

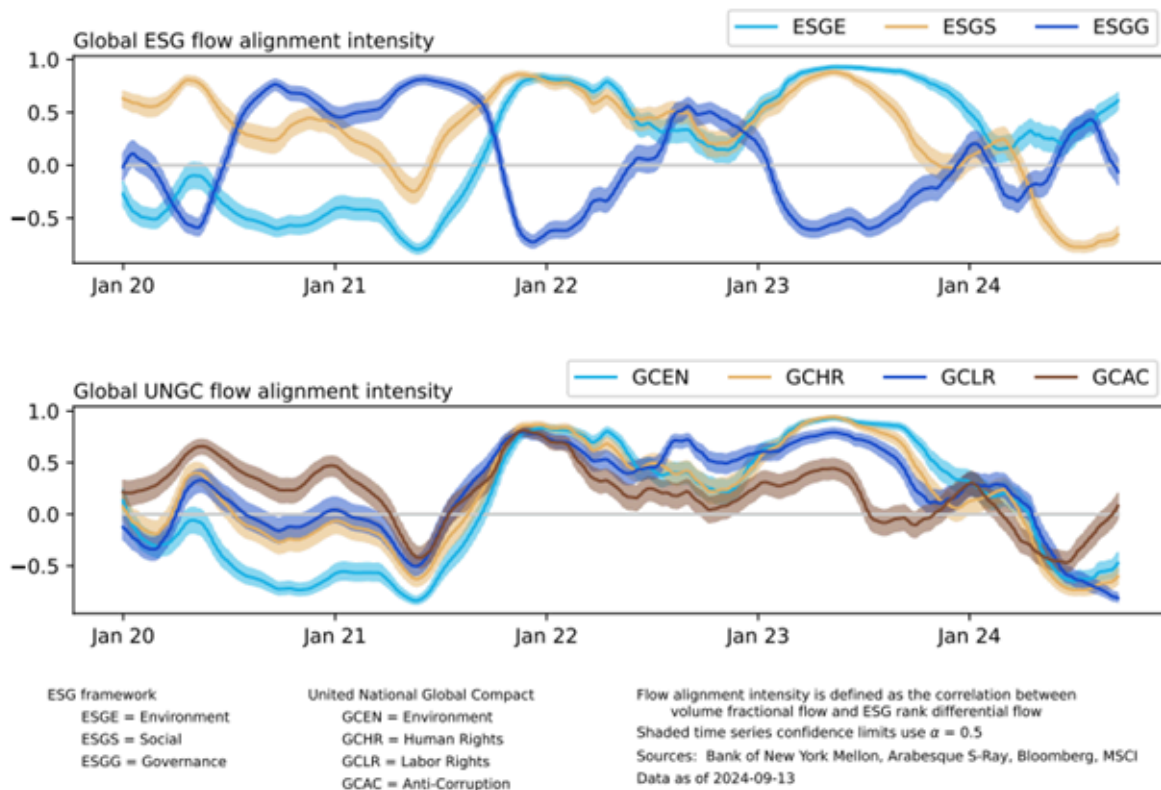
September 20, 2024

## Stormy Weather and Climate Risks

- Climate Week starts in New York City next week, and global leaders who converge on the city and the news media will be focused on green issues. iFlow shows investors are turning back to environmental factors.
- The cost of climate change and the insurance for its effects do not match, and that coverage gap is going to be a problem for world growth and debt in the years to come.
- Against the likely green investment focus we continue to see iFlow holdings rise for the Utilities and Materials sectors on the front lines of environmental constraints. Only the US has seen a drop in Materials sector holdings.

The iFlow Green index shows that environmental factors are back on the rise globally, but the UNGC flow intensity measure is significantly below its 2023 peak. It remains difficult to ascertain the implications for funding climate change for governments. Only EMEA emerging markets have seen this correlation of environmental bonds in demand from our clients.

### Exhibit #1: Green Bond Buying on the Rise



Source: iFlow, BNY

The spate of storms this month and last stand out as examples of how macroeconomic risks collide with the political hot-button topic of climate change policy. The Chinese growth missed due to weather in August, adding to government pressure to spend more money. Storms in the US in August and September have added to labor market noise and subtracted from growth. They also added to the government deficit as it covers disasters.

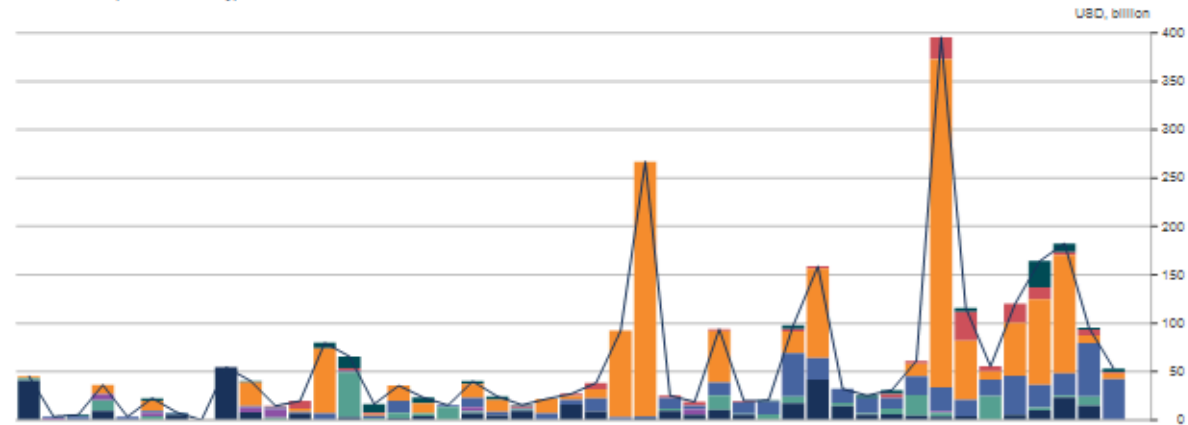
Severe storms in the first half of 2024 were 62% above the 10-year average, according to Swiss Re. Global insured losses were \$60bn, with 70% of that from the US alone. Severe convective storms (SCS) – with high winds including tornadoes, hail and heavy rain – were \$42bn in 1H2024, with 12 storms costing over \$1bn each. Overall, SCS are up every year +8% y/y since 2008.

## Exhibit #2: US Storms and Cost on an Upward Trend

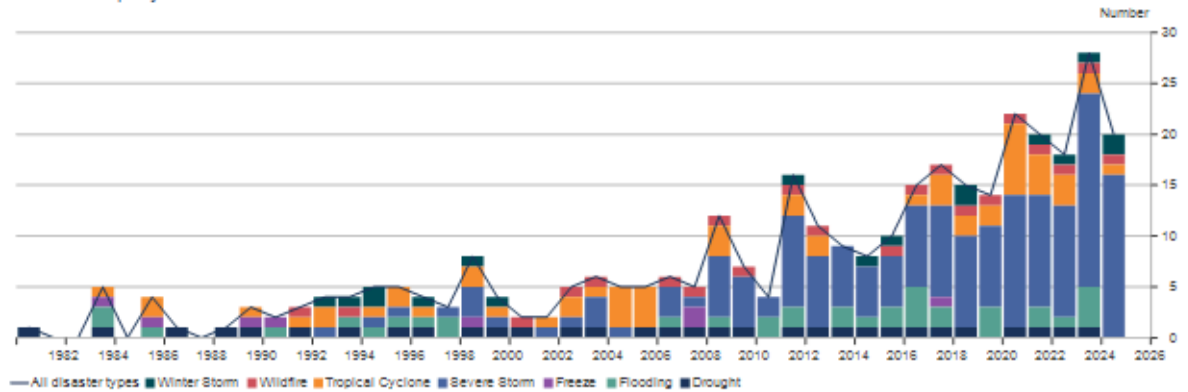
## United States: billion -dollar natural catastrophes events

Source: National Oceanic & Atmospheric Administration (NOAA)

Annual cost per disaster type



Occurrences per year



MACROBOND

Source: Macrobond, BNY

In 2023, just 38% of the \$280bn, or \$108bn, of losses from natural disasters was covered by insurance. Over the last ten years the world has suffered \$3.193trn of natural disaster losses. With climate change clearly increasing the risks for more losses ahead, there is a fiscal vulnerability for the global economy following the costs of Covid. How governments cover the uninsured costs will add to global debt concerns. The protection gap between insured and uncovered losses due to natural catastrophes varies significantly by nation in size and proportion. There is a significant coverage gap correlation to GDP per capita but also based on the role of government in running the economy, as is the case of China. Climate change also affects regions of the world where there is less money and fewer carbon emissions. This is one of the anchors of the COP 27 agreement reached last year. The North-South divisions are complicated by the history of industrialization, with China and India both pushing for growth clauses to catch up to the developed world. China is now the largest increased user of oil in the world over the last ten years, while OECD use fell. Coal plant increases by China have been evened out by their EV

use. How to think about making green policies fair to the world is a historical hangover issue.

- **China over the last ten years has had \$290bn of economic losses** with just \$17bn insured, a 94% gap.
- **The US had \$1.142trn** in damages with just \$662bn covered, a 42% gap.
- **The UK had \$10bn in losses** with \$7bn insured, a 21% gap.
- **Germany had \$69bn in losses with** just \$30bn insured, a 56% gap.
- **Japan had \$162bn** in losses and \$73bn insured, a 55% gap.
- **India had \$89bn in losses** and \$8bn insured, a 91% gap.

And by region the losses are clearly biased to where insurance coverage is offered.

- **EMEA overall saw \$357bn** of losses of which \$106bn was insured, leaving a 70% coverage gap.
- **North America saw \$1.201trn** of losses of which \$687bn was insured, leaving a 43% coverage gap.
- **Asia saw \$639bn of losses** of which \$99bn was covered, an 85% coverage gap.
- **Latin America saw \$96bn of losses** of which was \$19bn insured, an 80% coverage gap.
- **Oceania saw \$56bn of losses** of which \$32bn was insured, a 42% coverage gap.

Globally, the problem is also about location – where some of the larger growing populations in the world are most at risk of natural disasters. The underwriting of climate change risks ahead will require global coordination.

### **Exhibit #3: Regions and Nations at Risk Have Higher Populations, Lower Income**

## World Risk Index: natural catastrophes

Source: Alliance Development Works (Bündnis Entwicklung Hilft)

Values for 2024	Exposure		Vulnerability		Lack of Coping Capacity		Lack of Adaptive Capacities		Score	
Philippines	40.0	↓	55.03	↑	56.10	↓	58.07	↓	46.9	↑
Indonesia	39.9	↑	42.40	↓	46.17	↓	51.01	↓	41.1	↓
India	36.0	↑	46.62	↓	50.49	↓	54.01	↓	41.0	↓
Colombia	31.5	↓	45.33	↓	48.10	↑	49.28	↓	37.8	↓
Mexico	50.1	↑	25.78	↑	47.68	↑	11.97	↓	35.9	↑
Russia	28.4	↓	27.89	↑	35.38	↓	40.03	↑	28.1	↑
Vietnam	26.7	↓	21.98	↓	42.13	↓	12.38	↓	24.2	↓
United States	39.6	↓	12.85	↑	31.78	↑	7.95	↓	22.6	↑
China	64.6	↑	7.03	↓	2.73	↓	11.55	↓	21.3	↓
Japan	43.7	↓	10.04	↑	12.76	↓	6.89	↓	20.9	↑
Canada	25.9	↓	13.78	↑	33.69	↑	7.81	↑	18.9	↑
Turkey	8.9	↓	23.55	↓	16.32	↓	50.01	↑	14.5	↓

Arrows indicate the change compared to 15 years ago  
Maximum value for a given indicator is 100

MACROBOND

Source: Macrobond, BNY

It is estimated that damages from climate change will cost the global economy \$38trn through 2049. This includes the costs of natural disasters, which rose to \$280bn in 2023 and are expected to average \$500bn a year through 2030, with even higher annual costs after that. The average from 2000 to 2019 was around \$143bn. It is assumed that the costs to society beyond natural disasters themselves will be even higher, although measuring these costs is more difficult.

The original costs of achieving the goals of the 2015 Paris Climate Agreement on emissions by 2030 were estimated to be \$6trn. Back then, the cost was viewed as prohibitive, but today it looks cheap. The current assumptions make clear that the damages from weather outweigh the mitigation costs for green policies globally. It is a 6-to-1 cost-benefit for the world to push for greener outcomes.

Climate change costs according to the Newman, Noy Nature study were \$280bn in 2023. More than 64% of the damages attributed to climate change are connected to storms, which is expected given the high level of damages from events like hurricanes. Furthermore, 16% of the attributed damages resulted from heatwaves, while floods and droughts are each responsible for 10%, and wildfires account for 2% of the net attributed damages. Lastly, cold events, calculated as a fall in climate change-attributed damages, are responsible for only 2% of net attributed damages. Important channels of impact driving macroeconomic costs that are not measured

well in research, including an increase in sea levels, human health issues and ecosystem tipping points, have longer-term costs.

The BIS report in July on the mismatch shows that much of the insurance coverage risk has moved offshore, and therefore much of the risk of increasingly higher uncovered disasters is being left to governments, forcing more difficult political decisions on how to recover from catastrophic losses. The UK OBR FFR on climate change costs should be required reading for those at Climate Week. The report's conclusions should be a template for the US and other OECD nations. "At one extreme, the UK FFR found that if policy action were delayed until the 2030s, the total costs could more than double in debt terms to 43% of GDP by 2050." At the other extreme, if policy action, including a carbon tax, was taken earlier, government absorbed its share of whole-economy transition costs within its existing investment plans, and the fuel duty was replaced with an equivalent tax on motoring, then getting to net-zero could deliver a net fiscal benefit and lower the debt-to-GDP ratio by 12% by 2050.

The IPCC report warns of the effects of a 1.5° C change in temperature over the next 20 years.

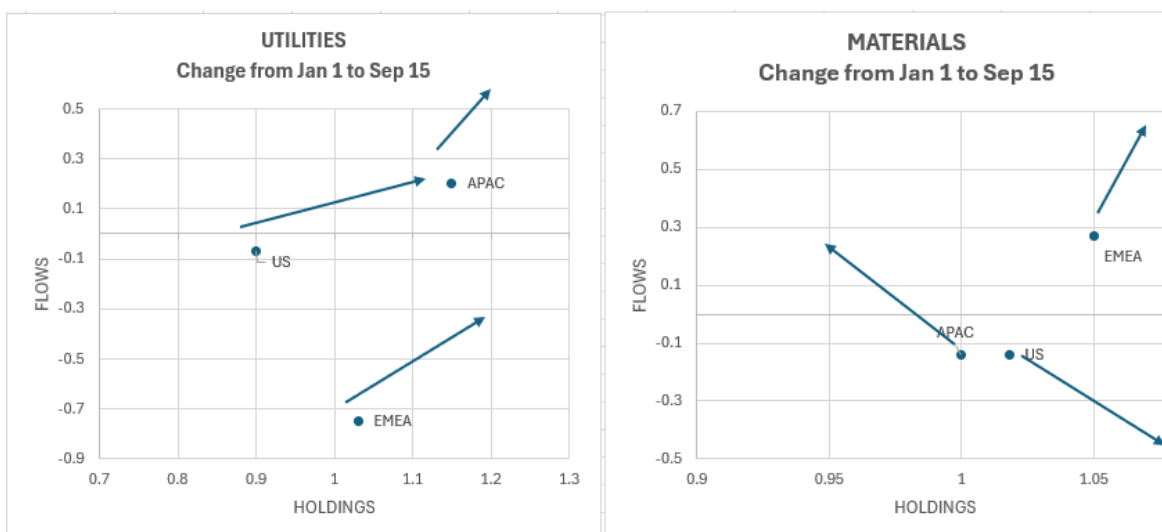
- *Heatwaves.* Many regions will suffer more hot days, with about 14% of people worldwide being exposed to periods of severe heat at least once every five years.
- *Droughts and floods.* Regions will be more susceptible to droughts and floods, making farming more difficult, lowering crop yields and causing food shortages.
- *Rising seas.* "Tens of millions of people live in coastal regions that will be submerged in the coming decades." ("Global Climate Agreements: Successes and Failures") Small island nations are particularly vulnerable.
- *Ocean changes.* Up to 90% of coral reefs will be wiped out, and oceans will become more acidic. The world's fisheries will become far less productive. ("Global Climate Agreements: Successes and Failures")
- *Arctic ice thaws.* At least once a century, the Arctic will experience a summer with no sea ice, which has not happened in at least two thousand years. Forty percent of the Arctic's permafrost will thaw by the end of the century. ("Global Climate Agreements: Successes and Failures")
- *Species loss.* "More insects, plants, and vertebrates will be at risk of extinction." ("Cleanemissionz")

**Bottom Line:** The world faces a balancing act as it tries to grow fast enough to cover its debt burdens and protect the future with more sustainable energy use and

greener outcomes. The focus of risk into the US election will be on the certainty of policy, both at home with taxes and abroad with tariffs and foreign alliances to deal with global issues like climate change. Like the FOMC decision this week, the bond markets are painting a different picture than equities for how important environmental concerns are. The setup for markets in the US, Europe and APAC varies for equities vs. bonds when it comes to green factors. The cost of climate change matters particularly to insurers. We can see that there is a notable divergence of bonds (as shown in our Green index in Exhibit #1) vs. equities (as shown in Exhibit #4 below – note that the 5-year holdings average score for both sector is 1.01). Our iFlow positioning in Materials and Utilities, two of the most difficult sectors for green policies, has seen investors add to holdings except in APAC where Materials reflect further China growth missteps. The biggest risks for 4Q are in the fiscal balance risks against the push for growth from further easing.

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#### Exhibit #4: iFlow Materials and Utilities Sector Holdings Increase This Year



Source: iFlow, BNY

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Please direct questions or comments to: [iFlow@BNY.com](mailto:iFlow@BNY.com)



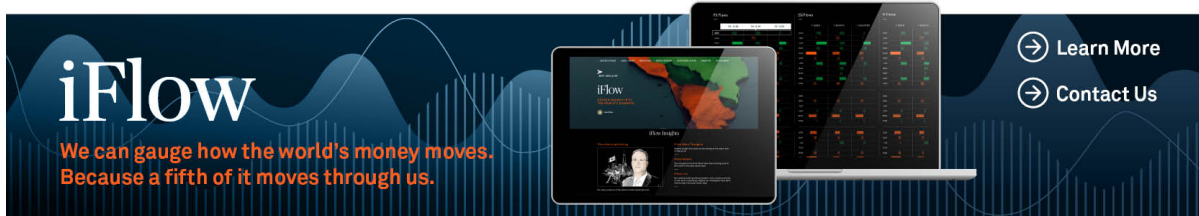


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