TECHNIUM
SOCIAL SCIENCES JOURNAL

Vol. 18, 2021

A new decade for social changes

www.techniumscience.com

ISSN 2668-7798

Technium Social Sciences Journal
Vol. 18, 207-214, April, 2021
ISSN: 2668-7798
www.techniumscience.com

The impact of COVID-19 on stock market returns: Case of Bourse Regionale des Valeurs Mobilieres

Franck Edouard Gnahe, Fei-Ming Huang, Junaid Ashraf

Jiangxi University of Finance and Economics, P.R. China

franckgnahe@jxufe.edu.cn, huangfeiming@jxufe.edu.cn,
junaidashraf@stu.jxufe.edu.cn

Abstract. Using the pooled ordinary least square approach, this paper investigates the effect of Covid-19 on the regional financial exchange namely, Bourse Regionale des Valeur Mobileres (BRVM). In this note, we propose the hypothesis that COVID-19 has affected the regional financial exchange rate resistance to the shocks. We find that the regional financial exchange reacted proactively to the pandemic in the time of March 04, 2020 to April 20, 2020 after the occurrence. Our analysis also suggest negative regional market reaction was strong during the early days of the pandemic. However, this impact is transitory with implementation of official government policies, the stock returns maintain steady growth. We conclude that pandemic has changed the resistance of the regional financial exchange to shock. Therefore, the policy implications is to consider these asymmetries when determining the monetary policy and effectiveness of financial system rules to promote competitive emerging market structures and trade liberalization in the regional exchange market and developing countries.

Keywords. COVID-19, BRVM, Financial exchange, stock market returns

I. Introduction

In this work, we examine the potential of the BRVM stock market to serve as a good hedge against uncertainty du to pandemic of COVID-19. The sudden outbreak of the pandemic at beginning of 2020 has had a negative impact on the global economy. As an important capital market of the country, the behavior and country economic conditions. Faced with the pandemic, companies have been impacted differently depending on their industry. To specific, the enterprises that are non-stage owned, engage in foreign trade or have few assets are more vulnerable to pandemics (Chen, 2020). Moreover, the pandemic contains risk transmission and risk spillover to other markets. (Fang, et al, 2020) investigated the effect of COVID-19 on currency market, stock market and other exchange markets based on the event research framework.

They find that COVID-19 pandemic had an immediate effect on various financial markets and the risk spillover of each market increases after 3-5 days of the event. The price change in asset assets market have shown this influence, especially, stock market around the globe reacted to the pandemic with unprecedented volatility and strong negative returns. For example, see (Baker et al 2020; Al-Awadhi et al 2020). According to (Ashraf, 2020c), he studied the impact of COVID-19 on stock market for 64 countries and he found that the stock

market returns declined in response to local COVID-19 outbreak. Market response varied across countries not only because of different levels of expected future economic losses (Gornsen and Koijen, 2020) but also due to investors sentiment (Zhan et al, 2020). The pandemic of COVID=19 exacerbated global uncertainties and represent the largest global stock (Phan and Narayan, 2020). According to the OECD report, it has caused a sharp drop in consumption and investment spending by more 20% since April 2020. The decrease in expenditure that occurred after the stock market crash in the financial market in 1929 in the world economic crisis. The fact that the decrease in expenditure caused a great decrease in world economic indicate that economic stagnation will last long. With the uncertainty of the global economy, the spread rate of the COVID-19 pandemic and the duration and uncertainty of treatment of the pandemic.

Uncertainty in financial market caused a collapse in financial market. Financial collapse is expected to continue with global recession (Pedro, 2020). A long slowdown or stagnation will put pressure on bank credit portfolio and solvency, (Beck, 2020). For example, the European central bank has lowered interest rates during the pandemic process, and on March 12, Dow Jones faced price drop that not occurred since 1992. European market have shrunk by about 12%; with the instability in the stock exchanges as the number of case increases, the depreciation against the exchange rate has started to increase especially in countries.

The pandemic has affected not only public spending but also many macroeconomic indicators such production, supply chain, trade, consumption, investment, exchange rate and growth. The uncertainty of the pandemic process and the end of the process causes the exchange rate to fluctuate with the increase in number of cases and deaths. The nominal exchange rate against the US dollar. Since the outbreak was declared a pandemic on March 11, 2020, the US dollars has continued to rise.

Among the reasons of the change in exchange rates, along with the number of new cases brought by the outbreak, decrease in country exports due to the increase in foreign trade volume in the global economy, increase of bankrupt companies, reduce in employment, increased unemployment fund insurance due to unemployment payments, increase credit volume and high risk of non-repayment of loans, decrease in tourism revenues might to be considered. West Africa Economic and Monetary Union (WAEMU) increasing external debt can also be considered among reasons. The extent of the problem in external debt payments can be observed with capital inflows.

The pandemic represents the largest global shock (Phan and Narayan, 2020). In the light of how the pandemic has influenced and continues to influence the global financial system, the following question remain: has Covid-19 influenced the stock exchange rate and how it has affected exchange rates? To address this question, we dissect WAEMU regional financial exchange, namely BRVM to see if the COVID-19 pandemic explains affect exchange rate. Our goal is to capture the effect of the pandemic on the effect of stock exchange rate. While application purpose any exchange rate can be used, we prefer using the XOF-US dollars rate because the XOF (West African CFA franc) is amongst the very few currencies that have appreciated vis-à-vis the EURO over the COVID-19 pandemic. Other raison for studying the regional financial exchange (Bourse Regional des Valeurs Mobilieres) have been encouraged by (Fama,1981). And we refer interested readers to that paper. Based on reports from emerging literature, these researches report that stock market around the globe have responded to the COVID-19 pandemic and have generated strong negative returns (Al-Awadhi et al., 2020; Baker et al., 2020; Zhan et al., 2020; Ashraf, 2020), we believe that if strict government actions reduce the intensity of local outbreak and social distance, they will weaken the market's negative response to the economic development of WAEMU countries

Technium Social Sciences Journal
Vol. 18, 207-214, April, 2021
ISSN: 2668-7798
www.techniumscience.com

The empirically investigate the above hypothesized relation, we use a panel dataset of daily stock returns; and to capture any possible effect of COVID-19, we fit daily BRVM composite stock index; XOF- US dollars exchange rate data, daily oil price shock, confirmed cases and death data, spanning the period 2020/03/04 to 2020/04/20. After controlling the national characteristics and risks caused by international factors, we found that the outbreak measure have a direct negative impact on regional financial exchanges, while reducing the growth rate of newly confirmed cases and death has an indirect positive effect. Containment and heath policies and support packages have direct and positive effect on the regional stock market return, but they will not indirectly affect the regional stock market return through the reduction in confirmed case and deaths. In fact, our result provide evidence that WAEMU regional financial exchange has considered the impact of the pandemic and government actions.

We contribute to the recent work on the impact of COVID-19 on the financial sector in the following ways. First, this work is the first to examine the influence of COVID-19 on Bourse Regionale de Valeurs Mobiliere. Extant studies on the effect of Covid-19 on stock market returns and volatilities (Narayan et al 2020.; Salisu &Siriku, 2020.; Sharma, 2020); exchange rate and market development (Narayan, 2020a, 2020b.; Wang et al., 2020). This paper complements the literature by examining the impact of the pandemic on the West Africa Economic and Monetary Union stock market namely BRVM, by using the BRVM composite index, shock oil price and exchange rate XOF-US dollars confirmed cases and deaths (of COVID-19) as the case study. It well established in the literature that financial development measured by exchange rate, stock market return to economic development (Al-Awadhi et al, 2020; Zhan et al, 2020; Gnahe. F.E & Huang, F-M, 2020). However, recent evidence, shows that access to more finance is detrimental to growth (Singh, 2014). Knowing the role of COVID-19 in the financial market will enable policymakers to address danger associated with rapid debt and credit volume growth. In addition, we investigate the influence of COVID-19 on the regional financial exchange (Bourse Regional des Valeurs Mobilieres) by considering the BRVM composite index, exchange rate (XOF-US dollards), oil price, confirmed case and death of COVID-19.

The link between stock market and exchange rate remains debatable. In the case of WAEMU countries, there is exchange rate channel, interest rate, credit rationing and channeling of credit to state-owned enterprise that are the fundamental recipients of loaning by large banks (Allen et al, 2005). These disparities in financial allocation demand examining the effect of COVID-19 pandemic by considering, BRVM composites index, exchange rate XOF-US dollars and oil price. WAEMU countries has been very proactive in abating the spread of the virus. We test the hypothesis that COVID-19 confirmed case and deaths have statistically significant and positive effect on BRVM financial exchange. Using the pooled ordinary least squared (OLS) regression model. We discover that an increase in COVID-19 confirmed cases and death significantly, overall stock market reacted negatively to the COVID-19 which confirms our hypothesis. We add to this literature by finding that social distancing and the outbreak measures have significantly weakened to the BRVM stock market.

The rest of the study is as follows. The next section offers the methodology which composes of the data and the model. Section 3 contain the result and discussions accompanied by conclusion and policy implication in section 4.

Technium Social Sciences Journal
Vol. 18, 207-214, April, 2021
ISSN: 2668-7798
www.techniumscience.com

II. Data and Methodology

A. Data

In this section we discuss our sample construction by collecting the data of number of confirmed cases and deaths from Covid-19 from website of Worddometer Statistic (2020). Our daily data started from March 04, 2020 to April 20, 2020. Next, we downloaded daily BRVM composite index www.investing.com (2020). Thirdly, we downloaded exchange rate XOF-USD, and Brent crude oil price in USD dollars per barrel, data obtain from finance.yahoo.com (2020). The first day in our analysis correspond to reported on positive case of COVID-19, the data depends on normal business days, Monday to Friday excepted holidays.

B. Methodology

We, therefore settle on the following model:

$$\mathrm{BRVM}_{it} = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \, \mathrm{OIL}_{it} + \sum_{i=1}^{P} \alpha_2 \, \mathrm{ER}_{it} + \sum_{i=1}^{p} \alpha_3 \, \mathrm{case}_{it} + \epsilon_{it}$$

Where, BRVM_{it} represents the BRVM composite index as the stock market, at time t, OIL_{it} represent shock to real price oil, ER_{it} exchange rate XOF-USD, case_{it} denotes COVID-19 confirmed case and deaths; i represent the countries; $\alpha_1 \alpha_2$ and α_3 represent the constant term; and ε_{it} represents the error term. We estimate Equation (1) with the pooled ordinary least squares estimator. All the variable are expressed using the logarithmic (Log).

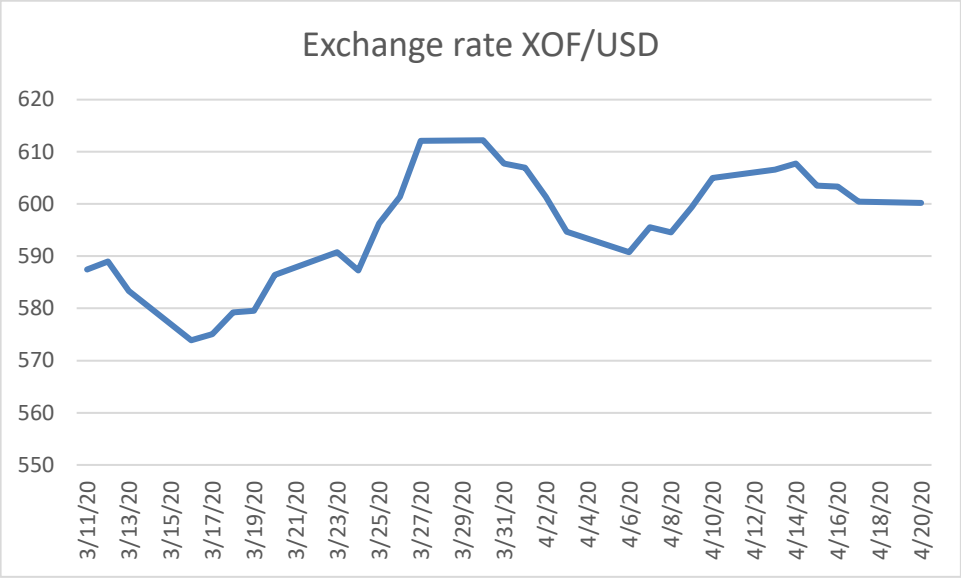
The country in this analysis include: Benin, Burkina-Faso, Guinea Bissau, Cote d'Ivoire, Mali, Niger, Senegal, and Togo which from West African Economic and Monetary Union.

III. Empirical Finding

The epidemic process and the uncertainty of the end period of this process have caused the exchange rate to fluctuate, while the number of cases and deaths progressed like this, the fluctuation exchange rates is given in this figure. The figure shows us the nominal exchange rate against the US dollars has continuous upward trend since March 04, 2020 to April 20, 2020. Among the reason of the change in exchange rates, along with the number of new cases brought by the outbreak, decrease in the regional exports due to the increase in foreign trade volume, increase of bankrupt companies, reduce in employment, increase unemployment fund insurance due to unemployment payment, increase credit volume and high risk of non-repayment of loans, decrease in tourism revenues might be considered.

Technium Social Sciences Journal
Vol. 18, 207-214, April, 2021
ISSN: 2668-7798
www.techniumscience.com

Figure: Exchange rate fluctuation from 2020/03/04-2020/04/20



Author construction

A. Discussion

Descriptive Statistics

The table 1 present descriptive statistics. The mean value of stock market, oil, exchange rate and COVID-19 cases confirm the random walk property of variables. However, minimum and maximum value of COVID-19 and oil price respectively, suggest daily COVID and oil price experience wide fluctuation.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std.Dev	Min	Max
Case COVID-19	1.410	11790.4	24113.87	0	122392
OIL	1.140	18.46667	13.66172	-37.63	46.78
Stock Index	1.140	622.6448	395.4379		1035.17
ER	1.140	23.585	15.86533		40

Table 2: Correlation between variables

Variable	Ln sm	Ln er	Ln oil	Ln case COVID-19
Ln sm	1.0000	-01310	0.1379	-0.0719
Ln er	-0.1310	1.0000	0.6445	-0.6864
Ln oil	0.1379	0.6445	1.0000	-0.6358
Ln COVID	-0.0719	-0.6864	-0.6358	1.0000

Table 3 Unit roots test

Variable	ADF	PP	Decision
Ln sm	-10.93160a (0.0000)	-44.77652* (0.0001)	Stationarity
Ln ER	-13.13333* (0.0000)	-71.79301* (0.0001)	Stationarity
Ln oil	-7308222* (0.0000)	-3012475* (0.0000)	Stationarity
Ln case COVID-19	-4.854974* (0.0000)	-5.023843* (0.0000)	Stationarity

Technium Social Sciences Journal
Vol. 18, 207-214, April, 2021
ISSN: 2668-7798
www.techniumscience.com

Note: PP is (Phillips-Peron, 1998) and ADF is Augmented (Dickey-Fuller., 1981) For pp the Ho: all panel contain unit roots, Ha: at least one panel stationary. ADF the Ho: all the panels contain unit roots, Ha: at least one panel is stationary. * denote significance at the 1% for P-values.

B. Regression results

The table 4 (panel A) present the result for the impact of confirmed cases on the regional financial exchange. Model 1 represent for the full sample, whilst model 2 and 3 presents the result for exchange rate and shock oil price. The results show that confirmed cases have significant and positive effect on regional financial exchange. This implies that COVID-19 pandemic promotes BRVM stock exchange; however, the magnitude of the effect is very small. This supports our hypothesis that COVID-19 has statistically significant and positive effect on Bourse Regionle des Valeurs Mobilieres. These findings also indicate that the country level do not matter in terms of exchange rates.

Exchange rate significantly decreases stock market returns in all sample of data. The result show that an increase in exchange rate decrease stock market by 26% (full sample model 1), 38% (full sample model 2) and 1.1% (full sample model 3).

Oil price significantly increase stock market exchange. An increase in oil price increase stock market by 0,07% (full sample model 1), 0.15% (full sample model 2), and 0.03% (full sample model 3)

Table 5: results of the regression

Panel A confirmed case and BRVM				Panel B: Deaths and BRVM		
Dependent Variable	Ln sm	Ln exc	Ln oil	Ln sm	Ln E R	Ln oil
	Model (1)	Model (2)	Model (3)	Model (1)	Model (2)	Model (3)
Ln sm		-0.70012* (.05484)	1.495* (.07230)		-3805* (0.0417)	0.7684* (0.910)
Ln exc	-0.3184* (.0249)		0.80083* (.05513)	-2653* (0.0291)		1.134 (0.1165)
Ln oil	0.2872* (.01388)	0.3381* (.02328)		0.0722* (0.0109)	0.1529* (0.122)	
Ln death COVID-19	-0.00182* (0.001309)	-0.0188* (0.00177)	-0.0179* (.00289)	-0.0054* (0.0014)	-0.0229* (0.00152)	-0.0390 (0.00452)
constant	6.962* (0.09137)	7.3002* (0.33491)	-9.583* (0.57109)	7.506* (0.1019)	5.773* (0.2813)	-5.779 (0.93604)

Note: * indicate significance at 1%. Parentheses show standard Error value.

IV. Conclusion

In this paper, we examined whether: Covid-19 influence in the regional financial exchange BRVM (Bourse Regionale des Valeurs Mobilieres); (b) the regional stock market exchange and (c) COVID-19 shocks impacted the regional stock market exchange. We find that an increase COVID-19 confirmed cases and deaths significantly increase regional stock market

exchange in West Africa Economic and Monetary Union; however, the magnitude of the impact is very small. And because of government's effective monetary policy, financial exchange (transactions quickly resumed.

In view of this findings, we recommend the bank to reduce the cash reserve requirement in the banking sectors to stimulate the investment in West African Economic and Monetary Union.

Conflict of Interest: The authors declare no conflict of interest.
Funding: This research has not received external funding.
Author Contributions: All authors contributed equally to all aspects of this research.

References

[1] Al-Awadhi, A.M., Al-Saifi, K., Al-Awadhi, A., Alhamadi, S (2020). Death and contagious infection diseases: Impact of the COVID-19 virus on stock market returns. J. Behav. Exp. Finance 100326.
[2] Allen, F., Qian, J., M (2005). Law, finance, and economic growth in China. Journal of Financial Economics, 77(1), 57-116. https://doi.org/10.1016/j.jfineco.2004.06.010.
[3] Ashraf. B.N. (2020a). Stock markets reaction to COVID-19: cases or fatalities? Res. Int. Bus. Finance 54, 101249.
[4] Ashraf B.N., Zheng., C., Jiang, C., Qian, N (2020). Capital regulation, deposit insurance and bank risk: International evidence from normal and crisis periods. Res. Int. Bus. Finance 52.
[5] Backer, S., Bloom, N., Davis, S.J., Kost, K., Sammon, M., Viratyosin, T., (2020). The Unprecedented stock market reaction to COVID-19. Covid economics: Vetted and Real-Time paper 1.
[6] Beck, T (2020). Finance in time of coronavirus. In Baldwin, R and di Maura, B.W (eds). Economics in the time of COVID-19, A VoxEU.org Book, Centre for Economic Policy Research London.
[7] Chen, F.G (2020). The heterogeneous impact of COVID-19 on Chinese enterprises-Empirical research based on the perspective of stock price fluctuations. Journal of Industrial Technological Economics, 39(10), 3-14. https://doi:10.3969/j.jssn.1004-910X.2020.10.001.
[8] Dickey, David A., and Wayne A. Fuller. 1981. Likehood Ratio Statistics for autoregressive time series with a unit root. Econometrica 49: 1057
[9] Fama, E, F. 1981. Stock Returns, Real Activity, Inflation and Money, American Economic Review. 71(4), 545-565.
[10] Fang, Y., Yu, B., &Wang, W (2020). China's financial market risk measurement and controlling under COVID-19 shock. Journal of Central University of Finance & Economics. 2020(08):116-128.doi:10.19681/j.cnki.jcufe.2020.08.010.
https://doi.org/10.19681/j.cnki.jcufe.2020.08.010
[11] Gnahe, F.E & Huang, F-M (2020). The effect of monetary policy on economic growth of WAEMU countries. Open Journal of Business and Management, 8,2504-2523. https://doi.org/10.4236/ojbm.2020.86156.
[12] Gormsen, N.J., Koijen, R.S. (2020). Coronavirus: Impact on stock market prices and growth expectations. University of Chicago, Becker Friedman Institute for Economics Working paper.
[13] Narayan, P.K., Devpura, N., & Hua, W (2020). Japanese currency and stock market-what happened during the COVID-19 pandemic? Economic Analysis and Policy. https://doi.org/10.1016/j.eap.2020.09.014.

Technium Social Sciences Journal
Vol. 18, 207-214, April, 2021
ISSN: 2668-7798
www.techniumscience.com

[14] Narayan, P.K (2020a). Has COVID-19 changed exchange rate resistance to shocks? Asian Economic Letters, 1(1), 17389. https://doi.org/10.46557/001c.17389.
[15] Salisu, A.A., & Siriku, A.A (2020) Pandemics and the Asia-pacific Islamic stocks. Asian Economics Letters, 1(1), 17413. https://doi.org/10.46557/001c.17413.
[16] Pedro, G (2020). The Coronavirus Tsunami: What's to come for US. Retail. Forbes retrieved from: https://www.forbe.com/site/gregpedro/2020/03/20/the-coronavirus-tsunami-whats-to-come-for-us-retail/#127cd2d609d.
[17] Phan. D.H.B, &Narayan, P.K. (2020). Country responses and reaction of stock market to COVID-19 preliminary exposition. Emerging Markets Finance and Trade, 56(10), 2138-2150. https://doi.org/10.1080/1540496x.2020.1784719
[18] Phillips, Peter C.B., and Pierre Perron. 1998. Testing for unit root in time series regression. Biometrika 75: 335.
[19] Wang, Y., Zhang. D., Wang, X., & Fu, Q. (2020). How does COVID-19 affect China's insurance market? Emerging Markets Finance and Trade, 56(10), 2350-2362. https://doi.org/10.1080/1540496x.2020.1791074.
[20] Worlddometer 2020. Worlddometer statistics, retrieved From: https://www.worldometers.info/corovaruris
[21] Yahoo Finance, 2020. Yahoo Finance Data. Yahoo Finance New York, USA.
[22] Zhang, D., Hu, M., Ji, Q., (2020). Financial markets under the global pandemic of COVID-19. Finance Res. Lett. 101528.