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Research Article

The Disease Outbreak Channel of Exchange Rate Return Predictability: Evidence from COVID-19

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ABSTRACT

We provide novel evidence that disease outbreaks contain valuable information that can be used to enhance exchange rate return and volatility predictions. Our analysis exploits the novel coronavirus (COVID-19) outbreak as a good experimental setup to test our intuition. Data show that the COVID-19 outbreak has been rapid and deadly. Using the total number of infections per million, we demonstrate that COVID-19 has better predictive power over volatility than over returns for a one-day ahead forecast horizon. Conversely, COVID-19 tends to shape returns more than volatility over a five-day ahead forecast horizon. Our findings remain intact over the two forecast horizons using the total number of deaths per million as an alternative COVID-19 measure. This evidence supports a new channel of exchange rate return predictability, namely the disease outbreak channel.

KEYWORDS:

COVID-19 | novel coronavirus | disease outbreaks | pandemic | exchange rate return and volatility | predictability

Notes

1. The currencies are Chilean peso per US dollar (USD–CLP), Swedish krona per US dollar (USD–SEK), Swiss franc per US dollar (USD–CHF), Chinese yuan per US dollar (USD–CNY), Israeli new shekel per US dollar (USD–ILS), Japanese yen per US dollar (USD–JPY), Peruvian new sol per US dollar (USD–PEN), Korean won per US dollar (USD–KRW), Canadian dollar per US dollar (USD–CAD), Euro per US dollar (USD–EUR), Indian rupee per US dollar (USD–INR), Poland złoty per US dollar (USD–PLN), Great Britain pound per US dollar (USD–GBP), and US dollar per Great Britain pound (GBP–USD).

2. See Table A1 in appendix for full names of these currencies.

3. See https://ourworldindata.org/coronavirus-source-data for details.

4. These countries are Austria (AUT), Belgium (BEL), Brazil (BRA), Canada (CAN), Chile (CHL), China (CHN), France (FRA), Germany (DEU), India (IND), Ireland (IRL), Israel (ISR), Italy (ITA), Japan (JPN), Korea (KOR), Netherlands (NLD), Peru (PER), Poland (POL), Portugal (PRT), Russia (RUS), Spain (ESP), Sweden (ESP), Switzerland (CHE), Turkey (TUR), United Kingdom (UK), and United States (US).

5. We classify these countries following the MSCI market classification, the International Monetary Fund's classification, and others. See https://www.msci.com/market-classification and https://en.wikipedia.org/wiki/Emerging_market for details on emerging market economies.

6. These exchange rates are USD–BRL, USD–CAD, USD–CHF, USD–CLP, USD–CNY, USD–EUR, USD–INR, USD–ILS, USD–JPY, USD–KRW, USD–PEN, USD–PLN, USD–RUB, USD–SEK, USD–TRY, USD–GBP, and GBP–USD (Table A1 in the appendix for details)

7. See Ince, Molodtsova, and Papell (2016).

8. See Narayan and Phan (2020) for a commentary.

9. Note that, when quoting the US dollar, we use the British pound as the base currency (numeraire). We quote all other currencies using the US dollar as the base currency.

10. We do not show these plots, to preserve space. See, for instance, https://www.cnbc.com/2020/02/24/as-coronavirus-fuels-market-panic-some-experts-say-the-dollar-is-the-only-safe-currency.html.

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