility	Cyber/networks	Financial volatility	Demographic shift

For the top five emerging risks in this year's survey, the societal (up 2%), geopolitical (up 1%), and especially technological (up 5%) categories increased; economic was stable; and environmental (down 5%) fell as seen in figure 4.[6] Geopolitical remains the leading risk category with 28% of the top five emerging risks falling in that category, but the remaining four categories were in a tight range from 17%-20%.

[6] The current survey is a follow-up to the 17th iteration of the survey. The survey was completed twice in 2008 (spring, fall) and then annually, with flash surveys completed starting in 2023.

Figure 4

EMERGING RISKS BY CATEGORY (UP TO FIVE RISKS CHOSEN PER SURVEY), 2008-2024 MID-YEAR



Results for the top five emerging risks in figure 5 have been sorted based on results from the previous survey in fall 2023. Labels reflect the 2024 mid-year survey (results are per respondent so total is much greater than 100%). Several risks saw increases, namely *Cyber/networks* (11%), *Disruptive technology* (9%), and *Terrorism* (8%). These were offset by decreases in *Climate change* (20%), *Emergent nation destabilization* (12%), and *Wars (including civil wars)* (9%). During the previous mid-year survey artificial intelligence became a hot topic and *Climate change* fell, but this year it fell even farther after rebounding in the fall survey. The increase in *Terrorism* should be noted as unexpected mainly due to the lack of recent events (the Hamas-led attack on Israel had occurred prior to the fall 2023 survey).

Figure 5
YEAR-OVER-YEAR EMERGING RISKS (UP TO FIVE RISKS CHOSEN PER SURVEY), 2023–2024 MID-YEAR

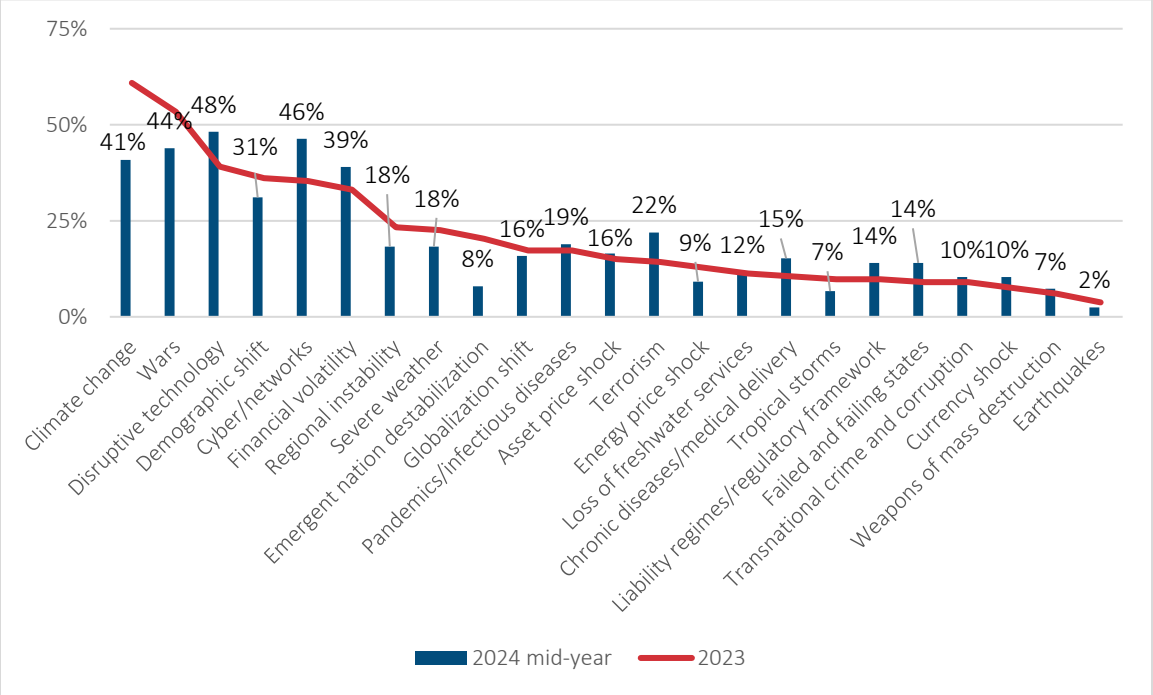


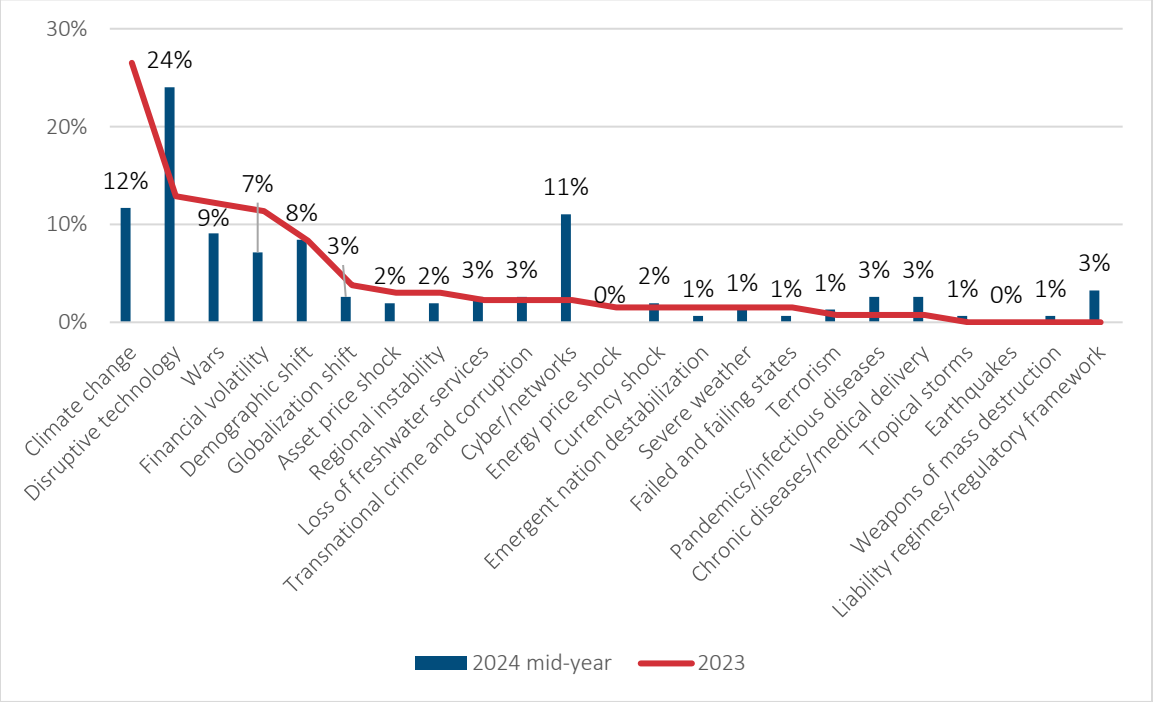
Table 2 shows the leading responses for top emerging risks. Figure 6 shows a comparison between results for the top emerging risks in the 2023 survey and the 2024 mid-year flash survey. *Disruptive technology*, the top ranked result, increased by 11%. Other gainers were *Cyber/networks* (9%) and *Liability regimes/regulatory framework* (3%, perhaps due to concerns about increasing costs). *Climate change* fell to second place, down 15%, while others with material drops included *Financial volatility* (down 4% and out of the top five), and *Wars (including civil wars)* (down 3% but still in fourth place overall).

Table 2
TOP EMERGING RISKS

Rank	Risk	2023 Rate	Mid-year 2024 Rate
1	Disruptive technology	13%	24%
2	Climate change	27%	12%
3	Cyber/networks	2%	11%
4	Wars (including civil wars)	12%	9%
5	Demographic shift	8%	8%

Figure 6

YEAR-OVER-YEAR TOP EMERGING RISKS, 2023-2024 MID-YEAR



Key Finding 3: Top Current Risk

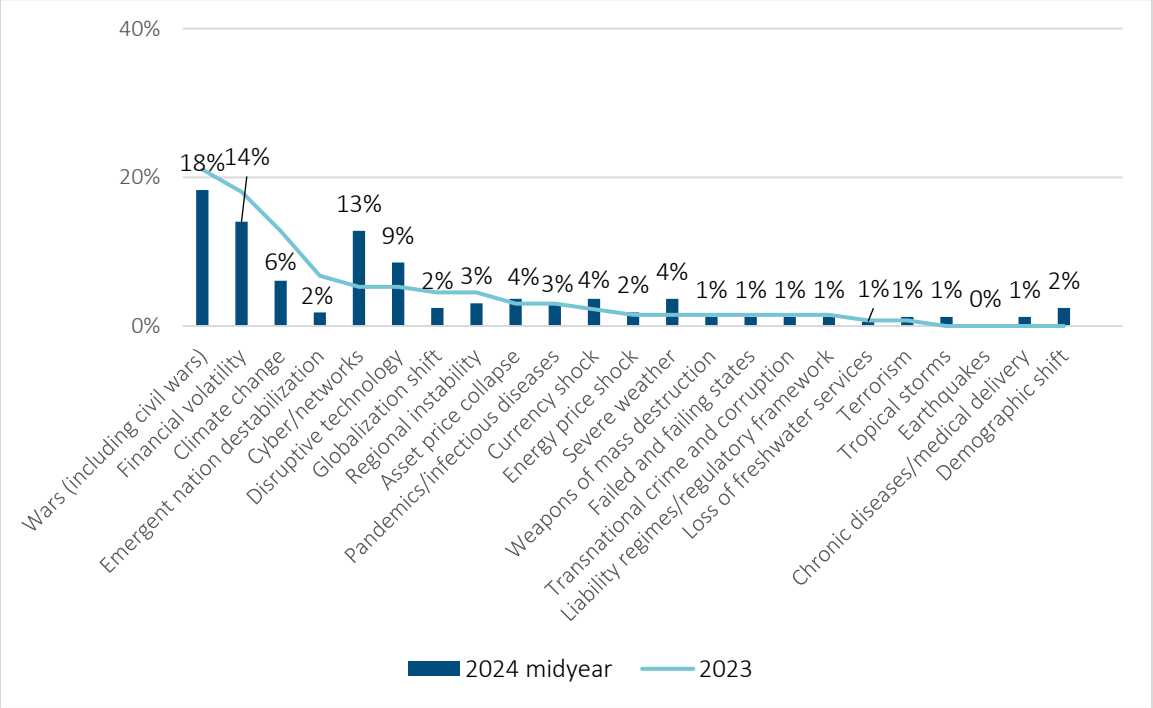
Table 3 includes the top ranked risks when respondents were asked for their top current risk. The risks that increased the most were *Cyber/networks* (8% and now ranked third), *Disruptive technology* (3%, 8.5% vs. 5.3%, ranked fourth), *Demographic shift* (2%), and *Natural catastrophe: severe weather* (2%). Those falling the most were *Climate change* (7% but still ranked fifth), *Emergent nation destabilization* (5%), and *Financial volatility* (4% and ranked second). Within the environmental category, half of the drop in *Climate change* was offset by increases in *Natural catastrophe: tropical storms* and *Natural catastrophe: severe storms* in what could be a move toward specific events.

Table 3
TOP CURRENT RISK

Rank	Risk	2023 Rate	Mid-year 2024 Rate
1	Wars (including civil wars)	21%	18%
2	Financial volatility	18%	14%
3	Cyber/networks	5%	13%
4	Disruptive technology	5%	9%
5	Climate change	13%	6%

The year-over-year comparison for top current risk is shown in figure 7. While the technology category increases drove results, it is interesting to see risks that were not chosen frequently in fall 2023 see material increases in spring 2024. This includes the least chosen risk in 2023, *Demographic shift*, which increased from 0% to 2%, likely due to reporting on the drop in fertility rates.

Figure 7
YEAR-OVER-YEAR TOP CURRENT RISK, 2023-2024 MID-YEAR

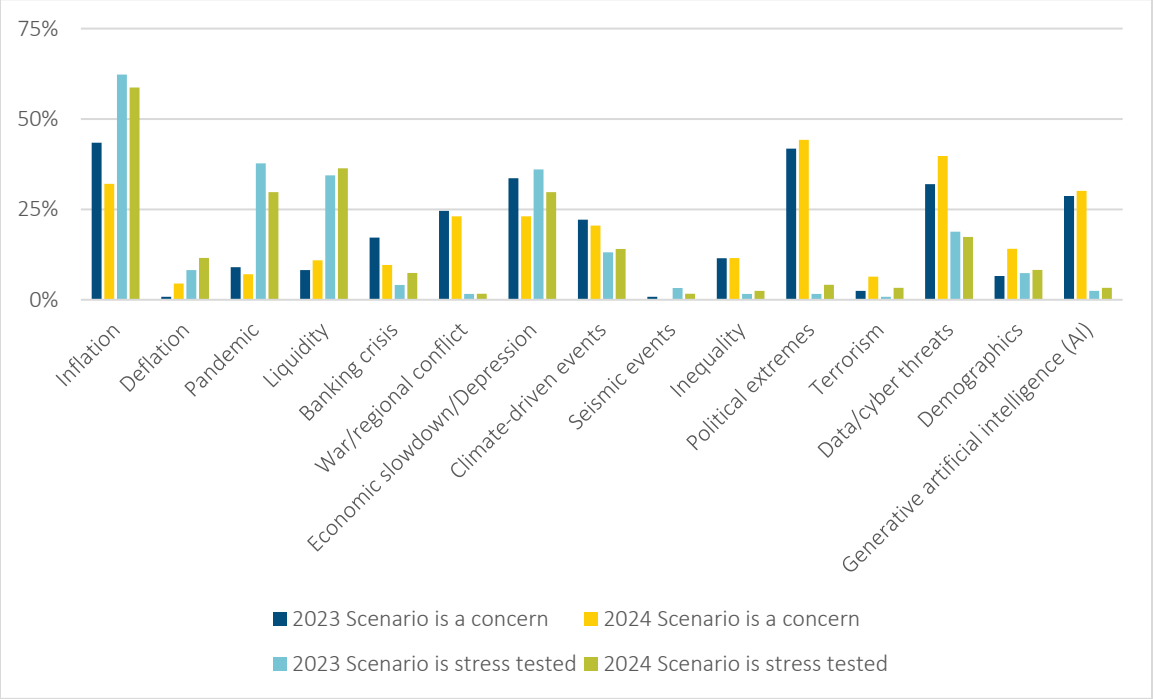


Key Finding 4: Scenario Concerns and Stress Testing

For each of the two flash surveys, a set of questions asked what scenarios the respondents most worried about in the current environment and which ones they stress tested.[7] The greatest interest is for scenarios viewed as a concern but not stress tested. This may be a source of additional investigation and research.

While results are similar between the surveys, figure 8 shows an imbalance for some risks, with stress testing exceeding the concern, such as *Pandemic* and *Liquidity* risks, or a shortfall such as *Political extremes*, *Data/cyber threats*, and *Generative artificial intelligence*. *Economic slowdown* and *Inflation* are among those that seem to have a healthy balance. A few respondents shared other scenarios they tested, including topics about government intervention, social inflation, investment topics, regulation burden, and mortality.[8]

Figure 8
CONCERNS AND STRESS TESTING



[7] Due to a coding error initially limiting the number of responses in scenarios tested to three, corrected after one-third of the responses had been entered, the number of scenarios tested would have been higher. Assuming the same distribution by number of responses the overall total scenarios reported are about 6% lower than they would have been. The researcher determined that disclosure of this issue would prove more valuable than throwing the question out.
[8] One could argue that the pandemic scenario covers extreme mortality and morbidity, but the question should be worded more clearly in future surveys.

In figure 9 the differences between scenario concerns and scenarios stress tested provide a quick overview of the results, providing an alternative view of figure 8 that aids the analysis. For example, the difference for *Banking crisis* fell in 2024. A review of the components shows that the concern has lessened, which makes sense since the regional bank crisis occurred early in 2023 after interest rates rose quickly, reducing bond market values. Similarly, the concern for *Data/cyber threats* has increased. Stress testing did not materially increase for any of the scenarios.

Figure 9

DIFFERENCES BETWEEN CONCERNS AND STRESS TESTING

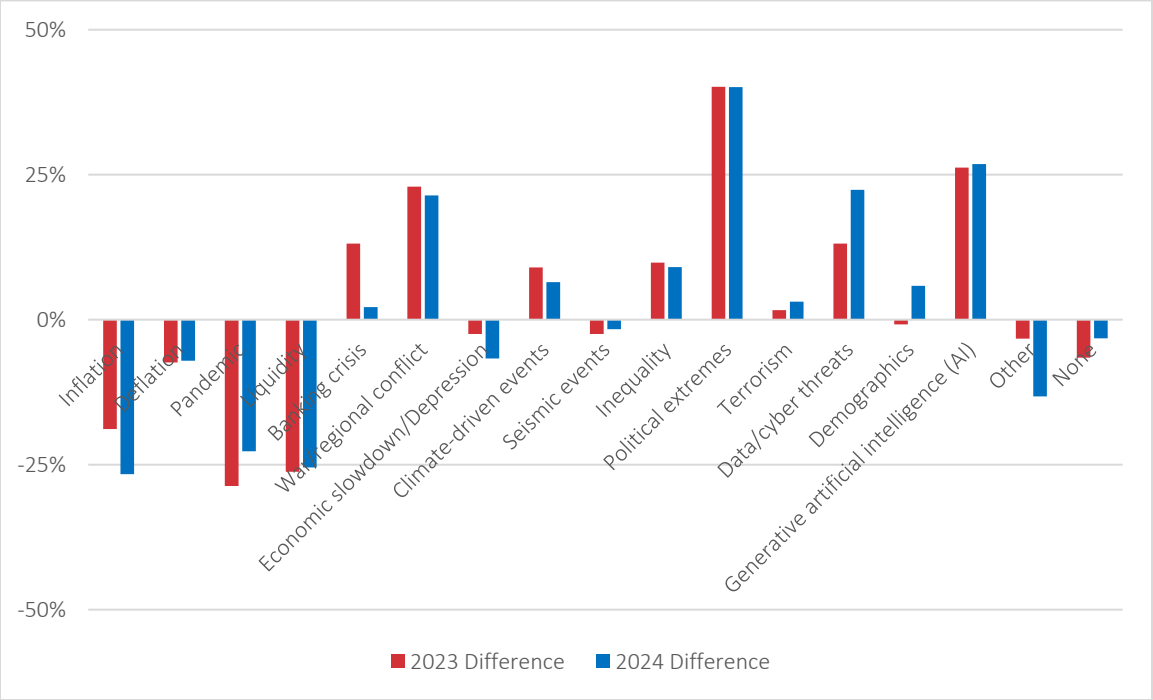


Table 4 ranks the scenarios by those of greatest concern for respondents, along with the percentage where stress tests have been performed. *Political extremes* and *Generative artificial intelligence* may be topics that could be initially investigated through qualitative scenarios and discussion groups.

Table 4

TOP CONCERNS AND SCENARIOS STRESS TESTED

Rank	Risk	Concern	Stress Test Performed
1	Political extremes	44%	4%
2	Data/cyber threats	40%	17%
3	Inflation	32%	59%
4	Generative artificial intelligence	30%	3%
5	Economic slowdown/depression	23%	30%

Risk managers reported that *Political extremes* was not only the top concern but the top scenario where there was a concern that was not being stress tested. Table 5 shows where there is a concern that is not being stress tested and can act as a guide for developing future stress tests, both qualitative and quantitative.

Table 5
TOP CONCERNS THAT ARE NOT BEING STRESS TESTED

Rank	Risk	Concern but not stress tested
1	Political extremes	40%
2	Generative artificial intelligence	27%
3	Data/cyber threats	22%
4	War	21%
5	Inequality	9%

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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
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- 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.

The Casualty Actuarial Society

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