Humanities and Social Sciences Letters
2023 Vol. 11, No. 2, pp. 213-227
ISSN(e): 2312-4318
ISSN(p): 2312-5659
DOI: 10.18488/73.v11i2.3373

Factors affecting investor demand in a health emergency

Iman Harymawan[1+]
Yulianti Raharjo[2]
Dian Agustia[3]
Yani Permatasari[4]
Imran Haider[5]

[1,2,3,4]*Department of Accounting, Universitas Airlangga, Surabaya, Indonesia.*
[1]*Email: harymawan.iman@feb.unair.ac.id*
[2]*Email: yulianti.raharjo-2015@feb.unair.ac.id*
[3]*Email: dian.agustia@feb.unair.ac.id*
[4]*Email: yanipermatasari@feb.unair.ac.id*
[5]*School of Accounting, Curtin University, Perth, Australia.*
[5]*Email: Imran.Haider@curtin.edu.au*

(+ Corresponding author)

Article History
Received: 24 August 2022
Revised: 15 March 2023
Accepted: 8 May 2023
Published: 18 May 2023

Keywords
China
COVID-19
Emergency case
Exposure
Firm value
Governance
Investor demand
Risk.

ABSTRACT

This paper investigates the influence of COVID-19 exposure and China exposure disclosed by companies in their annual reports on firm value. Research data were obtained from annual reports. The study used observations of 430 companies listed on the Indonesia Stock Exchange during 2019 and analyzed using ordinary least squares (OLS) with fixed industry effects and standard error estimation with Stata 17.0 software. The study also used the Heckman two-stage as a robustness test. The results show a positive and statistically significant relationship between COVID-19 and firm value. The same result is also shown in the relationship between China exposure and firm value. Our research provides evidence that exposure to the COVID-19 situation resulted in an increase in firm value during the period. Additionally, these results were found to be robust by the Heckman two-stage test. With these research findings, companies can identify factors that can influence an increase in firm value, including providing clear disclosure on company conditions such as COVID-19 and China exposure. Companies that comprehensively disclose their information during uncertain environmental situations will provide opportunities for them to generate a more positive performance, as stakeholders provided funding facilities for companies to pursue growth during the COVID-19 period. Therefore, the COVID-19 factor as a form of exposure for companies is expected to encourage companies to continue to adapt and innovate.

Contribution/Originality: This research contributes to the literature on the effects of external factors on firm value, specifically in the context of the COVID-19 pandemic and China's economic influence. Additionally, the use of the Heckman two-stage as a robustness test provides a rigorous analysis of the results.

1. INTRODUCTION

Indonesia has been shocked by COVID-19, which is a type of infectious disease caused by a newly discovered type of coronavirus (Ramelli & Wagner, 2020). This disease first appeared in Wuhan, China, in December 2019 (Huo & Qiu, 2020; Xiong, Wu, Hou, & Zhang, 2020). But now, COVID-19 has spread to many countries, including Indonesia. Kompas (2020) reported that the Indonesian government announced the first two cases of COVID-19 on March 2, 2020. The number of patients who tested positive for COVID-19 continued to increase from March 2020 to end of December 2021. The spread of the COVID-19 outbreak in various countries and the continued increase in the number of patients who tested positive led to COVID-19 being designated as a global pandemic by the World Health Organization (WHO) on March 11, 2020 (Babuna et al., 2020). As a result, a number of countries

implemented large-scale social restrictions and lockdowns, which caused changes in the entire order of life in terms of health, economy, and international relations.

The COVID-19 pandemic has become a systematic risk that is uncontrollable, unpredictable, and has an overall impact that is macro in nature (Rizwan, Ahmad, & Ashraf, 2020). This will also impact risk tolerance in decision making. Heo, Rabbani, and Grable (2021) pointed out that the risk tolerance of financial decision makers can be changed when there are shocks in economic, social, or environmental conditions. In this case, the shock in question is the COVID-19 pandemic. For firms, the COVID-19 pandemic caused changes in their business activities which affected firm income and increased company risk. A firm's ability to deal with systematic risk will greatly concern stakeholders and shareholders as they seek reassurance regarding the continuation of business operations in the midst of the COVID-19 pandemic and the various regulations that limit business activities, such as regulations for locking down in many countries and the enactment of the PSBB (social restrictions) in Indonesia.

The COVID-19 pandemic outbreak resulted in a drastic decline in firm income as they experienced problems related to cash flow, consumer demand, marketing, and supply chains, forcing many to go out of business (Donthu & Gustafsson, 2020). This led to unprecedented trade disruptions in most industrial sectors. A firm's financial condition also felt the impact of this pandemic. For example, the number of cash holdings and the amount of debt borne are essential concerns for firm survival. Joseph, Kneer, and Van Horen (2020) stated that a firm's cash holdings before the crisis had a positive impact on investment during the crisis and increased a firm's competitive advantage during the recovery phase. COVID-19 not only impacted firms' financial condition, it also had a significant impact on the stock market (Baker et al., 2020; Huo & Qiu, 2020). Investors are becoming more sensitive in capturing the signals given by firms and the issues that exist, and they increasingly consider every piece of information received before making investment decisions, e.g., on stocks. As a result, stock price volatility occurred during the COVID-19 pandemic. The emergence of COVID-19 has had a widespread impact on the economic sector and increased financial risk. The spread of the pandemic was a surprise for capital market participants (Ramelli & Wagner, 2020), especially for developing countries such as Indonesia. Various policies from companies and the government (such as the PSBB) triggered diverse investor reactions which were reflected in stock prices and firm value, so the factors that affect investor demand and firm value should be studied more deeply, especially during the COVID-19 pandemic. During the COVID-19 pandemic, the cooperative relationship between Indonesian and Chinese companies, both in export and import activities, were affected. Furthermore, other activities carried out by China also provided exposure to companies, such as the trade war between China and the United States in 2019, which caused the global economy to decline. Disclosures made by companies on perceived exposures due to activities involving China also affected investors' assessment of a firm.

This paper investigates the effect of COVID-19 and China exposure disclosed by firms in annual reports on firm value. Using 430 firm-year observations from firms listed on the Indonesia Stock Exchange in 2019, which were analyzed using OLS regression with Stata 17.0 software, the results showed a positive and statistically significant relationship between COVID-19 and firm value. The same results are also shown in the relationship between China's exposure and firm value. The Heckman two-stage test confirmed the robustness of these results. Thus, firms that disclose exposure to the COVID-19 pandemic and activities carried out by China can increase firm value. Furthermore, this study also shows that disclosure of COVID-19 and China's exposure to firms with high leverage levels can further increase firm value. An essential contribution is expected from the results of this study. First, this research makes a practical contribution to firms. With the results of this study, firms can determine what factors can increase firm value, including the provision of clear disclosures on firm conditions such as COVID-19 and China exposure. These factors can then be applied in policies to increase firm value. Second, the results of this study enrich the literature on related topics, especially firm performance during the pandemic. Third, the outcome can contribute to future studies to develop research on related topics and refine the limitations of this study. This paper consists of several sections. After the introduction, the literature review is presented, followed by the research

method. The results and discussion of the tests that have been carried out are in the fourth section. The fifth section contains the limitations, and the final section presents the conclusions.

2. LITERATURE REVIEW

The COVID-19 pandemic has brought significant changes to various aspects of life in terms of health, economy, and international relations. The COVID-19 outbreak has resulted in a drastic decline in firm income and caused problems related to cash flow, consumer demand, marketing, supply chains, and has even forced many to go out of business (Donthu & Gustafsson, 2020). The impact of the pandemic has also had a significant impact on the stock market (Baker et al., 2020; Huo & Qiu, 2020). This is supported by signaling theory, which describes the signal given by a firm to users of financial statements (Spence, 1973). Signals arise when the sender of information tries to provide relevant information that can be used by the recipient of the information. The signal in the form of information is then received by the recipient and adjusted to the recipient's understanding. The signal given can be either good or bad. Disclosure of disease terms such as coronavirus, COVID-19, Sars-Cov, Mers-Cov, and other terms in firm reports is considered a negative tone of language (Spence, 1973). Not only the disclosure of terms related to disease but the mention of trade relations with China (the country where COVID-19 was first discovered) in the midst of the COVID-19 pandemic can also be a negative tone of language. This will allow investors to interpret information as a bad signal that will affect their investment decisions. In a health emergency, investors will increasingly consider all information received before making investment decisions. Baker et al. (2020); Bose, Shams, Ali, and Mihret (2022); Hassan (2020); Li, Li, Yang, and Zhao (2021); Ramelli and Wagner (2020) argue that the COVID-19 pandemic reduced firm value. Based on signaling theory, companies can provide good news or bad news to investors which will ultimately affect their investment decisions. Many aspects need to be considered by investors, one of which is the disclosure made by the company. Several studies (Baker et al., 2020; Bose et al., 2022; Hassan, 2020; Li et al., 2021; Ramelli & Wagner, 2020) have stated the COVID-19 pandemic decreased firm value. However, this study provides another perspective on the disclosure of COVID-19 exposure. In addition to having a negative effect, there is a possibility that this disclosure will have a positive impact on firm value. This is because the disclosures made regarding the actual conditions of the firm can be a plus for investors. Of course, damaging disclosures will generally be followed by disclosure of promising firm prospects. In addition, investors are not always able to see the disclosures made by a firm. Instead, they will see or consider the fundamental aspects of the firm and other firms' activities. Not only disclosure of COVID-19 exposure, but disclosure of China's exposure can also increase firm value with the same perspective. The activities carried out by China, especially in 2019, are in the world's spotlight because this is where the coronavirus (COVID-19) began to spread. But, on the other hand, China also has power in world trade. Moreover, the conflict or cold war between the United States and China has profoundly impacted the global economy.

H1: There is a positive relationship between COVID-19 exposure and firm value.

H2: There is a positive relationship between China's exposure and firm value.

3. RESEARCH METHODS

3.1. Data and Sample Selection

The population of this study consists of all companies listed on the Indonesia Stock Exchange during the year 2019. The research period was chosen because that year marked the beginning of the COVID-19 pandemic outbreak that originated in China and impacted various countries, including Indonesia. The sample selection was conducted using purposive sampling technique by first establishing several criteria according to the analysis needs. We excluded companies in the financial industry sector (standard industrial classification (SIC) 6) and missing data to ensure the accuracy and reliability of the testing. The final sample consisted of 430 yearly observations of companies. The sample distribution by industry is described in Table 1. Meanwhile, Table 3 shows the summary

statistics consisting of the mean, standard deviation, first quartile, median, third quartile, maximum, and minimum values of the data used as the research sample. The research data was obtained from the annual reports issued by the companies, OSIRIS database (a financial data center from around the world), and TMAILC (software for conducting data mining from company financial reports).

Table 1 contains sample distributions based on eight SICs in the 430 firm-year observations. Panel A shows that the sample of this study is dominated by manufacturing firms (SIC 2), with 109 firms or 26.67% of the entire sample. In this study, 80.70% (347 firms) disclosed their exposure to the COVID-19 pandemic in their annual reports. The sample distribution for China exposure is presented in Panel B of Table 1. The manufacturing industry comprises the most significant number in the research sample. As many as 84.88% or 365 firms disclosed exposure to the firm's activities and their relationship with China in their annual report.

Table 1. Sample distribution by industry.

Panel A: COVID-19 exposure

SIC	Industry	Disclosed exposure to COVID-19		Did not disclose exposure to COVID-19		Total	
		n	%	n	%	n	%
0	Agriculture, forestry and fishery	13	86.67	2	13.33	15	3.19%
1	Mining Industries	51	79.69	13	20.31	64	14.78%
2	Construction Industries	88	80.73	21	19.27	109	26.67%
3	Manufacturing	52	75.36	17	24.64	69	15.65%
4	Transportation, communications, electric, gas, & sanitary services	68	87.18	10	12.82	78	19.42%
5	Wholesale & retail	30	76.92	9	23.08	39	8.70%
7	Services Industries	38	84.44	7	15.56	45	9.28%
8	Health, Legal, and Educational Services and Consulting	7	63.63	4	36.37	11	2.32%
Total		347	80.70	83	19.30	430	100%

Panel B: China exposure

SIC	Industry	Disclosed exposure and relationship with China		Did not disclose exposure and relationship with China		Total	
		n	%	n	%	n	%
0	Agriculture, forestry and fishery	15	100	0	0%	15	3.19%
1	Mining Industries	57	89.06	7	10.94	64	14.78%
2	Construction Industries	95	87.16	14	12.84	109	26.67%
3	Manufacturing	57	82.61	12	17.39	69	15.65%
4	Transportation, communications, electric, gas, & sanitary services	67	85.90	11	14.10	78	19.42%
5	Wholesale & retail	32	82.05	7	17.95	39	8.70%
7	Services Industries	33	73.33	12	26.67	45	9.28%
8	Health, Legal, and Educational Services and Consulting	9	81.81	2	18.19	11	2.32%
Total		365	84.88	65	15.12	430	100%

Table 1 shows the sample distribution based on the eight standard industrial classification (SIC) codes for firms that disclosed and did not disclose exposure to COVID-19 in their annual report (Panel A). Meanwhile, Panel B shows the sample distribution of firms that disclosed and did not disclose their exposure and relationship with China.

3.2. Variables

Our research uses firm value as the dependent variable. Firm value in this study was measured using the market-to-book value (*MTB*) proxy (Ramelli & Wagner, 2020). There are two independent variables in this study. First, we analyze the impact of firm disclosure and the use of various COVID-19 terms at the beginning of the pandemic or in the 2019 report. The COVID-19 exposure variable (*COVDUM*) is measured using a dummy variable with a value of 1 if the firm discloses the term COVID-19 in its annual report (Hassan, 2020). In addition, based on research by Ramelli and Wagner (2020) with several adjustments, the China exposure variable is measured by

dummy variable *DUMCHINA*, with a value of 1 if the firm has and discloses cooperation with China or is affected by activities and policies (such as import and export activities) made by China and 0 otherwise. China exposure is used to see whether the disclosures in the firm's annual report for cooperation and the impact felt by the firm due to Chinese activities have a relationship with the value of the firm during the COVID-19 pandemic. Specifically for the COVID-19 and China exposure variables, data were obtained by searching for terms for COVID-19 (such as COVID-19, coronavirus, sars-cov-2) and China (such as Tiongkok and China). These two variables were collected using the help of TMAILC software, which was developed by the Center for Political Economy and Business Research (CPEBR) team at Airlangga University.

To limit the influence of other variables not examined in this study, we also used several control variables to refer to previous research (Bose et al., 2022; Chen & Wang, 2011; Hassan, 2020; Ramelli & Wagner, 2020; Wang, Yu, & Chan, 2021). These control variables are number of directors (*DIRSIZE*); number of commissioners (*COMSIZE*); number of the audit committee (*AUCOM*); the existence of a risk management committee (*RMC*); firm age (*FIRMAGE*); firm size (*FSIZE*); firm leverage (*LEV*); the amount of cash owed by the firm (*CASH*); sales growth (*GROWTH*); plant property equipment ratio (*PPE*); net cash flow from operating activities (*NCFO*); and research and development value (*RND*). The variable definitions are summarized in Table 2.

Table 2. Variable definitions.

Variable	Explanation	Source
Dependent:		
MTB	Book value of equity divided by market valuation	OSIRIS
Independent:		
COVDUM	Dummy variable, 1 if the firm discloses the term COVID-19 in its annual report	Annual report and TMAILC
DUMCHINA	Dummy variable, 1 if the firm has and discloses cooperation with China or is affected by activities and policies (Such as import and export activities) made by China and 0 otherwise	Annual report and TMAILC
Control:		
DIRSIZE	Total number of directors on the board	Annual report
COMSIZE	Total number of commissioners on the board	Annual report
AUCOM	Total number of members on the audit committee	Annual report
RMC	Total number of members on the risk management committee	Annual report
LNFIRMAGE	Natural logarithm of the number of years since the firm was founded	Annual report
FSIZE	Natural logarithm of total assets	OSIRIS
LEV	Total debt divided by total assets	OSIRIS
LNCASH	Natural logarithm of total cash and cash equivalent	OSIRIS
GROWTH	Proportional change of sales (the difference between total sales minus lag total sales scaled by lag total sales)	OSIRIS
PPE	Plant and property equipment divided by total assets	OSIRIS
NCFO	Net cash flow from operating activities	OSIRIS
RND	Total of research and development	OSIRIS

3.3. Research Design

This study uses an ordinary least squares (OLS) regression model with industry fixed effects and clustered standard errors to control for differences in industry characteristics (Petersen, 2008). To test the hypotheses, we used two research models. The first model is used to examine the relationship between COVID-19 exposure and firm value, and the second model is used to examine the relationship between China exposure and firm value. We also conducted a robustness test to overcome the problem of endogeneity.

Equation 1:

$$MTB_{i,t} = \beta_0 + \beta_1 COVDUM_{i,t} + \beta_2 DIRSIZE_{I,T} + \beta_3 COMSIZE_{I,T} + \beta_4 AUCOM_{I,T} + \beta_5 RMC_{I,T} + \beta_6 LNFIRMAGE_{I,T} + \beta_7 FSIZE_{I,T} + \beta_8 LEV_{I,T} + \beta_9 LNCASH_{I,T} + \beta_{10} GROWTH_{I,T} + \beta_{11} PPE_{I,T} + \beta_{12} NCFO_{I,T} + \beta_{13} RND_{I,T} + \beta_{14} INDUSTRY_{i,t} + \varepsilon_{i,t}$$

Equation 1 shows the dependent variable, namely firm value (MTB), and the independent variable, COVID-19 exposure (COVDUM). Additionally, several control variables are included in the model. We expect that COVDUM will have a positive effect on MTB.

Equation 2:

$$MTB_{i,t} = \beta_0 + \beta_1 DUMCHINA_{i,t} + \beta_2 DIRSIZE_{I,T} + \beta_3 COMSIZE_{I,T} + \beta_4 AUCOM_{I,T} + \beta_5 RMC_{I,T} + \beta_6 LNFIRMAGE_{I,T} + \beta_7 FSIZE_{I,T} + \beta_8 LEV_{I,T} + \beta_9 LNCASH_{I,T} + \beta_{10} GROWTH_{I,T} + \beta_{11} PPE_{I,T} + \beta_{12} NCFO_{I,T} + \beta_{13} RND_{I,T} + \beta_{14} INDUSTRY_{i,t} + \varepsilon_{i,t}$$

Equation 2 presents the dependent variable, which is firm value (MTB), and the independent variable, which is exposure to the COVID-19 situation in China on the global business environment (DUMCHINA). In addition, several control variables are also included in the model to enhance the testing and analysis outcomes. We expect that DUMCHINA will have a positive effect on MTB.

4. RESULTS AND DISCUSSION

4.1. Summary Statistic

Table 3 shows a statistical summary of the total sample in this study. The results show that the mean firm value of this research sample is 2.304, with a range between -6.186 and 35.693. Of the entire sample, 80.7% disclosed exposure to the COVID-19 pandemic in their annual reports. Meanwhile, 84.9% disclosed exposure to activities carried out by China in the form of impacts on imports and exports, and the trade war with the United States that occurred until 2019. The whole sample has an average of four members on the board of directors, ranging between 2–11 members, four members on the board of commissioners with a range of 2–10 members, and three members on the audit committee with a range between 1–4 members in its corporate governance system.

Table 3. Summary statistics.

Variable	*N*	Mean	SD	p25	Median	p75	Min.	Max.
MTB	430	2.304	4.771	0.606	1.12	2.223	-6.186	35.693
COVDUM	430	0.807	0.395	1	1	1	0	1
DUMCHINA	430	0.849	0.359	1	1	1	0	1
DIRSIZE	430	4.437	1.806	3	4	5	2	11
COMSIZE	430	3.923	1.696	3	3	5	2	10
AUCOM	430	2.981	0.327	3	3	3	1	4
RMC	430	0.198	0.399	0	0	0	0	1
NFIRMAGE	430	3.273	0.640	2.89	3.401	3.738	1.099	4.771
FSIZE	430	28.436	1.742	27.298	28.376	29.58	23.723	32.261
LEV	430	0.51	0.369	0.296	0.47	0.635	0.02	2.629
LNCASH	430	25.469	2.285	23.888	25.596	26.953	19.932	30.482
GROWTH	430	320.958	2462.505	-143.683	154.814	1254.666	-9602.08	9310.479
PPE	430	0.393	0.254	0.196	0.378	0.604	0.001	.918
NCFO	430	7.310e+11	2.085e+12	1.110e+09	7.683e+10	4.502e+11	-9.725e+11	1.236e+13
RND	430	1.447e+09	7050629515.198	0	0	0	0	4.751e+10

Only 19.8% of the sampled firms also have a risk management committee. All firms in the sample, on average, have been established for more than three years, the average firm size is between 1.099 and 4.771, and the firms have an average leverage of 0.51, and cash of 25.469. The sample includes 430 firm-year observations from firms listed on the Indonesia Stock Exchange in 2019. This analysis uses data after winsorizing at 1% and 99%.

4.2. Univariate Analysis

We have performed two univariate analyses, namely the two-sample independent t-test presented in Table 4, and the pearson correlation test in Table 5. The two-sample independent *t*-test test showed differences in the characteristics of the mean of *MTB*, *DIRSIZE*, *COMSIZE*, *AUCOM*, *RMC*, *LNFIRMAGE*, *FSIZE*, *LNCASH*, *GROWTH*, *PPE*, *NCFO*, and *RND* between firms that disclose and not disclose COVID-19 exposure (Panel A) and

firms that disclose and not disclose exposures or relationships with China (Panel B). Panel A shows that firms that disclose and do not disclose COVID-19 exposures have differences even though they are not statistically significant. Panel B documents that firms that disclose China's exposure statistically significant have a higher number of members of the board of directors and commissioners, have been established longer, have larger firm size, have more cash and cash equivalents, and net cash flow from operating activities.

Table 4. Two samples independent *t*-test.

Panel A: For COVDUM				
Variable	**COVDUM**			
	Mean = 1	**Mean = 0**	**Coeff.**	**T-value**
MTB	2.473	1.597	0.876	1.504
DIRSIZE	4.421	4.506	-0.085	-0.386
COMSIZE	3.911	3.976	-0.065	-0.314
AUCOM	2.983	2.976	0.007	0.170
RMC	0.205	0.169	0.036	0.737
LNFIRMAGE	3.279	3.244	0.035	0.446
FSIZE	28.500	28.167	0.333	1.569
LEV	0.511	0.509	0.001	0.026
LNCASH	25.538	25.179	0.358	1.285
GROWTH	355.016	178.571	176.444	0.586
PPE	0.390	0.405	-0.015	-0.482
NCFO	6.945e+11	8.837e+11	-1.892e+11	-0.742
RND	1.326e+09	1.951e+09	-6.244e+08	-0.724
Panel B: For DUMCHINA				
Variables	DUMCHINA		Coeff.	T-value
	Mean = 1	Mean = 0		
MTB	2.330	2.153	0.177	0.275
DIRSIZE	4.556	3.769	0.787***	3.272
COMSIZE	3.989	3.554	0.435*	1.912
AUCOM	2.981	2.985	-0.004	-0.086
RMC	0.200	0.185	0.015	0.286
LNFIRMAGE	3.300	3.118	0.182**	2.120
FSIZE	28.628	27.357	1.271***	5.612
LEV	0.516	0.479	0.037	0.742
LNCASH	25.701	24.166	1.535***	5.135
GROWTH	307.928	394.125	-86.197	-0.260
PPE	0.394	0.388	0.006	0.182
NCFO	8.095e+11	2.903e+11	5.192e+11*	1.855
RND	1.414e+09	1.628e+09	-2.137e+08	-0.225

Note: Table 4 reports two independent sample t-tests on the characteristics of firms that disclosed and did not disclose COVID-19 exposure (Panel A). In addition, this table also reports the characteristics of firms that disclosed and did not disclose China exposure in their annual reports (Panel B). *COVDUM* and *DUMCHINA* are used as treatment variables to divide the sample into two sub-samples. This analysis used winsorized data at 1% and 99% levels. Tests show: * $p < 0.1$ (or * $t > 1.645$), ** $p > 0.05$ (or ** $t > 1.960$), *** $p > 0.01$ (or *** $t > 2.326$), significance at 10%, 5% and 1%, respectively.

The results of the Pearson correlation test in Table 5 show the relationship between variables. The results report that the *COVDUM* and *DUMCHINA* variables are positively related to firm value but are not statistically significant, while the *GROWTH*, *PPE*, and *RND* variables proved to be significantly positively related to firm value with respective coefficient values of 0.112 (t = 0.020), 0.091 (t = 0.060), and 0.112 (t = 0.021). It can be concluded that when a company has high sales growth, a high plant property and equipment ratio, and a high research and development value, its firm value will increase. On the other hand, increasing the *RMC* and *LNFIRMAGE* variables significantly reduced firm value with coefficient values of -0.085 (t = 0.077) and -0.097 (t = 0.044). When a company has a risk management committee and has been established for a long time, there is a possibility of value.

Table 5. Pearson correlation.

Panel A: From MTB to LNFIRMAGE								
Variable	**[1]**	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
[1] *MTB*	1.000							
[2] *COVDUM*	0.073 (0.133)	1.000						
[3] *DUMCHINA*	0.013 (0.783)	0.287*** (0.000)	1.000					
[4] *DIRSIZE*	-0.002 (0.963)	-0.019 (0.700)	0.156*** (0.001)	1.000				
[5] *COMSIZE*	-0.015 (0.755)	-0.015 (0.753)	0.092* (0.057)	0.529*** (0.000)	1.000			
[6] *AUCOM*	0.060 (0.213)	0.008 (0.865)	-0.004 (0.931)	0.144*** (0.003)	0.187*** (0.000)	1.000		
[7] *RMC*	-0.085* (0.077)	0.036 (0.461)	0.014 (0.775)	0.135*** (0.005)	0.071 (0.143)	-0.007 (0.877)	1.000	
[8] *LNFIRMAGE*	-0.097** (0.044)	0.022 (0.656)	0.102** (0.035)	0.209*** (0.000)	0.266*** (0.000)	0.015 (0.760)	0.013 (0.783)	1.000
[9] *FSIZE*	-0.044 (0.360)	0.076 (0.117)	0.262*** (0.000)	0.531*** (0.000)	0.544*** (0.000)	0.155*** (0.001)	0.113** (0.019)	0.239*** (0.000)
[10] *LEV*	-0.058 (0.230)	0.001 (0.980)	0.036 (0.458)	-0.063 (0.190)	-0.006 (0.902)	-0.129*** (0.007)	0.074 (0.123)	0.126*** (0.009)
[11] *LNCASH*	-0.032 (0.506)	0.062 (0.199)	0.241*** (0.000)	0.470*** (0.000)	0.475*** (0.000)	0.157*** (0.001)	0.085* (0.078)	0.185*** (0.000)
[12] *GROWTH*	0.112** (0.020)	0.028 (0.558)	-0.013 (0.795)	0.062 (0.202)	0.011 (0.818)	0.085* (0.078)	-0.048 (0.323)	-0.195*** (0.000)
[13] *PPE*	0.091* (0.060)	-0.023 (0.630)	0.009 (0.856)	0.018 (0.709)	0.020 (0.678)	0.017 (0.730)	-0.013 (0.783)	0.024 (0.622)
[14] *NCFO*	0.071 (0.143)	-0.036 (0.458)	0.089* (0.064)	0.379*** (0.000)	0.404*** (0.000)	0.109** (0.023)	0.018 (0.703)	0.143*** (0.003)
[15] *RND*	0.112** (0.021)	-0.035 (0.469)	-0.011 (0.822)	0.255*** (0.000)	0.183*** (0.000)	0.120** (0.013)	0.043 (0.377)	0.169*** (0.000)

Panel B: From *FSIZE* to *RND*							
Variable	[9]	[10]	[11]	[12]	[13]	[14]	[15]
[9] *FSIZE*	1.000						
[10] *LEV*	-0.027 (0.579)	1.000					
[11] *LNCASH*	0.809*** (0.000)	-0.159*** (0.001)	1.000				
[12] *GROWTH*	0.094* (0.052)	-0.314*** (0.000)	0.125*** (0.009)	1.000			
[13] *PPE*	0.064 (0.183)	0.104** (0.031)	-0.135*** (0.005)	0.026 (0.585)	1.000		
[14] *NCFO*	0.551*** (0.000)	0.005 (0.917)	0.512*** (0.000)	0.031 (0.517)	0.047 (0.333)	1.000	
[15] *RND*	0.233*** (0.000)	0.001 (0.985)	0.209*** (0.000)	0.098** (0.043)	0.000 (0.993)	0.236*** (0.000)	1.000

Note: The Pearson correlation analysis results comprise the 430 firm-year observations that were used in this study. This analysis used winsorized data at 1% and 99% levels. Tests show: * p < 0.1 (or * t > 1.645), ** p > 0.05 (or ** t > 1.960), *** p > 0.01 (or *** t > 2.326), significance at 10%, 5% and 1%.

4.3. Multivariate Analysis

The results of the OLS regression testing on the primary regression with 430 firm-year observations from firms listed on the Indonesia Stock Exchange during 2019 are documented in Table 6, column 1 (for model 1) and column 2 (for model 2). The test results are in line with hypotheses 1 and 2, which were built in this study. Table 6 column 1 shows that COVID-19 exposure statistically has a positive relationship with firm value. This opinion is supported by the coefficient value of 1.213 (t = 2.76) and is significant at the 1% level in column 1. Therefore,

disclosure in a firm's annual report regarding exposure to the COVID-19 pandemic that impacted the firm can actually increase its value.

This disclosure is likely to be seen as a good signal. Investors will view it as a form of disclosing information presented by the firm to users of firm reports, especially annual reports. This provides a clear explanation of a firm's performance or the reasons behind poor performance.

This positive effect is also because investors not only look at whether a firm discloses COVID-19 exposure but also how the firm performs in other areas, such as its corporate social responsibility activities (CSR) (Qiu, Jiang, Liu, Chen, & Yuan, 2021) and how it disclosed environmental, social, and governance (ESG) information in the previous year (Feng & Wu, 2021). Therefore, firms that still had good performance during the COVID-19 pandemic will also have been seen as being good value by investors. However, this result is different from Baker et al. (2020); Bose et al. (2022); Hassan (2020); Li et al. (2021); Ramelli and Wagner (2020), who argue that the COVID-19 pandemic reduced firm value.

The relationship between China exposure and firm value in column 2 of Table 6 also shows a positive and statistically significant relationship, which is in line with hypothesis 2. This statement is supported by the *DUMCHINA* coefficient value of 0.869 (t = 1.65) and is significant at the 10% level. Thus, disclosures made by firms in their annual reports on firm activities in the export–import sector and disclosures due to the impact felt by China's activities are statistically proven to increase firm value. This is in line with the results for when firms disclosed their COVID-19 exposure.

Investors can consider this as a positive signal because firms disclosed all conditions that impacted their performance, one of which is the impact of China's activities. In 2019, aside from China being the origin of the pandemic, there was a trade war between the US and China. However, several firms in this research sample expressed their optimism over their prospects that the trade war will end soon to recover the global economy. This, of course, is also a positive signal for investors.

Table 6 shows significant results according to the analysis test. This is different from Ramelli and Wagner (2020), who stated that China's exposure and the international orientation of companies are negatively related to stock returns during the incubation period and the COVID-19 outbreak.

Other correlations between the independent variables are generally low and do not cause multicollinearity issues for further analysis. The variance inflation factor (VIF) produced a value of 2.64 for the first model and 2.63 for the second model.

4.4. Robustness Test

We used a Heckman two-stage as a robustness test to address the possibility of endogeneity problems, specifically for the omitted variables in this research model. In the Heckman two-stage regression, we use the instrument variable that has a relationship with the dependent variable only through an interested variable (Harymawan, Putra, Rizki, & Nasih, 2022; Nasih, Harymawan, Putra, & Qotrunnada, 2019). We use one instrumental variable in each model: the average value of COVID-19 exposure (AVECOV) and the average value of China exposure (AVECHIN).

The selection of this instrument was based on the idea that, on average, firms do the same thing when exposed to both COVID-19 and China.

The empirical model for the Heckman two-stage regression in the relationship between COVID-19 exposure and firm value is set out in Equation 3 below.

Equation 3:

$$COVDUM_{i,t} = \beta_0 + \beta_1 AVECOV_{i,t} + \beta_2 DIRSIZE_{I,T} + \beta_3 COMSIZE_{I,T} + \beta_4 AUCOM_{I,T} + \beta_5 RMC_{I,T} + \beta_6 LNFIRMAGE_{I,T} + \beta_7 FSIZE_{I,T} + \beta_8 LEV_{I,T} + \beta_9 LNCASH_{I,T} + \beta_{10} GROWTH_{I,T} + \beta_{11} PPE_{I,T} + \beta_{12} NCFO_{I,T} + \beta_{13} RND_{I,T} + \beta_{14} INDUSTRY_{i,t} + \varepsilon_{i,t}$$

Table 6. Main regression.

Variable	(1) *MTB*	(2) *MTB*
COVDUM	1.213*** (2.76)	
DUMCHINA		0.869* (1.65)
DIRSIZE	0.033 (0.20)	0.005 (0.03)
COMSIZE	-0.002 (-0.01)	-0.000 (-0.00)
AUCOM	0.710 (1.49)	0.762 (1.54)
RMC	-0.852** (-2.20)	-0.797** (-2.15)
LNFIRMAGE	-0.652 (-1.61)	-0.626 (-1.54)
FSIZE	-0.347 (-1.17)	-0.329 (-1.11)
LEV	-0.212 (-0.27)	-0.239 (-0.31)
LNCASH	-0.044 (-0.20)	-0.064 (-0.28)
GROWTH	0.000 (0.65)	0.000 (0.71)
PPE	2.055* (1.71)	1.940 (1.63)
NCFO	0.000** (2.11)	0.000** (2.03)
RND	0.000 (1.39)	0.000 (1.38)
Intercept	10.950** (2.01)	11.063** (2.02)
Industry fixed effect	Included	Included
R^2	0.087	0.081
Adjusted R^2	0.043	0.037
N	430	430

Note: Column 1 in this table shows the OLS test results between COVID-19 exposure and firm value. Column 2 shows the OLS test results between China exposure and firm value. The sample includes 430 firm-year observations from firms listed on the Indonesia Stock Exchange in 2019. This analysis uses winsorized data at 1% and 99% levels. These tests include industry fixed effects. Tests show: * $p < 0.1$ (or * $t > 1.645$), ** $p > 0.05$ (or ** $t > 1.960$), *** $p > 0.01$ (or *** $t > 2.326$), significance at 10%, 5% and 1%.

Equation 4:

$$MTB_{i,t} = \beta_0 + \beta_1 COVDUM_{i,t} + \beta_2 MILLS_{I,T} + \beta_3 DIRSIZE_{I,T} + \beta_4 COMSIZE_{I,T} + \beta_5 AUCOM_{I,T} + \beta_6 RMC_{I,T} + \beta_7 LNFIRMAGE_{I,T} + \beta_8 FSIZE_{I,T} + \beta_9 LEV_{I,T} + \beta_{10} LNCASH_{I,T} + \beta_{11} GROWTH_{I,T} + \beta_{12} PPE_{I,T} + \beta_{13} NCFO_{I,T} + \beta_{14} RND_{I,T} + \beta_{15} INDUSTRY_{i,t} + \varepsilon_{i,t}$$

Meanwhile, in the relationship between China exposure and firm value, the empirical model for the Heckman two-stage regression is as follows:

Equation 5:

$$DUMCHINA_{i,t} = \beta_0 + \beta_1 AVECHIN_{i,t} + \beta_2 DIRSIZE_{I,T} + \beta_3 COMSIZE_{I,T} + \beta_4 AUCOM_{I,T} + \beta_5 RMC_{I,T} + \beta_6 LNFIRMAGE_{I,T} + \beta_7 FSIZE_{I,T} + \beta_8 LEV_{I,T} + \beta_9 LNCASH_{I,T} + \beta_{10} GROWTH_{I,T} + \beta_{11} PPE_{I,T} + \beta_{12} NCFO_{I,T} + \beta_{13} RND_{I,T} + \beta_{14} INDUSTRY_{i,t} + \varepsilon_{i,t}$$

Equation 6:

$$MTB_{i,t} = \beta_0 + \beta_1 DUMCHINA_{i,t} + \beta_2 MILLS_{I,T} + \beta_3 DIRSIZE_{I,T} + \beta_4 COMSIZE_{I,T} + \beta_5 AUCOM_{I,T} + \beta_6 RMC_{I,T} + \beta_7 LNFIRMAGE_{I,T} + \beta_8 FSIZE_{I,T} + \beta_9 LEV_{I,T} + \beta_{10} LNCASH_{I,T} + \beta_{11} GROWTH_{I,T} + \beta_{12} PPE_{I,T} + \beta_{13} NCFO_{I,T} + \beta_{14} RND_{I,T} + \beta_{15} INDUSTRY_{i,t} + \varepsilon_{i,t} \quad (6)$$

Equations 3 and 5 are used as first stage probit regression, while Equations 4 and 6 are the second stage regressions. The MILLS variable is the inverse mills ratio, resulting from the probit regression between interested and instrumental variables in Equations 3 or 5. To fulfill the ideal Heckman two-stage test, the MILLS value of each model must be insignificant, and our results show that the MILLS variable is not significant. The results of the Heckman two-stage test are reported in Table 7.

Table 7. Heckman two-stage test results.

Panel A: First stage		
Variable	**-1** ***COVDUM***	**-2** ***DUMCHINA***
COVDUM		
AVECOV	3.073 (1.31)	
DUMCHINA		
AVECHIN		1.600 (0.10)
DIRSIZE	-0.058 (-1.24)	0.083 (1.51)
COMSIZE	-0.037 (-0.73)	-0.063 (-0.95)
AUCOM	0.128 (0.53)	-0.237 (-0.98)
RMC	0.110 (0.59)	-0.124 (-0.63)
LNFIRMAGE	0.139 (1.10)	0.068 (0.51)
FSIZE	0.164** (2.01)	0.165* (1.87)
LEV	0.029 (0.14)	0.252 (1.22)
LNCASH	0.013 (0.22)	0.117* (1.96)
GROWTH	0.000 (0.82)	-0.000 (-0.21)
PPE	-0.402 (-1.26)	-0.073 (-0.21)
NCFO	-0.000* (-1.84)	-0.000 (-0.75)
RND	-0.000 (-1.00)	-0.000** (-2.01)
Intercept	-6.964*** (-2.87)	-7.724 (-0.60)
Industry fixed effect	Included	Included
r2_p	0.049	0.123
N	431	416

Panel B. Second stage		
Variable	-1 *MTB*	-2 *MTB*
COVDUM	1.182*** (2.78)	
DUMCHINA		0.910* (1.72)
MILLS	12.307 (0.71)	4.547 (1.03)
DIRSIZE	-0.257 (-0.82)	0.121 (0.71)
COMSIZE	-0.196 (-0.51)	-0.092 (-0.44)
AUCOM	1.397 (1.50)	0.472 (0.98)

RMC	-0.309 (-0.41)	-1.035*** (-2.71)
LNFIRMAGE	0.061 (0.06)	-0.567 (-1.29)
FSIZE	0.421 (0.42)	-0.069 (-0.15)
LEV	-0.079 (-0.10)	0.138 (0.18)
LNCASH	0.038 (0.15)	0.147 (0.60)
GROWTH	0.000 (0.98)	0.000 (0.50)
PPE	0.262 (0.10)	1.870 (1.53)
NCFO	-0.000 (-0.13)	0.000 (0.97)
RND	0.000 (0.55)	0.000 (0.70)
Intercept	-18.076 (-0.47)	-2.136 (-0.14)
Industry fixed effect	Included	Included
Adjusted R^2	0.043	0.035
N	430	415

Note: Table 7 reports the results of the two-stage Heckman test on 430 firm-year observations for COVID-19 exposure and 415 firm-year observations for China exposure. This test uses the instrument variables *AVECOV* and *AVECHIN*. This analysis uses winsorized data at 1% and 99%. Panel A shows the results of the first stage test and Panel B shows the second stage test. Tests show: * p < 0.1 (or * t > 1.645), ** p > 0.05 (or ** t > 1.960), *** p > 0.01 (or *** t > 2.326), significance at 10%, 5% and 1%.

The results of the Heckman two-stage test report that the results from the main regression are robust. COVID-19 and China exposure have a positive and statistically significant relationship with firm value. This is indicated by the coefficient value of *COVDUM* of 1.182 (t = 2.78), which is significant at the 1% level, and the coefficient of *DUMCHINA* of 0.910 (t = 1.72), which is significant at the 10% level. It can be concluded that there is a high probability that firm value will increase when a company discloses its exposure to the COVID-19 pandemic as well as the perceived exposure to China's activities regarding exports, imports, and its activities with other countries.

4.5. Additional Analysis

This study uses the moderating role of high leverage in the sample firms for the relationship between COVID-19 and China's exposure to firm value. The *HIGHLEV* variable is a dummy variable, with a value of 1 if the firm has a leverage value above the median and 0 if it has a leverage below the median. This model is carried out using moderate regression analysis testing using Stata 17.0 software. This additional analysis uses the following empirical model:

Equation 7:

$$MTB_{i,t} = \beta_0 + \beta_1 COVDUM * HIGHLEV_{i,t} + \beta_2 COVDUM_{I,T} + \beta_3 LEV_{I,T} + \beta_4 DIRSIZE_{I,T} + \beta_5 COMSIZE_{I,T} + \beta_6 AUCOM_{I,T} + \beta_7 RMC_{I,T} + \beta_8 LNFIRMAGE_{I,T} + \beta_9 FSIZE_{I,T} + \beta_{10} LNCASH_{I,T} + \beta_{11} GROWTH_{I,T} + \beta_{12} PPE_{I,T} + \beta_{13} NCFO_{I,T} + \beta_{14} RND_{I,T} + \beta_{15} INDUSTRY_{i,t} + \varepsilon_{i,t}$$

Equation 8:

$$MTB_{i,t} = \beta_0 + \beta_1 DUMCHINA * HIGHLEV_{i,t} + \beta_2 DUMCHINA_{I,T} + \beta_3 LEV_{I,T} + \beta_4 DIRSIZE_{I,T} + \beta_5 COMSIZE_{I,T} + \beta_6 AUCOM_{I,T} + \beta_7 RMC_{I,T} + \beta_8 LNFIRMAGE_{I,T} + \beta_9 FSIZE_{I,T} + \beta_{10} LNCASH_{I,T} + \beta_{11} GROWTH_{I,T} + \beta_{12} PPE_{I,T} + \beta_{13} NCFO_{I,T} + \beta_{14} RND_{I,T} + \beta_{15} INDUSTRY_{i,t} + \varepsilon_{i,t}$$

The results of the moderate regression analysis using Stata 17.0 show that a high level of leverage can strengthen the relationship between COVID-19 and firm value. In Table 8, the coefficient value of *COVDUM*HIGHLEV* is 1.784 (t = 2.99) and is significant at the 1% level, and the *DUMCHINA*HIGHLEV* variable shows a value of 1.920 (t = 3.17) and is significant at the 10% level. The same results are also shown in the

relationship between China exposure and firm value. Disclosure of exposure to COVID-19 as well as activities and collaborations carried out with China in firms with a high level of leverage are statistically proven to increase firm value. A high level of leverage is one of the advantages that investors can get when trading forex. High leverage allows traders to buy investments with small capital and earn significant profits. However, leverage can backfire for traders because the higher the leverage, the higher the risk for the firm.

Table 8. The moderating role of high leverage.

Variable	(1) *MTB*	(2) *MTB*
*COVDUM*HIGHLEV*	1.784***	
	(2.99)	
*DUMCHINA*HIGHLEV*		1.920***
		(3.17)
COVDUM	0.354	
	(0.93)	
DUMCHINA		0.043
		(0.09)
LEV	-1.318*	-1.537**
	(-1.82)	(-2.08)
DIRSIZE	0.086	0.089
	(0.51)	(0.52)
COMSIZE	0.001	-0.018
	(0.00)	(-0.10)
AUCOM	0.746	0.825*
	(1.52)	(1.66)
RMC	-0.854**	-0.776**
	(-2.25)	(-2.13)
LNFIRMAGE	-0.647	-0.552
	(-1.61)	(-1.37)
FSIZE	-0.555*	-0.572*
	(-1.81)	(-1.87)
LNCASH	0.021	-0.004
	(0.09)	(-0.02)
GROWTH	0.000	0.000
	(0.61)	(0.64)
PPE	1.901	1.793
	(1.62)	(1.54)
NCFO	0.000**	0.000**
	(2.21)	(2.23)
RND	0.000	0.000
	(1.42)	(1.41)
Intercept	15.297***	16.133***
	(2.64)	(2.71)
Industry fixed effect	Included	Included
R^2	0.105	0.102
Adjusted R^2	0.059	0.056
N	430	430

Note: Table 8 reports the moderating role of high leverage on the relationship between COVID-19 exposure and firm value and the relationship between China exposure and firm value. *HIGHLEV* is a dummy variable with a value of 1 if the firm has a leverage value above the median and 0 if the leverage value is below the median. The sample includes 430 firm-year observations from firms listed on the Indonesia Stock Exchange during 2019. This analysis uses winsorized data at 1% and 99% levels. These tests include industry fixed effects. Tests show: * p < 0.1 (or * t > 1.645), ** p > 0.05 (or ** t > 1.960), *** p > 0.01 (or *** t > 2.326), significance at 10%, 5% and 1%.

5. LIMITATIONS

First, this research is limited by the year of the study, which is 2019, so the sample is small. The year 2019 was chosen because the COVID-19 pandemic began to enter Indonesian territory and resulted in a global economic

downturn. Future research can update the research year. Future research can also make comparisons before and during the COVID-19 pandemic. Second, this research is also limited to discussions related to the relationship between COVID-19 and China exposure, so there is an opportunity for future research to examine firms' disclosures and other performance against firm value in greater depth. Third, this research is limited to the proxies used to measure COVID-19 and China exposure, which only uses dummy variables. Future research may be able to use other proxies, such as analyzing the content of annual reports or using the number of mentions of COVID-19 and China in the annual reports.

6. CONCLUSIONS

This paper investigates the effect of COVID-19 and China exposure disclosed by firms in annual reports on firm value using 430 firm-year observations from firms listed on the Indonesia Stock Exchange in 2019, which were analyzed using OLS regression with Stata 17.0 software. The main regression results showed a positive and statistically significant relationship between COVID-19 and firm value. The same results are also shown in the relationship between China's exposure and firm value. Furthermore, these results are robust in the Heckman two-stage test. Thus, firms that disclose exposure to the COVID-19 pandemic and activities carried out by China can increase firm value. Furthermore, this study also shows that disclosure of COVID-19 and China's exposure to firms with high leverage levels can further increase firm value. The results of this study provide important implications for firms, investors, and future research. An essential contribution is undoubtedly expected from the results of this study. First, this research makes a practical contribution to firms. Based on the results of this study, firms can determine what factors will affect an increase in firm value, including providing clear disclosures on firm conditions such as COVID-19 and China exposure. These factors can be applied to firm policies to increase firm value. Second, the results of this study contribute to enriching the literature on related topics, especially those related to firm performance during the pandemic. Third, the results of this study contribute to the development of future research on related topics and overcome the limitations found in this study.

Funding: This study received no specific financial support.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study.

REFERENCES

Babuna, P., Yang, X., Gyilbag, A., Awudi, D. A., Ngmenbelle, D., & Bian, D. (2020). The impact of COVID-19 on the insurance industry. *International Journal of Environmental Research and Public Health*, *17*(16), 5766. https://doi.org/10.3390/ijerph17165766

Baker, S. R., Bloom, N., Davis, S. J., Kost, K. J., Sammon, M. C., & Viratyosin, T. (2020). *The unprecedented stock market impact of COVID-19*. Retrieved from (No. W26945). National Bureau of Economic Research.

Bose, S., Shams, S., Ali, M. J., & Mihret, D. (2022). Covid-19 impact, sustainability performance and firm value: International evidence. *Accounting & Finance*, *62*(1), 597-643. https://doi.org/10.1111/acfi.12801

Chen, H., & Wang, X. (2011). Corporate social responsibility and corporate financial performance in China: An empirical research from Chinese firms. *Corporate Governance: The International Journal of Business in Society*, *11*(4), 361-370. https://doi.org/10.1108/14720701111159217

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of Business Research*, *117*, 284-289. https://doi.org/10.1016/j.jbusres.2020.06.008

Feng, Z., & Wu, Z. (2021). ESG disclosure, REIT debt financing and firm value. *The Journal of Real Estate Finance and Economics*, 1-35. https://doi.org/10.1007/s11146-021-09857-x

Harymawan, I., Putra, F. K. G., Rizki, A., & Nasih, M. (2022). Innovation intensity of military-connected firms. *International Journal of Managerial Finance*, *18*(2), 365-397. https://doi.org/10.1108/ijmf-12-2020-0616

Hassan, T. A. (2020). *Firm-Level exposure to epidemic diseases: COVID-19, SARS, and H1N1*. Retrieved from TRR 266 Accounting for Transparency Working Paper Series No. 24.

Heo, W., Rabbani, A., & Grable, J. E. (2021). An evaluation of the effect of the COVID-19 pandemic on the risk tolerance of financial decision makers. *Finance Research Letters*, *41*, 101842. https://doi.org/10.1016/j.frl.2020.101842

Huo, X., & Qiu, Z. (2020). How does China's stock market react to the announcement of the COVID-19 pandemic lockdown? *Economic and Political Studies*, *8*(4), 436-461. https://doi.org/10.1080/20954816.2020.1780695

Joseph, A., Kneer, C., & Van Horen, N. (2020). *All you need is cash: Corporate cash holdings and investment after the financial crisis*. Retrieved from https://ssrn.com/abstract=3592376

Kompas. (2020). *Announced in early march, expert: Corona virus entered Indonesia from january*. Retrieved from https://www.kompas.com/sains/read/2020/05/11/130600623/diumumkan-awal-maret-ahli--virus-corona-masuk-indonesia-dari-januari?page=all

Li, S., Li, T., Yang, J., & Zhao, S. (2021). Tobin'sq and corporate investment with a pandemic shock. *Economics Letters*, *209*, 110141. https://doi.org/10.1016/j.econlet.2021.110141

Nasih, M., Harymawan, I., Putra, F. K. G., & Qotrunnada, R. (2019). Military experienced board and corporate social responsibility disclosure: An empirical evidence from Indonesia. *Entrepreneurship and Sustainability Issues*, *7*(1), 553-573. https://doi.org/10.9770/jesi.2019.7.1(39)

Petersen, M. A. (2008). Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies*, *22*(1), 435-480. http://dx.doi.org/10.2139/ssrn.661481

Qiu, S. C., Jiang, J., Liu, X., Chen, M.-H., & Yuan, X. (2021). Can corporate social responsibility protect firm value during the COVID-19 pandemic? *International Journal of Hospitality Management*, *93*, 102759. https://doi.org/10.1016/j.ijhm.2020.102759

Ramelli, S., & Wagner, A. F. (2020). Feverish stock price reactions to COVID-19. *The Review of Corporate Finance Studies*, *9*(3), 622-655. https://doi.org/10.1093/rcfs/cfaa012

Rizwan, M. S., Ahmad, G., & Ashraf, D. (2020). Systemic risk: The impact of COVID-19. *Finance Research Letters*, *36*, 101682. https://doi.org/10.1016/j.frl.2020.101682

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, *87*(3), 355–374. https://doi.org/10.2307/1882010

Wang, L., Yu, J., & Chan, K. C. (2021). Product line transformation, foreign sales, and firm value: Evidence from COVID-19 pandemic governance in urban China. *Research in International Business and Finance*, *58*, 101487. https://doi.org/10.1016/j.ribaf.2021.101487

Xiong, H., Wu, Z., Hou, F., & Zhang, J. (2020). Which firm-specific characteristics affect the market reaction of Chinese listed companies to the COVID-19 pandemic? *Emerging Markets Finance and Trade*, *56*(10), 2231-2242. https://doi.org/10.1080/1540496x.2020.1787151