Online Appendix

"COVID-19 Pandemic and Stock Market Response: A Culture Effect"

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Appendix IA1. Stock market response and culture using total return indexes in local currencies

This table reports the results for the multivariate regressions of stock market responses based on local currencies. Panels A and B report the results for the cumulative abnormal return (CAR), and Panels C and D report the results for the abnormal return volatility (AVOLA). Both CAR and AVOLA are constructed using total return indexes in local currencies. *CULTURE* is either the individualism index (IDV) or the uncertainty avoidance index (UAI). *GDDPC* is a country's gross domestic product per capita in natural log. *DENS* is the number of people per square kilometer of land in natural log. *CCASE* is the global cumulative infected cases on a country's first infected case date in natural log. *VIX* is the CBOE market volatility index on a country's first infected case date, and *GDPGRW* is the GDP annual growth in 2018. The White-corrected *t*-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: CAR$_{[-2,+5]}$		Panel B: CAR$_{[-2,+15]}$		Panel C: AVOLA$_{[-2,+5]}$		Panel D: AVOLA$_{[-2,+15]}$	
	IDV	UAI	IDV	UAI	IDV	UAI	IDV	UAI
CULTURE	0.0012***	-0.0008***	0.0027***	-0.0016**	-0.0002**	0.0002**	-0.0002**	0.0002***
	(3.12)	(-2.85)	(3.65)	(-2.20)	(-2.20)	(2.36)	(-2.10)	(2.67)
GDDPC	-0.0206***	-0.0092	-0.0464**	-0.0195	-0.0004	-0.0024	0.0001	-0.0018
	(-2.81)	(-1.40)	(-2.32)	(-1.05)	(-0.21)	(-1.24)	(0.03)	(-0.93)
DENS	0.0005	-0.0060	0.0145	0.0001	-0.0010	0.0002	-0.0016	-0.0004
	(0.11)	(-1.26)	(1.47)	(0.01)	(-0.97)	(0.16)	(-1.44)	(-0.35)
CCASE	-0.0049	0.0006	-0.0451***	-0.0336***	0.0015	0.0005	0.0032***	0.0021*
	(-1.54)	(0.19)	(-3.91)	(-3.02)	(1.94)	(0.60)	(2.94)	(1.95)
VIX	-0.0043***	-0.0050***	-0.0008	-0.0025	0.0007***	0.0009***	0.0006***	0.0008***
	(-4.12)	(-4.93)	(-0.42)	(-1.19)	(3.85)	(4.73)	(2.78)	(3.42)
GDPGRW	-0.0026	-0.0041	-0.0102	-0.0131	-0.0018	-0.0015	-0.0013	-0.0009
	(-0.77)	(-1.16)	(-0.96)	(-1.12)	(-1.26)	(-0.99)	(-0.93)	(-0.60)
Constant	0.2402***	0.2401***	0.5666**	0.5435**	0.0145	0.0129	0.0041	-0.0002
	(3.07)	(2.90)	(2.40)	(2.18)	(0.60)	(0.50)	(0.17)	(-0.01)
Adj-R^2 (%)	54.80	52.40	45.14	41.15	48.88	48.11	53.18	53.68
Obs.	63	63	63	63	63	63	63	63

Appendix IA2. Stock market response and culture for the [-2, +10] event window

This table reports the multivariate regression results of the cumulative abnormal returns (Panel A) and abnormal return volatility (Panel B) using the event window of [-2, +10] days. *CULTURE* is either the individualism index (IDV) or the uncertainty avoidance index (UAI). *GDDPC* is a country's gross domestic product per capita in natural log. *DENS* is the number of people per square kilometer of land in natural log. *CCASE* is the global cumulative infected cases on a country's first infected case date in natural log. *VIX* is the CBOE market volatility index on a country's first infected case date, and *GDPGRW* is the GDP annual growth in 2018. The White-corrected *t*-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: $CAR_{[-2,+10]}$		Panel B: $AVOLA_{[-2,+10]}$	
	IDV	UAI	IDV	UAI
CULTURE	0.0017*	-0.0010**	-0.0002*	0.0002**
	(1.79)	(-1.96)	(-1.91)	(2.48)
GDDPC	-0.0255	-0.0089	0.0006	-0.0013
	(-1.37)	(-0.54)	(0.28)	(-0.70)
DENS	0.0113	0.0024	-0.0016	-0.0003
	(1.21)	(0.27)	(-1.52)	(-0.33)
CCASE	-0.0196***	-0.0125**	0.0020**	0.0009
	(-3.70)	(-2.26)	(2.53)	(1.13)
VIX	-0.0062***	-0.0072***	0.0009***	0.0011***
	(-3.71)	(-3.88)	(4.56)	(5.25)
GDPGRW	0.0006	-0.0011	-0.0012	-0.0008
	(0.07)	(-0.11)	(-0.87)	(-0.51)
Constant	0.3045	0.2895	0.0011	-0.0035
	(1.53)	(1.36)	(0.05)	(-0.13)
Adj-R^2 (%)	49.83	48.02	56.74	57.28
Obs.	63	63	63	63

Appendix IA3. Robustness using cumulative absolute abnormal return

This table reports the multivariate regression results of the cumulative absolute abnormal returns (CAAR). Panels A and B report the results for event windows of [-2, +5] and [-2, +15] days, respectively. *CULTURE* is either the individualism index (IDV) or the uncertainty avoidance index (UAI). *GDDPC* is a country's gross domestic product per capita in natural log. *DENS* is the number of people per square kilometer of land in natural log. *CCASE* is the global cumulative infected cases on a country's first infected case date in natural log. *VIX* is the CBOE market volatility index on a country's first infected case date, and *GDPGRW* is the GDP annual growth in 2018. The White-corrected *t*-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: CAAR$_{[-2,+5]}$		Panel B: CAAR$_{[-2,+15]}$	
	IDV	UAI	IDV	UAI
CULTURE	-0.0018***	0.0013***	-0.0043**	0.0028**
	(-2.62)	(2.82)	(-2.43)	(2.26)
GDDPC	0.0021	-0.0142	0.0005	-0.0408
	(0.17)	(-1.18)	(0.01)	(-1.24)
DENS	-0.0104	-0.0005	-0.0350*	-0.0120
	(-1.58)	(-0.08)	(-1.89)	(-0.63)
CCASE	0.0104**	0.0020	0.0571***	0.0382**
	(2.15)	(0.41)	(3.03)	(2.01)
VIX	0.0052***	0.0064***	0.0072*	0.0098**
	(3.88)	(4.79)	(1.94)	(2.54)
GDPGRW	-0.0101	-0.0073	-0.0290	-0.0238
	(-1.27)	(-0.88)	(-1.31)	(-1.00)
Constant	0.0619	0.0492	0.1557	0.1688
	(0.45)	(0.32)	(0.39)	(0.38)
Adj-R^2 (%)	52.80	51.65	50.78	48.60
Obs.	63	63	63	63

Appendix IA4. Stock market return and culture (with other possible explanations)

This table reports the results for the multivariate regressions of CAR over the [-2, +15] day event window on IDV (Panel A) or UAI (Panel B) as a culture proxy. *ΔSTRINGENCY* is the change in Stringency Index within the event window. *DEMO* is the level of democracy. *CORRUPT* is the political corruption index. *SARS* is the dummy variable for countries with SARS deaths in 2003. *OPEN* is the ratio of a country's foreign trade over its GDP. *FOREIGN* is the percentage of foreign ownerships in 2017. *SERVICE* is the value of the Services sector as a proportion of a country's total GDP. *DEATH* is an indicator variable which equals one when there is at least one death in a country within the event window and zero otherwise. *OUTBREAK* is a dummy variable equal one after the WHO COVID-19 outbreak declaration on January 30, 2020. The White-corrected *t*-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Other controls include *GDDPC, DENS*, *CCASE*, *VIX*, and *GDPGRW*. Detailed variable definitions are in 'Appendix' Table 6.

Culture Coefficient	*t*-stat	Characteristics	Coefficient	*t*-stat	Controls	Adj-R2	Obs.
Panel A: IDV							
0.0025***	(2.71)	*ΔSTRINGENCY*	-0.0023**	(-2.25)	YES	48.2	62
0.0035***	(3.73)	*DEMO*	-0.0111*	(-1.76)	YES	43.5	62
0.0030***	(3.39)	*CORRUPT*	-0.0354	(-0.28)	YES	41.6	62
0.0031***	(3.49)	*SARS*	-0.0055	(-0.15)	YES	42.3	63
0.0031***	(3.19)	*OPEN*	-0.0002	(-0.51)	YES	41.8	62
0.0047***	(4.77)	*FOREIGN*	-0.3369*	(-1.71)	YES	55.4	51
0.0035***	(3.47)	*SERVICE*	-0.0034	(-1.08)	YES	43.7	63
0.0022***	(3.00)	*DEATH*	-0.1879***	(-4.39)	YES	57.9	63
0.0029***	(3.38)	*OUTBREAK*	-0.1605**	(-2.28)	YES	46.6	63
Panel B: UAI							
-0.0011	(-1.52)	*ΔSTRINGENCY*	-0.0025**	(-2.45)	YES	44.6	62
-0.0015*	(-1.84)	*DEMO*	-0.0036	(-0.61)	YES	36.5	62
-0.0013	(-1.44)	*CORRUPT*	-0.1089	(-0.83)	YES	37.1	62
-0.0017**	(-1.99)	*SARS*	-0.0509	(-1.07)	YES	37.5	63
-0.0017**	(-1.96)	*OPEN*	-0.0004	(-1.33)	YES	37.6	62
-0.0015	(-1.65)	*FOREIGN*	-0.1951	(-0.93	YES	42.3	51
-0.0015*	(-1.85)	*SERVICE*	-0.0008	(-0.27)	YES	37.1	63
-0.0010	(-1.38)	*DEATH*	-0.2003***	(-4.53)	YES	55.1	63
-0.0012	(-1.33)	*OUTBREAK*	-0.1590**	(-2.07)	YES	41.0	63

Appendix IA5. Stock market volatility and culture (with other possible explanations)

This table reports the results for the multivariate regressions of AVOLA over the [-2, +15] day event window on IDV (Panel A) or UAI (Panel B) as a culture proxy. *ΔSTRINGENCY* is the change in Stringency Index within the event window. *DEMO* is the level of democracy. *CORRUPT* is the political corruption index. *SARS* is the dummy variable for countries with SARS deaths in 2003. *OPEN* is the ratio of a country's foreign trade over its GDP. *FOREIGN* is the percentage of foreign ownerships in 2017. *SERVICE* is the value of the Services sector as a proportion of a country's total GDP. *DEATH* is an indicator variable which equals one when there is at least one death in a country within the event window and zero otherwise. *OUTBREAK* is a dummy variable equal one after the WHO COVID-19 outbreak declaration on January 30, 2020. The White-corrected *t*-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Other controls include *GDDPC, DENS, CCASE, VIX*, and *GDPGRW*. Detailed variable definitions are in 'Appendix' Table 6.

Culture Coefficient	*t*-stat	Characteristics	Coefficient	*t*-stat	Controls	Adj-R2	Obs.
Panel A: IDV							
-0.0002*	(-1.69)	*ΔSTRINGENCY*	0.0003***	(4.43)	YES	61.6	62
-0.0003**	(-2.39)	*DEMO*	0.0008	(1.44)	YES	52.3	62
-0.0003**	(-2.00)	*CORRUPT*	0.0016	(0.11)	YES	51.6	62
-0.0003**	(-2.29)	*SARS*	0.0030	(0.63)	YES	52.4	63
-0.0003**	(-2.07)	*OPEN*	0.0000	(0.36)	YES	51.9	62
-0.0003***	(-2.83)	*FOREIGN*	0.0152	(0.83)	YES	58.3	51
-0.0003**	(-2.02)	*SERVICE*	0.0001	(0.27)	YES	52.3	63
-0.0002*	(-1.82)	*DEATH*	0.0158***	(3.73)	YES	60.6	63
-0.0003**	(-2.18)	*OUTBREAK*	0.0122*	(1.78)	YES	54.1	63
Panel B: UAI							
0.0001*	(1.94)	*ΔSTRINGENCY*	0.0003***	(4.51)	YES	60.9	62
0.0002**	(2.49)	*DEMO*	0.0001	(0.13)	YES	50.2	62
0.0002**	(2.30)	*CORRUPT*	0.0058	(0.46)	YES	50.3	62
0.0002***	(2.93)	*SARS*	0.0086*	(1.73)	YES	51.7	63
0.0002***	(2.56)	*OPEN*	0.0000	(1.48)	YES	50.9	62
0.0002**	(2.36)	*FOREIGN*	0.0062	(0.32)	YES	55.0	51
0.0002**	(2.45)	*SERVICE*	-0.0001	(-0.63)	YES	50.6	63
0.0002**	(2.00)	*DEATH*	0.0166***	(3.92)	YES	59.9	63
0.0002**	(2.02)	*OUTBREAK*	0.0112	(1.57)	YES	52.0	63

Appendix IA6. Variable definitions

Variable	Description	Source
CAR	Cumulative abnormal stock market (MSCI) return	Refinitiv
AVOLA	Abnormal stock market (MSCI) return volatility	Refinitiv
IDV	Individualism index	Hofstede, Hofstede, and Minkov (2010)
UAI	Uncertainty avoidance index	Hofstede, Hofstede, and Minkov (2010)
GDDPC	Gross domestic product per capita	World Bank
DENS	Population per square kilometre of land	World Bank
CCASE	Global cumulative infected cases	Statista
VIX	CBOE market volatility index	Refinitiv
GDPGRW	GDP annual growth (2018)	World Bank
STRINGENCY	Government stringency Index	Hale et al. (2020)
DEMO	The level of democracy	Teorell et al. (2020)
CORRUPT	Political corruption index	Coppedge et al. (2020)
SARS	An indicator variable for countries with SARS deaths in 2003	Ru, Yang, and Zou (2020)
OPEN	The ratio of a country's foreign trade over its GDP	World Bank
FOREIGN	The percentage of foreign investors ownership (end-2017)	De la Cruz, Medina, and Tang (2019)
SERVICE	The value of the services sector as a proportion of a country's total GDP	World Bank
DEATH	An indicator variable which equals one when there is at least one death in a country within the event window and zero otherwise	Johns Hopkins Coronavirus Resource Center
OUTBREAK	An indicator variable equal one after the WHO COVID-19 outbreak declaration on January 30, 2020	