Verisk Maplecroft

Strikes, riots and civil commotion predictive scoring

US focus

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1 / Executive Summary

Billion-dollar insured strikes, riots and civil commotion (SRCC) losses are no longer rare – there have been five $1b+ insured losses in the past five years - Chile (2019), US (2020), South Africa (2021), France (2023), and New Caledonia (2024).

1. The insurance industry needs a way to quantify which exposures are at heightened risk from political violence for underwriting and exposure management purposes. Verisk Maplecroft created a predictive scoring model, incubated in the Lloyd's Lab, trained on historical losses and powered by machine-learning algorithms to predict the severity of future SRCC events based on prevailing political and socio-economic conditions that are predictive for future unrest.

2. Verisk Maplecroft's scores correctly identified France as the riskiest European country for SRCC prior to the 2023 riots and produced similar results for Kenya and Bangladesh prior to the 2024 riots.

3. US November 2024 elections are of key interest to insurers. Despite elections not having predictive power when forecasting SRCC insured loss events, elections could provide a spark.

4. Verisk Maplecroft's Global SRCC Predictive Scores show that the key countries at risk over the next year are South Africa, Colombia, Brazil, Chile, and the United States, with France, Greece, and Spain the riskiest locations in Europe. The UK lies in sixth, though that forecast was made before the summer 2024 unrest.

5. Verisk Maplecroft's US SRCC Predictive Scores show the top three counties with high risk and exposure are Los Angeles (California), New York (New York) and Cook (Illinois).

6. Verisk Maplecroft's new SRCC catastrophe model for the US shows that the $3b insured losses caused by the 2020 riots are not an outlier in the event catalogue. Though unlikely, losses could have been significantly worse if the intensity of the protests in Minneapolis had been replicated in locations with very high exposure values (e.g. New York) or in a handful of other cities. This is not just of importance to political violence underwriters but the wider insurance industry, as a large proportion of the 2020 protest losses were borne by standard commercial property policies[1].

1 *(Robinson, 2020)*

2 / Introduction

Since the riots in Chile in 2019, the threat of strikes, riots and civil commotion (SRCC) has been a growing concern for the insurance industry.

According to Verisk Maplecroft's Global SRCC Predictive Scores, which provide a global assessment of the expected severity of SRCC in the next 12 months, the risk of SRCC in the United States is about the same level as it was in early 2020, just prior to the historically large riots in May and June that year. And on the horizon is what could be a major spark of future unrest – the November 2024 US Presidential election.

In this whitepaper, we explore SRCC risks in the United States using two proprietary tools Verisk Maplecroft has developed for assessing this hazard: 1) the Global SRCC Predictive Scores and 2) the SRCC catastrophe model for the US.

3 / Elections rarely spark unrest; will the United States follow suit?

The case for elections causing unrest that results in SRCC losses is limited. We assessed the predictive power of elections in forecasting damaging unrest when developing the Global SRCC Predictive Scores but excluded them as a predictor because there was little correlation, and it did not help improve the accuracy of the scores. This has so far been borne out during the election 'super cycle' of 2024, which has yet to result in any significant losses following election related unrest despite several major countries having already been to the polls. More elections load the dice, they create more sparks, but, as with more forecasted storms not necessarily leading to larger insured loss, more elections may not mean higher SRCC loss that year. This includes India, home to several of the largest SRCC events in history and the 6th highest risk country in our scoring model prior to the elections earlier this year.

> "The biggest SRCC insured loss events in United States history have generally been sparked by spontaneous protests that have escalated following an unexpected event.

Historically, in the United States violence around elections is extremely rare. The January 6 riot, planned to coincide with the count of the Electoral College ballots in Congress, is a standout protest event in US history given the location, deaths, and political ramifications, but not because it was a major SRCC insured loss event.

The biggest SRCC insured loss events in United States history have generally been sparked by spontaneous protests that have escalated following an unexpected event: the murder of George Floyd by a police officer in 2020, the acquittal of the police officers involved in the beating of Rodney King in 1992, the New York City blackout in 1977, and the assassination of Martin Luther King Jr. in 1968 all fall into this category.

For insurers, the major concern around unrest arises when large numbers of people are on the streets and where a confrontation between rival protestors, or more likely police and protestors, could spark violence that spreads to other major cities over the following days and weeks. This is the highest risk scenario related to the November elections, less so a set piece protest planned well in advance isolated to one location.

Against this backdrop, the Global SRCC Predictive Scores and Verisk's Industry Exposure Database were used to analyse which counties in the United States are more likely to experience the most severe impacts of SRCC and where exposure accumulations are the highest.

4 / New York tops the list for SRCC risks

> It is important to account for a country's characteristics rather than simply use its historic record of SRCC events as a guide to the future.

According to Verisk's industry exposure, there is nearly $100 trillion of property exposure in the United States. About a third of this is commercial property which is overwhelmingly where losses from SRCC events are seen. Major protests tend to occur in urban centres as they are easily accessible for protestors, the potential for disruption is maximised, and they are highly visible. They also tend to be home to the typical targets of protests, e.g. buildings that house government or commercial entities. Those targets may be picketed, vandalised or in more serious SRCC loss events, looted and burnt down. Hence, commercial buildings tend to be more in the firing line compared to other types of property. There will always be exceptions given the difficulty in modelling the specifics of a riot, for instance in France 2023 municipal buildings received disproportionate damage, but there are clear patterns in the data that can help guide loss mitigation efforts for future SRCC events.

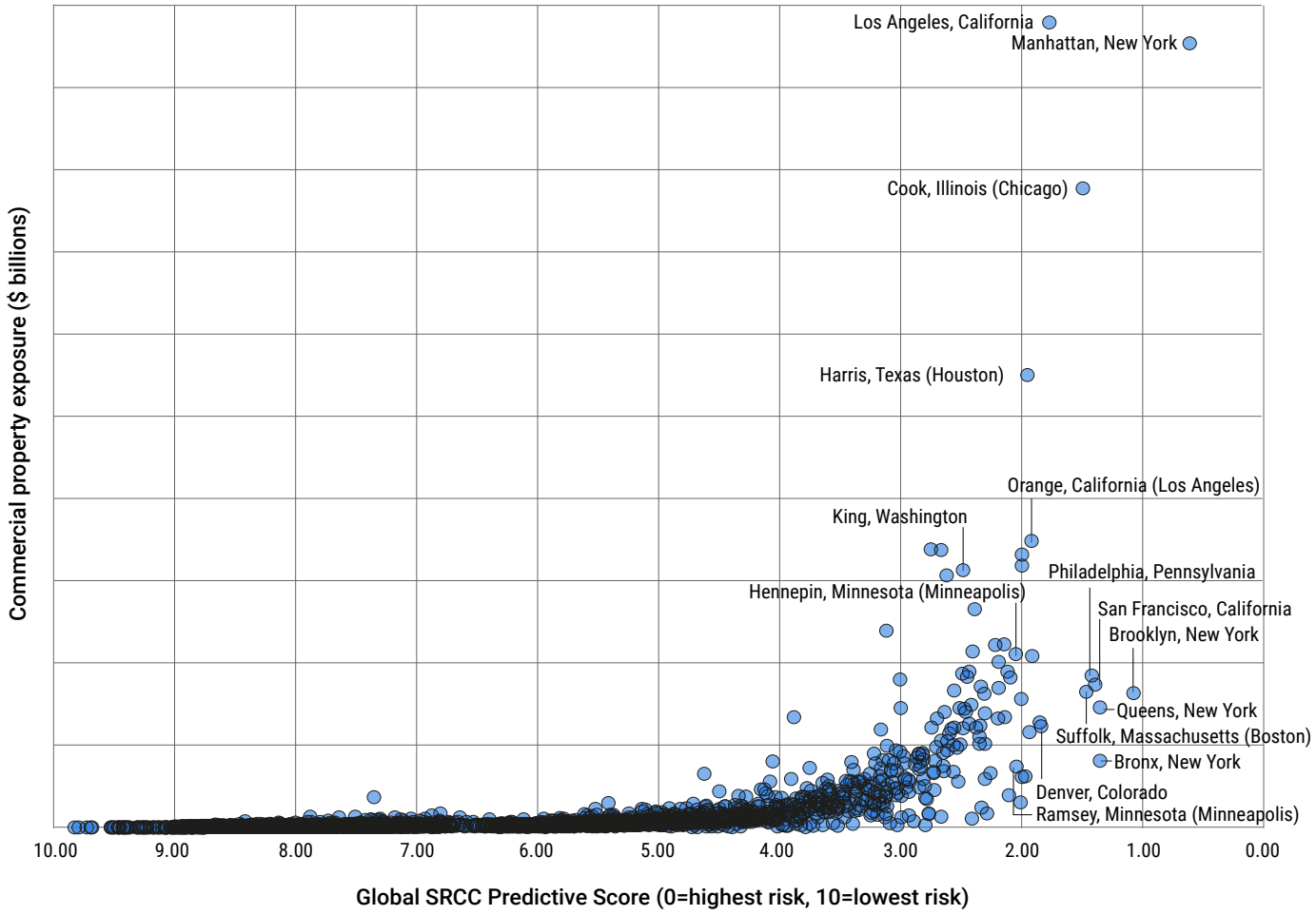
To assess the future severity of SRCC in each county, the Global SRCC Predictive Scores uses a combination of a country-level SRCC forecast based on the underlying conditions in a country and how conducive they are to this type of civil unrest as well as county-level protest and economic metrics.

It is important to account for a country's characteristics rather than simply use its historic record of SRCC events as a guide to the future. The country that ignited interest in SRCC, Chile, had no record of major SRCC losses prior to the 2019 riots.

The Global SRCC Predictive Scores have been through a rigorous validation process. We have validated our measure of the impact of previous SRCC events using Verisk PCS' SRCC Index and the predictive scores model is trained to spot events like the Chile, United States and South Africa riots. Prior to the France riots of 2023 our scores put France as the highest risk country in Europe and 11th globally. Similarly, prior to the Kenya riots in July 2024, the country ranked 2nd in Africa and 11th globally. Finally, prior to the Bangladesh riots that resulted in the resignation of Sheikh Hasina over the summer of 2024, the country ranked 3rd in Asia and 9th globally.

We have combined the Global SRCC Predictive Scores and Verisk's industry exposure data in the chart below. The counties with the highest SRCC hazard are all in New York City. The combination of hazard and overall exposure makes Manhattan the highest risk location in the United States.

Figure 1: SRCC hazard vs commercial property exposure for the United States



[1]For some counties the names have been changed or cities they cover added in parentheses for clarity.

Source: Verisk Maplecroft

Los Angeles, Cook County (Chicago), and Harris County (Houston) are home to three of the four highest exposure accumulations in the country, and all sit inside the top 15 highest risk counties on the Global SRCC Predictive Scores.

Ramsey County and Hennepin County together cover the majority of Minneapolis and St. Paul where, in 2020, the George Floyd riots resulted in damage to 100s of properties and 100s of millions of dollars in insured losses.

5 / SRCC catastrophe model

> The US SRCC catastrophe model uses an approach that can be scaled to any country globally, each with its own event catalogue.

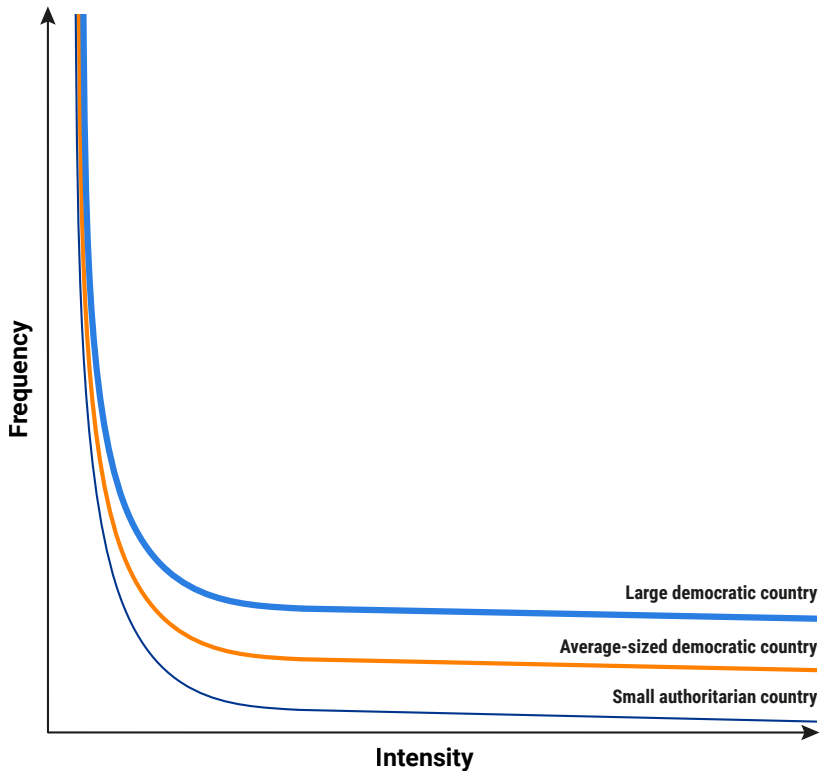
The Verisk SRCC catastrophe model for the US builds on the Global SRCC Predictive Scores which are already being used to understand SRCC risks by several insurers. It follows the approach of a natural catastrophe model and is composed of the following elements:

- Event generation: a large catalogue of simulated events captures the frequency and severity of the entire spectrum of plausible SRCC events for each country.
- Event footprint: a footprint is generated for each event with the severity of the SRCC event distributed across the country based on how likely SRCC events are to occur there. In the United States we do this at the county level.
- Damage estimation: potential physical damage is calculated from fire, looting and vandalism.

The US SRCC catastrophe model uses an approach that can be scaled to any country globally, each with its own event catalogue. The potential intensity of an SRCC event in each country is capped given its size and the likely response by the state. This means a large event in say India cannot occur in a country like Ireland. A repressive state response can also limit the impact of a typical SRCC event, as was seen in Iran in 2019.

The curves illustrating frequency and intensity of the SRCC hazard will therefore vary by country. The figure below provides some indicative examples.

Figure 2: Large democracies tend to see the worst SRCC events



Source: Verisk Maplecroft

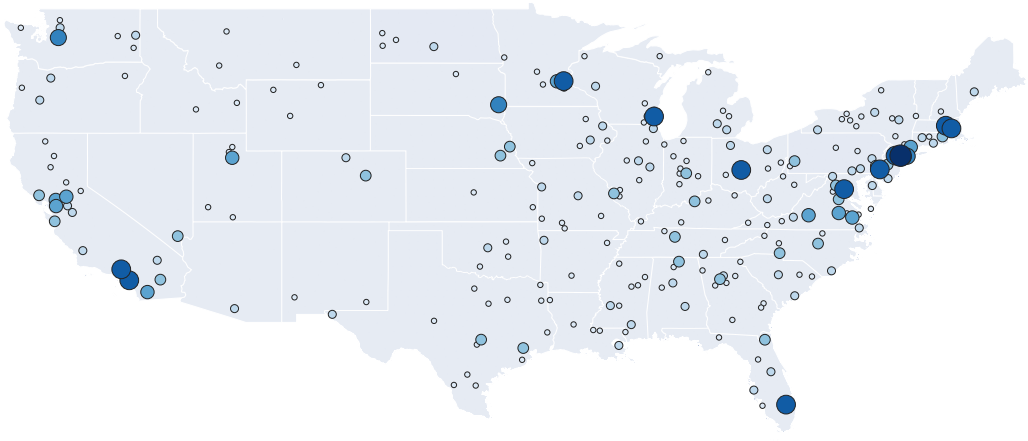
> Insurers can run their exposures through the model to obtain average annual losses and exceedance probabilities just like with existing property catastrophe models.

Validation is again a fundamental part of the development of the catastrophe model. Like the predictive scores it is validated on the events in Chile, the United States, and South Africa. To validate the frequency and intensity of tail events, we built a database of major SRCC events back to 1900 globally for comparison. We also scrutinised the tail qualitatively to ensure that possible but unlikely events were included, for example, Minneapolis 2020-level intensity in a major city in every state. Finally, the vulnerability part of the model that translates intensity and event footprints into losses via damage curves are validated based on high resolution property data from Minnesota, the centre of the 2020 riots.

Insurers can run their exposures through the model to obtain average annual losses and exceedance probabilities just like with existing property catastrophe models.

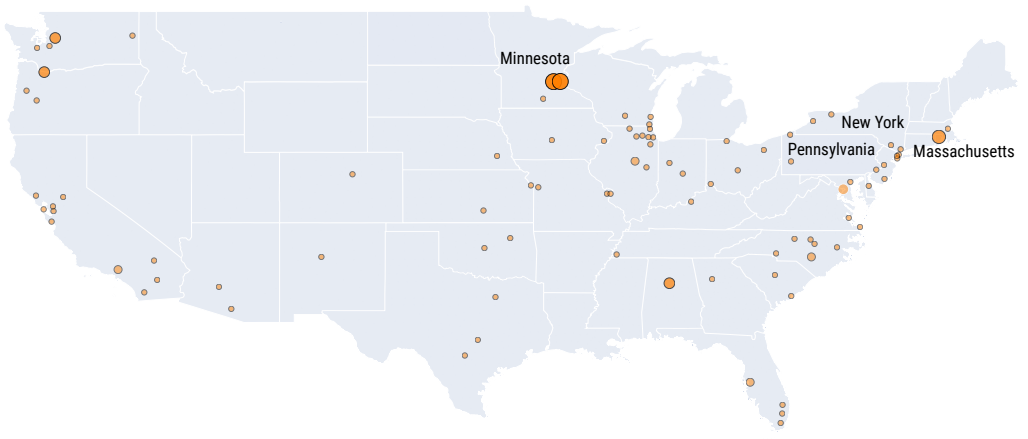
The map below shows losses at the county level for one of the tail events in the United States' event catalogue.

Figure 3: County-level footprint of a 1 in 1,000 year SRCC event
Bubble size and colour indicates insurable loss by county.



Source: Verisk Maplecroft *© Verisk Maplecroft 2024*

Figure 4: County-level footprint of 2020 riots
Bubble size and colour indicates number of commercial properties impacted by county.



Source: Verisk Maplecroft *© Verisk Maplecroft 2024*

County-level footprint of 2020 riots

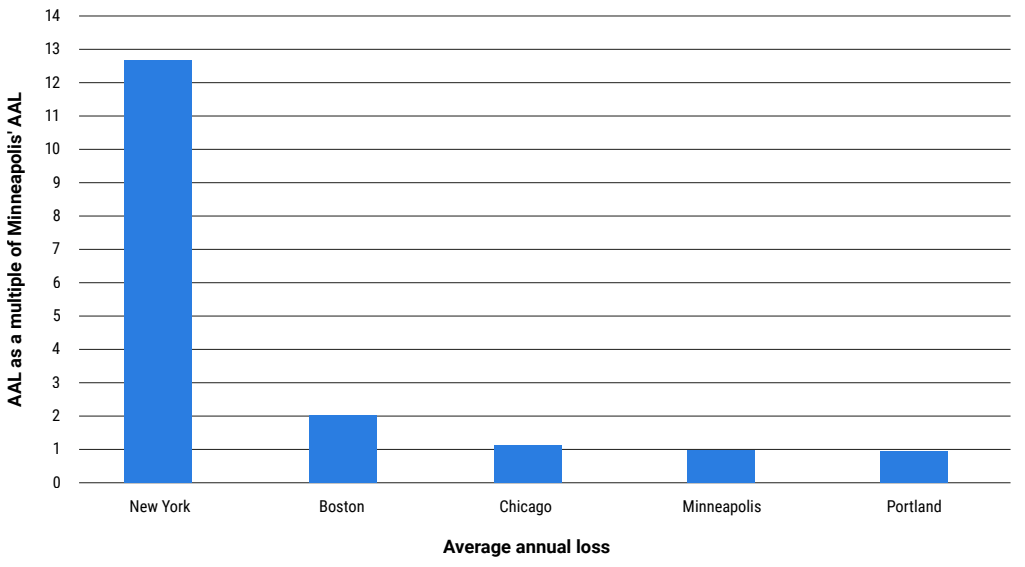
The figure shows a 1 in 1,000 year event about ten times more intense than the 2020 riots in the United States. Each bubble represents a county – the larger and darker a bubble, the greater the insurable loss would be from this particular event. For comparison purposes, the second map shows the number of commercial properties impacted by the riots in 2020, again by county. Although the first map is showing losses and the second map is showing the number of impacted commercial properties, we can compare them based on the general relationship between exposure value and commercial property counts.

> “The highest insurable loss locations include New York City, Boston and Philadelphia, with 250 counties experiencing insured losses of some kind.

As an example, we have run the Industry Exposure Dataset as our exposures for the tail event factoring in damage curves in the process. The highest insurable loss locations include New York City, Boston and Philadelphia, with 250 counties experiencing insured losses of some kind. As the event footprint always varies, events with a similar intensity to this one will have different footprints which, depending on the location of the exposure, can lead to very different insurable and insured losses. An event of this intensity concentrated in New York City will for example result in significantly higher insurable losses – picture mass riots, looting and fires along 5th Avenue and losses can quickly mount.

If we continue to use the Industry Exposure Dataset as our exposures, we can run this through the SRCC catastrophe model to obtain the average annual loss by city. We've picked out five sample locations given the value of their exposures or their history of unrest in recent years. The chart below shows the values as a multiple of Minneapolis' AAL which was at the centre of the 2020 riots. New York City again stands out, in part driven by the exceptionally high value of exposures in the city but also because the model identifies it as a high likelihood location for losses from SRCC.

Figure 5: Average annual losses for five major cities in the United States



Source: Verisk Maplecroft *© Verisk Maplecroft 2024*

While no one knows what form, if any, SRCC will take around November's election, given the underlying conditions and heightened political polarisation in the United States right now, it is undoubtedly a potential flashpoint. That said, the risk of SRCC does not go away once the election period has passed.

6 / Conclusion

If the history of SRCC events both in the United States and other countries globally tells us anything, it's that these events can be sparked at any moment. In the last 12 months there have been two riots, Dublin in November 2023 and the UK in July/August 2024, where misinformation about the perpetrator of a serious crime has spread via social media, fanned by AI bots, and resulted in a violent response from the far right leading to insured losses. The spark for the next major SRCC event could come from almost anywhere, but there are patterns and relationships that tell us where, and how bad, the next event is likely to be.

The need for an ongoing rigorous assessment of SRCC and how it may impact your exposures and pricing is fundamental if you want to mitigate the impacts of the major loss events seen in Chile, the United States, South Africa, France, and New Caledonia in the last five years.

The Global SRCC Predictive Scores are available now and benefit from an array of integration options including API, shapefile or CSV delivery, and Touchstone Geospatial.

The SRCC catastrophe model will be launched in the near future.

If you would like to discuss either of these solutions or Verisk Maplecroft's wider offering related to political violence, please contact **info@maplecroft.com**

Authors

Sam Haynes
Vice President, Verisk Maplecroft

Shane Latchman
Vice President, Verisk Extreme Event Solutions

maplecroft.com

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