The COVID-19 Effect of Institutional Holdings on Firm Profitability: An Industry Analysis

Haksoon Kim
Troy University

We investigate the effect of institutional holdings change on firm value change one year before and after the COVID-19 pandemic for US and global industry. Using the firm value change measures of return on equity or economic value-added changes, we find a positive relationship between institutional holdings change and firm value change one year after the COVID-19 pandemic. Specifically, the positive relationship is more pronounced for global industry. The result implies that the positive effect of institutional holdings on firm value still holds one year after the COVID-19 pandemic. It implies the global industry is more sensitive to institutional holdings.

Keywords: institutional holdings, firm value, global industry, COVID-19 pandemic

INTRODUCTION

It has been almost two years since the COVID-19 pandemic and the pandemic incurs disruptions in financial markets and the overall economy. The COVID-19 pandemic also has significant effects on the institutional ownership and firm profitability. Not only did the institutional holdings change, but also firm profitability changed during the pandemic. However, there is little empirical research on the relationship between institutional holdings on firm profitability during COVID-19 pandemic.

Many literatures use different hypotheses to explain the effect of institutional holdings on firm profitability. However, there is not a dominant explanation. The relationship is either positive or negative between institutional holdings and firm profitability. The result also varies across countries over different time period. Also, the relationship is different depending on the profitability measures used in the study.

This paper investigates the relationship between institutional holdings change and firm profitability change during the COVID-19 pandemic. We find a positive relationship between institutional holdings change and firm profitability change during the COVID-19 pandemic for both US and global industries. Also, we find that the positive relationship is stronger for global industries during the COVID-19 pandemic. Our results are consistent with the related literature.

The rest of the paper is organized as follows. Section 2 develops our hypotheses. Section 3 describes the data and methodology. Section 4 reports the empirical results, while Section 5 concludes the paper.

RELATED LITERATURE AND HYPOTHESIS

There are mixed results in the relationship between institutional ownership and firm value both domestically and internationally. One group of literature found a positive relationship between institutional

ownership and firm value and the literature argued that positive effect comes from the monitoring role of institutional investors in the United States (Pound, 1988; McConnell and Servaes, 1990; Chaganti and Damanpour, 1991; Han and Suk, 1998; Clay, 2001; Tsai and Gu, 2007; Elyasiani and Jia, 2010). However, other studies find little or no relationship between institutional ownership and firm value in the United States (Lowenstein, 1991; Agrawal and Knoeber, 1996; Duggal and Millar, 1999; Craswell, Taylor, and Saywell, 1997; Faccio and Lasfer, 2000; Mollah, Farooque and Karim, 2012). Another study finds a negative relationship between institutional ownership and firm value if the institution makes any strategic move (Tsouknidis, 2019)

For international companies, we can find similar mixed results in the relationship between institutional ownership and firm value. One group of studies find a positive relationship between institutional ownership and firm value (Nesbitt, 1994; Smith, 1996; Guercio and Hawkins, 1999; Ferreira and Matos, 2008; Demiralp, D'Mello, Schlingemann and Subramaniam, 2011; Fazlzadeh, Hendi and Mahboubi, 2011; Alfaraih, Alanezi and Almujamed, 2012; Fauzi and Locke, 2012; Hsu and Wang, 2014; Tahir, Saleem and Arshad, 2015; Masry, 2016; Sakawa and Watanabe, 2020). Other studies find a negative relationship between institutional ownership and firm value if the institution has any connections with the sample firms (Bhattacharya and Graham, 2009) and if the institutions have ownership in banks (Zouari and Taktak, 2014). Finally, there are group of literature showing mixed relationship (Ruiz-Mallorqui and Santana-Martin, 2011; Thanatawee, 2014), and little or no relationship (Mokhtari and Makerani, 2013; Al-Najjar, 2015) between institutional ownership and firm value.

If institutional ownership change has a monitoring role, then we expect that the decrease in ownership during the COVID-19 pandemic will negatively affect the firm value. On the other hand, we expect a positive effect on the firm value if the ownership increases during the pandemic.

Hypothesis: *firm value change is positively correlated with the change in institutional ownership during the COVID-19 pandemic.*

DATA AND METHODOLOGY

We used the useful datasets from New York University website. The website link is as follows (https://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html). Sample period is from 2018 to 2020. We constructed two samples for comparison purposes one year before and after the COVID-19 pandemic. First, we calculated the change in variables from 2018 to 2019. Then, we calculated the change in variables from 2019 to 2020. Both of the samples use US and Global industry data from the website. We use change in industry return on equity (*ΔROE*) and economic value added (*ΔEVA*) as the proxies for firm profitability. They are our dependent variables. We use change in industry institutional holdings (*ΔInstitutionalHoldings*) as our explanatory variable. We use change in industry payout ratio (*ΔPayout*), change in industry debt ratio (*ΔDebtRatio*), change in industry beta (*ΔBeta*), and change in industry market capitalization (*ΔMarketCap*) as our control variables. We run OLS regressions of the dependent variable (*ΔROE* or *ΔEVA*) on explanatory variable (*ΔInstitutionalHoldings*) and control variables (*ΔPayout*, *ΔDebtRatio*, *ΔBeta*, and *ΔMarketCap*) for US and global industries from 2018 to 2019 and from 2019 to 2020. The regression equation is as follows.

$$\Delta ROE=\alpha+\beta_1*\Delta InstitutionalHoldings+\beta_2*\Delta Payout+\beta_3*\Delta DebtRatio+\beta_4*\Delta Beta+\beta_5*\Delta MarketCap+\varepsilon \quad (1)$$

$$\Delta EVA=\alpha+\beta_1*\Delta InstitutionalHoldings+\beta_2*\Delta Payout+\beta_3*\Delta DebtRatio+\beta_4*\Delta Beta+\beta_5*\Delta MarketCap+\varepsilon \quad (2)$$

EMPIRICAL RESULTS

TABLE 1 shows the descriptive statistics of variables used in our empirical analysis. Panel A and panel B shows the cases of US industry from 2018 to 2019 and from 2019 to 2020, respectively. On average, the changes in firm profitability variables are greater from 2019 to 2020 than from 2018 to 2019 in US industry

(Δ*ROE*: -0.077 vs. -0.031; Δ*EVA* (*$billions*): 2.092 vs. 1.489). Also, the standard deviations of firm profitability variable changes are, on average, greater from 2019 to 2020 than from 2018 to 2019 (Δ*ROE*: 0.204 vs. 0.131; Δ*EVA* (*$billions*): 15.804 vs. 6.224).

TABLE 1
DESCRIPTIVE STATISTICS OF REGRESSION VARIABLES

Panel A. Descriptive Statistics of Regression Variables for US Industry from 2018 to 2019

Variables	N	Mean	Median	Std. Dev.	Min	Max
Δ*ROE*	93	-0.031	-0.026	0.131	-0.618	0.483
Δ*EVA* ($billions)	93	1.489	0.316	6.224	-8.816	34.92
Δ*InstitutionalHoldings*	93	0.003	0.007	0.045	-0.114	0.112
Δ*Payout*	93	0.126	0.053	0.581	-2.493	2.690
Δ*DebtRatio*	93	0.029	0.026	0.063	-0.176	0.279
Δ*Beta*	93	0.046	0.030	0.230	-0.756	1.096
Δ*MarketCap*($billions)	93	74.50	31.61	123.39	-123.43	764.87

Panel B. Descriptive Statistics of Regression Variables for US Industry from 2019 to 2020

Variables	N	Mean	Median	Std. Dev.	Min	Max
Δ*ROE*	93	-0.077	-0.034	0.20	-0.95	0.642
Δ*EVA* ($billions)	93	2.092	0.637	15.80	-50.13	111.10
Δ*InstitutionlHoldings*	93	-0.029	-0.029	0.067	-0.21	0.249
Δ*Payout*	93	0.004	0.000	1.068	-2.99	8.115
Δ*DebtRatio*	93	0.015	0.008	0.048	-0.12	0.205
Δ*Beta*	93	-0.217	-0.209	0.336	-1.40	0.631
Δ*MarketCap*($billions	93	86.90	22.92	234.19	-270.76	1471

Panel C. Descriptive Statistics of Regression Variables for Global Industry from 2018 to 2019

Variables	N	Mean	Median	Std. Dev.	Min	Max
Δ*ROE*	94	-0.014	-0.019	0.052	-0.184	0.209
Δ*EVA* ($billions)	94	8.811	2.917	28.79	-20.43	205.26
Δ*InstitutionalHoldings*	94	-0.006	-0.005	0.011	-0.064	0.020
Δ*Payout*	94	0.047	0.062	0.892	-6.125	5.391
Δ*DebtRatio*	94	0.024	0.021	0.038	-0.073	0.162
Δ*Beta*	94	-0.003	-0.005	0.067	-0.202	0.191
Δ*MarketCap*($billions	94	173.222	90.98	256.11	-121.80	1947.69

Panel D. Descriptive Statistics of Regression Variables for Global Industry from 2019 to 2020

Variables	N	Mean	Median	Std. Dev.	Min	Max
Δ*ROE*	94	-0.049	-0.028	0.089	-0.472	0.223
Δ*EVA* ($billions)	94	-1.514	1.094	29.14	-181.91	59.29
Δ*InstitutionalHoldings*	94	-0.013	-0.012	0.012	-0.052	0.029
Δ*Payout*	94	0.178	0.073	1.138	-5.800	7.047
Δ*DebtRatio*	94	0.016	0.015	0.030	-0.070	0.146
Δ*Beta*	94	-0.038	-0.029	0.171	-0.443	0.460
Δ*MarketCap*($billions)	94	209.03	92.49	403.48	-541.10	2401.5

The sample consists of US and global industry during the 2018-2020 periods. The total of 93 US industries and 94 global industries are included in the sample. Panel A and Panel B are descriptive statistics of regression variables for US industry from 2018 to 2019 and from 2019 to 2020, respectively. Panel C and Panel D are descriptive statistics of regression variables for global industry from 2018 to 2019 and from 2019 to 2020, respectively. We use the

methodology used in New York University (NYU) useful data website to estimate variables. The NYU useful data website address is as follows. https://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html. Δ*ROE* is the change in return on equity, measured by dividing the net income by book value of equity. Δ*EVA* (*$billions*) is the change in economic value-added, measured by (return on invested capital - cost of capital) x (book value of invested capital), in billions of dollars. Δ*InstitutionalHoldings* is the change in institutional ownership percentage. Δ*Payout* is the change in dividend payout ratio, measured by total dividend divided by net income. Δ*DebtRatio* is the change in book value of debt-to-capital ratio. Δ*Beta* is the change in total beta, measured by dividing a stock's standard deviation by the market's standard deviation. Δ*MarketCap* (*$billions*) is the change in market capitalization, measured by multiplying the number of shares outstanding by the share price. The variable change is from 2018 to 2019 for Panel A and B and from 2019 to 2020 for Panel C and D.

However, the median values of the change in return on equity are similar between the two periods (Δ*ROE*: -0.034 vs -0.026). Firm profitability variables change more with greater volatility, measured by the standard deviation, during the one year after COVID-19 pandemic outbreak among US industry. Similarly, the changes in institutional holdings are greater with higher volatility from 2019 to 2020 than from 2018 to 2019 for US industry (mean Δ*InstitutionalHoldings*: -0.029 vs 0.003; median Δ*InstitutionalHoldings*: -0.029 vs 0.007; standard deviation Δ*InstitutionalHoldings*: 0.067 vs 0.045). On average, the changes in return on equity and institutional holdings are negative, while the change in economic value added is positive from 2019 to 2020. For control variables, we can find similar pattern for the change in beta (mean Δ*Beta*: -0.217 vs. 0.046; median Δ*Beta*: -0.209 vs. 0.030; standard deviation Δ*Beta*: 0.336 vs. 0.230) and the change in market capitalization (mean Δ*MarketCap* (*$billions*): 86.90 vs. 74.50; standard deviation Δ*MarketCap* (*$billions*): 234.19 vs. 123.39). However, the median value of market capitalization change is lower from 2019 to 2020 than from 2018 to 2019 among US industry (median Δ*MarketCap* (*$billions*): 22.92 vs. 31.61). On the other hand, the average changes in payout ratio and debt ratio are lower with smaller standard deviations from 2019 to 2020 than from 2018 to 2019 (mean Δ*Payout*: 0.004 vs. 0.126; median Δ*Payout*: 0.000 vs. 0.053; standard deviation Δ*Payout*: 1.068 vs. 0.581; mean Δ*DebtRatio*: 0.015 vs. 0.029; median Δ*DebtRatio*: 0.008 vs. 0.026; standard deviation Δ*DebtRatio*: 0.048 vs. 0.063).

Panel C and panel D show the descriptive statistics of regression variables for global industry from 2018 to 2019 and 2019 to 2020, respectively. On average, the changes in return on equity and institutional holdings variables are higher with greater volatility, measured by standard deviations, from 2019 to 2020 than from 2018 to 2019. On the other hand, the average change in economic value added is lower from 2019 to 2020 than from 2018 to 2019. The standard deviation of the change in economic value added is similar between two periods (standard deviation Δ*EVA* (*$billions*): 29.14 vs. 28.79). For control variables, we can find higher mean, median and standard deviations for the change in payout ratio, the change in beta, and the change in market capitalization from 2019 to 2020 than from 2018 to 2019. However, the opposite is true for the change in debt ratio. The results imply that we can expect stronger relationships among regression variables during the one year after COVID-19 pandemic outbreak.

TABLE 2 shows the univariate test results of institutional holdings, EVA, and ROE change by periods. Panel A provides the results for US industry and panel B shows the results of Global industry. The economic value-added change (Δ*EVA*(*$billions*)) and return on equity change (Δ*ROE*) data are not available for US restaurant industry. So, we only have 93 samples of Δ*EVA*(*$billions*) and Δ*ROE* for US industry. We can see that institutional holdings change (Δ*InstitutionalHoldings*) turns negative for US industry from 2019 to 2020. The result differs from the slight positive institutional holdings change from 2018 to 2019. The difference in mean for institutional holdings change between the two periods is statistically significant at a one percent significance level.

On the other hand, there was an increase in the economic value-added change from 1.489 to 2.092 during the 2019-2020 periods. However, the difference in mean between the two periods is not statistically significant. Finally, there is a further decrease in the return on equity change from -0.031 to -0,077 during the 2019-2020 periods. The difference in mean between the two periods is statistically significant at a ten percent significance level. The result implies that there should be a positive relationship between institutional holdings change and return on equity change for the US industry.

TABLE 2
UNIVARIATE TESTS

Panel A: Institutional Holdings, EVA, and ROE Change by periods for US Industry

	2018-2019 (A)		2019-2020 (B)		Difference (B)-(A)	
	N	Mean	N	Mean	Mean	T-test
Δ*Institutional Holdings*	94	0.002	94	-0.029	-0.031	3.793***
Δ*EVA* (*$billions*)	93	1.489	93	2.092	0.603	-0.343
Δ*ROE*	93	-0.031	93	-0.077	-0.046	1.826*

Panel B: Institutional Holdings, EVA, and ROE Change by periods for Global Industry

	2018-2019 (A)		2019-2020 (B)		Difference (B)-(A)	
	N	Mean	N	Mean	Mean	T-test
Δ*Institutional Holdings*	94	-0.006	94	-0.013	-0.007	4.480***
Δ*EVA* (*$billions*)	94	8.811	94	-1.514	-10.33	2.444**
Δ*ROE*	94	-0.014	94	-0.049	-0.035	3.348***

Panel A shows the mean values and the difference in mean t-test results of the change in institutional holdings (Δ*InstitutionalHoldings*), change in economic value-added (Δ*EVA*(*$billions*)), and the change in return on equity (Δ*ROE*) for US industry. Panel B shows the mean values and the difference in mean t-test results of the change in institutional holdings (Δ*InstitutionalHoldings*), change in economic value-added (Δ*EVA*(*$billions*)), and the change in return on equity (Δ*ROE*) for global industry. The time period is from 2018 to 2019 or from 2019 to 2020. The significance levels of all the mean statistics are based on the t-test of difference from zero. Numbers in the brackets are t-statistics of difference-in-mean test. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% levels, respectively.

There is a further decrease in institutional holdings change from 2019 to 2020 for global industry. The mean value of institutional holdings change decreases from -0.006 to -0.013 during 2019-2020 periods. The difference in mean value is statistically significant at a one percent significance level. Further, the economic value-added change turns negative (-1.1514) from positive (8.811) during the 2019-2020 periods. The difference in mean value is statistically significant at a five percent significance level. Finally, the return on equity change further decreases from -0.014 to -0.049 during the 2019-2020 periods. The difference in mean value is statistically significant at one percent significance level. The implication is that the positive relationship between institutional holdings change and economic value added or return on equity change should be significant.

TABLE 3 shows the correlation analysis results of main variables. Panel A shows the results for US industry from 2018 to 2019. Panel B shows the results for US industry from 2019 to 2020. Panel C shows the results for global industry from 2018 to 2019. Panel D shows the results for global industry from 2019 to 2020. For US industry, there is a positive relation between institutional holdings change and return on equity change (0.17) or economic value-added change (0.20) during the 2019-2020 periods. However, the positive relationship between institutional holdings change, economic value added change, or return on equity change is marginal during 2018-2019. The results are consistent our findings in TABLE 2.

TABLE 3
CORRELATION OF MAIN VARIABLES

Panel A. Correlation of Regression Variables for US Industry from 2018 to 2019

	ΔR	ΔE ($B)	ΔIH	ΔPO	ΔDR	ΔB	ΔM ($B)
ΔR	1						
ΔE ($B)	0.27	1					
ΔIH	0.03	0.08	1				
ΔPO	-0.33	-0.17	0.26	1			
ΔDR	0.04	-0.14	0.09	-0.06	1		
ΔB	0.11	-0.05	0.02	0.08	-0.06	1	
ΔM ($B)	0.13	0.37	0.03	-0.04	-0.14	-0.09	1

Panel B. Correlation of Regression Variables for US Industry from 2019 to 2020

	ΔR	ΔE ($B)	ΔIH	ΔPO	ΔDR	ΔB	ΔM ($B)
ΔR	1						
ΔE ($B)	0.55	1					
ΔIH	0.17	0.20	1				
ΔPO	-0.04	-0.05	-0.03	1			
ΔDR	-0.38	-0.27	-0.07	-0.13	1		
ΔB	-0.13	-0.08	-0.18	-0.04	-0.01	1	
ΔM ($B)	0.15	0.21	-0.05	-0.03	0.02	-0.07	1

Panel C. Correlation of Regression Variables for Global Industry from 2018 to 2019

	ΔR	ΔE ($B)	ΔIH	ΔPO	ΔDR	ΔB	ΔM ($B)
ΔR	1						
ΔE ($B)	0.18	1					
ΔIH	0.21	0.26	1				
ΔPO	-0.06	-0.02	-0.11	1			
ΔDR	-0.07	-0.14	-0.09	0.02	1		
ΔB	0.07	-0.04	-0.10	0.23	0.22	1	
ΔM ($B)	0.14	0.51	0.28	-0.03	-0.09	-0.08	1

Panel D. Correlation of Regression Variables for Global Industry from 2019 to 2020

	ΔR	ΔE ($B)	ΔIH	ΔPO	ΔDR	ΔB	ΔM ($B)
ΔR	1						
ΔE ($B)	0.57	1					
ΔIH	0.27	0.42	1				
ΔPO	-0.13	-0.05	0.07	1			
ΔDR	-0.57	-0.48	-0.10	0.08	1		
ΔB	-0.29	-0.23	0.02	0.37	0.24	1	
ΔM ($B)	0.20	0.20	0.08	-0.06	-0.25	-0.23	1

TABLE 3 shows the results of correlation analysis that shows the relation between the change in institutional holdings (ΔIH) and the change in return on equity (ΔR) or economic value-added (ΔE($B)). Panel A and B show the correlation of regression variables for US industry from 2018 to 2019 or from 2019 to 2020, respectively. Panel C and D show the correlation of regression variables for global industry from 2018 to 2019 or from 2019 to 2020, respectively. The

other regression variables are the change in dividend payout ratio (Δ*PO*), the change in book value of debt-to-capital ratio (Δ*DR*), the change in total beta (Δ*B*), and the change in market capitalization (Δ*M*(*$B*)).

For global industry, there is a positive relationship between institutional holdings change and return on equity change (0.21) or economic value-added change (0.26) during the 2018-2019 periods. Moreover, the positive relationship increases with return on equity change (0.27) or with economic value-added change (0.42) during the 2019-2020 periods. Similar to US industry, the results for global industry are consistent with our findings in TABLE 2.

TABLE 4 shows the effect of institutional holdings change on firm value change one year before and after COVID-19 pandemic for US and global industry. The dependent variables are return on equity change (*ΔROE*) and economic value-added change in billions of dollars (*ΔEVA*(*$billions*)). The explanatory variable is institutional holdings change (*ΔInstitutionalHoldings*). The control variables are payout ratio change (*ΔPayout*), debt ratio change (*ΔDebtRatio*), beta change (*ΔBeta*), and market capitalization change in billions of dollars (*ΔMarketCap* (*$billions*)). The ordinary least squares regression analysis has been used. T-statistics are in parentheses. *, **, *** represents ten, five, or one percent significance level, respectively.

TABLE 4
THE EFFECT OF INSTITUTIONAL HOLDINGS ON FIRM VALUE

Dependent Variable	US Δ*ROE* 2018-2019	US Δ*ROE* 2018-2019	Global Δ*ROE* 2018-2019	Global Δ*ROE* 2018-2019
Δ*Institutional Holdings*	0.327	0.403	0.891*	1.662***
	[1.09]	[1.35]	[1.71]	[2.69]
Δ*Payout*	-0.081***	-0.016	-0.004	-0.003
	[-3.52]	[-0.86]	[-0.59]	[-0.47]
Δ*DebtRatio*	0.079	-1.618***	-0.094	-1.453***
	[0.38]	[-3.95]	[-0.66]	[-5.65]
Δ*Beta*	0.088	-0.064	0.095	-0.079
	[1.55]	[-1.07]	[1.13]	[-1.65]
Δ*MarketCap*	0	0	0	0
(*$billions*)	[1.32]	[1.62]	[0.80]	[0.28]
Intercept	Yes	Yes	Yes	Yes
# of Observations	93	93	94	94
Adjusted R^2	0.11	0.16	0.014	0.36

Dependent Variable	US *ΔEVA* 2018-2019 (*$billions*)	US *ΔEVA* 2018-2019 (*$billions*)	Global *ΔEVA* 2018-2019 (*$billions*)	Global *ΔEVA* 2018-2019 (*$billions*)
Δ*Institutional Holdings*	18.475	42.091*	337.248	920.712***
	[1.32]	[1.77]	[1.33]	[4.51]
Δ*Payout*	-2.038*	-1.14	0.015	0.327
	[-1.88]	[-0.77]	[0.00]	[0.14]
Δ*DebtRatio*	-11.608	-89.174***	-71.258	-379.059***
	[-1.18]	[-2.74]	[-1.02]	[-4.47]
Δ*Beta*	-0.376	-1.715	15.157	-22.491
	[-0.14]	[-0.36]	[0.37]	[-1.41]
Δ*MarketCap*	0.017***	0.014**	0.053***	0.003
(*$billions*)	[3.41]	[2.16]	[5.00]	[0.51]

Intercept	Yes	Yes	Yes	Yes
# of Observations	93	93	94	94
Adjusted R^2	0.14	0.11	0.25	0.35

TABLE 4 presents the effects of the change in institutional holdings (Δ*InstitutionalHoldings*) on the firm value change. We use OLS regression in TABLE 4. Dependent variables are the change in return on equity (*ΔROE*) and the change in economic value-added (*ΔEVA*(*$billions*)). OLS regression is run using US and global industries from 2018 to 2019 or 2019 to 2020. Δ*ROE* is the change in return on equity, measured by dividing the net income by the book value of equity. Δ*EVA* (*$billions*) is the change in economic value-added, measured by (return on invested capital - cost of capital) x (book value of invested capital), in billions of dollars. Δ*InstitutionalHoldings* is the change in institutional ownership percentage. Δ*Payout* is the change in dividend payout ratio, measured by total dividend divided by net income. Δ*DebtRatio* is the change in the book value of debt-to-capital ratio. ΔBeta is the change in total beta, measured by dividing a stock's standard deviation by the market's standard deviation. Δ*MarketCap* (*$billions*) is the change in market capitalization, measured by multiplying the number of shares outstanding by the share price. Numbers in the brackets are t-statistics. ***, **, and * denote the statistical significance of the parameter estimates at the 1%, 5%, and 10% levels, respectively.

We find a positive relationship between institutional holdings change and firm value one year after the COVID-19 pandemic. Furthermore, the positive relationship is more pronounced for global industry one year after the COVID-19 pandemic. However, the positive relationship is not statistically significant or marginally significant for the US industry and the global industry one year before the COVID-19 pandemic. One standard deviation increase in institutional holdings change increases return on equity change by 1.662 and increases economic value-added change by 920.712 within a one percent significance level for global industry one year after the COVID-19 pandemic. However, one standard deviation increase in institutional holdings change increases economic value-added change by 42.091 within a ten percent significance level for US industry one-year after the COVID-19 pandemic. Overall adjusted R-squared is between 1.4% and 36% for the various regressions in TABLE 4. The regression results are consistent with previous literature that institutions have a monitoring role and its role positively impacts the firm value. Our findings are meaningful in that the results from the previous literature hold during the COVID-19 pandemic.

CONCLUSION

Using US and global industry, we analyze the relationship between institutional holdings change and firm value change one year before and after the COVID-19 pandemic. We find a positive relationship between institutional holdings change and firm value change, measured by return on equity or economic value-added change, one year after the COVID-19 pandemic. Furthermore, the positive relationship is more pronounced for global industry. The paper's contribution to the prior literature is that the positive relationship between institutional holdings and firm value still holds during the COVID-19 pandemic, especially for the global industry.

REFERENCES

Agrawal, A., & Knoeber, C.R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. *Journal of Financial and Quantitative Analysis*, *31*(3), 377–397.

Al- Najjar, D. (2015). The effect of institutional ownership on firm performance: Evidence from Jordanian Listed Firms. *International Journal of Economics and Finance*, *7*(12), 97–105.

Alfaraih, M., Alanezi, F., & Almujamed, H. (2012). The influence of institutional and government ownership on firm performance: Evidence from Kuwait. *International Business Research*, *5*(10), 192–200.

Bhattacharya, P.S., & Graham, M.A. (2009). On institutional ownership and firm performance: A disaggregated view. *Journal of Multinational Financial Management*, *19*(5), 370–394.

Chaganti, R., & Damanpour, F. (1991) Institutional ownership, capital structure and firm performance. *Strategic Management Journal*, *12*(7), 479–491.
Clay, D.G. (2001). *Institutional Ownership, CEO Incentives and Firm Value* [Ph.D. Dissertation, University of Chicago].
Craswell, A.T., Taylor, S.L., & Saywell, R.A. (1997). Ownership structure and corporate performance: Australian evidence. *Pacific-Basin Finance Journal*, *5*(3), 301–323.
Demiralp, I.D., Mello, R., Schlingemann, F.P., & Subramaniam, V. (2001). Are there monitoring benefits to institutional ownership? Evidence from season edequity offerings. *Journal of Corporate Finance*, *17*, 1340–1359.
Duggal, R., & Millar, J.A. (1999). Institutional ownership and firm performance: The case of Bidder returns. *Journal of Corporate Finance*, *5*(2), 103–117.
Elyasiani, E., & Jia, J. (2010). Distribution of institutional ownership and corporate firm performance. *Journal of Banking and Finance*, *34*(3), 606–620.
Faccio, M., & Lasfer, M.A. (2010). Do occupational pension funds monitor companies in which they hold large stakes? *Journal of Corporate Finance*, *6*(1), 71–110.
Fauzi, F., & Locke, S. (2012). Board structure, ownership structure and firm performance: A study of New Zealand Listed-Firms. *Asian Academy of Management Journal of Accounting and Finance*, *8*(2), 43–67.
Fazlzadeh, A., Hendi, A., & Mahboubi, K. (2011). The examination of the effect of ownership structure on firm performance in listed firms of Tehran Stock Exchange based on the type of the industry. *International Journal of Business and Management*, *6*(3), 249–266.
Ferreira, M.A., & Matos, P. (2008). The Colors of Investors' Money: The Role of Institutional Investors around the World. *Journal of Financial Economics*, *88*(3), 499–533.
Guercio, D., & Hawkins, J. (1999). The motivation and impact of pension fund activism. *Journal of Financial Economics*, *52*(3), 293–340.
Han, K.C., & Suk, D.Y. (1998). The effect of ownership structure on firm performance: Additional evidence. *Review of Financial Economics*, *7*, 143–155.
Hsu, M.F., & Wang, K. (2014). The level and stability of institutional ownership and firm performance: Evidence from Taiwan. *Emerging Markets Finance and Trade*, *50*(2), 159–173.
Lowenstein, L. (1991). Why managers should (and should not) have respect for their shareholders. *Journal of Corporation Law*, *17*, 1–27.
Masry, M. (2016). The impact of institutional ownership on the performance of companies listed in the egyptian stock market. *IOSR Journal of Economics and Finance*, *7*(1), 5–15.
McConnell, J., & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, *27*(2), 595–612.
Mokhtari, Z., & Makerani, K.F. (2013). Relationship of institutional ownership with firm value and earnings quality: Evidence from Tehran Stock Exchange. *International Journal of Economy, Management and Social Sciences*, *2*(7), 495–502.
Mollah, S., Farooque, O.A., & Karim, W. (2012). Ownership structure, corporate governance, and firm performance. *Studies in Economics and Finance*, *29*, 301–319.
Nesbitt, S.L. (1994). Long-term reward from shareholder activism: A study of the CalPERS effect. *Journal of Applied Corporate Finance*, *6*(4), 75–80.
Pound, J. (1988). Proxy contests and the efficiency of shareholder oversight. *Journal of Financial Economics*, *20*(1–2), 237–65.
Ruiz-Mallorquí, M.V., & Santana-Martín, D.J. (2011). Dominant institutional owners and firm value. *Journal of Banking and Finance*, *35*(1), 118–129.
Sakawa, H., & Watanabel, N. (2020). Institutional ownership and firm performance under stakeholder-oriented corporate governance. *Journal of Sustainability*, *12*, 1021.
Smith, M.P. (1996). Shareholder activism by institutional investors: Evidence from CalPERS. *Journal of Finance*, *51*(1), 227–252.

Tahir, S.H., Saleem, M., & Arshad, H. (2015). Institutional ownership and corporate value: Evidence from Karachi Stock Exchange (KSE) 30-Index Pakistan. *Praktični Menadžment*, *6*(1), 41–49.
Thanatawee, Y. (2014). Institutional ownership and firm value in Thailand. *Asian Journal of Business and Accounting*, *7*(2), 1–22.
Tsai, H., & Gu, Z. (2007). The relationship between institutional ownership and casino firm performance. *International Journal of Hospitality Management*, *26*(3), 517–530.
Tsouknidis, D. (2019). The effect of institutional ownership on firm performance: The case of U.S.-listed shipping companies. *Journal Maritime Policy & Management*, *46*(5), 509–528.
Zouari, S.B.S., & Taktak, N.B. (2014). Ownership structure and financial performance in Islamic banks: Does bank ownership matter? *International Journal of Islamic and Middle Eastern Finance and Management*, *7*(2), 146–160.