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COVID-19 and stock liquidity: Evidence from top 30 Kuala Lumpur composite index

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Abstract

This study examines the impact of COVID-19 and the subsequent government policy on stock liquidity traded on the top 30 companies listed on the Main Board of the FTSE Bursa Malaysia KLCI. We collect daily data for stock liquidity, the cumulative number of total cases, the cumulative number of total deaths, the number of active cases, the number of daily new cases, the total number of people vaccinated and firm-specific characteristics for the period from January 2, 2020 to June 30, 2021. The pooled ordinary least squares regression results demonstrate a negative association between COVID-19 and liquidity, suggesting that a higher proportion of COVID-19 cases deteriorate firm stock liquidity. We also document that vaccination programs assist in improving stock liquidity. Additional analysis of the industry sector shows significant differences in liquidity between sectors. The COVID-19 pandemic increases stock liquidity for the transportation and logistics sector and energy sector, but it hardly hits the plantation sector. In terms of government intervention, the vaccination program helps in improving stock liquidity for the utilities sector. Since the negative impact of COVID-19 is inevitable, future research should consider the essential role of vaccinations to recognize and forecast the behavior of stock liquidity.

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1. Introduction

In early 2020, the world economy was assured of a modest rebound. However, the hit of the novel coronavirus 2019 (COVID-19) outbreak has dealt a big blow to the global economy and plunged the economy into a contraction.[1] Seeing the massive impact of the COVID-19, Maliszewska et al. (2020) from the World Bank Group promptly identified the transmission channels of the global shock caused by this deadly infectious disease. Preliminary, Maliszewska et al. (2020) illustrated the potential impact of the pandemic on global GDP and conveyed the likely extent of impending global economic pain. Further, researchers spontaneously conducted studies to see the impact of the COVID-19 pandemic on the global economy (Bagchi et al., 2020; Jena et al. 2021). The forecasted GDP figures were alarming, as all major economies were expected to experience a sharp decline in their GDP for the quarter of April to June 2020 (Jena et al. 2021). Even though the studies were bounded by other unknown effects of COVID-19, they served as a wake-up call to the policymakers to effectively plan for future economic development.

The global financial market also experienced turbulence due to the fast spread of the COVID-19 disease. Major benchmarks of the global stock market have declined over 30% and the implied volatilities (VIX) index has spiked to crisis levels.[2] Without any doubt, by comparing past events that are roughly parallel to COVID-19, Goodell (2020) briefly outlined a consideration of possible impacts of COVID-19 in the finance domain and pointed the avenue for future research pathways. In financial markets, the negative impact of the COVID-19 pandemic has been addressed on firm value (Ramelli and Wagner, 2020; Shen et al., 2020; Hu and Zhang, 2021; Zhang et al, 2021), stock return (Ben-Ahmed et al., 2021; Ding et al., 2021; Xu, 2021; Glossner et al., 2022; Mohd Hasan Abdullah et al., 2022) and volatility (Bora and Basistha, 2021; Kusumahadi and Permana, 2021; Li et al., 2021).

However, the influence of the pandemic on market liquidity is still largely uncharted territory. We found a few studies on the COVID-19 and stock liquidity with evidence from the U.S., Middle East and North African (MENA), American emerging markets and Europe and Middle Eastern emerging markets (Haroon and Rizvi, 2020; Chebbi et al., 2021; Mdaghri et al., 2021; Chung and Chuwonganant, 2022). Those findings evidenced that the increasing trend of COVID-19 confirmed cases heightened market uncertainty and deteriorated markets liquidity. Surprisingly, for Asian emerging markets, no association was found between COVID-19 variables and stock liquidity, and also between the Stringency Index and stock liquidity (Haroon and Rizvi, 2020). Their results also pointed to the direction that Asian equity markets are structurally different from emerging markets elsewhere in terms of liquidity transmission (Choi et al. 2017). Amid its unique characteristics, Haroon and Rizvi (2020) also suggested that an impact study on COVID-19 will be more convincing by including the economic data of each emerging country.

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[1] World Bank. 2020. Global Economic Prospects, January 2020: Slow Growth, Policy Challenges. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/33044 License: CC BY 3.0 IGO and;
World Bank. 2020. Global Economic Prospects, June 2020. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/33748 License: CC BY 3.0 IGO.

[2] OECD. 2020. Global Financial Markets Policy Responses to COVID-19, March 2020. www.oecd.org/coronavirus.

To fill the research gap at least partially, we focus on the impact of COVID-19 and immunization on the liquidity of selected stock indexes in the Malaysian stock market.[3] Equity market liquidity is essential for financial stability and economic growth, especially during extreme events such as the COVID-19 pandemic. Generally, liquidity refers to the ability to buy and sell securities at lower costs without larger price changes. Declining liquidity leads to a series of effects, including rising transaction costs, higher volatility, and triggering financial crisis (Elliott, 2015). Hence, under the unusual economic condition during the pandemic, liquidity is an important indicator of financial resilience. In this study, we contribute to this evolving literature by investigating whether COVID-19 deteriorates liquidity in the Malaysian stock market. There are two main elements in our impact study, first, the spread of COVID-19 infections, and second, government intervention in the form of enforcing COVID-19 vaccination in Malaysia. More specifically, we cover various Movement Control Order (MCO) until commenced of the National Recovery Plan in June 2021. Furthermore, we show how the COVID-19 pandemic impacted the non-financial sector indices in the top 30 firms listed in FTSE Bursa Malaysia KLCI.

The current unique circumstances in Malaysia provide fertile soil for investigating the liquidity changes in response to the severity of COVID-19 and the government interventions in times of pandemic. As previous studies found that restrictions on movement improved stock return (Mohd Hasan Abdullah et al., 2022) and also stock liquidity (Haroon and Rizvi, 2020) during the pandemic, it is of our interest to examine whether Malaysian government intervention in terms of vaccination is associates with better stock liquidity. As of March 28, 2022, Malaysia has the 9th highest rate of complete Covid-19 vaccination in the Asia-Pacific region, with some 79.7% of its total population fully vaccinated and 48.4% with boosters given.[4] COVID-19 vaccination is the best approach to achieving herd immunity rather than acquiring it naturally. Mandatory COVID-19 vaccination is one of the government interventions in flattening the curve to enhance public trust and also foreign investor trust. Despite the turbulence, trusting the market improves the liquidity and probability of transactions. This effect is economically very important for investors, corporations, as well as policymakers and regulators who seek to safeguard financial stability and mitigate the economic impact unleashed by the Covid-19.

We structure this study as follows. Section 2 discusses the data and methodology. Section 3 provides the main regression results and the last section concludes this study.

2. Data and Methodology

2.1 Data

As the COVID-19 pandemic is a new phenomenon, the span of data available is limited. Since the first confirmed case was reported in December 2019, we have utilized data from January 2, 2020 to June 30, 2021, which covers various MCOs in Malaysia since March 18, 2020 and the beginning of the National Recovery Plan on June 15, 2021. With a focus on the Malaysian

[3] We choose Malaysia as our event study because Malaysia has unique institutional and cultural differences. For example, Malaysia has a lower level of liquidity, highly politically connected firms, ownership concentration, and weak legal protection.

[4] Hannah Ritchie, Edouard Mathieu, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Esteban Ortiz Ospina, Joe Hasell, Bobbie Macdonald, Diana Beltekian and Max Roser (2020) - "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource].

stock market, we employ the daily data of the largest 30 companies listed on the Main Board of the FTSE Bursa Malaysia KLCI. In this study, financial sectors are excluded since their accounting principles differ from other industries.[5] After removing financial sectors, our final sample consists of 22 companies with 8,074 firm-year observations. The daily data on financial variables, the cumulative number of total cases, the cumulative number of total deaths, the number of daily new cases, the number of active cases, and the number of people vaccinated are collected from Datastream.

2.2 Pooled Ordinary Least Squares (OLS)

For understanding the relationship between COVID-19 and liquidity of the markets, we use pooled OLS regression model to analyze the panel data sets. The model used in this study are as follows:

$$CPQS_{it} = \gamma_0 + \gamma_1 \ln TC_{it} + \gamma_2 \ln SIZE_{it} + \gamma_3 TO_{it} + \gamma_4 SR_{it} + \gamma_5 BETA_{it} + \gamma_6 VOL_{it} + Year_t + Industry_k + \varepsilon_{it} \quad (1)$$

$$CPQS_{it} = \gamma_0 + \gamma_1 \ln TD_{it} + \gamma_2 \ln SIZE_{it} + \gamma_3 TO_{it} + \gamma_4 SR_{it} + \gamma_5 BETA_{it} + \gamma_6 VOL_{it} + Year_t + Industry_k + \varepsilon_{it} \quad (2)$$

$$CPQS_{it} = \gamma_0 + \gamma_1 \ln \mathrm{AC}_{\mathrm{it}} + \gamma_2 \ln SIZE_{it} + \gamma_3 TO_{it} + \gamma_4 SR_{it} + \gamma_5 BETA_{it} + \gamma_6 VOL_{it} + Year_t + Industry_k + \varepsilon_{it} \quad (3)$$

$$CPQS_{it} = \gamma_0 + \gamma_1 \ln NC_{it} + \gamma_2 \ln SIZE_{it} + \gamma_3 TO_{it} + \gamma_4 SR_{it} + \gamma_5 BETA_{it} + \gamma_6 VOL_{it} + Year_t + Industry_k + \varepsilon_{it} \quad (4)$$

$$CPQS_{it} = \gamma_0 + \gamma_1 \ln PV_{it} + \gamma_2 \ln SIZE_{it} + \gamma_3 TO_{it} + \gamma_4 SR_{it} + \gamma_5 BETA_{it} + \gamma_6 VOL_{it} + Year_t + Industry_k + \varepsilon_{it} \quad (5)$$

where ln denotes the natural logarithm. *CPQS* is the liquidity indicator computed as the difference of closing ask and bid prices over the average of bid-ask prices multiplied by -1. This indicates that a large value of *CPQS* is associated with higher liquidity. The key variables of COVID-19 are the cumulative number of COVID-19 total cases (*TC*), the cumulative number of COVID-19 total deaths (*TD*), the total number of COVID-19 active cases (*AC*), the total number of daily COVID-19 new cases (*NC*) and the total number of people vaccinated (*PV*). We follow Chebbi et al. (2021) and include several firm-specific characteristics in our model as controls, namely, firm size (*SIZE*), turnover (*TO*), stock return (*SR*), firm risk (*BETA*) and volatility (*VOL*). To control heteroscedasticity, we use robust standard errors clustering at firm and year levels (Petersen, 2009). The description of the variables is provided in the Appendix.

3. Empirical Results

[5] A financial firm's balance sheet structure differs from other industries, for example, the financial firm has higher leverage than a non-financial firm. Moreover, all Malaysian financial institutions are governed by different regulatory authorities under the Banking and Financial Act 1999. In accounting and finance literature, most of the studies excluded financial firms in the analysis because the behavior of these financial firms is heavily influenced by the direction of the respective country's regulatory environment (Lean et al., 2015; Tee, 2018; Boubakri et al., 2020).

Table 1 presents the details descriptive statistics of the variables used in this study. Notably, the average *CPQS* of firms traded in the FTSE Bursa Malaysia KLCI 30 Index is -0.5494, suggesting that liquidity had decreased during the COVID-19 pandemic. This is consistent with the study reported by Chia et al. (2020a,b) and Chia et al. (2021) who indicate that Malaysian stock liquidity is still illiquid from the period 2000-2020. As of June 30, 2021, the cumulative number of total cases caused by COVID-19 (*TC*) is 722,659, while the cumulative number of total deaths (*TD*) is 4,803. The highest number of daily new cases (*NC*) and the number of active cases (*AC*) recorded are 7,748 and 82,274, respectively. The total number of people vaccinated (*PV*) is reported as 2.3 million people, as of the end of June 2021. For the firm-specific characteristics, firm size (*SIZE*), turnover (*TO*), stock return (*SR*), firm risk (*BETA*) and volatility (*VOL*) take an average of 10.21, 0.1344, -0.0136, 0.0043 and 2.7030, respectively.

Table 2 presents the pooled OLS estimation results based on equations (1) to (5). The first three columns of Table 2 show that the coefficient of ln*TC*, ln*TD* and ln*AC* are negative and statistically significant, suggesting that an increase in the cumulative number of total cases, the cumulative number of total deaths and the number of active cases cause lower firm liquidity for the selected non-financial firms listed in the main board of FTSE Bursa Malaysia KLCI. The result of a negative relationship between COVID-19 and Malaysian stock liquidity is consistent with the research findings of Chebbi et al. (2021), Baig et al (2021), Nguyen et al. (2021) and Mdaghri et al. (2021) in the U.S., Vietnam and the Middle East and North African (MENA) countries. On the other hand, the total number of people vaccinated (ln*PV*) in Model (5) reports a positive and significant effect on stock liquidity. This confirms that government intervention in terms of vaccination induces investors' confidence and hence, investors place trust and in turn market liquidity improved. For the estimated control variables, we find that firms with larger market capitalization and higher turnover are associated with greater stock liquidity. While stock return and volatility show a negative impact on liquidity. We then further use Amihud (2002) illiquidity approach as an alternative measure of *CPQS*. The result is similar to *CPQS* indicates that the number of COVID-19 cases increases will lead to a firm liquidity decrease.[6]

As a robustness check, we use lagged independent variables to alleviate endogeneity concerns. Table 3 presents the lagged independent variables and stock liquidity. The results are the same as reported in Table 2, where the ln*TC*, ln*TD* and ln*AC* are negatively associated with *CPQS*, and ln*PV* postulates a positive impact on stock liquidity.

We further conduct additional analysis on COVID-19 and stock liquidity across industry sectors. Excluding the financial sector, the Bursa Malaysia industry classifications for the main board of the FTSE Bursa Malaysia KLCI are consumer products and services, transportation and logistics, energy, health care, industrial product and services, plantation, telecommunications and media, and utilities. We set a dummy variable for each industry sector with the value of 1 if the firm belongs to the respective sector, and zero otherwise. Table 4 presents the relationship between COVID-19 and stock liquidity across industry sectors for the regression models with ln*TC* (Panel A) and ln*TD* (Panel B). Undoubtedly, the key findings of COVID-19 variables are consistent with the regression reported in Table 2.

Further, to conserve space, we summarize the sectorial results and present them in Table 5. Interestingly, the results indicate significant differences in liquidity between sectors. When we examine the effect of the spread of COVID-19 on stock liquidity, for the regression

[6] The result is available upon request from the authors.

models with ln*TC*, ln*TD* and ln*AC* respectively, the transportation and logistics sector and energy sectors have better liquidity than the overall market. In comparison, stock liquidity in the sector of plantation is lower than in the market overall. This result suggests that during the pandemic, the firms in these two sectors still have adequate shares outstanding and adequate demand from buyers and sellers. For the sector of transportation and logistics, the demand for delivering necessary goods and services is not impacted even though the movement is restricted during the COVID-19 pandemic. The energy sector is a category of firms in the business related to the production and supply of energy. This sector is subject to risks of changing environmental policies and the pandemic has no negative impact on this sector. On the other hand, the sector of plantation is hardly hit by the pandemic. The plantation sector shows a negative relationship, most probably due to the suspension of operations during the lockdown and this causes lower market liquidity. The stock liquidity for the rest of the sectors are insignificant and this suggests that these sectors are not driven by the dynamics of the pandemic itself.

Apparently, government interventions lead to positive changes in the stock market and successful vaccination programs should be able to improve business and investor sentiment. Referring to Table 5, it is evidenced that the sector of utilities responds positively to vaccination. As expected, consumption of electricity, gas, water and other utilities will back to normal once businesses resumed. Therefore, firms in this sector will attract investor at first glance and this cause better liquidity than the overall market. On the other hand, stock liquidity for the energy sector is negatively associated with vaccination. However, this does not imply a negative effect of vaccination. Instead, the rollout of vaccinations induced investors to revise their expectations regarding future earnings in the energy sector and this triggered declines in stock trading activity.

4. Conclusion

This study examines the impact of COVID-19 and the subsequent government policy on stock liquidity traded on the Main Board of the FTSE Bursa Malaysia KLCI. Our key findings provide the evidence that increases in the cumulative number of total cases, the cumulative number of total deaths and the number of active cases significantly deteriorate stock market liquidity. However, we find a positive and significant relationship between the total number of people vaccinated and liquidity, suggesting that vaccination help stabilize the market turbulence and improve overall market liquidity. Apart from that, we further discuss the COVID-19 pandemic and liquidity across industry sectors. Among the eight sectors, our study found that the transportation and logistics sector, energy sector, plantation sector and utilities sector responded to the key variables of stock liquidity. We find that the sector of transportation and logistics and energy have a positive impact on liquidity, however, the pandemic hit the plantation industry with decreasing firm liquidity. Nevertheless, the vaccination policy improves the market liquidity for utilities sector, but it marks a substantial decrease in the liquidity of firms in the energy sector. The stock liquidity for the rest of the sectors are not driven by the dynamics of the pandemic or government intervention. Hence, our findings provide insight to policymakers, managers, stakeholders, and investors to adjust the demand and supply following industrial needs during the outbreak of the COVID-19 pandemic. Moreover, investors need to follow the development of the vaccination program and keep track of the vaccinations' effectiveness. Investors might need to modify their portfolios based on those developments. With more data streams on pandemics, especially on vaccination, this study can be expanded by including a longer study period as the new variant of COVID has hit

Malaysia in December 2021. Future studies can explore the effects of the new wave of COVID on stock market liquidity to further understand the role of vaccinations in financial markets.

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Table 1: Descriptive Statistics

	N	Mean	Standard Deviation	Min	Quartile 1	Median	Quartile 3	Max
CPQS	8,074	-0.5494	0.4699	-2.5172	-0.7151	-0.3960	-0.2232	-0.0903
TC	8,074	136068	195789	0.0000	6819	11484	269165	722659
TD	8,074	653.0054	1011.4350	0.0000	112	136	983	4803
NC	8,074	1341.1120	1879.6840	0.0000	15	277	2000	7748
AC	8,074	14697.8900	20532.6300	0.0000	200	2553	21268	82274
PV	1,540	815430.6	578082.7	792	409784	656577.5	1100000	2300000
ln*SIZE*	8,074	10.2100	0.4807	9.0275	9.8816	10.2433	10.4993	11.1716
TO	8,074	0.1344	0.2624	0.0000	0.0300	0.0600	0.1300	1.9700
SR	8,074	-0.0136	1.9595	-6.1529	-0.9550	0.0000	0.8299	6.6894
BETA	8,074	0.0043	0.0092	0.0000	0.0000	0.0000	0.0100	0.0500
VOL	8,074	2.7030	1.8458	0.4900	1.5100	2.2200	3.3000	10.9700

Notes: This table shows the descriptive statistics for the regression variables. The sample consists of 8,074 firm-year observations with the selected 22 firms listed in the Main Board of FTSE Bursa Malaysia KLCI over the period January 2, 2020 to June 30, 2021. All variables description is reported in the Appendix.

Table 2: COVID-19 and Stock Liquidity (*CPQS*)

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
ln*TC*	-0.0134***				
	(0.0031)				
ln*TD*		-0.0178***			
		(0.0045)			
ln*AC*			-0.0093**		
			(0.0037)		
ln*NC*				-0.0061	
				(0.0045)	
ln*PV*					0.0303**
					(0.0131)
ln*SIZE*	0.0865***	0.0870***	0.0830***	0.0831***	0.0790***
	(0.0317)	(0.0318)	(0.0306)	(0.0303)	(0.0292)
TO	0.3847***	0.3859**	0.3858**	0.3877**	0.7577**
	(0.1492)	(0.1498)	(0.1504)	(0.1506)	(0.3127)
SR	-0.0171**	-0.0167**	-0.0173**	-0.0176**	-0.0285**
	(0.0069)	(0.0068)	(0.0069)	(0.0069)	(0.0111)
BETA	-1.6868	-1.7056	-1.6025	-1.5992	-0.1816
	(2.4775)	(2.5001)	(2.4500)	(2.4471)	(2.3733)
VOL	-0.0525***	-0.0542***	-0.0529***	-0.0536***	-0.0541***
	(0.0147)	(0.0150)	(0.0145)	(0.0145)	(0.0158)
Constant	-1.2678***	-1.3058***	-1.2813***	-1.3151***	-1.6290***
	(0.3343)	(0.3304)	(0.3212)	(0.3148)	(0.2876)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes
F-test	54.00***	52.44***	51.19***	50.19***	8.97***
Observations	8,074	8,074	8,074	8,074	1,540
Adj. R^2	0.1022	0.1011	0.0986	0.0973	0.0799

Notes: This table shows the baseline pooled OLS estimation results by regressing stock liquidity (*CPQS*) on COVID-19 key variables and the control variables as shown by Equation (1), (2), (3), (4) & (5). Our sample contains 8,074 firm-year observations for Model (1) to Model (4) that cover 22 non-financial firms for the period from January 2, 2020 to June 30, 2021. While the number of observations for estimation of Model (5) is 1,540 firm-year observations since the vaccination data is only available since March 18, 2021. Model (1) regress *CPQS* on cumulative number of total cases (ln*TC*) as shown by Equation (1); Model (2) regress *CPQS* on cumulative number of total deaths (ln*TD*) as shown by Equation (2); Model (3) to Model (5) are also estimated in such manner as refer to Equation (3) to Equation (5). The control variables are the natural logarithm of market capitalization (ln*SIZE*), turnover (*TO*), stock return (*SR*), firm risk (*BETA*), and volatility (*VOL*). Robust standard errors clustered at the firm and year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3: COVID-19 and Stock Liquidity (Lagged Independent Variables)

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
$\ln TC_{t-1}$	-0.0152***				
	(0.0033)				
$\ln TD_{t-1}$		-0.0175***			
		(0.0047)			
$\ln AC_{t-1}$			-0.0123***		
			(0.0040)		
$\ln NC_{t-1}$				-0.0075	
				(0.0046)	
$\ln PV_{t-1}$					0.0350***
					(0.0112)
$\ln SIZE_{t-1}$	0.0987***	0.0988***	0.0946***	0.0948***	0.0931***
	(0.0288)	(0.0287)	(0.0287)	(0.0286)	(0.0316)
TO_{t-1}	0.3065***	0.3087***	0.3065**	0.3094***	0.6451***
	(0.1188)	(0.1196)	(0.1199)	(0.1200)	(0.2164)
SR_{t-1}	-0.0021	-0.0018	-0.0023	-0.0027	-0.0029
	(0.0029)	(0.0029)	(0.0029)	(0.0028)	(0.0076)
$BETA_{t-1}$	-1.3430	-1.3508	-1.2471	-1.2445	-0.3448
	(1.7357)	(1.7540)	(1.7029)	(1.6985)	(1.9697)
VOL_{t-1}	-0.0186**	-0.0205**	-0.0187**	-0.0197**	-0.0215*
	(0.0089)	(0.0091)	(0.0086)	(0.0087)	(0.0123)
Constant	-1.4538***	-1.5017***	-1.4581***	-1.5050***	-1.8806***
	(0.3076)	(0.3024)	(0.3069)	(0.3045)	(0.3648)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes
F-test	57.64***	55.99***	55.00***	53.68***	10.47***
Observations	8,030	8,030	8,030	8,030	1,518
Adj. R^2	0.0668	0.0641	0.0632	0.0607	0.0552

Notes: This table re-estimated OLS regression results with lagged independent variables. Robust standard errors clustered at the firm and year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4: COVID-19 and Stock Liquidity across Industry Sectors

	Panel A: Cumulative Number of Total Cases							
Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)
ln*TC*	-0.0135***	-0.0135***	-0.0135***	-0.0134***	-0.0135***	-0.0135***	-0.0135***	-0.0135***
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0031)
Consumer Products & Services	-0.0162							
	(0.0564)							
Transport & Logistics		0.0607*						
		(0.0364)						
Energy			0.0588*					
			(0.0304)					
Health Care				0.0699				
				(0.1136)				
Industrial Product & Services					-0.0149			
					(0.0402)			
Plantation						-0.1343***		
						(0.0305)		
Telecommunications & Media							-0.0164	
							(0.0291)	
Utilities								0.0534
								(0.0518)
Observations	8,074	8,074	8,074	8,074	8,074	8,074	8,074	8,074
Adj. R^2	0.0872	0.0882	0.0876	0.0882	0.0871	0.0935	0.0871	0.0879
	Panel B: Cumulative Number of Total Deaths							
ln*TD*	-0.0176***	-0.0178***	-0.0177***	-0.0177***	-0.0177***	-0.0178***	-0.0177***	-0.0175***
	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)
Consumer Products & Services	-0.0167							
	(0.0567)							
Transport & Logistics		0.0618*						
		(0.0368)						
Energy			0.0585*					
			(0.0304)					
Health Care				0.0714				
				(0.1143)				
Industrial Product & Services					-0.0142			
					(0.0406)			
Plantation						-0.1350***		
						(0.0305)		
Telecommunications & Media							-0.0167	
							(0.0292)	
Utilities								0.0519
								(0.0514)
Observations	8,074	8,074	8,074	8,074	8,074	8,074	8,074	8,074
Adj. R^2	0.0916	0.0926	0.0920	0.0932	0.0915	0.0979	0.0915	0.0922

Notes: This table presents the pooled OLS estimation results across all industry sectors. The dependent variable is stock liquidity (*CPQS*). For brevity, control variables, constant and year dummies are not reported but available upon request from the authors. Robust standard errors clustered at the firm and year level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5: A Summary Result of COVID-19 and Stock Liquidity across Industry Sectors

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
ln*TC*	Sig -ve				
ln*TD*		Sig -ve			
ln*AC*			Sig -ve		
ln*DC*				-	
ln*PV*					Sig +ve
Consumer Products & Services	-	-	-	-	-
Transportation & Logistics	Sig +ve	Sig +ve	Sig +ve	-	-
Energy	Sig +ve	Sig +ve	Sig +ve	-	Sig -ve
Health Care	-	-	-	-	-
Industrial Product & Services	-	-	-	-	-
Plantation	Sig -ve	Sig -ve	Sig -ve	-	-
Telecommunications & Media	-	-	-	-	-
Utilities	-	-	-	-	Sig +ve
Controls & Constant	Yes	Yes	Yes	Yes	Yes
Sector Dummies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
No. of Firms	22	22	22	22	22
Observations	8,074	8,074	8,074	8,074	1540

Notes: This table presents the summary of the pooled OLS estimation results for the 22 non-financial firms in the Malaysian stock market through the period January 2, 2020 to June 30, 2021, taking into account specific sectors. Dummy variables for sectors are added in the model, which take the value of one if the stock belongs to that particular sector, and zero otherwise. The dependent variable, independent variable and control variables in the regression model are the same as described earlier in Table 2. The sign of 'Sig +ve' denotes that the variable is statistical significance with a positive value, while the sign of 'Sig –ve' denotes that the variable is statistical significance with a negative value, and '-' indicates insignificant results. The full regression result is available upon request from the authors.

Appendix: Variables Description

Variable	Description
CPQS	Closing Percent Quoted Spread (*CPQS*) is measured as the difference of closing ask and closing bid prices over the mid-point of bid-ask prices multiplied by -1.
ln*TC*	Natural logarithm of the cumulative number of total cases.
ln*TD*	Natural logarithm of the cumulative number of total deaths.
ln*AC*	Natural logarithm of the number of active cases.
ln*NC*	Natural logarithm of the number of daily new cases.
ln*PV*	Natural logarithm of the number of people vaccinated.
ln*SIZE*	Natural logarithm of market capitalization is proxied by firm size.
TO	Turnover (*TO*) is the ratio of the number of shares traded divided by the number of shares outstanding.
SR	Stock return (*SR*) is computed as stock price minus closing price in the previous day.
BETA	Beta is a measure of market risk which shows the relationship between the volatility of the stock and the volatility of the market.
VOL	Volatility (*VOL*) is calculated as the difference between high price and low price divided by closing price in the previous day.