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The Nexus of COVID-19 Pandemic, Foreign Exchange Rates, and Short-Term Returns

Ali Farhan Chaudhry[1*]

Abstract

The current study examines short-term abnormal returns of eight major currencies including EUR/USD, GBP/USD, USD/AUD, USD/CAD, USD/CHF, USD/CNY, USD/JPY, and USD/SEK in response to the evolution of the COVID-19 pandemic using event study approach in three different scenarios. Firstly, short-term abnormal returns of major currencies are estimated on the day of World Health Organization's (WHO) announcement declaring COVID-19 as a pandemic. Secondly, they are estimated on the day of the announcement of the first confirmed case of COVID-19 in the respective country. Thirdly, they are estimated on the day of the announcement of the first death from COVID-19 in each country. The results provided evidence that major currency investors earned positive returns in these three different scenarios. The implications of the current study are more important than anticipated. Government policymakers, foreign exchange market regulators, and foreign exchange market participants can anticipate short-term returns while establishing foreign exchange policies, designing rules and regulations, and finalizing trading and hedging strategies, respectively, in situations such as the current COVID-19 pandemic.

Introduction

Events such as the COVID-19 pandemic evolve unpredictably and remain uncontrollable, at least, for a certain length of time. In turn, major world financial markets (Zhang, Hu, & Ji, 2020) and currencies tumble during the pandemic and compelled the investors to park capital in safe havens such as gold, Swiss franc, Japanese yen, and to some extent in US dollar. This disaster further deepened

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amid mounted jitters about quick recovery from the global economic fallout (Altig et al., 2020) and the expected second wave of the pandemic. Although major foreign exchange rates have remained less volatile during the COVID-19 pandemic as compared to their volatility during the Global Financial Crisis 2008-09 (Gunay, 2020b), however, COVID-19 pandemic still fanned instability in the international forex market that in turn is reducing the profitability of international trade and operations (Saunders & Cornett, 2011).

Initially, this crisis was triggered on December 31, 2019 when Wuhan Municipal Health Commission, China reported clusters of pneumonia in Wuhan, Hubei caused by a coronavirus. The situation became bleak when WHO set up the Incidental Management Support Team (IMST) and made it operational on January 01, 2020 on an emergency footing to deal with an outbreak on three levels of organization, that is, organization level, regional headquarter level, and country level, respectively. After reporting on social media, WHO declared COVID-19 outbreak on January 05, 2020 in Wuhan and then issued a comprehensive worldwide package of technical guidance on detecting, testing, and managing potential cases through WHO representatives in various countries on January 10, 2020. These precautionary measures and guidelines were based on the experience with Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). Afterwards, China publicly shared the genetic sequence of COVID-19 on January 12, 2020. The seriousness of the issue was raised when a WHO official confirmed the first case of COVID-19 outside China in Thailand on January 13, 2020, caused mainly by human-to-human transmission. WHO declared the outbreak of COVID-19 as a pandemic due to the alarming levels of the spread and severity of the virus around the globe on March 11, 2020[2]. In response, major world currencies included EUR/USD, GBP/USD, USD/AUD, USD/CAD, USD/CHF, USD/CNY, USD/JPY, and USD/SEK tumbled and fanned jitters. Moreover, financial markets such as stock markets and major economies were also hammered. Previously, SARS damaged the world economy and inflicted a loss of around USD 100

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[2]WHO Timeline - COVID-19. (2020). Retrieved 11 May 2020, from
https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19

billion (Smith, 2006) even though it primarily spread in China. On the contrary, COVID-19 has already spread worldwide.

To date, limited studies have been conducted regarding finance and specifically international finance which examines the effects of the COVID-19 pandemic on short-term returns of major currencies. Few studies have explored its social and economic effects (Goodell, 2020) as well as its impact on stock markets (Gunay, 2020a). Therefore, the objective of this study is to examine, for the first time, the effects of the COVID-19 pandemic on short-term abnormal returns of major currencies in three different scenarios. Firstly, short-term abnormal returns of major currencies including EUR/USD, GBP/USD, USD/AUD, USD/CAD, USD/CHF, USD/CNY, USD/JPY, and USD/SEK are estimated after the announcement of WHO declaring COVID-19 as a pandemic on March 11, 2020. Secondly, they are estimated on the day of the announcement of the first confirmed case of COVID-19 in the respective country. Thirdly, they are estimated on the day of the announcement of the first death due to COVID-19 in each country.

The significance of the current study is far more critical than what it seems as it has profound implications for policymakers, investors, financial market organizers, and even governments to handle a crisis situation such as the COVID-19 pandemic. It becomes even more significant keeping in view the situation when economies will be re-opened and financial markets will come back to the normal forces of demand and supply. Moreover, hedge managers depending on need, real investors based on fundamentals, and speculators and sporadic traders who look for short-term profit can formulate investment plans and strategies regarding the world's major currencies that had a trading volume of USD 6.6 trillion per day in April 2019, up from USD 5.1 trillion per day in 2016[3].

2. Data and Methodology

2.1. Data

Data was obtained from WHO[4] on three different events starting from the confirmed number of cases on March 11, 2020, when WHO

[3]BIS. Retrieved 13 June 2020, from https://www.bis.org/statistics/rpfx19_
[4]WHO Coronavirus Disease (COVID-19) Dashboard. Retrieved 13 June 2020, from https://covid19.who.int/

declared COVID-19 as a pandemic. Secondly, when WHO announced the first confirmed case in each country. Thirdly, at the announcement of the first death caused by COVID-19 in each country. Correspondingly, eight major spot foreign exchange rates including EUR/USD, USD/JPY, GBP/USD, USD/AUD, USD/CAD, USD/CHF, USD/CNY, and USD/SEK are obtained from Yahoo Finance[5]. The foreign exchange market was proxied by the daily Nominal Broad Dollar Index.

2.2. Methodology

To estimate the effects of the COVID-19 pandemic on short-term abnormal returns of major currencies, this study hypothesizes that these currencies earned positive abnormal returns. To check this null hypothesis, the current study used a market based approach. It employed event study and computed event time abnormal returns of major currencies. The event study approach initially found its way in foreign exchange rates research in 1980s (Dornbusch, 1982). Subsequently, daily abnormal returns (ARs) of major currencies were estimated as follows:

$$AR_t = \frac{1}{N} \Sigma_{i=1}^{N} \varepsilon(R_{it}) \qquad (1)$$

where "AR" denotes average daily abnormal returns and "t" is time subscript. Finally, cumulative abnormal returns (CAR) over the pre-defined window were estimated through the model as stated below:

$$CAR_t = \overset{s}{\underset{t=1}{\Sigma}} AR_t \qquad (2)$$

3. Results

Firstly, the average daily abnormal returns of major currencies on three different event dates were estimated including the date of WHO COVID-19 pandemic announcement, the date of the first confirmed case and finally, the date of first death due to COVID-19 in relevant countries, respectively. Table 1 represents these three scenarios separately, from day -10 to day 10. Abnormal returns for major currencies became positive one day before WHO declared COVID-19 a pandemic. They were estimated to be 0.03% on the

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announcement date which is statistically insignificant. Contrarily, average abnormal returns of major currencies became positive seven days before the announcement of the first confirmed case of COVID-19 in the relevant country. They were estimated to be 0.65% on the announcement date which is statistically significant. On the other hand, average daily abnormal returns of major currencies were mixed prior to the announcement of the first death due to COVID-19 in the relevant country. They were estimated to be negative one day before the announcement date at -0.09% which is statistically insignificant.

Table 1

Currencies' ARs with Reference to WHO Announcements

Event Time	AR (%): Pandemic Declaration	AR (%): First Confirmed Case	AR (%): First Death
-10	0.32	0.00	0.37
-9	-0.45	0.01	0.34
-8	-0.18	-0.12	0.45
-7	-0.38	0.03	-0.37
-6	-0.38	0.25	0.44
-5	-0.09	-0.05	-0.06
-4	-0.49	0.27	0.60
-3	-0.45	0.24	-0.13
-2	-0.27	0.00	1.49
-1	1.25	0.18	-0.04
0	0.03	0.65**	-0.09
1	1.41	-0.17	0.23
2	0.72	0.20	-0.23
3	0.03	0.26	0.51
4	1.36	0.31	1.21
5	1.82	0.16	1.73
6	1.33	-0.41	0.19
7	-0.41	0.00	1.56
8	0.07	0.11	0.77
9	-0.91	0.55	0.34
10	-0.44	-0.14	0.10

Note: *, ** and *** represent significance at 1%, 5%, and 10% significant levels, respectively.

Table 2 presents, the five-day (0, 5) cumulative abnormal return of 5.363% of major currencies on the day of WHO COVID-19 pandemic declaration and it is significant at 5% significant level. Moreover, it indicates that currency investors earned 5.363% returns during the first five days of WHO COVID-19 pandemic announcement on March 11, 2020. Secondly, Table 2 indicates that currency investors earned positive and statistically significant abnormal returns on the day of the first confirmed case of COVID-19 in the relevant country for the given time windows of (-5, 5), (0, 5), (-10, 10), (-20, 20) which are 2.039%, 1.406%, 2.308, and 3.085%, respectively. Finally, when cumulative abnormal returns were estimated on the day of the first death due to CVID-19 in the relevant country, the results indicated that currency investors earned cumulative abnormal returns for the given time widows of (-5, 5), (0, 5), (0, 10), (-10, 10) which are 5.202%, 3.350%, 6.315%, and 9.40%, respectively. The results lead to the acceptance of the null-hypothesis stating that major currency investors earned positive short-term returns on three different announcement dates of the COVID-19 pandemic.

Table 2

Currencies CARs with Reference to WHO Announcements

CAR Range	CAR (%): Pandemic	CAR (%): First Confirmed Case	CAR (%): First Death
CAR (-5,5)	5.323	2.039*	5.202**
CAR (-1, 1)	2.691	0.997	-0.091
CAR (-2, 2)	3.140	0.847	1.351
CAR (0, 2)	0.026	0.645	-0.091
CAR (0, 5)	5.363**	1.406**	3.350**
CAR (0, 10)	5.011	1.509	6.315**
CAR (0, 20)	3.397	1.917	4.437
CAR (-10, 10)	3.899	2.308**	9.400**
CAR (-20, 20)	2.677	3.085**	7.227
CAR (-30, 30)	3.160	3.464	7.103

Note: *, ** and *** represent significance at 1%, 5%, and 10% significant levels, respectively.

4. Conclusion

The current study examines short-term abnormal returns of eight major currencies including EUR/USD, GBP/USD, USD/AUD, USD/CAD, USD/CHF, USD/CNY, USD/JPY, and USD/SEK in response to the evolution of the COVID-19 pandemic using event study approach in three different scenarios. Firstly, short-term abnormal returns of major currencies are estimated on the day of World Health Organization's (WHO) announcement declaring COVID-19 as a pandemic. Secondly, they are estimated on the day of the announcement of the first confirmed case of COVID-19 in the respective country. Thirdly, they are estimated on the day of the announcement of the first death from COVID-19 in each country. The results provided evidence that major currency investors earned positive returns in these three different scenarios. The implications of the current study are more important than anticipated. Government policymakers, foreign exchange market regulators, and foreign exchange market participants can anticipate short-term returns while establishing foreign exchange policies, designing rules and regulations, and finalizing trading and hedging strategies, respectively, in situations such as the COVID-19 pandemic. The scope of this study can be further extended in the future by including more events related to the COVID-19 pandemic, such as the event day when the relevant country records the maximum number of confirmed death cases and the day when the pandemic is announced over.

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