

# Commentary: Thinking about climate risk as a supply-side shock

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In assessing the potential impact of climate change on banks, one important feature has drawn little attention. Both the transition and physical dimensions of climate risk manifest primarily on the supply side as opposed to the demand side.

This realization should powerfully influence the way climate risk is modeled in the context of stress tests.

If we first consider physical risk, this concept is easy to recognize. If storms, coastal surges and wildfires destroy a large number of houses and factories, this in no way lessens the demand for shelter or for the products formerly made in the ravaged factories. The outcome of events described by the scenario will be to restrict the production of affected goods and services.

In terms of transition risk, consumer demand for staying warm in winter or for moving from one place to another will still exist with an altered climate. These needs and desires are currently satisfied using carbon-intensive methods. To the extent that clean, low-carbon alternatives yield less utility than traditional, dirty delivery methods – a gap that is constantly being closed by technological advances – efforts to transition the economy in the direction of sustainability will have the effect of lowering supply.

Taking this notion to its logical extreme will help to clarify.

Suppose that the ultimate transition step is implemented tomorrow, all fossil fuels are immediately banned by all governments around the world. This action would have a similar effect (albeit dialed up to eleven) to the 1973 oil embargo, which is considered to be the textbook example of an aggregate supply shock. If this happened, the price of flying, of buying an electric car or of heating your home would rise through the roof, just as the price of petrol/gasoline spiked to erstwhile unfathomable levels back in the mid-1970s.

At this juncture, I expect some to point out that demand for international travel (to cite a key example) has declined as a direct response to global warming. The argument follows that consumers, looking to reduce their carbon footprint, have shifted their preferences away from far-flung vacations toward staycations and other short trips away from home.

If climate change truly causes a shift in aggregate consumer preferences, this aspect of the shock can certainly be thought of as a demand-side event.

The counter argument, however, is that people still have a latent demand to travel long distances; it is just that staycationers consider the total price – in an economic sense – to be too high. If a technological solution was found allowing fast, clean, safe and cheap international travel, underlying demand would instantly be revealed. It is for this reason most grassroots transition efforts and related government policies should be analyzed through the supply-side lens.

Why is this important for stress testing?

Put simply, supply shocks cause prices to rise, which may help climate change survivors to perform better, in a financial sense, than they would under a baseline scenario. We define “survivors” as companies, consumers and properties that, for whatever reason – either good planning or good luck – are able to withstand the damaging effects of global warming.

Looking through all the major stress tests that have been undertaken by regulators around the world, no one has analyzed the impact of severe scenarios on climate change survivors.



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Suppose there is a country where 10% of the housing stock is expected to be wiped out by rising sea levels, in purely financial terms, this is terrible news for those with an equity stake in low-lying houses and for the banks with exposure to the associated mortgages. For those whose houses are not affected, though, property values will rise above baseline. Data from past disasters – Katrina and Harvey (<https://www.reuters.com/article/us-storm-harvey-realestate-idUSKCN1BC5QY>) and the Californian wildfires of 2018 (<https://www.millionacres.com/real-estate-investing/articles/how-have-the-california-wildfires-impacted-the-local-real-estate-market/>) provide ample evidence that surviving properties tend to jump in value after severe natural disasters.

Turning attention to corporate lending, suppose the current widget industry has ten participants, in coming decades, five of these companies will choose to fortify their businesses against climate risk and shift production to green widgets and the other five will not. Assume for simplicity that the widget industry has impossibly high barriers to entry.

If the five laggards all fail, investors in these companies – and the banks that funded them – will lose their shirts. This is the effect that stress tests, like the ECB's recent exercise, have been exploring in great detail.

The surviving companies, however, will then be rewarded for their sound planning and wind up with enhanced widget pricing power and higher profitability. Companies that are able to adapt to climate challenges will survive and thus reap the rewards that flow from greater market concentration.

If capital allocation was tied to an accurate climate stress test, these types of forces would generate a powerful reform incentive for corporations. What does not kill you makes you stronger relative to baseline.

The final point to note is that these supply side forces tend to mitigate against the impact of the initial shock.

This means that stress tests that have found evidence of a downside threat – like the aforementioned ECB stress test – are tending to overstate the extent of losses. The size of this effect will need to be empirically determined.

The bottom line is that we will all be impacted by climate change, some for better and some for worse.

For the stress test to be truly effective, it must consider the full picture and not just focus on the victims.

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