Assessing Policy Effectiveness and the Credit Implication of Latin American Governments' Response to The Coronavirus Pandemic

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Moody's Investors Service

Capstone Project

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Abstract

Capstone Client: Moody's Investors Service
Project Title: Assessing Policy Effectiveness and the Credit Implication of Latin American Governments' Response to the Coronavirus Pandemic
Faculty Advisor: Professor Gray Newman
Team: Fernanda Baqueiro, Junbin Duan, Juan Manuel Ibáñez Montenegro, Erin Leyson, Francisco Javier Pardinas Favela and Monica Vega Herrera

The COVID-19 pandemic is a once in a lifetime health and economic crisis that has revealed institutional weaknesses and put governments to the test. This study evaluates the effectiveness of governments' policy responses and assesses if their performance aligns with Moody's Ratings for Institutional Strength. This paper situates each country in its pre-pandemic conditions defined by factors across health, economic and governance dimensions. The report assesses whether or not each country's pre-pandemic conditions align with its overall Health Outcomes score. The Health Outcomes score is based on the country's performance across the following factors: total COVID-19 cases per million, total COVID-19 deaths per million, COVID-19 case growth rate, COVID-19 death rate, and COVID-19 reproduction rate.

While this study suggests that initial health and economic conditions have low predictive power for public health success in the COVID-19 context, governance factors align more with country performance in the pandemic. Especially interesting and important factors include democratic quality, disinformation, messaging, social trust and leadership. This report makes the following recommendations based on its findings.

1. Focus on the COVID-19 death rate and excess death as an indicator of virus severity.
2. Explore the role of disinformation and social media to better understand countries' Institutional Strength.
3. Account for levels of social trust and democracy when working to predict the efficacy of policy responses.

This project illuminates democratic quality and disinformation as areas for further research. Future applications include predicting and assessing country resilience in the face of climate change impacts and climate disasters.

Executive Report

Overview

The coronavirus pandemic is a once in a generation economic and public health crisis that has put Latin American institutions and governance to the test. Our study, with a focus on Latin America and the Caribbean (LAC), evaluates the effectiveness of governments' policy responses and assesses if their performance aligns with Moody's Ratings for Institutional Strength.

Data Sources

This report uses publicly available data from the period of January 1, 2020 to December 31, 2020. This project collected data across three main sectors: (1) Health: Our World in Data and World Bank, (2) Economic: International Monetary Fund, United Nations Development Programme, World Bank, and (3) Governance, Mobility, Disinformation: Google Maps, ECLAC COVID-19 Observatory, Oxford COVID-19 Government Response Tracker, COVID-19 Infodemics Observatory, CoMuNe Lab of Bruno Kessler Foundation and Moody's Investors Service.

Methodology and Baseline

In order to evaluate countries' policies responses to COVID-19 and assess success, we situated each country in it's unique, pre-pandemic conditions defined by factors across the health, economic and governance dimensions. The team created an Initial Conditions Baseline for each sector by selecting a series of indicators for each dimension that captured each country's state of preparedness or vulnerability to a major crisis. The team then ranked countries from best to worst within each indicator and assigned 2 points to countries with the strongest performance in a given indicator, 1 point for moderate performance and 0 points weak performance. It is important to note that countries are ranked with respect to peers in the LAC region, which results in some countries ranking higher than they might if compared to more advanced economies. After this, the team added points across indicators within the same sector to arrive at a total, overall score for each dimension. Finally, the team ranked the final scores and separated them into green ("high" score), yellow ("moderate" score) and red ("low" score) buckets.

Health Initial Conditions

To capture each country's starting ability to overcome a health crisis, the team reviewed many indicators and chose a final set of eight factors based on data availability and ability of the chosen indicators to capture important information about pandemic preparation levels and response capabilities. These final indicators include: diabetes prevalence, cardiovascular death rate, population aged 65 and above, population density, number of hospital beds and physicians per 1,000 people, health expenditure as percentage of GDP and universal health coverage.

Economic Initial Conditions

To capture each country's starting ability to weather an economic downturn and support its population during an economic crisis, the team reviewed many indicators, selecting five indicators for this study. The final indicators were selected based on their ability to capture information about economic performance and country susceptibility to a pandemic-induced downturn. The final indicators include the following: percentage of population below the poverty line, the rate of informal employment, 5-year average GDP growth, the forecast GDP growth for 2020, and the proportion of households with access to the internet. Access to the internet is a unique indicator used specifically in the COVID-19 context to measure the ability of an economy to weather the crisis through work-from-home arrangements.

Governance Initial Conditions

Finally, to capture the Institutional Strength of each country in the pre-pandemic context, the team reviewed both the Moody's Institutional Strength indicators, Economist Intelligence Unit Indicators, World Governance Indicators and newly developed indices such as the Disinformation Index developed by the CoMuNe Lab in response to COVID-19. The final indicators for this baseline are as follows: Democracy Index score, Disinformation Index score and Moody's Institutional Strength score.

Overall Initial Conditions

Country	Credit Rating	Economic Conditions	Health Conditions	Governance Conditions
Chile	A1	HIGH	HIGH	HIGH
Peru	A3	LOW	MOD	MOD
Mexico	Baa1	LOW	LOW	LOW
Panama	Baa1	MOD	HIGH	MOD
Uruguay	Baa2	HIGH	HIGH	HIGH
Colombia	Baa2	MOD	MOD	MOD
Brazil	Ba2	HIGH	MOD	MOD
Guatemala	Ba1	LOW	LOW	LOW
Dominican Republic	Ba3	MOD	MOD	MOD
Jamaica	B2	MOD	LOW	HIGH
Bolivia	B2	LOW	MOD	MOD
Belize	Caa3	MOD	LOW	LOW
Argentina	Ca	MOD	HIGH	MOD

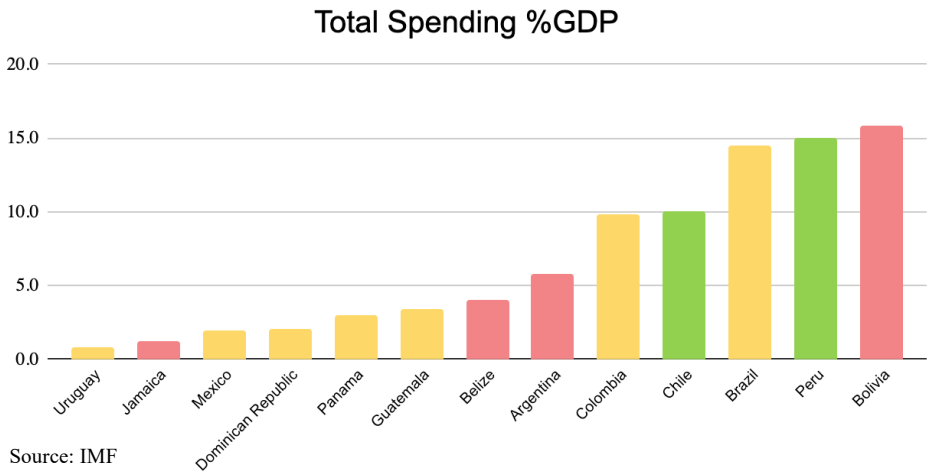
Source: Moody's Investor Services, The Economist Intelligence Unit, Covid19 Infodemics Observatory, IMF, Our World in Data, World Bank and WHO

Policy Responses Analysis

This section assesses the success of policy responses from countries in the LAC region across health, economic and mobility dimensions. Because COVID-19 is first and foremost a health crisis, this report defines success using the health dimension. In particular, a successful policy is one that leads to a "high" Health Outcome. "Health Outcome" is a constructed indicator that contemplates five factors—total COVID-19 cases per million, total COVID-19 deaths per million, COVID-19 case growth rate, COVID-19 death rate, and COVID-19 reproduction rate. The team used the same methodology here as for the initial conditions baselines and divided countries into "high," "moderate" and "low" Health Outcome buckets. Countries like Jamaica that controlled the pandemic by achieving low COVID-19 death rates and decreasing the COVID-19 reproduction rate over time received "high" Health Outcomes scores, whereas countries like Mexico that saw rising COVID-19 death rates and consistently increasing COVID-19 cases per million received "low" scores.

Health Policy
The report finds that Initial Health Conditions were not an accurate indicator of health outcomes. In fact, countries with "higher" scores for Initial Health Conditions such as Argentina and Chile, experienced higher rates of COVID-19 cases and deaths, which led to "low" Health Outcomes scores. In terms of enacted health policies that include face mask mandates, COVID-19 testing and contact tracing, the report also finds that in some cases, health policies were effective at stopping the COVID-19 spread, whereas in other countries, policies did little to control the disease. For example, in Jamaica, implementing face covering mandates and COVID-19 testing policies correlated with drops in the new case rate. However, in Panama, even as the government implemented stricter face covering policies and contact tracing programs, cases rose. This led the team to explore mitigating factors such as economic policies, mobility policies and governance factors that could have affected health policy compliance and efficacy levels.

Economic Policy
The team explored how fiscal policies correlate with health outcomes and found two key insights. First, even if a country had fiscal space to take on more debt, in order to increase fiscal spending during the crisis, it did not necessarily do so. This was the case in Mexico where due to its Baa1 credit rating, the country could have taken on more debt, but instead it implemented one of the lowest COVID-19 spending packages in the region, only spending 1.96% of GDP. Second, the data shows that increased COVID-19 spending on health infrastructure and other measures does not correlate with improved health outcomes. Whereas Brazil (14.45% GDP), Peru (14.98% GDP) and Bolivia (15.84% GDP) approved the largest fiscal spending packages, they had variable health outcomes. Brazil ranked "moderate," Peru ranked "high" and Bolivia ranked "low." This lack of a strong predictive relationship illustrates that fiscal position and spending were not accurate predictors of country performance in the COVID-19 crisis.



Source: IMF

Mobility Policy
This report explores mobility policy as a proxy for governance level and population compliance. The premise is that stronger institutions implement more and stricter mobility policies to control COVID-19 and that greater changes in mobility express greater trust in institutions. The studied mobility policies include border closures, public transport closures, restrictions on social gatherings, mandatory quarantines, curfews and business closures. This paper finds that mobility is not an effective way to evaluate institutional strength and population compliance since the Initial Governance Conditions scores and Weighted Average Mobility Policy Effectiveness Scores (contemplate number of policies and average reductions in movement) only align in five of 13 countries studied. For this reason, the study turns its focus to democratic

quality and disinformation levels to better understand how to pinpoint health outcomes using governance data.

Case Studies

The constructed baseline provided an overview on the position each country had prior to the pandemic. The team looked at different trends to identify whether or not a country had systemic problems for the three sectors that were analyzed. Once the baseline was analyzed, different policies were taken into consideration to assess the effectiveness or outcomes of every country.

The team did an in-depth analysis of four countries: Mexico, Guatemala, Brazil and Jamaica, to identify country-level events and policy outcomes that could provide insight into regional trends.

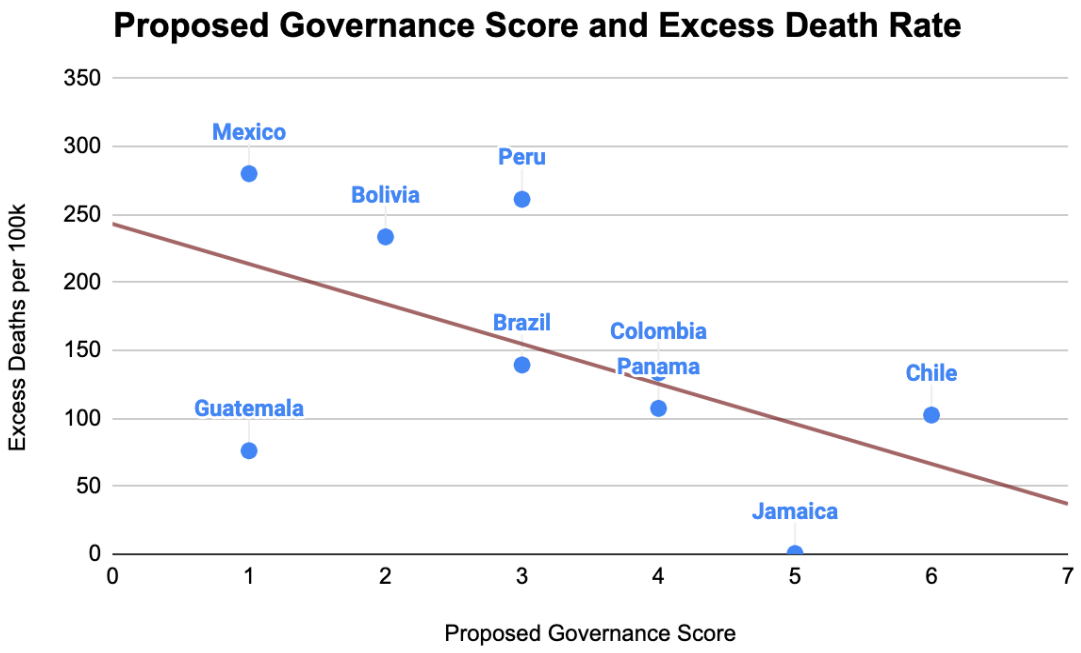
The case studies led the team to three main conclusions:

1. **Governance and leadership matter.**
    a. Strong leadership that delivers a unifying message decreases disinformation and can increase compliance leading to stronger health outcomes. **(Jamaica)**
    b. High leadership turnover weakens policy responses, cross-ministry coordination and relates to poorer health outcomes. **(Brazil, Guatemala)**
2. **Messaging is important.**
    a. Turnover and changing data reports reduce citizen confidence in government, decrease compliance and relate to poorer health outcomes. **(Guatemala)**
    b. Downplay of the pandemic's severity by executive leaders led to poorer health outcomes. **(Mexico, Brazil)**
3. **Fiscal spending does not necessarily predict COVID-19 performance.**
    a. High fiscal spending as a percentage of GDP does not always lead to improved health outcomes. **(Brazil)**
    b. Government willingness to abandon previous economic growth plans to tackle the pandemic proved important to health outcomes. **(Jamaica vs. Mexico)**

Findings and Recommendations

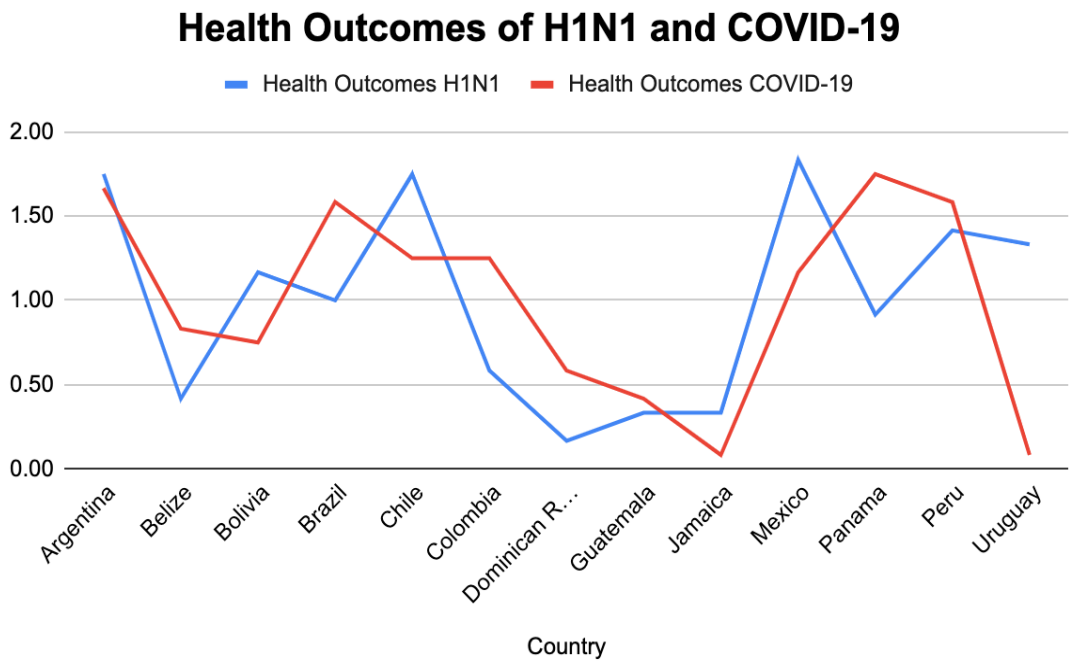
While this report is limited in scope and the lessons learned may have limited applicability in the post-pandemic world, the following recommendations arise:

1. **Focus on the COVID-19 death rate and excess death as an indicator of virus severity.** While case rate and positivity rate depend on each country's testing infrastructure and capacity, which leads to variability, deaths are harder to hide. Excess death rate has a clear negative relationship with the Proposed Governance Score showing that it is a reliable indicator of COVID-19 severity as it relates to Institutional Strength.



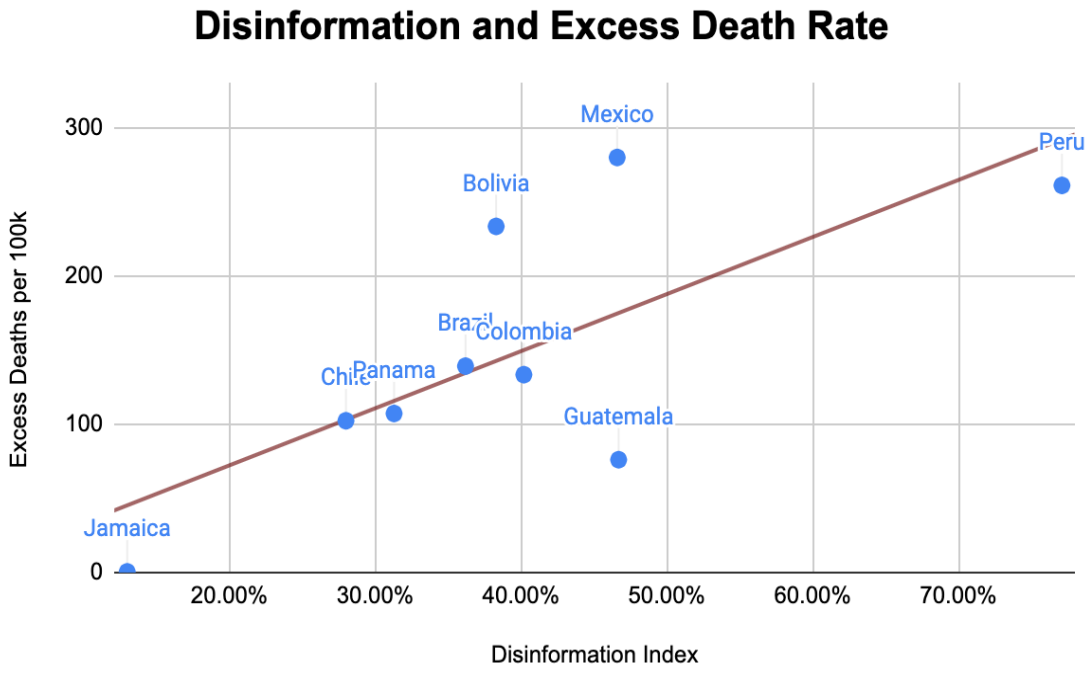
Source: Moody's Investor Services, The Economist Intelligence Unit, Covid19 Infodemics Observatory, Our World in Data

2. **Investigate the culture of past pandemics to predict country performance in current and future crises.** We find that there is a positive correlation between health outcomes in H1N1 and COVID-19, showing that countries that performed well in the H1N1 outbreak, also did well against COVID-19, such as Jamaica. Countries which had a worse performance in H1N1, had worse performance in COVID-19, such as Argentina. This suggests that there are underlying systemic factors that affect health outcomes.



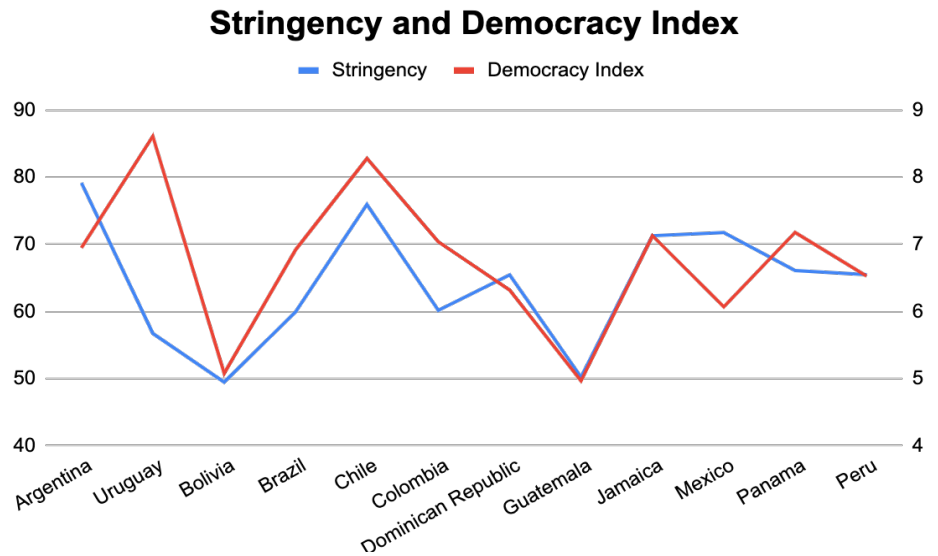
Source: Our World in Data, WHO

3. **Explore the role of disinformation and social media to better understand countries' Institutional Strength.** Doing so will provide insight into politicization trends as well as social and institutional trust levels. This study uses the COVID-19 Infodemics Observatory to evaluate the likelihood that a Twitter user encounters unreliable information about COVID-19. This study finds that for the nine countries with reported excess death data, there is a strong positive correlation between excess death and disinformation, indicating that including aspects of disinformation can improve the predictive power of the Moody's Institutional Strength indicators in future crisis situations.

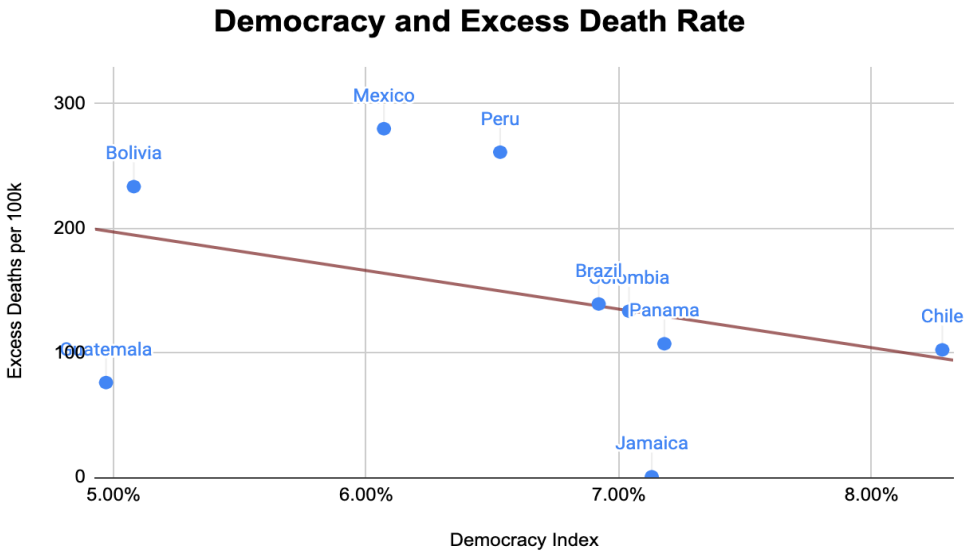


Source: Covid19 Infodemics Observatory, Our World in Data

4. **Account for levels of social trust and democracy when working to predict the efficacy of policy responses since these will help evaluate governmental action and population policy compliance.** This study finds that contrary to popular hypotheses, countries that are assessed as more democratic enacted stricter measures and achieved lower excess death rates as opposed to less democratic nations. This indicates that democracy level and quality is important to investigate and even possibly include in future Moody's Institutional Strength analyses since it captures the ability of governments to enact strict policies and proxies for population compliance with such policies.



Source: Moody's Investor Services, The Economist Intelligence Unit, Covid19 Infodemics Observatory, Our World in Data



Source: The Economist Intelligence Unit, Our World in Data

Future areas for research and application

This research has three important implications for the future. First, it suggests that disinformation and democracy will become increasingly important to investigate and account for as social media reach grows and the world continues to experience a governance crisis. Therefore, by considering the incorporation of these factors into Moody's Institutional Strength ratings analyses, Moody's can improve the predictive power of its metrics for governance performance and crisis response. Second, while these recommendations arise from the study of a health crisis that became an economic crisis due to its length, reach and severity, these recommendations are applicable to other events such as climate crises that are becoming more frequent and more severe. By studying how governments fared in past crises as well as the ways they combat disinformation and use democratic institutions to promote policy compliance, we hope to improve the power of Moody's indicators to predict and rate sovereigns. Finally, although this research is limited in scope and sample size, the mismatches found between starting conditions and ultimate health outcomes, reveal that even when countries seem poised to triumph in crisis, there are systemic as well as intervening factors such as leadership, messaging and social trust that make it difficult to use initial conditions as accurate crisis performance predictors. In future work, researchers must not rely only on initial conditions, but also focus more on intervening factors to predict and understand crisis performance.

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