

RESEARCH  
ARTICLE**Study on the Impact of COVID-19 on Financial Markets & Institutions: A Literature Review on experience in Malaysia****Wong Lin Jing**Asia Pacific University of Technology and Innovation, Kuala Lumpur  
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**Doi Serial**<https://doi.org/10.56334/sei/8.8.74>**Keywords**

COVID-19, Economic Marketplaces, Banking institutions, Stock exchange, Financial institution Overall performance, Authorities Steps, FinTech, Economical Centers.

**Abstract**

This particular papers even comes close the different literatures created around the effect associated with COVID-19 upon monetary marketplaces plus organizations. The research is carried out on one nation, cross-country, local in addition to worldwide foundation. COVID-19 outbreak has been documented to get triggered damaging economic issues resulting in risky stock exchange and even trade price motions, decrease within bank's overall performance, fluid crisis together with credit score fails. The particular spillover a result of the particular outbreak about economical marketplaces was experienced throughout Asian countries, European countries plus ALL OF US. A number of steps performed simply by Government's globally triggered blend responses within the marketplaces. Whilst stimulation deals experienced good effect on marketplaces, rigid lockdown got adversely affected share market segments. Along with rankings limit, banking institutions confronted increased conformity danger as a result of problems within satisfying BASEL 3 needs upon funds percentage. However the outbreak has been documented to possess inhibited financial field advancement, it had been mentioned in order to speed up typically the FinTech advancement, digital plus electronic obligations. Monetary centers inside building nations were observed to handle higher difficulties compared to created nations, because of the outbreak.

**Citation.** Lin J.W., Sharizan b. A.R (2025). Study on the Impact of COVID-19 on Financial Markets & Institutions: A Literature Review on experience in Malaysia. *Science, Education and Innovations in the Context of Modern Problems*, 8(10), 831–846. <https://doi.org/10.56352/sei/8.8.74>

**Issue:** <https://imcra-az.org/archive/375-science-education-and-innovations-in-the-context-of-modern-problems-issue-8-vol-8-2025.html>

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Received: 10.12.2024

Accepted: 14.04.2025

Published: 17.07.2025 (available online)

**1.0 Introduction****1.1 Background of Study**

Along with 1st situation documented in China's Wuhan, COVID-19 coronavirus experienced quickly distribute all over the world within short-time time period, served with higher contamination price plus severe wellness effects. The entire world Wellness Company (WHO) announced the particular COVID-19 break out to become a worldwide outbreak upon eleventh 03 2020, along with more than 169 nations suffering from COVID-19, plus ALL OF US getting the the majority of verified instances (Dayong, ainsi que ing., 2020).

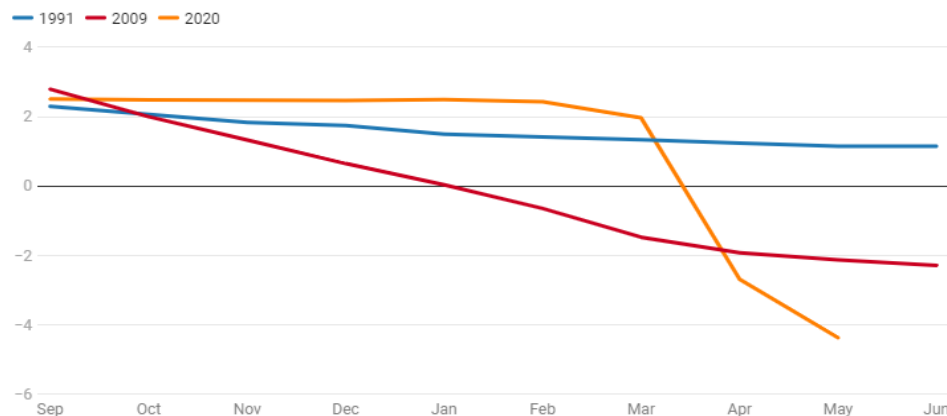
To higher manage upon outbreak break out, worldwide nations around the world applied lockdown steps in various limitation degree, which includes journey limitation in addition to motion manage. Getting The far east because instance, rigid lockdown continues to be enforced in the direction of hundreds of thousands populace within Wuhan through twenty three The month of january in order to eight 04 2020 (Reuters, 2020). These types of limited actions efficiently assisted to be able to trim COVID-19 contour yet concurrently restricted international financial actions, leading to financial economic downturn throughout nations (MM Kamruzzaman et. al 2022). Within Mar the

particular Worldwide Financial Account (IMF) expected a worldwide economic depression a minimum of since poor since the worldwide economic crisis associated with 2007-2008 accompanied by the come back inside 2021 (Georgieva, 2020).

In comparison to historic worldwide recessions, Globe Financial institution (2020) documented COVID-19 economic downturn getting the quickest and even finest degree given that 1930s.

### The COVID-19 recession has seen the fastest, steepest downgrades in consensus growth projections among all global recessions since 1990

Consensus forecasts of global GDP (percent)



September to December shows forecasts made in the previous year, while January to June shows data for the current year. Data for 1991 are for advanced economies only due to data availability.

Source: Consensus Economics, World Bank

Statistically calculating the particular financial effect, Worldwide Financial Potential customers Statement 2021 documented four. 3% compression upon worldwide actual Major Household Item (GDP) degree within 2020, which usually greatly reduce in comparison to second . 3% development inside 2019 (World Financial institution, 2021). Specifically building nations possess two times bigger spaces to become packed compared to created nations around the world depending on Globe Bank's pre-pandemic output simply by 2022. Keshky ainsi que ing. (2020)'s COVID-19 systemic evaluation also available general more serious financial effect presented in the direction of building places (Y. Shi et. al 2020). Therefore, worldwide economical recuperation likely to get many years, specifically seriously affected nations just be prepared to complete recuperate right after 2025 (Nicola ou 's., 2020).

### Gaps with pre-pandemic projections by 2022

Percent

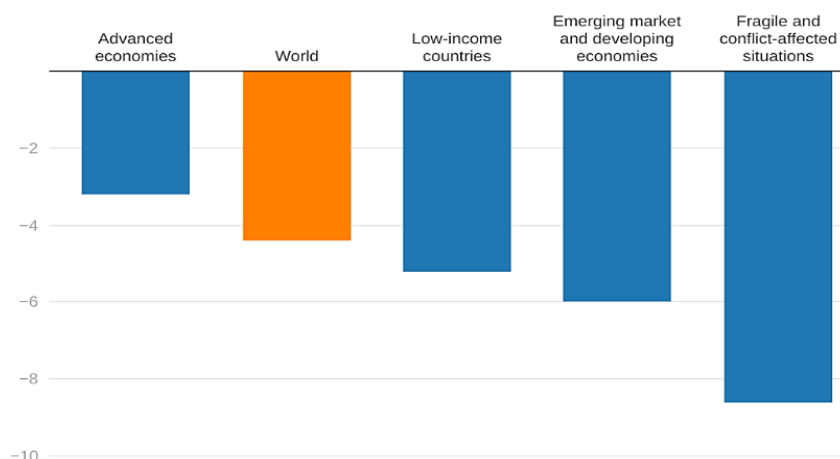


Figure shows the gaps between the current projections and the forecasts released in the January 2020 edition of the Global Economic Prospects report.

Source: World Bank • Download image

### 1.2 COVID-19 Outbreak impacted Financial System

832 - [www.imcra.az.org](http://www.imcra.az.org), | Issue 10, Vol. 8, 2025

Study on the Impact of COVID-19 on Financial Markets & Institutions: A Literature Review on experience in Malaysia  
Wong Lin Jing, Sharizan Binti Abdul Rashid

Below worldwide economic downturn, various sectors had been impacted in various intensity degree, which usually worldwide limited steps considerably stressed out upon overall performance associated with travel and leisure, modern aviation, plus amusement sectors. Whilst industrial sectors such as healthcare in addition to technologies were much less affected or even oppositely quickly building because of ownership in the direction of brand new way of life (Nicola ainsiqueing., 2020). Barua and Barua (2020) mentioned the particular COVID-19 outbreak experienced cause chaos about financial systems simply by disrupting typically the broad variety of macroeconomic signals like combination need, provide, result, industry moves, cost savings and even work, possibly deepening low income together with causing the economic depression. The writer provides that will this kind of problems can jeopardise Monetary Institution's (FI) success, durability plus protection both in created plus establishing nations as well. Nicola, ou 's., (2020) research exposed of which, main banking institutions globally presently trading complete dedication upon saving their own nationwide companies. Financial guidelines becoming applied below stimulation deals to higher strengthen economic climate plus reaction toward marketplace motions. Within 03 2020, key banking institutions which includes ALL OF US Federal government Book in addition to Malaysia Main Financial institution enforced rate of interest decrease to reduce financial deficits (Reuters, 2020).

Prior to being able to access real economical effect, monetary crisis marketplaces possess seriously replied, specifically share marketplaces that will extremely delicate to traders emotion (Guobin Chen et. al 2020). Listing of unpredicted marketplace occasions happened because of very unstable financial commitment below crucial outbreak scenario. Upon twenty-eight Feb, international share directories which include S&P and even NASDAQ documented finest every week decrease given that 08 economic crisis, which often minimal \$5 trillion evaporated through worldwide marketplace increased. Afterwards eight Mar, essential oil cost battle among Saudi Persia together with Russian federation triggered commodity future trading value shed a lot more than thirty percent, the particular most severe decrease given that Gulf of Mexico Battle (1991) (Reuters, 2020).

Based on Ashraf (2020) share marketplaces come back a new solid unfavorable relationship in order to every day COVID-19 verified instances, in comparison to quantity of fatalities. Aside from US ALL Treasury provides, bad earnings plus increased unpredictability has been noticed for all those monetary investments plus goods (with the particular exclusion regarding precious metal which usually demonstrated family member stability) throughout outbreak (Ali, ain ing., 2020), Rawal et. al (2021), Poongodi M et. al (2022), Poongodi M et. al (2021), Ramesh TR et. al (2022), Ahila A et. al (2022), Muniyappan et. al (2022), Y. Shi et. al (2020), Guobin Chen et. al (2020), Yuanjin Xu et. al (2021), Ding Li et. al (2021), Bin Yuan et. al (2021), Chi Z et. al (2021). As a result of huge deficits sustained simply by economic market segments around the world, long term tension screening from the strength from the monetary techniques must also think about human being wellness aspects to make sure long term economic balance, because recommended by simply Peterson and Thankom (2020). In a nutshell, COVID-19 break out offers certainly affected worldwide monetary methods therefore elevated the requirement upon critiquing earlier literatures.

## 2.0 Literature Review

This particular period presented the literary works overview of COVID-19's effects to economic climate, in the viewpoint associated with 2 key parts that happen to be economical marketplaces plus corporations, addressing single-country, cross country, local research, in addition to worldwide scientific studies.

### Financial Market

The particular effect associated with COVID-19 outbreak towards overall performance, unpredictability plus spillover of economic marketplaces throughout various investments in addition to nations happen to be examined.

The particular desk beneath shows the important thing parts of the particular area:

2.1.1	Impact of COVID-19 on Market Performance	
2.1.1.1	COVID-19 Period	stock performance declined during COVID-19 period
2.1.1.2	COVID-19 Cases Announcement	COVID-19 confirmed & death cases negatively affected stock performance
2.1.1.3	COVID-19 Government Measures	mixed impact (positive & negative) of restrictive measures towards stock performance

2.1.2	Impact of COVID-19 on Market Volatility	
2.1.2.1	Financial Securities Volatility	Increased volatility among all types of securities including stocks, commodities, and currencies.
2.1.2.2	Stocks Volatility	Increased volatility among stocks with several global stock market crash events.
2.1.2.3	Exchange Rate Volatility	Increased volatility of both fiat currencies and cryptocurrencies
2.1.3	Impact of COVID-19 on Market Spillover	
2.1.3.1	Financial Securities Spillover	Increased connectedness and spillover effect between different types of securities.
2.1.3.2	Stocks Spillover	Stronger spillover effect and correlation detected among stock returns and stock volatility.
2.1.3.3	Exchange Rate Spillover	Increased spillover effect among both fiat currencies and cryptocurrencies.

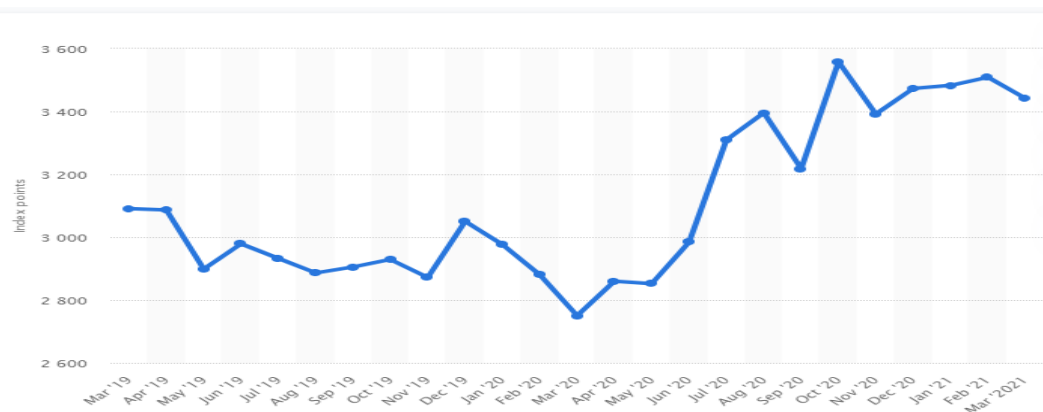
### 2.1.1 Market Performance

Marketplace overall performance, specifically share efficiency offers discovered to COVID-19 break out, different degree of effect happen to be analyzed through 3 different factors that are COVID-19 time period, instances statement plus authorities steps. The particular effect associated with COVID-19 economic crisis was the majority of obvious within the worldwide share marketplaces (Peterson and Thankom, 2020).

#### 2.1.1.1 COVID-19 Period

1. Limited impact continues to be noticed in the direction of share overall performance given that COVID-19 time period. Takyi plus Bentum-Ennin (2020)'s local study upon thirteen The african continent nations discovered decrease in The african continent inventory earnings which range from 3% in order to twenty percent, which usually the majority of Africa financial systems becoming negatively impacted. Likewise, unfavorable immediate effect toward share overall performance is recognized within an additional cross-countries analysis simply by This individual ainsique ing. (2020) on the top eight most-affected nations which includes The far east, ALL OF US in addition to Italia. In nationwide degree, the particular overall performance associated with nearby Stock exchange Directories throughout various nations around the world throughout COVID-19 time period also have identified to become adversely influenced by the particular outbreak break out, which often skilled irregular decrease within worth substandard plus deficits specifically throughout Feb – 03 2020.

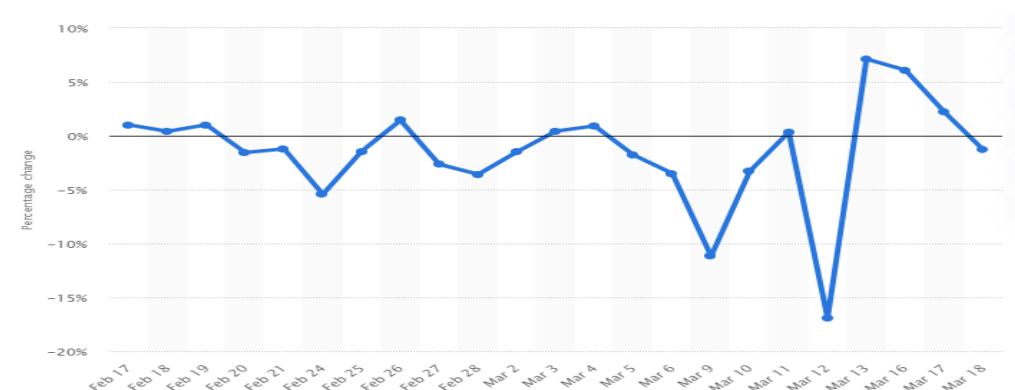
2. With regard to Shanghai in china Stock market (SSE), month-to-month progress SSE Amalgamated Catalog through Mar 2019 in order to Drive 2020 happen to be demonstrated within plan beneath. From your picture, the particular SSE Amalgamated Catalog experienced shut in 3441. nine factors about thirty first Walk 2021 in comparison to slightly below 2800 factors annually previously.



Deutscher Aktienindex (DAX) will be the Spanish share catalog plus in line with the plan underneath, the particular list fell in order to 9000 things since center regarding February 2020 (which is leaner compared to associated with 13681. nineteen tips captured in the center of Feb 2020).

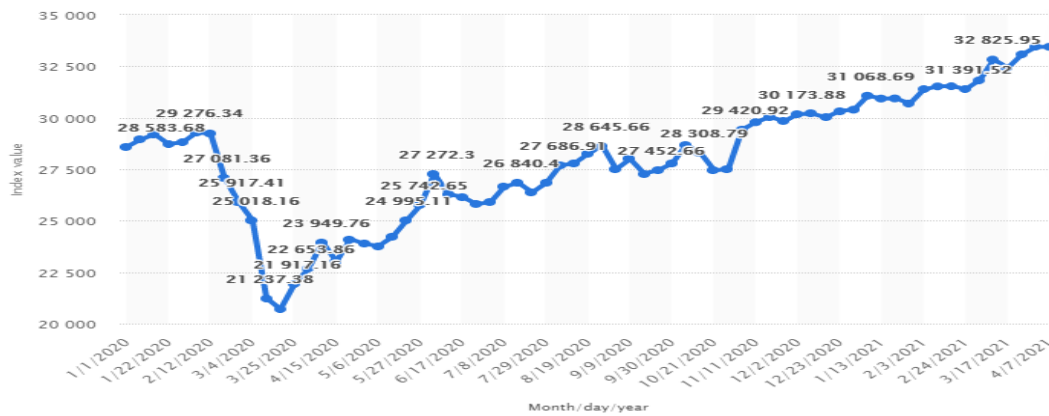


one The particular Italian language Share Catalog FTSE MIB offers sustained substantial lossess because the break out associated with COVID-19 within Italia. In line with the plan beneath, the particular catalog dropped simply by sixteen. 92% upon twelfth 03 2020.



(Statista Research Department, 2021)

3. Dow (DJIA) Catalog dropped simply by eight thousand factors among twelfth Feb 2020 plus eleventh 03 2020 (refer in order to plan below). Within Feb 2020, the particular catalog was in small more than 29000 factors. The particular distribute associated with COVID-19 outbreak led to decrease within traders self-confidence causing a dive within the stock exchange. The particular catalog dropped by simply twelve. 4% in between twenty first Feb . 2020 plus 29th March 2020, that was documented since the most severe portion stage reduction inside a 7 days given that Oct 08.



(Statista Research Department, 2021)

4. S&P Catalog decreased simply by 12% among fourth 03 2020 plus eleventh Mar 2020 and twelfth 03 2020, the particular catalog dropped nine. five per cent typically the greatest 1 day drop given that 1987 (refer in order to plan below). Since the quantity of COVID-19 instances boost globally, traders had been avoided through obtaining shares plus led to the particular catalog decrease.



(Statista Research Department, 2021)

one Nasdaq Catalog (refer in order to plan below) dropped simply by around 2400 factors among twelfth Feb 2020 plus eleventh 03 2020. Before the outbreak, the particular catalog was in a small more than 9700 details within Feb . 2020.



(Statista Research Department, 2021)

## 2.1.1.2 COVID-19 Cases Announcement



**2.1.1.3** The particular every day statement associated with COVID-19 verified plus dying instances constituted effect in the direction of stock exchange overall performance. Each worldwide study simply by Ashraf (2020) plus Erdem (2020) documented solid unfavorable relationship among worldwide share earnings in addition to quantity of every day proved situations. Because iterated by simply Ashraf (2020), international monetary marketplaces responded adversely towards the many verified COVID-19 circumstances documented among twenty second The month of January 2020 and even seventeenth 04 2020. This particular resulted in the particular marketplaces together with traders experienced considered the low results because of businesses having difficulties monetarily as a result of huge lockdowns globally that could prevent regular company actions. Particularly, worldwide inventory market segments forecasted more powerful bad response toward affirmed instances compared to loss of life situations, plus inside 1st couple of days associated with statement.

**2.1.1.4** Whilst evaluating in between nations, Liu ainsi que ing. (2020) discovered quick decrease associated with share efficiency within most-affected nations around the world along with undesirable reaction in the direction of validated conditions. COVID-19 established instances also have discovered in order to adversely impacted nearby stock exchange functionality within Malaysia in addition to Vietnam (Anh and even Gan, 2020; Shelter ainsi que ing., 2020). The particular growing proven situations produced questions together with decreased investors' self-confidence toward inventory earnings, therefore led to general stock exchange underperformance. Nevertheless, Al-Awadhi ou 's. (2020)'s analysis identified that will each tested plus passing away circumstances statement considerably influenced The far east share results, featuring China's higher level of interest to COVID-19 conditions. Plus Western Africa Financial plus Financial Partnership (WAEMU) local inventory marketplaces noted contrary outcomes, which usually demise instances presented more serious unfavorable influence in direction of share effectiveness (Zoungrana ou approach., 2021). The higher level of sensitivity in the direction of dying instances could cause from the reduce fatality prices inside WAEMU nations as compared to worldwide typical. Within total, COVID-19 situations story specifically amount of revealed situations offers substantial bad affected share overall performance.

#### **2.1.1.5 COVID-19 Government Measures**

Through plan viewpoints, government's statement upon outbreak steps like lockdown plus financial stimulation deals affected share overall performance. Erdem (2020)'s worldwide study upon seventy five nations documented much less unfavorable effect on share efficiency associated with fewer rigid nations than patients along with rigid lockdown, symbolizing unfavorable partnership among lockdown strength in addition to share earnings. The particular bad connection in-line along with Alexakis ainsi que ing. (2021)'s international study and additional forecasted with regard to brief and even long-term time period. Within Western The african continent area, tighter actions for example lockdown together with motion limitations have discovered a lot more seriously decreased inventory earnings in comparison to significantly less stringent procedures such as interpersonal isolating (Zoungrana ainsi que ing., 2021).

Nonetheless, good partnership is recognized in between lockdown power plus share results. Based on Topcu in addition to Gulal (2020)'s analysis about twenty six building nations around the world, nations that will applied well-timed limited methods uncovered in the direction of smaller sized share functionality effect. Particularly, single-countries research upon Indian and even Vietnam additional stressed upon importance associated with lockdown steps toward good share comes back. (Alam ou 's., 2020; Anh together with Gan, 2020). Concerning the general influence regarding limited actions to share effectiveness, Ashraf (2020)'s worldwide research came to the conclusion combined mixture of optimistic plus bad impact. Immediate damaging effect was because of the general restricted economical actions, while roundabout beneficial effect has been brought on by the particular managed outbreak scenario. Apart from restricted procedures, economic climate incitement plans just like subsidiaries in addition to wellness consciousness applications such as COVID-19 screening favorably added in direction of inventory overall performance (Topcu and even Gulal, 2020).

#### **2.1.2 Market Volatility**

The particular COVID-19 outbreak led to fall within manufacturing and provide amounts for many nations which usually affected the particular opportunities plus long term funds moves plus triggered stock exchange volatilities internationally (Estrada and Shelter, 2021). Unpredictability shock absorbers consequently, possess an unfavorable effect on financial exercise, leading to reduce GROSS DOMESTIC PRODUCT plus work ranges.

##### **2.1.2.1 Financial Securities Volatility**

COVID-19 break out has additionally discovered in order to effect the entire balance associated with monetary marketplace because of large questions regarding general scenario plus trader emotion. Lahmiri plus Bekiros (2020)'s

research upon worldwide economic industry recommended a general boost involving unpredictability amongst monetary investments throughout outbreak time period. Vast majority investments which includes S&P500 shares, Bitcoin, power, gold and silver grew to become a lot more risky compared to pre-pandemic time period. Particularly, stocks and shares in addition to alloys skilled greatest degree of randomness within movements compared to other people.

Likewise, Ali ainsi que ing. (2020) also available improved unpredictability in most investments whilst learning best nine affected nations. In line with the quantity of COVID-19 instances, Ali ainsi que ing. (2020) recognized 3 stages with regard to monetary crisis marketplaces with regards to the particular effect through COVID-19 which usually began using the The far east stage, accompanied by the particular European countries and finally the united states period. Accompanied by coronavirus' update coming from crisis to be able to outbreak, marketplace movements considerably improved, actually secure destination property such as precious metal documented unfavorable come back. In later on phase, The far east marketplace continued to be steady together a lesser decrease inside earnings as a result of efficient authorities surgery, although worldwide marketplaces just like ALL OF US began to drop dramatically and additional guide in the direction of industry accident within 03 2020. An identical discussion about Chinese language marketplace stableness throughout the outbreak in comparison to some other abroad market segments seemed to be through Sansa (2020). In addition, Ali, ou 's., (2020) furthermore pointed out that will Chinese language market's unpredictability amounts failed to differ a lot in every 3 levels. The greatest marketplace level of sensitivity towards the outbreak was shown from the Western marketplaces based on the statement that was furthermore related to typically the postponed activities used by Western authorities in order to retain the distribute associated with computer virus, when compared with Hard anodized cookware equivalent.

### 2.1.2.2 Stocks Volatility

Apart from, stock exchange unpredictability has been enormously analyzed simply by experts because stock exchange considerably influenced by outbreak. Ashraf (2020)'s worldwide study recognized general higher level of sensitivity associated with share marketplaces in the direction of outbreak, along with nation reactions additional differed depending on outbreak's intensity degree. Comparable results becoming started within Zhang ainsi que ing. (2020)'s cross country study which usually stressed around the large unpredictability plus movements throughout share market segments within nations. Especially, the local research upon eleven Asian countries Pacific cycles marketplaces more researched within the effect various occasions in the direction of currency markets volatilities. Authorities outbreak steps such as lockdown efficiently reduced the particular unpredictability, whilst worldwide monetary occasions just like 03 2020 marketplace accident possess activated movements inside household marketplaces (Ibrahim ou 's., 2020). Contemplating period intervalle, Bai ainsi que ing. (2020) discovered that will COVID-19 break out forecasted extensive impact toward unpredictability within worldwide inventory marketplaces.

Concerning particular effect to nearby share marketplaces, nation research was carried out toward ALL OF US wall street game, a global top monetary center. Because investigated simply by Albulescu (2021), outbreak break out amplified S&P industry movements plus greatly damaged worldwide economic series. COVID-19 verified plus dying instances improved unpredictability throughout global plus US ALL marketplace, specifically international data possess more powerful influence in the direction of PEOPLE stock exchange. Hong ain 's. (2021) even more highlighted for the factor associated with outbreak episode in direction of stock exchange accident within Mar 2020, which often led to a new strength movements crack regarding S&P in addition to Dow Smith industry. Traders had been discovered in order to offered away their own shares prior to currency markets dropped, therefore typically the share unpredictability stage greatly increased following the crack.

In line with the pattern from the marketplace costs associated with stocks around the Tokyo Stock market, the particular Nikkei Catalog based on Sansa (2020) furthermore skilled movements and even dropped because the break out associated with COVID-19 outbreak. In the statement, Dayong, ou approach., (2020) reported of which inside Drive 2020 typically the Tokyo Stock market likewise rejected simply by a lot more than twenty percent from the placement keep away from 2019. Estrada and Shelter (2021) furthermore reported within their statement within the decrease associated with Nikkei List. Nonetheless they mentioned that will Taiwan Stock market however experienced underperformed by simply just a moderate perimeter because of the government's work in working with COVID-19 outbreak well-timed. This too implies that well-timed treatment simply by government bodies throughout nations got added within that contains the particular distribute from the computer virus together with reduce the effect about the neighborhood economic climate.

### 2.1.2.3 Exchange Rate Volatility



COVID-19 break out also available in order to effect the particular balance associated with trade price, which usually added towards unpredictability regarding worldwide foreign currencies. Feng *ainsi que ing.* (2021) study upon twenty fedex values which includes RMB, GBR plus AUS discovered solid good partnership among quantity of contaminated instances plus foreign currency movements. The particular execution involving authorities COVID-19 steps such as motion manage, wellness consciousness applications plus financial stimulation deals efficiently padded foreign currency unpredictability degree. Apart from redbull stock markets, Umar in addition to Gubareva (2020) furthermore recognized higher relationship in between COVID-19 stress catalog plus Universe Crypto Catalog, therefore predicting the particular outbreak impact in the direction of movements associated with eleven cryptocurrencies. Below problems scenario which often foreign currency motions extremely in line with outbreak intensity, conventional forex risikomanagement strategies no more efficient to become used on the market.

#### 2.1.2.4 Financial Securities Spillover

2.1.2.5 Earlier experts furthermore analyzed the effect associated with COVID-19 in the direction of marketplace spillover, which usually described the particular interdependencies throughout monetary marketplaces plus areas. Usually, COVID-19 improved connectedness among economic investments, which usually Lahmiri plus Bekiros (2020) recognized unpredictability spillover among S&P500 marketplace, power plus Bitcoin. Prior to outbreak, S&P500 industry unpredictability has been stand alone and interact with some other monetary market segments. Because researched simply by Ali *ainsi que ing.* (2020), the higher deficits experienced simply by Bitcoin within later on outbreak phase furthermore displayed contamination partnership in between bitcoin plus share marketplaces.

#### 2.1.2.6 Stocks Spillover

To get share spillover, relationship among inventory profits within foreign marketplaces currently have improved below outbreak break out, predicting bigger prophylaxie impact. This elevated investors' risikomanagement expense upon strengthening profile variation (Akhtaruzzaman *ainsi que ing.*, 2021). He / she ain 's. (2020)'s worldwide review observed factor associated with outbreak toward spillover result throughout Japan, Eu plus Us carries several marketplaces. Especially, Alexakis *tout autant que approach.* (2021) taken adverse spillover impact, which will COVID-19 steps inside region A lower share profits within related areas because of excessive economical relationship together with inventory co-movements. On territorial degree, Sharma (2020) discovered substantial movements spillover via Asiatische stock exchange to local marketplaces which includes Singapore plus The japanese, on various a higher level specifications.

Particularly upon nations effect, Akhtaruzzaman *ou 's.* (2021) plus Nguyen *ain way.* (2021) claimed ALL OF US plus China and taiwan supplies marketplace because important audio receivers regarding spillover impact in direction of world-wide nations, specially US ALL. Whilst to get field influence, international business research highlighted the value associated with fiscal market within spillover sign throughout offers market segments. Laborda in addition to Olmo (2021)'s researching about ALL OF US stock exchange as well uncovered electricity and even technologies sector since essential spillover programs below outbreak episode, whilst healthcare together with medication field while spillover receivers.

#### 2.1.2.6 Exchange Rate Spillover

With regard to trade fee spillover, Wei *au même tire que ing.* (2020)'s worldwide study recommended everyday living associated with unpredictability spillover amongst Seatbelt plus Street foreign currency markets throughout outbreak break out. The particular solid link in between worldwide in addition to B&R marketplaces elevated all their weaknesses in the direction of spillover impact which usually led to marketplace situation. Descends from The far east, outbreak substantially impacted Renminbi's stableness plus spillover toward additional B&R values such as Gravedad and even Earned. Apart from, good spillover impact already been recognized simply by Shahzad *ainsi que ing.* (2021) amongst many cryptocurrencies, specially in great movements program below COVID-19 outbreak.

### 2.2 Financial Institution

Banking institutions were evaluated to handle the particular most severe dangers from your COVID-19 outbreak because of their own part being an intermediary within the monetary techniques based on Barua and Barua (2020). Particularly the writer emphasised that this outbreak led to banking institutions dealing with serious economic deficits, fluid plus funds adequacy problems as a result of defaulted financial loans, decrease within rates of interest plus bad resource high quality mention just a few.

The table below highlights the key points of the section:

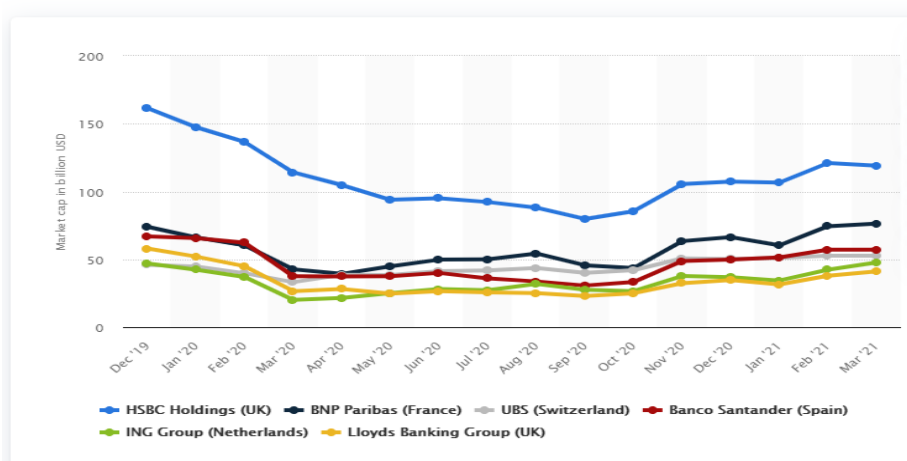
Financial Institution		
2.2	IMPACT OF COVID-19 ON FINANCIAL INSTITUTIONS	
2.2.1	Banking Performance and Bank Rating	Serious effect on banking institutions overall performance as a result of investor's sell-off plus credit score danger, leading to downgrades associated with financial institution rankings.
2.2.2	Liquidity, Lending and Capital Adequacy of Banks	Banking institutions throughout appearing plus creating places encountered serious fluid problems, within predetermined prices, decrease property high quality and even conformity danger by issues in order to carry out bare minimum Basel 3 funds rate necessity.
2.2.3	Spillover Impact on Financial Institutions	Systemic danger distribute from your economic climate in the direction of financial program, because of increased portion associated with financing influenced by outbreak.
2.2.4	Banking and Digital Finance	More rapid the particular digitalization associated with financial solutions, downloading associated with FinTech cellular programs plus digital obligations.

### 2.2.1 Banking Performance and Bank Rating

When it comes to effect intensity, Aldasoro *ainsi que* *ing.* (2020)'s worldwide study left a comment upon commonalities among banks' overall performance indebted plus collateral marketplaces throughout outbreak time period in addition to 08 economic crisis. Investors' sell-off prior to marketplace accident plus improved credit score danger added in the direction of banks' underperformance in comparison to some other sectors and even banking institutions. Kunt *ou ing.* (2020) also available a lot more undesirable together with extensive influence experienced simply by international financial program, which usually extremely forced because problems loan provider plus damper. Particularly, systemically essential big banking institutions, financial institutions along with lesser pre-pandemic overall performance in addition to essential oil cost publicity have observed bigger decrease in share come back. Execution associated with authorities guidelines such as financial reducing and even fluid assistance offers reduce negative effects in the direction of bank program, yet general combined outcomes already been recognized throughout nations.

Within European countries, because of COVID-19 outbreak a few of the biggest banking institutions like HSBC plus Bajio Santander marketplace capitalization experienced halved among Dec 2019 together with Oct 2020 (refer in order to plan below).

(in billion U.S. dollars)



(Statista Research Department, 2021)

Usually, earlier experts recognized general decreased insurance coverage income along with increasing statements, brought on by termination associated with outings, occasions along with other deficits. Throughout outbreak time period, Babuna ainsi que ing. (2020)'s study upon Bekwai, ghana insurance coverage marketplace documented big monetary effect, together with total decreased business plus complete reduction in GH ₵112 mil. Apart from, Wang ou ing. (2020) discovered general underperformance within The far east industry using decrease in high quality revenue plus yearly development price, and also insurance policy denseness in addition to level. Comparable because financial, good regarding interpersonal protection and electronic insurance plan offers mitigated the entire unfavorable impact. Specific inside ALL OF US, higher joblessness price because of outbreak break out provides triggered huge damage throughout employer-sponsored insurance (ESDI), therefore reduced general insurance policy (Choi ain 's., 2021).

Aldasoro, ainsi que 's., (2020) documented that will out from the 108 ranked banking institutions tested through earlier 03 in order to 26th 04 2020, twenty-eight Western Insitutions (out associated with 44) a new unfavorable perspective modification. The particular statement furthermore cited of which Fitch has additionally reduced eleven banking institutions in that period along with reduce success requirement. The particular papers additional pointed out, financial institutions which were cut down noticed their own Credit score Arrears Exchange (CDS) distribute increase that was a sign associated with feasible additional arrears.

### Liquidity, Lending and Capital Adequacy of Banks

Throughout the outbreak, the majority of depositors needed to pull away their own cost savings through banking institutions to aid the particular every day sustenance plus wellness costs (Barua and Barua, 2020). As a result triggered banking institutions to handle serious fluid problems specially in building plus growing nations since the financing capability has been restricted because of income disadvantages the writer additional reported. Additionally , to be able to aid the shoppers dealing with monetary difficulty throughout the outbreak, financial institutions needed to take those strike when it comes to low income coming from financial dealings, waiver associated with charges and also prolonged mortgage moratoriums offered in order to clients.

NPL arises whenever clients are unable to pay back the particular financial loan obtained from the financial institution. Within their study upon Bangladeshi banking companies, Barua and Barua (2020) mentioned that will throughout after typically the COVID-19 outbreak, finance institutions experienced considerable loaning contact with foreign trade directed sectors in addition to little moderate dimension businesses, which usually led to within arrears prices. The particular papers furthermore documented that will based on Bangladeshi Outfit Producers and even Exporters Organization purchases really worth regarding \$3. fifteen billion dollars within 1134 industrial facilities had been terminated or even postponed within 04 2020 because of the outbreak. Typically the writers additional described that when 10% from the purchase ideals displayed financial institution credit score, it might convert to be able to nearly thirty percent NPL with regard to banking institutions. Additionally it had been furthermore noted bigger NPL shock absorbers could cause actually bigger drops within attention earnings with regard to bankers.

Barua and Barua (2020) more discussed of which increased NPL shock regarding lenders might effect the particular resource high quality, causing a reduce Danger Measured Property (RWA) specifically for Islamic banking institutions inside Bangladesh. The low typically the advantage worth regarding loan providers might compared to effect the particular banks' Funds Adequacy Percentage. Inside their document, the particular writers possess offered a good example where the twenty percent NPL surprise for many banking institutions together with 25% NPL jolt for all those banking institutions can change the vehicle unfavorable. This could consequently jeopardize typically the survivability associated with loan companies. When it comes to companies throughout Bangladesh, it absolutely was described within the papers that will a 10% NPL surprise would certainly reduce banking institutions VEHICLE in order to beneath the particular minimal degree arranged from the Basel 3 Conform. Therefore, shores subjected to increased conformity danger because dealing with troubles upon satisfying lowest BASELIII necessity upon funds percentage.

### 2.2.2 Spillover Effect on Financial Institutions

Just like the 2007-2008 economic crisis, the particular COVID-19 problems spillover impact has been experienced globally, within just about all industries through company plus financial in order to schooling in addition to amusement business (Peterson and Thankom, 2020).

In nation degree, Wu and even Olson (2020) recommended spillover a result of systemic danger through The far east economic climate in the direction of financial program, because of increased portion associated with financing influenced by outbreak. Higher effect has been available on macro degree which usually market plus business loaning a lot more damaged compared to customer financing. Usually, The far east banks' internet attention perimeter greatly stiffened, brought on by larger financial obligations price, reduce immediate mortgage need plus rate of interest. Nevertheless, the particular improved credit score need inside developing sectors like health care plus web commerce offers decreased the particular downwards stress upon usage.

### 2.2.3 Banking and Digital Finance

Financial field creation had been a lot more inhibited compared to various other important because of causes just like cheaper attention cash flow plus opposition via fintech participants. Typically the outbreak episode extremely sped up fintech industry growth, definitely not compulsorily increased simply by Fintech businesses but additionally different gamers such as Large Technicians. The expansion associated with fintech, like choice financier constrained conventional bank improvement particularly in retail industry financial (Wójcik and even Ioannou, 2020).

In accordance with Venne plus Mishra (2020)'s worldwide researching upon fintech playing god, COVID-19 break out together with lockdown steps increased regular downloading associated with fintech cellular programs by simply thirty. Even though organizations that will used fintech infrastructures just like digital transaction were even more ecological plus mitigated anticipated outbreak impression than patients unadopted (Fu plus Mishra, 2020a).

With regards to industry access, Master card 2020 survey analyzed a good exaggeration associated with electronic digital economic addition within Latina The united states, by invasion in the direction of economical systems such as electric pouches plus electronic bank. Throughout COVID-19 period of time, authorities subsidiaries in addition to interpersonal advantages applications decreased 47% unbanked people (40 million) within Which include locations. The particular electronic digital fiscal addition method lead to increased person endorsement toward fintech expert services (+15%) and even cheaper money choice (-14%) (Intelligence together with Master card, 2020).

#### Financial Development

The particular desk beneath shows the important thing factors from the area:

#### Financial Development

2.3	Impact of COVID-19 on Financial Development	
a)	General Development	<ul style="list-style-type: none"> <li>• confirmed and dying instances restricted advancement</li> <li>• developing retrieved instances and health care capabilities extended growth</li> </ul>

b)	Financial Centers	<ul style="list-style-type: none"> <li>• developing nations, nearby and local monetary centers a lot more questioned compared to created nations around the world, nationwide and worldwide centers</li> <li>• need even more work in order to adjust to brand new marketplace procedure</li> </ul>
c)	Financial Sectors	<ul style="list-style-type: none"> <li>• Banking advancement inhibited</li> <li>• FinTech growth more rapid</li> </ul>
d)	3 Dimensions of Development	<p>i. Market Access</p> <ul style="list-style-type: none"> <li>• accelerated digital financial inclusion</li> </ul> <p>ii. Market Risk</p> <ul style="list-style-type: none"> <li>• stock market risk increased &amp; correlated with pandemic severity</li> </ul> <p>iii. Market Efficiency</p> <ul style="list-style-type: none"> <li>• exist market inefficiency &amp; arbitrage opportunities that increased wealth inequalities between investors.</li> </ul>

The particular effect associated with COVID-19 break out in the direction of common progress monetary business happen to be analyzed simply by earlier experts. Tycker ainsi que ing. (2021)'s worldwide study within 121 nations documented COVID-19 verified instances since the main determinant that will restricted monetary advancement like economic actions plus cash provide, whilst dying instances forecasted higher unfavorable impact. Oppositely, developing quantity of retrieved situations in addition to health care capabilities such as screening gear and even labs extended economic advancement together with increased investors' self-confidence toward monetary marketplaces. Wójcik plus Ioannou (2020) also available of which outbreak triggered combination plus personal bankruptcy regarding smaller businesses and also gaps economic rules, therefore lagging the particular economical growth.

Whilst learning influence in the direction of monetary crisis centers, building countries' centers confronted higher difficulties compared to created nations. Particularly, nearby plus local fiscal centers a lot more adversely impacted in comparison to nationwide plus worldwide centers. A lot more work necessary for these types of companies in order to adjust to brand new marketplace procedures for example digitalization in addition to cross-border incorporation. Although Asian countries marketplaces just like Singapore plus The far east retrieved quicker through outbreak break out, significant change toward Parts of asia marketplace had not been recognized because worldwide monetary routines nevertheless extremely depend on energetic market segments directed simply by Usa (Wójcik plus Ioannou, 2020).

The particular economic advancement is researched when it comes to sizes which includes danger plus effectiveness. Zhang ainsi que 's. (2020)'s cross country research exposed general improved stock exchange danger throughout outbreak time period which usually very linked to outbreak intensity. The particular unpredictability involving outbreak scenario, financial effect and even traders emotion brought in direction of the upper chances degree. Furthermore, research upon ALL OF US stock exchange simply by Hong ou approach. (2021) discovered industry ineffectiveness throughout COVID-19 time period, highlighting the presence of accommodation possibilities that will elevated prosperity inequalities among traders. Aslam ou ing. (2020) furthermore recommended of which outbreak reduced the particular performance within currency markets which often traders capable to obtain extra income believed tactical expense. Aussie buck, as the utmost affected foreign currency has been minimum effective although Switzerland Droit together with Canadian buck had been most effective to become exchanged.

### 3.0 Conclusion

The particular unstable COVID-19 outbreak led to severe damaging effect on peoples' life, sustenance along with the company plus financial actions worldwide. We now have observed exactly how outbreak triggered monetary stress in order to banking institutions in addition to monetary marketplaces. Within times and even several weeks, vast amounts of bucks dropped within their market value associated with companies together with making numerous businesses plus people damaging economic deficits.

Economic market segments, the particular embrace COVID-19 verified instances considerably triggered share underperformance. Authorities steps especially lockdown forecasted combined results, whilst economical stimulation bundle in addition to wellness abilities enhanced share overall performance. Below outbreak, main economical investments which includes shares, foreign currencies and even alloys skilled increased marketplace unpredictability, showing the particular ineffectiveness regarding conventional hedge below pressured marketplace. Because of spillover impact, fiscal investments interdependencies possess increased, specifically ALL OF US together with The far east because substantial spillover transmission device in the direction of worldwide marketplaces.

Learning effect toward organizations, worldwide financial techniques because damper had been considerably beneath forced compared to some other industries plus establishments. Beneath outbreak break out, presently there been around spillover a result of systemic dangers through economic climate to bank program, which usually substantially damaged worldwide monetary techniques plus series. With regard to insurance companies, outbreak break out triggered decrease in high quality income, insurance coverage denseness, level in addition to increasing statements. Underneath problems, financial institutions experienced fluid problem, higher arrears prices and even nonperforming financial loans. Banking institutions therefore uncovered in direction of reduce funds adequacy, increased conformity danger plus downgrades involving financial institution rankings. Reverse through financial field, outbreak episode greatly more rapid the introduction of electronic financial, which in turn mitigated unfavorable outbreak effect.

Within general, worldwide economic advancement has been disrupted since economic routines together with cash provide were restricted throughout outbreak, along with verified situations while main determinant. Building plus local economical centers discovered to become a lot more questioned in comparison to created plus global centers. During this time period, fiscal marketplaces related to the upper chances plus issues, leading to high-risk expense possibilities.

As the outbreak experienced destroyed life in addition to livelihoods both in created plus building nations, the particular quick activities used by a few government authorities plus regulating body allowed these to cope with the particular influence much better in certain nations around the world when compared with other people. A few places along with more powerful monetary techniques like The far east plus US ALL could offer and even come back quicker compared to less strong nations. Authorities steps such as COVID-19 actions plus industry surgery performed considerable part upon decreasing unfavorable influence throughout market segments plus corporations although managing systemic chance. Additionally it is critical that banking companies consist of this kind of outbreak situations at a later date tension screening workouts to ensure that finance institutions together with banking institutions might firm up plus improve their own stability page plus through becoming worn away simply by these kinds of outbreak within long term. The particular outbreak has additionally trained all of us that will getting nicely steady economic techniques are important within safeguarding in addition to conserving the particular monetary development associated with locations without having which could lead to significant monetary damages that could needs many years in order to restore.

## References

1. Akhtaruzzaman, M., Boubaker, S. and Sensoy, A. (2021) 'Financial contagion during COVID-19 crisis', *Finance Research Letters*, 38(January), p. 101604. doi: <https://doi.org/10.1016/j.frl.2020.101604>.
2. Al-Awadhi, A. M. et al. (2020) 'Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns', *Journal of Behavioral and Experimental Finance*, 27, p. 100326. doi: [10.1016/j.jbef.2020.100326](https://doi.org/10.1016/j.jbef.2020.100326).
3. Alam, M. N., Alam, M. S. and Chavali, K. (2020) 'Stock market response during COVID-19 lockdown period in India: An event study', *Journal of Asian Finance, Economics and Business*, 7(7), pp. 131-137. doi: [10.13106/jafeb.2020.vol7.no7.131](https://doi.org/10.13106/jafeb.2020.vol7.no7.131).
4. Albulescu, C. T. (2021) 'COVID-19 and the United States financial markets' volatility', *Finance Research Letters*, 38, p. 101699. doi: [10.1016/j.frl.2020.101699](https://doi.org/10.1016/j.frl.2020.101699).
5. Aldasoro, I., Fender, I., Hardy, B. & Tarashev, N. (2020) 'Effects of COVID-19 on the Banking Sector', s.l.: Bank of International Settlement.



6. Alexakis, C., Eleftheriou, K. and Patsoulis, P. (2021) 'COVID-19 containment measures and stock market returns: An international spatial econometrics investigation', *Journal of Behavioral and Experimental Finance*, 29, p. 100428. doi: 10.1016/j.jbef.2020.100428.
7. Ali, M., Alam, N. and Rizvi, S. A. R. (2020) 'Coronavirus (COVID-19) – An epidemic or pandemic for financial markets', *Journal of Behavioral and Experimental Finance*, 27, p. 100341. doi: 10.1016/j.jbef.2020.100341.
8. MM Kamruzzaman, Ibrahim Alrashdi, Ali Alqazzaz. (2022). New Opportunities, Challenges, and Applications of Edge-AI for Connected Healthcare in Internet of Medical Things for Smart Cities. *Journal of Healthcare Engineering*, vol. 2022, <https://doi.org/10.1155/2022/2950699>
9. Anh, D. L. T. and Gan, C. (2020) 'The impact of the COVID-19 lockdown on stock market performance: evidence from Vietnam', *Journal of Economic Studies*. doi: 10.1108/JES-06-2020-0312.
10. Anser, M. K. et al. (2021) 'Financial development during COVID-19 pandemic: the role of coronavirus testing and functional labs', *Financial Innovation*, 7(1). doi: 10.1186/s40854-021-00226-4.
11. Ashraf, B. N. (2020) 'Stock markets' reaction to COVID-19: Cases or fatalities?', *Research in International Business and Finance*, 54, p. 101249. doi: 10.1016/j.ribaf.2020.101249.
12. Aslam, F. et al. (2020) 'On the efficiency of foreign exchange markets in times of the COVID-19 pandemic', *Technological Forecasting and Social Change*, 161, p. 120261. doi: 10.1016/j.techfore.2020.120261.
13. Babuna, P. et al. (2020) 'The Impact of COVID-19 on the Insurance Industry', *International Journal of Environmental Research and Public Health*, 17(16), p. 5766. doi: 10.3390/ijerph17165766.
14. Bai, L. et al. (2020) 'Infectious disease pandemic and permanent volatility of international stock markets: A long-term perspective', *Finance Research Letters*, (January), p. 101709. doi: 10.1016/j.frl.2020.101709.
15. Barua, B. & Barua, S. (2020) 'COVID-19 implications for banks: evidence from an emerging economy'. *SN Business & Economics*, 1(19), pp. doi: 10.1007/s43546-020-00013-w.
16. Choi, S. E. et al. (2021) 'Modeling the Impact of COVID-19 on Dental Insurance Coverage and Utilization', *Journal of Dental Research*, 100(1), pp. 50–57. doi: 10.1177/0022034520954126.
17. Dayong, Z., Min, H. & Qiang, J. (2020) 'Financial Markets Under The Global Pandemic of COVID-19'. Elsevier.
18. Demirgüç-Kunt, A., Morales, A. and Ruiz Ortega, C. (2020) Banking Sector Performance During the COVID-19 Crisis, *World Bank Policy Research Working Paper Series*. doi: 10.2139/ssrn.3689789.
19. Erdem, O. (2020) 'Freedom and stock market performance during Covid-19 outbreak', *Finance Research Letters*, 36, p. 101671. doi: 10.1016/j.frl.2020.101671.
20. Estrada, M. A. R. & Lee, M. (2021) 'Staggression: The Economic and Financial Impact of COVID-19'. SSRN.
21. Feng, G.-F. et al. (2021) 'What is the exchange rate volatility response to COVID-19 and government interventions?', *Economic Analysis and Policy*, 69, pp. 705–719. doi: 10.1016/j.eap.2021.01.018.
22. Y. Shi, S. Wang, S. Zhou and M. M. Kamruzzaman. (2020). Study on Modeling Method of Forest Tree Image Recognition Based on CCD and Theodolite. *IEEE Access*, vol. 8, pp. 159067-159076, 2020, doi: 10.1109/ACCESS.2020.3018180
23. Fu, J. and Mishra, M. (2020a) 'Fintech in the time of COVID-19: Trust and technological adoption during crises', *Swiss Finance Institute Research Paper Series*, (December).
24. Fu, J. and Mishra, M. (2020b) 'The Global Impact of COVID-19 on Fintech Adoption', *Swiss Finance Institute Research Paper Series*, (April). doi: 10.2139/ssrn.3588453.
25. Georgieva, K. (2020) 'IMF Managing Director Kristalina Georgieva's Statement Following a G20 Ministerial Call on the Coronavirus Emergency', s.l.: International Monetary Fund.
26. He, Q. et al. (2020) 'The impact of COVID-19 on stock markets', *Economic and Political Studies*, 8(3), pp. 275–288. doi: 10.1080/20954816.2020.1757570.
27. Hong, H., Bian, Z. and Lee, C.-C. (2021) 'COVID-19 and instability of stock market performance: evidence from the U.S.', *Financial Innovation*, 7(1), p. 12. doi: 10.1186/s40854-021-00229-1.
28. Ibrahim, I., Kamaludin, K. and Sundarasan, S. (2020) 'COVID-19, Government Response, and Market Volatility: Evidence from the Asia-Pacific Developed and Developing Markets', *Economies*, 8(4), p. 105. doi: 10.3390/economies8040105.
29. Intelligence, A. M. and Mastercard (2020) Acceleration of financial inclusion during the covid-19 pandemic.
30. El Keshky, M. E. S., Basyouni, S. S. and Al Sabban, A. M. (2020) 'Getting Through COVID-19: The Pandemic's Impact on the Psychology of Sustainability, Quality of Life, and the Global Economy – A Systematic Review', *Frontiers in Psychology*, 11. doi: 10.3389/fpsyg.2020.585897.
31. Laborda, R. and Olmo, J. (2021) 'Volatility spillover between economic sectors in financial crisis prediction: Evidence spanning the great financial crisis and Covid-19 pandemic', *Research in International Business and Finance*, 57, p. 101402. doi: <https://doi.org/10.1016/j.ribaf.2021.101402>.
32. Guobin Chen, Zhiyong Jiang, M.M. Kamruzzaman. (2020). Radar remote sensing image retrieval algorithm

- based on improved Sobel operator, *Journal of Visual Communication and Image Representation*, Volume 71, 2020, 102720, ISSN 1047-3203 <https://doi.org/10.1016/j.jvcir.2019.102720>
33. Lahmiri, S. and Bekiros, S. (2020) 'Randomness, informational entropy, and volatility interdependencies among the major world markets: The role of the COVID-19 pandemic', *Entropy*, 22(8), p. 833. doi: 10.3390/E22080833.
  34. Lee, K. Y. M., Jais, M. and Chan, C. W. (2020) 'Impact of covid-19: Evidence from malaysian stock market', *International Journal of Business and Society*, 21(2), pp. 607–628.
  35. Liu, H. et al. (2020) 'COVID-19 Outbreak & Affected Countries Stock Markets Response', *International Journal of Environmental Research and Public Health*, 17(8), p. 2800. doi: <https://doi.org/10.3390/ijerph17082800>.
  36. Nguyen, D. T. et al. (2021) 'An assessment of how COVID-19 changed the global equity market', *Economic Analysis and Policy*, 69, pp. 480–491. doi: 10.1016/j.eap.2021.01.003.
  37. Nicola, M. et al. (2020) 'The socio-economic implications of the coronavirus pandemic (COVID-19): A review', *International Journal of Surgery*, 78(7), pp. 185–193. doi: 10.1016/j.ijsu.2020.04.018.
  38. Patrick Kirby and Collette Wheeler (2021) The global economic outlook in five charts, World Bank . Available at: <https://blogs.worldbank.org/voices/global-economic-outlook-five-charts> (Accessed: 24 April 2021).
  39. Peterson, O. & Thankom, A. (2020) 'Spillover of COVID-19: Impact on the Global Economy', s.l.: SSRN.
  40. Reuters (2020) 'TIMELINE - How the global coronavirus pandemic unfold \ Reuters'. [Online] Available at: <https://www.reuters.com/article/health-coronavirus-timeline-idUSL1N2GN04J> [Accessed 11 April 2021].
  41. Sansa, N. A. (2020) 'The Impact of COVID-19 on the Financial Markets: Evidence from China and USA'. *Research Journal of Social Science and Humanity*, 2(II).
  42. Shahzad, S. J. H. et al. (2021) 'Regime specific spillover across cryptocurrencies and the role of COVID-19', *Financial Innovation*, 7(1). doi: 10.1186/s40854-020-00210-4.
  43. Sharma, S. S. (2020) 'A Note on the Asian Market Volatility During the COVID-19 Pandemic', *Asian Economics Letters*, 1(2). doi: 10.46557/001c.17661.
  44. Statista Research Department (2021) 'Statista'. [Online] Available at: [www.statista.com](http://www.statista.com) [Accessed 26 April 2021].
  45. Takyi, P. O. and Bentum-Ennin, I. (2020) 'The impact of COVID-19 on stock market performance in Africa: A Bayesian structural time series approach', *Journal of Economics and Business*, p. 105968. doi: 10.1016/j.jeconbus.2020.105968.
  46. Topcu, M. and Gulal, O. S. (2020) 'The impact of COVID-19 on emerging stock markets', *Finance Research Letters*, 36, p. 101691. doi: 10.1016/j.frl.2020.101691.
  47. Umar, Z. and Gubareva, M. (2020) 'A time-frequency analysis of the impact of the Covid-19 induced panic on the volatility of currency and cryptocurrency markets', *Journal of Behavioral and Experimental Finance*, 28, p. 100404. doi: 10.1016/j.jbef.2020.100404.
  48. Wang, Y. et al. (2020) 'How Does COVID-19 Affect China's Insurance Market?', *Emerging Markets Finance and Trade*, 56(10), pp. 2350–2362. doi: 10.1080/1540496X.2020.1791074.
  49. Wei, Z. et al. (2020) 'Spillover effects of RMB exchange rate among B&R countries: Before and during COVID-19 event', *Finance Research Letters*, 37(Sep), p. 101782. doi: 10.1016/j.frl.2020.101782.
  50. Wójcik, D. and Ioannou, S. (2020) 'COVID-19 and Finance: Market Developments So Far and Potential Impacts on the Financial Sector and Centres', *Tijdschrift voor Economische en Sociale Geografie*, 111(3), pp. 387–400. doi: 10.1111/tesg.12434.
  51. World Bank (2020) The Global Economic Outlook During the COVID-19 Pandemic: A Changed World. Available at: <https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world> (Accessed: 11 April 2021).
  52. World Bank (2021) Global Economic Prospects. New York, Washington .
  53. Wu, D. D. and Olson, D. L. (2020) 'The Effect of COVID-19 on the Banking Sector', in *Pandemic Risk Management in Operations and Finance*, pp. 89–99. doi: 10.1007/978-3-030-52197-4\_8.
  54. Zhang, D., Hu, M. and Ji, Q. (2020) 'Financial markets under the global pandemic of COVID-19', *Finance Research Letters*, 36, p. 101528. doi: 10.1016/j.frl.2020.101528.
  55. Zoungrana, T. D., Toé, D. L. tan and Toé, M. (2021) 'Covid-19 outbreak and stocks return on the West African Economic and Monetary Union's stock market: An empirical analysis of the relationship through the event study approach', *International Journal of Finance & Economics*. doi: 10.1002/ijfe.2484. Bharat S. Rawal, Poongodi M., Gunasekaran Manogaran, and Mounir Hamdi. 2021. Multi-Tier Stack of Block Chain with Proxy Re-Encryption Method Scheme on the Internet of Things Platform. *ACM Trans. Internet Technol.* 22, 2, Article 41 (May 2022), 20 pages. <https://doi.org/10.1145/3421508>