## Tacks in the Road

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will continue to tighten into the foreseeable future. This is in spite of potential liquidity problems in Europe and many parts of the world, which could turn into a full-blown financial crisis at the snap of a finger in today's volatile markets.

I don't give financial advice, but I read a lot and I hear a lot. As of today, the S&P 500 is down about 25% this year, compared with a drop of nearly 50% in the financial crisis of 2007 to 2009. Does this mean anything? Even though I enjoy deep dives into the technicalities of the market, I can't give you an answer because I don't know. Round and round she goes, where she stops nobody knows. Pack your bags and go to Vegas. A few weeks ago pundits were saying, "Nibble when the S&P 500 hits 3600, take a bite if it hits 3300, and gobble it up at 3000. Today, it's right around 3600.

The strength of the US economy and labor market is a surprise to many, but fears of recession are growing. Mortgage rates are now at 7%, the average new car loan (6 years at 6%) is well over \$700 per month, activity around the world is contracting, and the energy crisis is likely to last for years. Trade disputes and "re-shoring" are disrupting many supply chains. The cost of lingering war, and the possibility of escalation, are huge uncertainties casting a pall on investment and the global economic outlook.

More on climate change, the energy transition, and all that. Last month I wrote about the conflation of weather and climate, the media's fixation on climate change, and the tendency to blame every weather event and many other things, like male pattern baldness, on climate change. While climate change is real, and the result of complex processes, I wrote that it is used far too often as a convenient excuse for many catastrophes whose origins really lie in the failure of man-made policies. It's analogous to having only one tool in the tool box. If your only tool is a hammer, every problem looks like a nail. Blaming everything on climate change leads us to ignore other, more cost-effective, policies for promoting mitigation and adaptation measures and increasing our resiliency to many of the real-world problems we face.

In addition, trying to control the complexities of climate change solely by manipulating the level of a trace gas (carbon dioxide) that is a very miniscule part of our atmosphere (0.04%) is likely to be a futile, and very expensive, pursuit. Does anyone really believe that we won't have hurricanes, tornadoes, wild fires, droughts and floods if we stop using fossil fuels? Our planet has always had extreme weather events. The science behind the impact of human carbon dioxide emissions on global warming, and the impact of that warming on our future well-being, is not settled. Science is a continuous test of hypotheses against empirical observation. The hypothesis here is that climate change is making extreme weather events more frequent and more intense. Our money (currency) contains the words "IN GOD WE TRUST," but everybody else needs to bring empirical data to prove a point, and so far it doesn't exist. The earth is approximately 4.5 billion years old, and we have only been gathering reliable weather data for maybe the last 100 years. For those of you interested in pursuing this, NOAA's Geophysical Fluid Dynamics Laboratory just published a new study on "Global Warming and Hurricanes," which is worth reading. Google it, or go to gfdl.noaa.gov/global-warming-and-hurricanes/.

**Energy transition.** In spite of claims to the contrary, the energy transition away from fossil fuels toward more renewable sources will be costly, very difficult and a long-term proposition. The current energy supply situation in

Europe, here, and in much of the rest of the world clearly points out the folly of trying to transition away from reliable, affordable and abundant fossil energy sources to intermittent, unreliable renewable sources before the technologies are ready for prime time. It makes no sense. You can't get rid of something before you have a reliable alternative. It's impossible to run a modern economy on wind and solar power with today's level of technology. While energy technologies are improving rapidly, institutional frameworks and the high economic costs of transition are more difficult barriers to overcome.

Energy demand is what economists call a "derived demand." It is derived from our demands for the services provided by space heating and cooling, process heat for manufacturing and cooking, transportation, communications, mechanical power, and fertilizers and petrochemicals that are the building blocks for plastics and so many other items we take for granted. It follows then that the energy transition is really several transitions. Electricity is the medium for using renewable energy, so in addition to generating all our electricity from renewable sources, we also need to transition all our energy-using devices (cars, furnaces, stoves, generators, etc.) into electrical appliances that can deliver the energy services we demand. While we should all welcome the greater focus being placed on the practical issues associated with these transitions today, it's difficult to overlook the fact that it took a crisis to wake us up.

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