

# Repercussions of Pandemics on Markets and Policy

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The COVID-19 pandemic that we are experiencing is both tragic and shocking. There is no question that, except in some Asian countries trained by prior infectious outbreaks, most policy makers around the world have been ill-prepared to respond to the crisis. The effects of the coronavirus on our mental and physical health has been indeed calamitous, and the economic and financial impacts for many have been truly unfortunate. Furthermore, the extreme nature of the event is challenging researchers to compile and interpret new evidence that is arriving at a rapid pace. The editors Hui Chen, Thierry Foucault, Jeffrey Pontiff, and Nikolai Roussanov and contributing authors are to be commended for assembling and collating a thought-provoking collection of papers. More time and study will be needed to fully sift through the evidence and to glean the lessons to be learned from this pandemic for policy makers and investors. But the evidence and insights in this volume are a very good start.

## 1 How Does Financial Economics Contribute?

Financial markets are forward-looking, and, as such, they encode information about investors' beliefs. While investors' aversion to uncertainty also comes into play in asset valuation, it remains informative to extract evidence about future perceptions from financial market data and to ascertain how financial markets respond to new information, challenges, and policies that arise.

Many of the papers in this volume rely on this barometric feature of financial market data along with clever detective work to extract revealing insights. By necessity, much of the evidence features financial market data during the early stages of the COVID-19 pandemic as it played out in the United States and other advanced economies. For instance, the paper "What Do Index Options Teach Us About COVID-19?" puts options pricing methods to good use by documenting the behavior of risk-neutral prices during the early stages of the financial crisis. While risk-neutral prices include adjustments for exposure to aggregate uncertainty, when combined with a structural model of investor behavior, this evidence also reveals subjective beliefs. The paper "A First Look at the Impact of COVID-19 on Commercial Real Estate Prices: Asset-Level Evidence" features commercial property values held by equity real estate investment trusts. By design, this evidence

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comes from market transactions that are sufficiently rich and liquid to provide valuable depiction of market sentiments. The paper “Volatility Markets Underreacted to the Early Stages of the COVID-19 Pandemic” adds to the volatility puzzles revealed by previous evidence by looking at the particular behavior when the pandemic just started to erupt. The paper “COVID-19 and the Cross-Section of Equity Returns: Impact and Transmission” does a careful accounting of the differential exposure of firms to COVID-19 and the consequences for their financial market returns.

The papers “Coronavirus: Impact on Stock Prices and Growth Expectations” and “Earnings Expectations in the COVID-19 Crisis” are best read in tandem. The first features market evidence about aggregate dividend growth as revealed by dividend futures. It employs these data to craft an interesting narrative about the first part of the pandemic as well as policy responses. The second paper introduces complementary survey evidence from analysts’ forecasts of earnings and discounts rates. It makes some interesting comparisons and contrasts to the growth evidence from financial markets reported in the first paper. While the COVID-19 evidence is revealing in its own right, it also provides an opportunity for comparative studies.

The papers “The Unprecedented Stock Market Reaction to COVID-19,” “A Tale of Two Crises: The 2008 Mortgage Meltdown and 2020 COVID-19 Crisis,” and “Mutual Fund Performance and Flows during the COVID-19 Crisis” make revealing comparisons between the COVID-19 pandemic and prior “extreme events.” The first of these paper searches for an explanation for the large initial drop in stock prices in comparison to other pandemics. Using evidence from newspaper reports, in conjunction with stock prices movements, the researchers provide support for conjectures about the differences between pandemics. The second of these papers compares our two most recent crises: the housing crisis and the COVID-19 crisis. While fully cognizant of the differences in the sources and outcomes of the two crises, the discourse explores some common threads and themes with some nice insights for understanding the behavior of asset prices and designing prudent policies. The third paper uses COVID-19 evidence to challenge the hypothesis that actively-managed funds are better able to navigate during economic downturns.

The paper “How Does Household Spending Respond to an Epidemic? Consumption during the 2020 COVID-19 Pandemic” does not feature direct evidence from financial markets. Instead, it provides a remarkable and comprehensive empirical investigation of how household spending initially responded to the COVID-19 crisis with the accompanying increase in social distancing, changes in work environments, and job opportunities. This paper also explores households’ expenditure behavior and party affiliation. The implications of party affiliation are front and center in the paper “Does Partisanship Shape Investor Beliefs? Evidence from the COVID-19 Pandemic.” The authors employ data from an investor social network to document the relative optimism of Republicans and document other interesting patterns at the outset of the COVID-19 outbreak in the United States.

A sign of valuable research, like that contained in this volume, is that it opens doors to a treasure trove of contributions. Most of the papers in this volume feature a strong empirical component offering evidence from when the pandemic took hold in the United States. Readers will be anx-

ious to peruse updates that extend the empirical narratives. After an initial steep drop, the stock market has subsequently responded more positively. As the pandemic has evolved, it has moved over time across regions of the country. With this and other subsequent evidence, researchers will have opportunities to exploit the pandemic as it has played out in the cross-section and over time. The analyses in this volume also include some structural modeling that guides the empirical investigations and provides some qualitative insights. This empirical research is intended to provide meaningful inputs for quantitative models that combine economic and epidemiological characterizations of the dynamic evolution of pandemics and their economic and social consequences.

## 2 How Does Macroeconomics Contribute?

Policy-relevant, quantitative modeling for crises, such as COVID-19, isn't just about epidemiology. Inside the models are individuals making decisions about social interactions and businesses responding to new economic demands and policy restraints. The people inside the models respond to changes in their environment and policies that might be implemented along the way. Just as researchers and policy makers confront uncertainty, so do people inside the quantitative models that we build.

In the wake of the pandemic, a quantitative macroeconomics literature quickly emerged that incorporates simplified epidemiological specifications of disease within a macroeconomic framework in the face of a pandemic. To my macroeconomic colleagues' credit, they aim to address important policy challenges and introduce behavioral responses to changing incentives. The macroeconomic literature in this area explores the health benefits and economic consequences of quarantining a significant portion of the population and the best ways to use testing to improve the social and economic outcomes of the current crisis. These and other related questions are vital to address in policy-relevant research. We know from a variety of experiences that incentives matter when assessing policy outcomes, so economic considerations need to go hand-in-hand with epidemiological ones. But it is no small feat to incorporate epidemiological forces in dynamic models of the economy in credible ways, even putting aside how best to confront the overriding uncertainty. Such models identify and assess trade-offs pertinent to the conduct of prudent policy. Indeed, policy makers must cope with extremely tricky economic and social trade-offs, although some commentators have naively suggested that we should put such trade-offs aside.

My guess or hope is that much of this quantitative modeling literature that has come together recently to build "integrated assessment models" will help us to design policies to better confront pandemics in the future. This pandemic has been unfolding at a much faster rate than the necessary scientific advances needed to produce new and better integrated assessment models. In comparison, integrated assessment models for climate change have been around for quite some time, but their value for explicit policy guidance remains controversial. In my view, for these integrated assessment models of climate change or pandemics to be successful, uncertainty will need to be formally incorporated into the modeling and into policy assessment. Uncertainty is pertinent for both

economic and epidemiological modeling inputs.

### 3 How Finance Could Contribute?

The field of finance is too often placed in an intellectual pigeonhole, even though its tools and insights have broad applicability in ways that are often not fully recognized in economics. Investment in broadly conceived notions of physical, intellectual, organizational, and environmental capital is a central feature in dynamic economic models. Alternative investment prospects for individuals and for governments generate “cash flows” fraught with uncertainty and that often require some form of financing. Many of the questions explored in the field of finance have important ramifications for how economic dynamical systems operate and how they can be improved.

While uncertainty is too often demoted to a “second-order” standing in macroeconomic modeling, the same is not true of finance. Uncertainty is at the heart of models we are familiar with from finance, and they guide empirical investigations. As I and others have argued elsewhere, the tools of finance when enhanced with modern decision theory under uncertainty are well suited to study social valuation, not just market valuation. See, for instance, Hansen (2020). Thus, I see an additional role for financial economics beyond what is featured in this volume. To achieve credibility models that integrate economics and epidemiology must accurately account for limits to our current base of knowledge. Since quantitative models designed to understand and assess the consequences of pandemics for entire economies should not be built in a vacuum, the architects of such models should be attuned to the rich set of insights contained in this volume. Efforts to build new and better quantitative models should not only employ valuable evidence from financial markets and elsewhere but also exploit the tools from finance and decision theory to capture relevant uncertainties in meaningful ways.

Modern decision theory under uncertainty opens the door to exploring the consequences of uncertainty in broader terms than the risk-based, rational expectations paradigm. This theory provides ways to represent ambiguity concerns as we look across models and misspecification concerns as we acknowledge models as simplified abstractions of complex phenomenon. This decision theory carries insights for both policy makers that use models and for decision-makers within the models that we build. From a finance perspective, this decision theory opens the door to modifications to asset valuation that account for exposure to uncertainty when broadly conceived. Alternative economic policies have ramifications for social “cash flows” that capture policy impacts as they play out in the future. For pandemics and other phenomena, these social cash flows are exceedingly uncertain. Given this perspective, the tools we teach and use to assess private investment opportunities by assigning values to alternative cash flows also can be deployed to address important policy challenges.

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