# The Effect of COVID-19 Fear Sentiment on Banks' Performance in Emerging Markets

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## Abstract

The current situation of the COVID-19 pandemic is poking fear of falling sick, dying, and stigma. Urgent and timely understanding of explaining bank performance with a pandemic sentiment is needed, especially, the literature presented little evidence of this issue.

Hence, the researchers investigate the impact of the fear sentiment, measured by a Country Fear Index (CFI) on banks' performance daily since the onset of the crisis. In addition, we demonstrate the impact of investor assessment, measured through the price-to-book value ratio, on the banks' performance for 10 emerging markets, focusing on MENA and BRICS countries.

We find that the stock performance of banks in emerging markets counties was significantly driven by investors' irrational fear sentiment. The results reveal the impact significance of CFI on the performance of bank stocks, most notably on the risk side. Hence, results indicate that CFI can be used to predict bank stocks' risk during crises.

Keywords: banks' performance, country fear index, COVID-19, emerging markets, fear sentiment

*JEL Codes:* C33, G11, G12, G15.

# 1. Introduction

The world has survived many crises over the past 100 years, some of which were economic, sector-focused, or health-related. When a crisis has a spillover effect, the devastation can become sustainable for a long-term duration. The outbreak of a crisis can have a devastating impact on a country's economy in general and certain sectors in specific depending on its magnitude and duration.

The most notable economic and sectorial crises the world has suffered from include the Great Depression (1929-1939), the OPEC oil price shock (1973), the Japanese asset price bubble (1986-1992), the Asian financial crisis (1997), the Russian financial crisis (1998), the dot-com bubble (2000-2002), the Global Financial Crisis (GFC) (2008), the Greek crisis (2012), the oil price plummet (2014), Brexit (2016-2020), and the U.S.-China trade war (2018-2020). The most prominent world economic crisis in recent history has been the GFC which started in the United States. The cause of the GFC turned out to be "exogenous"; it spread around the world through international financial and economic connections (W *G*icik & Ioannou, 2020).

Over the same period, the world has suffered from health-related crises, the most notable of which are the Spanish flu (1918-1920), the HIV/AIDS (1981), severe acute respiratory syndrome (SARS) (2003), Avian influenza (2004), H1N1 influenza pandemic (2009), Middle East respiratory syndrome (MERS) (2012), Zika virus (2015), and more recently the coronavirus (COVID-19) (2019). Indeed, the ongoing COVID-19 pandemic, one of the biggest crises of modern times, is unprecedented in terms of impact on the global economy.

Since the onset of the COVID-19 pandemic in China, it has spilled over to the rest of the world. Global economic growth has been reduced as a result of lockdown measures adopted by world governments to contain the spread of the virus. Eventually, such measures had a more sustainable impact; weak labor markets resulted in dampened demand on one hand and hence spare capacity on the other hand. All this has translated into slower

economic growth. However, the impact was uneven across economic sectors globally, regionally, and locally. The divergence between sectors in their reaction to COVID-19 is more apparent when analyzing the stock performance of different markets.

The COVID-19 outbreak is an international pandemic that has taken the world by storm. This pandemic represents an un-prevented global macro-economic shock and the biggest test of the post-crisis financial system to date. It has pushed the global economy into a recession of uncertain proportion and duration. The COVID-19 pandemic has created significant disruptions in the economy and the financial sector, specifically banks, whether or not their banking stock performance and operations are deeply affected. These disruptions have resulted in a wide range of impacts on bank stocks' performance. In addition, emergencies during a pandemic influence investors' psychological and behavioral factor, which in turn will affect stock prices, according to the theory of behavioral finance (Ahmed and Ullah, 2013; Baker and Wurgler, 2006; Zouaoui, Nourigat, and Beer, 2011; Ranjan and Sood, 2019; Rashid, Fayyaz, and Karim, 2019; McGurk, Nowak, and Hall, 2019).

Indeed, one cannot ignore the human factor throughout history as psychology plays an important role in anchoring expectations as measured by investor sentiment. There is no consensus in the literature on the measurement of investor sentiment and most studies varied about the impact of fear sentiment. For example, Baker and Wurgler (2006) and Ahmed and Ullah (2013) used a composite index of sentiment that standardize some proxies that are commonly employed for measuring investor sentiment, and their results prove that the investor's sentiment has an impact on stock returns. While Irresberger, Muhlnickel, and Weiß (2015) used three different measures of crisis sentiment such as the FEARS index, they assert that the performance of international banks was driven by investors' irrational market-wide crisis sentiment.

In this context, Bouri et al., 2018 and Zhu et al., 2019 pointed out that the fear index is a good predictor of stock performance in emerging markets of BRICS and the U.S. stock market. While Salisu and Akanni (2020) constructed the Global Fear Index (GFI) for COVID-19 and pointed to the application of this Index to predict stock returns in developed and emerging markets of OECD and BRICS, respectively. On the other hand, most of the studies in 2020 delved into and focused on the impact of COVID-19 on stock markets and revealed that there are significant differences among stock market indices and the significant impact of the pandemic on stock markets (for example Topcu and Gulal; Zhang, Hu, and Ji; Yan et al.; and He et al; among others).

To the best of our knowledge, only a few papers have studied the impact of fear sentiment for the epidemic on bank performance. This study has selected emerging markets that have comparatively limited resources to deal with the impacts of the epidemic and thus are foreseen to suffer worst. Therefore, our focus here is on banks in 10 emerging markets in MENA and BRICS region during the period from January 1, 2020, through December 31, 2020.

Our findings indicate the significant impact of CFI on bank performance, most notably on the risk side. Hence, results reveal that CFI can be used to predict bank stocks' risk (more than return) during health-related crises. The paper is organized as follows: after this introduction, Section two presents the problem statement, Section three reviews research literature that has concerned with "investor sentiment" and "the impact of COVID-19 pandemic". Section four illustrates the research hypotheses; Section five is a description of the data, it explains how to measure research variables, and investigates how to test the research hypotheses; Section six is for empirical work, presenting results, discussing how these results answer research questions and provide a robustness check. Section seven provides a conclusion and recommendation for future work.

#### 2. The Problem Statement

By previous literature that we show in section 3, since the outset of the COVID-19 pandemic in China, it has spilled over to the rest of the world. Global economic growth has been reduced because of lockdown measures adopted by world governments to contain the spread of the virus. The pandemic has created significant disruptions in the economy and the financial sector, specifically banks, whether or not their banking stock performance and operations are deeply affected.

These disruptions have resulted in a wide range of impacts on bank stocks' performance. In addition, emergencies during a pandemic influence investors' psychological and behavioral factor, which in turn may affect stock prices, according to the theory of behavioral finance (Ahmed and Ullah, 2013; Baker and Wurgler, 2006; Zouaoui, Nourigat, and Beer, 2011; Ranjan and Sood, 2019; Rashid, Fayyaz, and Karim, 2019; McGurk, Nowak, and Hall, 2019). Indeed, one cannot ignore the human factor throughout history as psychology plays an important role in anchoring expectations as measured by investor sentiment.

The banking industry is one of the major industries in Emerging markets, so understanding how the banks' stock

performance reacts to fear sentiment for COVID-19 impact is very important for investors and financial analysts to assert can support the idea of considering investments in bank stocks are safer than other investments during the pandemic, maybe outcome to the special packages offered by governments and central banks to banks to cope with covid-19.

Regarding the COVID-19 pandemic, some studies focused on news-based sentiments (Salisu and Vo, 2020; Haroon and Rizvi, 2020a). Simultaneously, other research concentrated on studying relative increase or decrease in several cases (Haroon and Rizvi, 2020b) or other measures (Baig et. al., 2021; Huynh et. al., 2021). While some little literature as regards banking performance has been interested in explaining bank stock performance with crisis sentiment during 2004 to 2012, using three different market- and firm-level indices which are computed using the Google Trends analytics tool (Irresberger, Mühlnickel, and Weiß 2015). They employ the General Crisis Sentiment Index (CSI) and the FEARS index to capture market-wide crisis sentiment but use the Crisis Sentiment Index (CSI) to capture individual crisis sentiment.

Given the gaps in existing literature, this paper sets out to tackle an issue that remains largely unaddressed. The current study focuses on an understanding of explaining bank stock performance with a fear sentiment for COVID-19. Also, the researchers trying the interpretation of the following graphs that show the different impacts of the fear sentiment related to the COVID-19 epidemic on the bank stock performance in emerging markets, as shown in figure 1 & 2:



Figure 2. CFI vs. Annualized Stock Risk (Percentage) by Country

Source: Prepared by Researchers via https://ourworldindata.org/coronavirus-data

As far as we are known, the literature presented little evidence of this issue. This study has selected emerging markets that have comparatively limited resources to deal with the impacts of the epidemic and thus are foreseen to suffer worst. Therefore, our focus here is on banks in 10 emerging markets in MENA and BRICS region

during the period from January 1, 2020, through December 31, 2020.

This paper empirically investigates the relationship between the fear sentiment for COVID-19 and bank performance since the onset of the crisis. We employ a Country Fear Index (CFI) according to Salisu and Akanni (2020). This proposed index is used to measure the fear sentiment of the COVID-19 pandemic. CFI helps to measure fear sentiment concerning the extent, intensity, and effect of health crises, like the COVID-19 pandemic.

In addition, the researchers demonstrate the impact of investor assessment, measured through the price-to-book value (P/BV) ratio on the performance of those banks during 2020. Our paper holds significance in the sense that the proposed index to measure fear sentiment has been tested as a good predictor of bank performance in emerging markets. Therefore, considering the behavioral side will help in understanding the impact of the fear sentiment for the pandemic on banks' performance since the onset of the crisis. In brief, this paper tries to answer the following questions:

- Does fear sentiment for COVID-19 affect banking performance?
- Does investor assessment affect banking performance?

Overall, our sample includes 18,300 observations in 10 countries. We considered two groups of control variables, which included bank characteristics (e.g., the logarithm of a bank's total assets and a bank stock's turnover ratio) in addition to macroeconomic variables (e.g., GDP growth, inflation, and policy rate).

This paper empirically investigates the impact of fear sentiment as measured by the proposed Country Fear Index (CFI) on banks' stock return and risk as measured by (Price t - Price t-1) / Price t-1 and Standard deviation of daily stock returns, respectively. In addition, the researchers demonstrate the impact of investor assessment (IV), measured by the price-to-book value (P/BV) ratio on the performance of those banks during 2020.

# 3. Literature Review

This section tries to present some of the previous work that has been conducted in two fields: 1) investor sentiment and 2) the impact of the COVID-19 pandemic. <u>Regarding investor sentiment</u>, the following studies attempt to explain variation in returns based on behavioral factors.

Baker and Wurgler (2006) introduce a composite index of investor sentiment, as measured annually from 1962 to 2001. The sentiment proxies that capture the common component in the six proxies include the closed-end fund discount, NYSE share turnover, the number and average first-day returns on IPOs, the equity share in new issues, and the dividend premium. Their results reveal that the cross-section of future stock returns is conditional on beginning-of-period proxies for the sentiment.

Ahmed and Ullah (2013) use the sentiment index that constitutes five proxies for measuring investor sentiment including dividend premium, initial public offerings (IPO), first-day return, IPO volume, and trading volume. They investigate whether investors' sentiments had an impact on the return of the Karachi Stock Exchange (KSE) over the period from the first quarter of 2001 to the last quarter of 2012. Their results reveal that the investor sentiments were proven to have a positive and significant coefficient that indicates its impact on KSE returns. While Irresberger, Muhlnickel, and Wei $\beta$ (2015) represent three different measures of crisis sentiment such as the FEARS index, they assert that the performance of international banks was driven by investors' irrational market-wide crisis sentiment.

Some studies used the sentiment to measure risk and predict stock market return and volatility. Borovkova et al. (2017) present the proposed sentiment-based systemic risk indicator to measure systemic risk from the media sentiment viewpoint through collecting the sentiment in the news about systemic financial institutions and found that indicator confirms an early cautionary signal of systemic distress. While Bourg et al. (2018) and Zhu et al. (2019) examine that the fear index is a good predictor of stock performance in emerging markets of BRICS and the U.S. stock market. Meanwhile, Salisu and Akanni (2020) introduce the application of a Global Fear Index (GFI) for COVID-19 to predict stock returns in developed and emerging markets of OECD and BRICS, respectively.

Prior work suggests a global fear index for epidemic and indicates that index is a good predictor of stock returns. There are no definitive or uncontroversial measures about fear sentiment, however. Our study, therefore, contributes to the utilization of the Country Fear Index (CFI) which is different from GFI in three aspects: (1) CFI is calculated for each country, not for the world; (2) we measured CFI for certain MENA and BRICS countries; and (3) we measured its impact, not only on stock returns but also on stock risks. CFI helps measure fear sentiment concerning the extent, intensity, and effect of health crises, like the COVID-19 pandemic.

<u>Regarding the impact of the COVID-19 pandemic</u>, it seems to be an international pandemic that has taken the world by storm. It is foreseen that the COVID-19 pandemic has created significant disruptions in the economy and the financial sector, specifically banks, whether or not their banking stock performance and operations are deeply affected. Most of the following studies delved into and focused on the impact of COVID-19 on stock markets and revealed that there are significant differences among stock market indices and the significant impact of the pandemic on stock markets. Espinosa-M éndez and Arias (2020) address how pandemics can impact Oceania's financial markets and found evidence that the COVID-19 increases herding behavior in the Australian stock market.

While Topcu and Gulal (2020) argue the impact of coronavirus on emerging stock markets over the period March 10 until April 30, 2020. They found the negative impact of the pandemic on emerging stock markets has progressively fallen and begun to taper off by mid-April. Zhang, Hu, and Ji (2020) try to investigate the impact of the COVID-19 pandemic on financial markets, as applied on a sample of 12 countries (US, Italy, China Mainland, Spain, Germany, France, United Kingdom, Switzerland, Netherlands, Japan, South Korea, and Singapore), since the onset of the pandemic up to 27 marches, 2020. Their results indicate that global financial market risks have increased significantly in response to the COVID-19 epidemic.

In this context, Yan et al. (2020) illustrates the effects of COVID-19 on the stock market and investing strategies. The authors conclude that markets often will respond adversely to these outbreaks in the short run but that in the long run, markets ultimately rectify themselves and increase. He et. al. (2020) investigates the impact of COVID-19 on stock prices across different sectors of Chinese industries. This has been conducted by event study methodology to delve into the different changes in the stock prices of Chinese various industries during the COVID-19 pandemic to empirically study the market performance and response trends of these industries.

To the best of our knowledge, only a few papers have studied the impact of fear sentiment for the epidemic on bank performance. Hence, this paper presents two contributions. First, the researchers employ a Country Fear Index (CFI) to measure the fear sentiment of the pandemic for 10 emerging markets, focusing on MENA (Egypt, Qatar, KSA, Turkey, and UAE) and BRICS (Brazil, Russia, India, China, and South Africa) countries. Second, the researchers investigate the impact of the fear sentiment for the pandemic on banks' performance daily since the onset of the crisis. In addition, we demonstrate the impact of investor assessment, measured through the price-to-book value (P/BV) ratio, on the banks' performance during 2020.

<u>Compared with previous work</u>, most studies have focused on the assessment of investor sentiment and effects on the stock market, while the current study concerns fear sentiment for epidemic and effects on banks' performance.

# 4. Research Hypotheses

According to the literature review and problem statement discussed above, there are two hypotheses formulated as follows:

 $H_1$ : The stock performance of banks in emerging markets counties is significantly driven by investors' irrational fear of pandemic sentiment.

 $H_2$ : investor assessment during COVID-19 affects the stock performance of banks in emerging markets countries

Hypothesis testing criteria:

H<sub>O1</sub>: There is no significant effect of fear sentiment for COVID-19 on bank performance.

H<sub>A1</sub>: There is a significant effect of fear sentiment for COVID-19 on bank performance.

H<sub>02</sub>: The is no significant effect of investor assessment on bank performance.

H<sub>A2</sub>: There is a significant effect of investor assessment on bank performance.

# 5. Research Methodology

## 5.1 Research Sample and Method

To examine the impact of fear sentiment from the COVID-19 pandemic, our emerging markets analysis includes the following 10 counties: MENA (Egypt, Qatar, KSA, Turkey, and UAE) and BRICS (Brazil, Russia, India, China, and South Africa). The above countries are chosen as the most representative emerging markets regionally (MENA) and globally (BRICS). Our daily data (covering the period from January 1, 2020, to December 31, 2020) for COVID-19 reported cases and deaths by country and bank stocks' prices and control

variables were collected from the World Health Organization (WHO) reports<sup>1</sup> and Bloomberg, respectively. We determined the top five largest banks by traded value in each country. Overall, our sample included 18,300 observations in 10 countries. This paper used quantitative methods using data panel time series (data panel), and the ordinary least squares method (OLS) to test the regression model.

#### 5.2 Description of Research Variables

# Fear Sentiment for COVID-19 and investor assessment

To examine the impact of fear sentiment from the COVID-19 pandemic in emerging markets daily during 2020 (from January 1, 2020, through December 31, 2020), the researchers illustrate the proposed index to measure fear sentiment has been tested as a good predictor of bank performance in emerging markets. On this line, considering the behavioral side will help in the best understanding of explaining bank stock performance. For instance, Bouri et al. (2018) and Zhu et al. (2019) pointed out that the fear index is a good predictor of stock performance in emerging markets of BRICS and the U.S. stock market.

In line with previous literature, which has referred to the interest in the fear sentiment of investors that is measured by the volatility index (VIX) (described as the Chicago Board Options Exchange (CBOE)) as an indicator for investors' average fear level. For instance, Gassen and Markarian (2009) investigate its impact on the earnings management behavior of U.S. companies from 1986 to 2005.

Meanwhile, Salisu and Akanni (2020) concludes that a Global Fear Index (GFI) for COVID-19 is a better predictor of fear in the stock market than the fear index that is measured by the Volatility Index (VIX) as published by (CBOE) at least during the epidemic period. They pointed to the application of GFI to predict stock returns in developed and emerging markets of OECD and BRICS, respectively. CFI helps measure fear sentiment concerning the extent, intensity, and effect of health crises, like the COVID-19 pandemic.

Building on this idea, this study uses the country fear index as a measure of fear sentiment for the COVID-19 pandemic. This study contributes to the utilization of the Country Fear Index (CFI) which is different from GFI in three aspects: (1) CFI is calculated for each country, not for the world; (2) we measured CFI for certain MENA ad BRICS countries; ad (3) we measured its impact, not only on stock returns but also on stock risks.

The utilized CFI is a complex of two factors; reported cases and deaths since the onset of the pandemic early 2020. According to Salisu and Akanni (2020), The  $CFI_t$  index can be illustrated as follows:

i. Reported Cases Index  $RCI_t$ ):

$$RCI_{t} = (\sum_{i}^{N} C_{i,t}) / \sum_{i}^{N} (C_{i,t} + C_{i,t-14}) \times 100$$
(1)

Where  $\sum_{i}^{N} C_{i,t}$  refers to the total number of new cases for health-related crises in the last day by country.  $C_{i,t-14}$  indicates the number of COVID-19 reported cases in the preceding 14 days for each country.

ii. Reported Death Index  $(RDI_t)$ :

$$RDI_{t} = (\sum_{i}^{N} D_{i,t}) / \sum_{i}^{N} (D_{i,t} + D_{i,t-14}) \times 100$$
<sup>(2)</sup>

Where  $\sum_{i}^{N} D_{i,t}$  presents the total number of new deaths for health-related crises in last day by country.  $D_{i,t-14}$  refers to the number of COVID-19 reported deaths in the preceding 14 days for each country.

iii. Country Fear Index  $(CFI_t)$ 

$$CFI_t = (RCI_t + RDI_t)/2 \tag{3}$$

Furthermore, the researchers demonstrate the impact of investor assessment (IV), measured by the price-to-book value (P/BV) ratio on the performance of those banks during 2020.

#### Bank Stock performance

This paper empirically investigates the impact of fear sentiment as measured by the utilized Country Fear Index (CFI) on banks' stock return and risk as measured by (Price t - Price t-1) / Price t-1 and volatility of daily stock returns, respectively.

#### Control variables

Banks play a vital role in many operations in the economies. On the other hand, many economic factors and bank characteristics can affect banks' performance. Here, five important determinants are taken to identify their impact on banks' performance concerning economic factors: GDP growth, inflation, and policy rate, while about

<sup>&</sup>lt;sup>1</sup> Available date at this link: https://ourworldindata.org/coronavirus-data.

available determinants of banks characteristics: a bank's total assets and a bank stock's turnover ratio.

In this context, the macroeconomic variables are reflecting the economic environment that affects the performance of banks. GDP growth measures the total economic activities in a country and it may affect the performance of banks. Particularly, for developing countries, the inflation rate and interest rate have a significant effect on banks' performance, but the relationship between them can be positive or negative.

Therefore, we considered two groups of control variables, which included bank characteristics (e.g., the logarithm of a bank's total assets and a bank stock's turnover ratio) in addition to macroeconomic variables (e.g., GDP growth, inflation, and policy rate).

Туре	Variable	Abbreviation	Measurement	Comment
Indepe	Country Fear Index	CFI <sub>t</sub>	The proposed CFI is a complex of two factors; reported cases and deaths since the onset of the pandemic early 2020.	To measure fear sentiment
ndent	P/BV	P/BV	Daily stock price divided by the bank's book value.	To measure investor assessment
Dej	Bank stock return	Return	Daily change in stock price.	(Price t - Price t-1) / Price t-1
pendent	Bank stock risk	Risk	volatility of daily stock returns.	volatility of daily stock returns
	Bank stock turnover	TOR	Ratio of daily trading volume to shares outstanding.	Ratio of annual trading volume to shares outstanding.
0	Total Assets	size	Natural logarithm of a bank's total assets extrapolated daily based on beginning and end of each quarter.	Natural logarithm of a bank's total assets.
Control	GDP Growth*	GDP	Annual change in quarterly GDP of the previous quarter.	Annual real GDP growth rate (in %).
	Inflation	Inf.	Log of the change in each month's annual inflation.	Log of the annual change of the GDP deflator.
	Policy Rate	PR	Log of the daily change in "policy rate (i.e., interest rate)".	

Table 1. Description of variables used in the regression model

Source: Prepared by Researchers.

\* Data are for annual % change in quarterly GDP of the previous quarter vs. a year before. It is constant for each quarter.

#### 5.3 Research Model

The model and approach used in this study were found in the established existing literature: Three basic core panel OLS regression equation models were, then, proposed:

Using Panel Regression Model,<sup>2</sup> typically, the data set has cross-sectional observations among different banks and re-sampled at a certain period of time for each country, so a panel regression will be most applicable to represent such a linear relationship through two main equations for forecasting Stock Return, and Stock Risk, and can written as follows:

$$Stock \widehat{Ret}urn_{it} = Constant + \beta_1 CFI_t + \beta_2 P/BV_{it} + \beta_3 TOR_{it} + \beta_4 Log(Size)_{it} + \beta_5 GDP_t + \beta_6 Inflation Rate_t + \beta_7 Policy Rate_t + \varepsilon_{it}$$
(1)

 $Stock Risk_{it} = CConstant + \beta_1 CFI_t + \beta_2 P/BV_{it} + \beta_3 TOR_{it} + \beta_4 Log(Size)_{it} + \beta_5 GDP_t + \beta_6 Inflation Rate_t + \beta_7 Policy Rate_t + \varepsilon_{it}$ (2)

<sup>&</sup>lt;sup>2</sup> The Panel Regression depends on Pooled OLS Regression Model and Fixed Effect Regression Model and comparing between them for the beat fitted model using F-test.

Where:  $Stock Return_{it}$  and  $Stock Risk_{it}$  refer, respectively, to the return and risk of bank stock *i* on day *t*.  $P/BV_{it}$  denotes the ratio of the daily stock price to the bank's book value. *i* refers to a certain bank in each country. *i* is the bank number in a certain country, but *t* refers to a certain day within 2020.  $CFI_t$  refers to the Country Fear Index for COVID-19.

 $TOR_{it}$  indicates a bank's stock turnover ratio (daily traded volume divided by the bank's outstanding number of shares, while  $Log(Size)_{it}$  refers to the logarithm of a bank's total assets; as control variables.  $GDP_t$  is the annual growth rate of a country's quarterly gross domestic product. Inflation Rate<sub>t</sub> and Policy Rate<sub>t</sub> denote a country's inflation rate and interest rate, respectively.

#### 6. Empirical Results and Discussion

A descriptive statistic is used in this study to describe the object under study through data samples that have been processed by statistical test tools. The results of the descriptive statistical test are shown in table 2.

## 6.1 Descriptive Statistics Analysis

		Model 1			
Ν	Mean	Median	Std. Dev.	Maximum	Minimum
9476	0.000631	0.000000	0.026785	0.580863	-0.561141
9476	0.020458	0.015659	0.016261	0.231906	0.003546
9476	43.519320	48.285500	25.457360	100.000000	0.000000
9476	1.278761	1.000700	0.949467	7.256300	0.139100
9476	0.005670	0.002081	0.014268	0.537647	0.000000
9476	11.172260	11.317640	1.901964	15.410630	4.359270
9476	0.003643	-0.002541	0.083444	0.225742	-0.225700
9476	0.033444	0.032000	0.043275	0.146000	-0.040500
9476	0.045095	0.040000	0.031687	0.170000	0.006000
	N 9476 9476 9476 9476 9476 9476 9476 9476	N         Mean           9476         0.000631           9476         0.020458           9476         43.519320           9476         1.278761           9476         0.005670           9476         11.172260           9476         0.003643           9476         0.033444           9476         0.045095	Model 1           N         Mean         Median           9476         0.000631         0.000000           9476         0.020458         0.015659           9476         43.519320         48.285500           9476         1.278761         1.000700           9476         0.005670         0.002081           9476         0.003643         -0.002541           9476         0.033444         0.032000           9476         0.045095         0.040000	Model 1           N         Mean         Median         Std. Dev.           9476         0.000631         0.000000         0.026785           9476         0.020458         0.015659         0.016261           9476         43.519320         48.285500         25.457360           9476         1.278761         1.000700         0.949467           9476         0.005670         0.002081         0.014268           9476         11.172260         11.317640         1.901964           9476         0.003643         -0.002541         0.083444           9476         0.033444         0.032000         0.043275           9476         0.045095         0.040000         0.031687	NMeanMedianStd. Dev.Maximum94760.0006310.0000000.0267850.58086394760.0204580.0156590.0162610.231906947643.51932048.28550025.457360100.00000094761.2787611.0007000.9494677.25630094760.0056700.0020810.0142680.537647947611.17226011.3176401.90196415.41063094760.003643-0.0025410.0834440.22574294760.0334440.0320000.0432750.14600094760.0450950.0400000.0316870.170000

 Table 2. Descriptive Statistics for 10 countries

Source: Outputs of data processing using EViews 10.

Table 3. Descriptive Statistics for MENA and BRICS Countries

Model 2													
Emerging			Ν	IENA					В	RICS			
Markets													
Variable	N	Moon	Media	Std.	Maxi	Mini	N	Maan	Media	Maxi	Mini		
variable	19	Witcall	n	Dev.	mum	mum	1	Wittan	n	Dev.	mum	mum	
Doturn	48	0.000	0.000	0.020	0.1493	-0.100	46	0.000	0.000	0.031	0.5808	-0.561	
Ketui II	42	678	000	851	27	394	34	582	000	827	63	141	
Dick	48	0.017	0.013	0.010	0.0703	0.0035	46	0.023	0.018	0.019	0.2319	0.0044	
KISK	42	120	575	700	02	46	34	945	854	933	06	50	
CEI	48	42.09	46.38	25.10	100.00	0.0000	46	45.00	50.00	25.73	100.00	0.0000	
	42	4690	7610	4270	0000	00	34	7890	0000	9730	0000	00	
D/DV	48	1.272	1.138	0.728	3.4141	0.1875	46	1.285	0.875	1.135	7.2563	0.1391	
F/DV	42	670	100	317	00	00	34	126	100	474	00	00	
тор	48	0.006	0.000	0.016	0.3602	0.0000	46	0.005	0.003	0.0119	0.5376	0.0000	
IUK	42	057	803	140	91	00	34	265	512	93	47	01	
SIZE	48	10.78	11.148	1.169	12.498	8.0560	46	11.577	12.21	2.376	15.410	4.3592	
SIZE	42	4130	330	815	150	77	34	820	5050	186	630	70	
CDB	48	0.025	-0.002	0.078	0.2257	-0.069	46	-0.019	-0.002	0.081	0.0753	-0.225	
GDF	42	890	541	962	42	900	34	602	700	654	00	700	
Tuf	48	0.028	0.012	0.057	0.1460	-0.040	46	0.038	0.033	0.018	0.0761	-0.005	
1111.	42	692	000	413	00	500	34	409	000	370	00	000	
DD	48	0.048	0.025	0.042	0.1700	0.0060	46	0.041	0.040	0.010	0.0650	0.0200	
ŕĸ	42	721	000	865	00	00	34	306	000	266	00	00	

Source: Outputs of data processing using EViews 10.

# 6.2 The Panel Regression Results and Hypotheses Testing

To investigate impact of fear sentiment of the COVID-19 pandemic and investor assessment, this study used  $CFI_t$ , and P/BV ratio, respectively. A panel regression model provides the following results:

Table 4.	Effect of fear	sentiment for	COVID-19 on	banks' stock return	m and risk in	Emerging Markets

	Mod	el 1	Model 2						
Emerging Markets	ALL Coun	tries (10)	MENA	BRICS	MENA	BRICS			
Variables The effect of	Stock Return	Stock Risk	Stock	Return	Stock	Risk			
dependent variable									
Constant	-0.015156	0.619099	-0.043710	-0.179120	0.862435	0.898815			
Constant	(0.0757)	(0.0316) ***	(0.0945)	(0.1351)	(0.0372) ***	(0.0539) ***			
CEL	0.000066	0.000075	0.000103	0.000010	0.000037	0.000156			
	(0.0000) ***	(0.0000) ***	(0.0000) ***	(0.0000)	(0.0000) ***	(0.0000) ***			
<b>D/DX</b> /	0.006037	-0.013905	0.021354	0.002566	-0.017900	-0.012828			
F/DV	(0.0012) ***	(0.0005) ***	(0.0026) ***	(0.0015) *	(0.0010) ***	(0.0006) ***			
TOP	0.027496	0.216806	0.287131	-0.304062	0.007314	0.474743			
IOK	(0.0247)	(0.0108) ***	(0.0257) ***	(0.0435) ***	(0.0107)	(0.0177) ***			
St	0.000415	-0.052750	0.000928	0.016640	-0.076427	-0.077194			
Size	(0.0068)	(0.0028) ***	(0.0088)	(0.0117)	(0.0035) ***	(0.0047) ***			
CDB	-0.000710	0.052020	-0.001601	0.016047	0.038358	0.030391			
GDP	(0.0050)	(0.0021) ***	(0.0088)	(0.0070) **	(0.0034) ***	(0.0028) ***			
If	0.029611	-0.051710	0.030434	-0.001343	0.030890	-0.149420			
1111.	(0.0207)	(0.0087) ***	(0.0196)	(0.0451)	(0.0077) ***	(0.0181) ***			
DD	-0.012773	0.121108	0.006465	-0.356721	-0.042699	0.771047			
РК	(0.0332)	(0.0139) ***	(0.0335)	(0.0790) ***	(0.0132) ***	(0.0317) ***			
<b>R</b> -squared	0.7286%	41.5023%	4.6886%	1.9724%	28.7082%	50.3621%			
Adjusted R-squared	0.1489%	41.2351%	4.0743%	1.3335%	28.3472%	50.1102%			
S.E. of regression	0.026765	0.012677	0.020421	0.031614	0.009071	0.014354			
F-statistic	1.256974	155.3221	7.632702	3.08714	79.52409	199.9417			
Prob(F-statistic)	0.096049	0.000000	0.000000	0.000000	0.000000	0.000000			

**Notes:** Each cell contains the estimated parameters, with Std. Error between brackets, where \* denotes p-value of 10%, \*\* denotes 5% and \*\*\* denotes 1%

For the whole sample, results support the significance of  $CFI_t$ , and P/BV effects on banks' stock risk in all countries, with explanation power of 41.2351%. But findings provide the significance of  $CFI_t$ , and P/BV effects on banks' stock return in all countries, with explanation power of 0.1489%.

When splitting the whole research sample into 2 sub- samples, results support the effects of  $CFI_t$ , and P/BV on banks' stock risk in MENA and BRICS countries with explanation power of 28.3472%, and 50.1102%, respectively. R2 has been increased from 41.2351% to 50.1102% and this may be due to the homogeneity of the research sample. Besides, findings provide the significance of  $CFI_t$ , and P/BV effects on banks' stock return in

MENA and BRICS countries, with explanation power of 4.0743%, and 1.3335%, respectively.

So, for the first and second hypothesis, the null hypothesis is accepted and the alternative one could be rejected. We find that the stock performance of banks in emerging markets counties was significantly driven by investors' irrational fear of pandemic sentiment. Our empirical analysis shows that irrational fear sentiment towards epidemic leads some investors to devaluate bank stocks irrespective of the special packages offered by governments and central banks to banks to cope with covid-19.

Our findings indicate the negative impact of the fear sentiment of the COVID-19 pandemic since its outbreak on the return of banks' stocks in certain markets. The present results show that the risk of bank stocks has increased in response to the unprecedented pandemic. The results reveal the significant impact of CFI on banks' Performance, most notably on the risk side. Hence, results indicate that CFI can be used to predict bank stocks' risk (more than return) during health-related crises.

## 6.3 Robustness Check for Endogeneity

In this study, we conducted a number of robustness tests to ensure that the results were strong against alternative empirical specifications and possible biases. To check the robustness of the results, model diagnostics tests were performed, which proved that the impact significance of CFI on the performance of bank stocks, most notably on the risk side. This paper holds significance in the sense that the proposed index to measure fear sentiment has been tested as a good predictor of bank stocks' risk in emerging markets. Therefore, considering the behavioral side will help in the best understanding of financial institutions.

A Robustness check has been conducted to investigate the country effect, where we consider the null hypothesis H<sub>0</sub>:  $\beta = 0$  versus alternative hypothesis Ha:  $\beta \# 0$ , where  $\beta$  is the regression coefficient of the following functions:

 $Stock Return_{it} = Constant + \beta_1 CFI_t + \beta_2 control variables + \beta_3 Egypt + \beta_4 Qatar + \beta_5 KSA + \beta_6 Turkey + \beta_7 UAE + \beta_8 Brazil + \beta_9 Russia + \beta_{10} India + \beta_{11} China + \beta_{12} South Africa + \varepsilon_{it}$ (3)

 $Stock \ \widehat{Return}_{it} = Constant + \beta_1 P / BV_{it} + \beta_2 \ control \ variables + \beta_3 Egypt + \beta_4 Qatar + \beta_5 KSA + \beta_6 Turkey + \beta_7 UAE + \beta_8 Brazil + \beta_9 Russia + \beta_{10} India + \beta_{11} China + \beta_{12} South Africa + \varepsilon_{it}$ (4)

 $Stock Risk_{it} = Constant + \beta_1 CFI_t + \beta_2 control variables + \beta_3 Egypt + \beta_4 Qatar + \beta_5 KSA + \beta_6 Turkey + \beta_7 UAE + \beta_8 Brazil + \beta_9 Russia + \beta_{10} India + \beta_{11} China + \beta_{12} South Africa + \varepsilon_{it}$ (5)

 $Stock Risk_{it} = Constant + \beta_1 P/BV_{it} + \beta_2 control variables + \beta_3 Egypt + \beta_4 Qatar + \beta_5 KSA + \beta_6 Turkey + \beta_7 UAE + \beta_8 Brazil + \beta_9 Russia + \beta_{10} India + \beta_{11} China + \beta_{12} South Africa + \varepsilon_{it}$ (6)

Country effect has been considered, where KSA and UAE denote dummies of Saudi Arabia, United Arab Emirates, respectively. Results do support the evidence about country effect of any of the above-shown dummies.

#### Descriptive Statistics analysis

# Table 5. Descriptive Statistics analysis for country

	Egypt				Q	icat .			Sen	S Arobia		Turkey				UAE				
Voriable	Mein	Mathema	Malana	hal. Der.	Mena	Meximum	Mainen	ball Dev.	Mean.	Matinum	Makeria	Sol. Der.	Men	Masterne	Malerce	Std. Dvo	Mean	Mediates	Misimus	Inf. Dec
Renn	4.049288	0.166238	4.67101	8.018623	0.000948	0.075879	4.209999	6.036625	9.690913	6.808738	4164394	0.007488	0.001294	1.09940	4.(6%8)	0.024613	6.600.602	6340327	-0.100000	6,10,028
Tek	4.827291	834895	0.0069416	4.966032	0.01342*	0.042204	6.094613		0.01.0403	0.044114	8.803546	0.009636	6.021849	\$24879	6.808778	0.068811	0.0134684	6.876242	1.00518	0.012623
en,	47,539,548	210.000000	0.000000	24,451888	14.065773	100.000000	0.000008	13.914010	45,819440	100.008000	8.00000	13 903149	45.14630	100.00000	6.000268	38.668760	41.1862*0	180.000840	1.010300	18.3 (44)
PBL	3.841761	2.487999	8.374788	4.863525	Larset	2.481200	8.851594	6.535559	1.761618	2-414108	6.782688	0.689621	8.45564	8,374768	8.137598	9.161284	1.098764	1,497295	0.846190	8.242841
TOB.	1.004147	0.018011	0.000938	8.005444	0.069892	0.097606	6.000033	8.009782	9.092637	6.659745	6.000073	0.063411	0.0263.02	0.398295	0.002738	0.025244	6.000859	8.8/2776	6.990039	KONERTH
107	LINKOLE	18.177999	8.004977	1.379529	18,768530	12.488100	8.654545	8.933783	11.142500	11.848728	16.487588	6.488101	11.396698	11.447928	11.061210	1112463	11.389540	12.46803	10.406828	1494331
GDP	6.845172	0.085796	0.001500	8.437349	-0.025628	4.440406	-8.942099	6.326607	4.461419	4.803968	10.043986	9.024838	0.3 ###83	0,209740	8.832633	0.090285	-8-802640	4.002543	4.80545	K-0056-01
14	8.834182	0.072000	+3-000	*#1298	-40036403	4,844516	4.6466495	\$403972	0.03 (0.64	0.862800	8.000000	8.033982	\$123112	4.1.06989	8.309.468	9.8593388	4.828918	4.01,000	4.427386	9.004464
10	1.09627	0.122800	0.662606	8.81341L	8.827878	0.042636	6.626968	-	9.023462	6.822506	4.410049	9,08,4839	8.392599	8.176968	1.012748	0.022734	8.699215	8.828968	8.006200	0.066183
										_										-

520000			50						0.52%				A2535391591							
		Br	anil			Re	rtitak			1	ladis		China				South Africa			
Varieble.	Mem	Madatan	Minimum	Ball Der.	Mena	Mainers	Malaras	Sal. Des.	Mara	Maximum	Mairos	tod. Dwy.	Mein	Missimum	30.4.0	lad. Dev.	Minie	Mashama	Maines	fed. Der
Rents	4.801702	8.371240	-8.1889.96	6.010075	0.001240	8.138998	424400	0.028284	6.005387	1.791980	-0.90343	0.049830	6.806418	9.912027	4.072333	0.054397	0.061254	0.401580	-0.219214	8,94175
Risk	0.826748	8.892647	1.120948	8.817149	9.414791	8.046876	8.865494	8,039829	8.828423	0.271706	0.007620	0.028967	9.812840	8.827437	9.004409	0.0881129	0.039931	8.337477	8.807(08	8.02916
c#1,	48.073590	100.000004	1.000004	26,993338	47,891668	100.000010	8.800009	24.100760	46,895199	201.00000	8.808085	14.616400	37.942848	190.000000	8.900089	26.747790	48.442709	114.00000	8.908080	28.01049
180	1.452548	2.063489	6.614208	8.440039	8,288523	1.267588	0.214209	8,264446	1.074570	4,670400	8.139100	114039	6.963879	1,006080	6.454244	0.374(15	1.696483	7.196300	6274380	1.94809
108	0.847908	8.859621	0.003917	8.00397	6.002.68	8.985(67	E-000041	8,060677	1.009527	9,827647	6.00179	0.02.0489	sciencies.	0.026429	1.00234	0.062834	0.063456	0.009688	6.800061	8.049324
size	31.040406	12.814128	8.293308	1.494748	#373546	11.012300	4.384279	3,074829	11.475346	13.30668	16.432938	0.051323	14.000000	18-0469	13.246839	0.487610	141198844	11.999130	6.695946	Lasers
GDP	-8.825448	8.815+81	-4.209000	8.848742	-1.029794	s.missipe	-4.119101	8.047138	.8.035401	0.075280	-8.235700	8.134636	* #18218	4.45540	-0.0630000	0.049913	-8.637996	0.057939	-4.348099	8-08172
Set.	6,603419	6.040000	0.41804W	1.009142	8.854067	0.040000	6.812000	0.067685	0.006353	0.076390	8.845900	0.000116	8.034628	8.954000	-0.067000	0.027540	0.072930	0.04600	6313099	0.00741
18	0.020008	8.840089	6.626906	1,0000	LABULE	6.00200	6.643700	8.008296	1.842591	0.071500	8.848089	0.004388	6.839191	8.941290	0.035700	6.001119	0.045434	0.041000	6.834084	8.01126

Source: Outputs of data processing using EViews 10.

# The Regression analysis and hypotheses testing

Country effect has been considered, robustness check has been conducted by reprocessing data through excluding only one variable (GDP) in United Arab Emirates and provides the following results:

Table 6. Effects of fear sentiment for COVID-19 on banks' stock return in Emerging Marke
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Variable	Egypt	Qatar	Saudi Arabia	Turkey	UAE	Brazil	Russia	India	China	South Africa
	0.147129	1.079592	1.617907	0.461535	0.053011	0.371891	-0.333357	-1.535919	-0.526227	0.057071
Constant	(0.2329)	(0.3847) ***	(0.4362) ***	(0.2442) *	(0.2589)	(0.4533)	(0.3281)	(0.4852) ***	(0.5480)	(0.0159) ***
	0.000019	0.000072	0.000052	0.000165	0.000116	0.000095	0.000135	0.000152	-0.000026	-0.000323
CFI <sub>t</sub>	(0.0001)	(0.0000) ***	(0.0000)	(0.0000) ***	(0.0000) ***	(0.0001)	(0.0000) ***	(0.0001) *	(0.0000)	(0.0001) ***
	0.026757	0.041353	0.026009	0.053759	0.038323	0.033660	0.039937	-0.003629	0.005524	0.000688
P/BV	(0.0074)	(0.0068)		(0.0116)	(0.0081)	(0.0086)	(0.0117)			
	**	***	(0.0044) ***	***	***	***	***	(0.0035)	(0.0061)	(0.0008)
	0.269047	0.666779	0.083970	0.290020	-0.745782	1.072593	1.098173	-0.473292	1.773581	1.157398
TOR	(0.5115)	(0.9070)	(0.2545)	(0.0314) ***	(0.5050)	(0.3817) ***	(0.2575) ***	(0.0624) ***	(0.2695) ***	(0.4845) **
	-0.018356	-0.106886	-0.146367	-0.045627	-0.007824	-0.035854	0.030347	0.125786	0.027535	0.000044
Size	(0.0256)	(0.0360) ***	(0.0387) ***	(0.0222) **	(0.0224)	(0.0386)	(0.0330)	(0.0397) ***	(0.0376)	(0.0008)
	-0.085087	-0.030614	0.144891	0.002202		0.021076	0.004236	0.009686	-0.049055	0.058786
GDP	(0.0317) ***	(0.0239)	(0.0682) **	(0.0123)		(0.0421)	(0.0230)	(0.0132)	(0.0142) ***	(0.0243) **
	0.067371	0.233111	0.283524	0.166534	0.066059	0.064611	0.034907	-0.104141	-0.175811	0.059483
Inf.	(0.0364) *	( <b>0.1078</b> ) **	(0.0879) ***	(0.1251)	(0.3360)	(0.1712)	(0.2260)	(0.1736)	(0.0659) ***	(0.3572)
	-0.127954	-0.291060	-1.282118	-0.066790	-0.593675	-0.380312	0.007004	1.004565	3.425996	-1.098393
PR	(0.1445)	(0.1906)	(0.3611) ***	(0.0605)	(0.3964)	(0.2611)	(0.2823)	(0.5668) *	( <b>0.9608</b> ) ***	(0.2849) ***
R-squared	2.1355%	5.0314%	4.6774%	12.4960%	3.5010%	3.6053%	4.4581%	6.3799%	5.6044%	3.0831%
Adjusted R-squared	0.9354%	3.9523%	3.6108%	11.4965%	2.5082%	2.3453%	3.3553%	5.3215%	4.5033%	2.3652%
S.E. of regression	0.020517	0.015705	0.017179	0.023153	0.023824	0.0317	0.01994	0.03972	0.014069	0.041237
F-statistic	1.779425	4.662254	4.385044	12.50195	3.526408	2.861245	4.04258	6.02789	5.089717	4.294663
Prob (F-statistic)	0.053319	0.000001	0.000002	0.000000	0.000136	0.001654	8E-06	0.000000	0.000000	0.000109

Notes: Each cell contains the estimated parameters, with Std. Error between brackets, where \* denotes p-value

### of 10%, \*\* denotes 5% and \*\*\* denotes 1%

Results provide that banks' stock return of the certain markets seem to be sensitive to fear sentiment measured by country fear index (CFI<sub>t</sub>). These effects haven't been confirmed supporting the accepting of the null hypothesis, providing higher explanation powers; where R2 is 0.9354% for Egypt, is 3.9523% for Qatar, is 3.6108% for Saudi Arabia, is 11.4965% for Turkey, is 2.5082% for UAE, is 2.3453% for Brazil, is 3.3553% for Russia, is 5.3215% for India, is 4.5033% for China and is 2.3652% for South Africa.

Table 7	. Effects	of fear	sentiment	for C	OVID-1	19 on	banks'	' stock	risk	in I	Emerging	Marl	kets
											0 0		

Variable	Egypt	Qatar	Saudi Arabia	Turkey	UAE	Brazil	Russia	India	China	South Africa
	0.08092 7	0.51475 5	1.564106	0.88249 0	1.00198 8	1.25453 1	1.045525	0.57388 7	0.49993 8	1.489010
Constant	(0.0766)	(0.1062) ***	(0.1288) ***	(0.0724) ***	(0.1044) ***	(0.1309) ***	(0.1138) ***	(0.2355) **	(0.1117) ***	(0.0965) ***
	0.00023	-0.0000	0.000044	0.00008	0.00007	0.00018	0.000043	0.00044	0.00000	0.000311
CFI <sub>t</sub>	4 (0.0000) ***	(0.0000)	(0.0000) ***	0 (0.0000) ***	1 (0.0000) ***	(0.0000) ***	(0.0000) ***	(0.0000) ***	(0.0000)	(0.0000) ***
D/DX/	-0.0023 25	-0.0083 58	-0.011589	0.03377 2	-0.0536 03	-0.0220 94	0.001865	-0.0109 73	-0.0098 37	-0.014298
F/DV	(0.0024)	(0.0019) ***	(0.0013) ***	(0.0034) ***	(0.0033) ***	(0.0025) ***	(0.0042)	(0.0017) ***	(0.0012) ***	(0.0010) ***
TOP	0.42620 9	1.12954 9	0.778791	0.03929 2	0.59445 5	0.55230 7	0.763581	0.43824 5	0.47842 5	1.739132
TOK	(0.1635) ***	(0.2631) ***	(0.0714) ***	(0.0099) ***	(0.2238) ***	(0.1120) ***	(0.0959) ***	(0.0306) ***	(0.0491) ***	(0.1759) ***
Sizo	-0.0120 11	-0.0394 15	-0.135475	-0.0784 82	-0.0763 76	-0.1056 76	-0.102285	-0.0497 27	-0.0335 53	-0.148109
5120	(0.0085)	(0.0099) ***	(0.0114) ***	(0.0066) ***	(0.0090) ***	(0.0112) ***	0.011459* **	(0.0193) **	(0.0077) ***	(0.0095) ***
CDP	0.00649 4	0.11017 8	0.418318	0.01095 5		0.03373 4	0.050993	0.01830 7	0.04951 3	0.007790
GDF	(0.0104) ***	(0.0067) ***	(0.0199) ***	(0.0036) ***		(0.0123) ***	0.007982* **	(0.0064) ***	(0.0029) ***	(0.0081)
Inf	0.03319 9	0.70462 3	0.473813	0.08764 5	1.96498 4	0.26938 7	-0.456001	-0.5898 02	-0.0620 69	0.089942
	(0.0123) ***	(0.0296) ***	(0.0258) ***	(0.0368) **	(0.1350) ***	(0.0496) ***	(0.0798) ***	(0.0841) ***	(0.0135) ***	(0.1189)
DD	0.34180 2	-1.4275 05	-0.376247	-0.0952 47	-0.5677 85	1.35392 9	-0.136298	2.01577 7	-0.1856 63	1.210839
PK	(0.0436) ***	(0.0519) ***	(0.1101) ***	(0.0179) ***	(0.1572) ***	(0.0759) ***	(0.0975)	(0.2662) ***	(0.1979)	(0.0927) ***
<b>R</b> -squared	31.8776 %	66.7741 %	61.9014%	18.1582 %	45.0882 %	63.1163 %	43.6584%	44.6897 %	68.2049 %	44.5934%
Adjusted R-squared	31.2243 %	66.4777 %	61.5637%	17.4369 %	44.6403 %	62.7418 %	43.1578%	44.2022 %	67.9141 %	44.0897%
S.E. of regression	0.00774	0.0049	0.005619	0.00774 8	0.0109	0.01050 6	0.008199	0.02178 5	0.00325	0.014817
F-statistic	48.7939 9	225.269	183.3031	25.1721 8	100.667	168.555 5	87.21014	91.6693	234.599 8	88.53214
Prob (F-statistic)	0.00000	0.00000	0.000000	0.00000	0.00000	0.00000	0.000000	0.00000	0.00000	0.000000

**Notes:** Each cell contains the estimated parameters, with Std. Error between brackets, where \* denotes p-value of 10%, \*\* denotes 5% and \*\*\* denotes 1%

Results provide that banks' stock risk in 10 emerging markets seem to be sensitive to fear sentiment measured by country fear index (CFI<sub>t</sub>), excluding Qatar and China. These effects haven't been confirmed supporting the accepting of the null hypothesis, providing higher explanation powers; where R2 is 31.2243% for Egypt, is 66.4777% for Qatar, is 61.5637% for Saudi Arabia, is 17.4369% for Turkey, is 44.6403% for UAE, is 62.7418% for Brazil, is 43.1578% for Russia, is 44.2022% for India, is 67.9141% for China and is 44.0897% for South Africa.

The robustness test results show that the negative impact of the fear sentiment of the COVID-19 pandemic since its outbreak on the return of banks' stocks in certain markets. The present results prove that the risk of bank

stocks has increased in response to the unprecedented pandemic and the significant impact of CFI on banks' Performance, most notably on the risk side. Hence, results indicate that CFI can be used to predict bank stocks' risk (more than return) during health-related crises. This paper holds significance in the sense that the CFI index to measure fear sentiment has been tested as a good predictor of bank stocks' risk in emerging markets. Therefore, considering the behavioral side will help in the best understanding of financial institutions.

#### 7. Conclusion and Recommendation for Future Work

This paper presents two contributions. First, the researchers employ a Country Fear Index (CFI) to measure the fear sentiment of the pandemic. CFI helps to measure fear sentiment concerning the extent, intensity, and effect of an epidemic. Second, the researchers investigate the impact of the fear sentiment for the pandemic on banks' performance daily since the onset of the crisis for 10 emerging markets, focusing on MENA (Egypt, Qatar, KSA, Turkey, and UAE) and BRICS (Brazil, Russia, India, China, and South Africa) countries. In addition, we demonstrate the impact of investor assessment, measured through the price-to-book value (P/BV) ratio, on the banks' performance of those banks during 2020.

Using panel data, the findings indicate the negative impact of the fear sentiment of the COVID-19 pandemic, since its outbreak, on bank performance in certain markets. The results show that the risk of banks' stocks has increased in response to the unprecedented pandemic. Overall, the results reveal the impact significance of CFI on the performance of banks' stocks, most notably on the risk side. This has to be more elaborated through further research to investigate the country's fear index that may affect certain sector performance and how do systemic risks from the media sentiment viewpoint react to the pandemic outbreak.

#### Endnotes

- 1) Our daily data (covering the period from January 1, 2020, to December 31, 2020) for COVID-19 reported cases and deaths by country were collected from the World Health Organization (WHO) reports, as available date at this link: https://ourworldindata.org/coronavirus-data.
- 2) The Panel Regression depends on Pooled OLS Regression Model and Fixed Effect Regression Model and comparing between them for the beat fitted model using F-test.
- 3) To check the robustness of the results, model diagnostics tests were performed, which proved that the impact significance of CFI on the performance of bank stocks, most notably on the risk side. model diagnostics tests Includes: White Stability test for random error variation, Variance Inflation Factors (VIF) and Goodness of fit tests, respectively. White Stability test for testing the random error variance stability on long run, while VIF represent a scale for the multi collinearity between the independent and controlling variables as the values greater than 10 means a high collinear variable. Finally, Goodness of fit tests are the error measures of accuracy and performance of the forecasts, and the most used measures are the mean absolute error (MAE), root mean squared error (RMSE) and mean absolute percentage error (MAPE).

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