Firm Strategy and Foreign Direct Investment: An Examination of the Economic Performance of U.S. Multinational Firms

Pablo A. García-Fuentes and P. Lynn Kennedy

García-Fuentes is a Research Assistant and Kennedy is the Crescent City Tigers Alumni Professor at the LSU AgCenter, Baton Rouge, Louisiana. The authors can be contacted via e-mail at lkennedy@agcenter.lsu.edu.

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Louisiana State University/AgCenter Research & Extension

Introduction

U.S. manufacturing firms' have been expanding to international markets through foreign direct investment (FDI). However, it is likely that firm's FDI activity is associated with firm's competitive strategies such as corporate- and business-level strategies which are likely to influence firm's economic performance. Therefore, it is possible that the influence of FDI on firm's performance can be accelerated when appropriate firm's competitive strategies are in effect. In this research, we assess the influence of firm's competitive strategies and FDI on firm's economic performance with respect to four performance measures, return on assets (ROA), return on sales (ROS), Tobin's Q, and market value.

Hypotheses

1. Product diversification is positively associated with the firm's economic performance.
2. Firm size is positively associated with the firm's economic performance.
3. R&D intensity is positively associated with the firm's economic performance.
4. Capital intensity is positively associated with the firm's economic performance.
5. FDI is positively associated with the firm's economic performance.
6. The interaction between product diversification and FDI is positively influencing the firm's economic performance.
7. The interaction between firm size and FDI is positively influencing the firm's economic performance.
8. The interaction between R&D intensity and FDI is positively influencing the firm's economic performance.
9. The interaction between capital intensity and FDI is positively influencing the firm's economic performance.

Research Methodology

The sample is comprised by manufacturing firms (SIC codes 2000-3999) with data on pretax income from foreign operations. The source of the data for all the variables is COMPUSTAT. The data set covers the period 2003-2008. Hierarchical regression analysis is conducted on a pooled data set for 172 firms during the period of the study.

Table 1. Pooled OLS regressions: fim's strategic factors, FDI and firm's economic performance

Panel A	Firm's economic performance								
Variables	ROA								
	Step 1	Step 2	Step 3	Step 1.1	Step 2.1	Step 3.1	Step 1.2	Step 2.2	Step 3.2
TPD	-0.077[b]			-0.067[b]			-0.065[b]		
RPD		-0.084[b]			-0.035			-0.085[b]	
URPD			-0.046			-0.062[b]			-0.047
FS	0.024[a]	0.022[a]	0.022[a]	0.020[a]	0.018[b]	0.019[a]	0.012[b]	0.010[a]	0.011[c]
R&D	-2.429[a]	-2.431[a]	-2.416[a]	-1.933[a]	-1.934[a]	-1.927[a]	-1.911[a]	-1.919[a]	-1.902[a]
CI	-0.604[a]	-0.601[a]	-0.639[a]	-0.523[a]	-0.543[a]	-0.561[a]	-0.632[a]	-0.635	-0.667[a]
FDI				-0.127[a]	-0.128[a]	-0.128[a]	0.181	0.239	0.228
TPD*FDI							0.068		
RPD*FDI								0.694	
URPD*FDI									-0.01
FS*FDI							-0.03	-0.033	-0.03
R&D*FDI							-0.515[b]	-0.550[b]	-0.542[b]
CI*FDI							3.003[a]	2.786[a]	2.948[a]
Ind. Dum.	yes	yes	yes	yes	yes	yes	yes	yes	yes
Time	yes	yes	yes	yes	yes	yes	yes	yes	yes
Obs.	694	694	694	574	574	574	574	574	574
R-squared	0.445	0.4441	0.4435	0.6252	0.6218	0.624	0.6483	0.6467	0.6463

Panel B	Firm's economic performance								
Variables	ROS								
	Step 1	Step 2	Step 3	Step 1.1	Step 2.1	Step 3.1	Step 1.2	Step 2.2	Step 3.2
TPD	0.72			-0.633[b]			-0.732[b]		
RPD		1.506[c]			0.055			0.256[c]	
URPD			-0.007			-0.814[c]			-0.913[b]
FS	0.234	0.245	0.263	0.102[b]	0.072[b]	0.100[b]	0.059	0.038	0.061
R&D	-8.227[b]	-8.077[b]	-8.352[b]	-1.596[b]	-1.565[b]	-1.527[b]	-1.013	-0.752	-0.927
CI	-7.377	-7.724	-7.047	1.499	1.095	1.151	1.506	0.945	1.203
FDI				0.372	0.353	0.363	-1.852	0.506	-2.455[b]
TPD*FDI							3.683[b]		
RPD*FDI								-5.172[b]	
URPD*FDI									4.443
FS*FDI							0.344[a]	0.266[b]	0.374[a]
R&D*FDI							0.818	-0.866	1.201
CI*FDI							1.367	5.024	2.227
Ind. Dum.	yes	yes	yes	yes	yes	yes	yes	yes	yes
Time	yes	yes	yes	yes	yes	yes	yes	yes	yes
Obs.	694	694	694	574	574	574	574	574	574
R-squared	0.0663	0.0673	0.0654	0.0744	0.0627	0.0784	0.1022	0.0874	0.1075

Panel C	Firm's economic performance								
Variables	TOBIN'S Q								
	Step 1	Step 2	Step 3	Step 1.1	Step 2.1	Step 3.1	Step 1.2	Step 2.2	Step 3.2
TPD	-0.299			-0.442[b]			-0.440[c]		
RPD		-0.138			-0.184			-0.37	
URPD			-0.289			-0.430[c]			-0.417[c]
FS	-0.067	-0.075[c]	-0.07	-0.016	-0.03	-0.021	-0.075	-0.092	-0.077
R&D	7.169[b]	7.210[b]	7.233[b]	7.432[c]	7.446[c]	7.481[c]	9.124	9.095	9.195
CI	-0.978	-1.049	-1.118	-0.165	-0.324	-0.429	-0.555	-0.698	-0.794
FDI				0.966[c]	0.959[c]	0.958[c]	-6.065	-5.849	-5.907
TPD*FDI							0.26		
RPD*FDI								3.784	
URPD*FDI									-0.058
FS*FDI							1.057	1.044	1.061
R&D*FDI							6.192[c]	6.067	6.142[c]
CI*FDI							10.057	9.236	9.194
Ind. Dum.	yes	yes	yes	yes	yes	yes	yes	yes	yes
Time	yes	yes	yes	yes	yes	yes	yes	yes	yes
Obs.	629	629	629	516	516	516	516	516	516
R-squared	0.2834	0.2822	0.2831	0.2652	0.2624	0.2645	0.3008	0.2986	0.3001

Panel D	Firm's economic performance								
Variables	Market Value								
	Step 1	Step 2	Step 3	Step 1.1	Step 2.1	Step 3.1	Step 1.2	Step 2.2	Step 3.2
TPD	-0.212[b]			-0.266[b]			-0.291[b]		
RPD		-0.139			-0.114			-0.322	
URPD			-0.185			-0.265			-0.265
FS	1.029[a]	1.021[a]	1.025[a]	1.059[a]	1.047[a]	1.055[a]	1.034[a]	1.020[a]	1.032[a]
R&D	1.414[a]	1.423[a]	1.457[a]	1.242[a]	1.236[a]	1.272[a]	1.627[a]	1.607[a]	1.685[a]
CI	-1.225[a]	-1.256[a]	-1.318[a]	-1.148[a]	-1.235[a]	-1.295[a]	-1.386[a]	-1.449[a]	-1.529[a]
FDI				0.174	0.168	0.169	-2.268[b]	-1.701[a]	-1.995
TPD*FDI							0.783		
RPD*FDI								3.762	
URPD*FDI									0.317
FS*FDI							0.290[a]	0.267[a]	0.286[a]
R&D*FDI							1.884[b]	1.547[a]	1.726[b]
CI*FDI							6.154[b]	4.969[b]	5.928[b]
Ind. Dum.	yes	yes	yes	yes	yes	yes	yes	yes	yes
Time	yes	yes	yes	yes	yes	yes	yes	yes	yes
Obs.	668	668	668	555	555	555	555	555	555
R-squared	0.8364	0.8357	0.8361	0.8318	0.8306	0.8315	0.8359	0.8351	0.8354

a, b and c indicate significance at the 1%, 5% and 10% respectively. TPD, RPD, and URPD are total, related and unrelated product diversification. FS is firm size (natural log of the book value of assets). R&D is research and development intensity. CI is capital intensity. FDI is foreign direct investment. Ind. Dum is industry dummies. Time is a time trend.

Results

Table 1 shows the results in its four panels. The first step is to assess the firm's strategic factors' effect on performance. In a second step, FDI is added to the regression models of step 1. Finally, in step 3, we add interaction terms for FDI and firm strategic factors to the models of step 2. The measures of the firm's economic performance are the ratio of net profits to total assets (ROA), the ratio of net profits to total sales (ROS), the market value of the firm, and Tobin's Q. Table 1 shows the results of the regressions. Contrary to our expectations the three measures of product diversification are negatively related to firm's economic performance. Firm size is positively related to three measures of firm's performance (ROA, ROS and market value) and negatively related to Tobin's Q. R&D is negative related to ROA and ROS, but, in most cases, positively and significantly related to Tobin's Q and market value. Capital intensity is negatively related to the four measures of performance. Regarding FDI, its direct effect on performance is mixed. The interaction of total product diversification and FDI has a positive and significant effect on ROS, for the other performance measures there is a positive and insignificant relationship. The interaction of firm size and FDI has a positive and significant effect on ROS and market value and is positive and insignificant on Tobin's Q, but is negative related to ROA. The interaction of R&D and FDI has a positive and significant effect on Tobin's Q and market value, a mixed effect on ROS, and a negative and significant effect on ROA. The interaction of capital intensity and FDI has a positive and significant effect on ROA and on market value, and a positive effect on ROS and Tobin's Q.

Conclusions

The results show a mixed direct effect of FDI on the four firm's performance measures. However, the interactions between FDI and the firm's strategic factors show some interesting relationships. There is a positive relationship between the interaction of total product diversification and FDI and the four measures of performance. Related product diversification is positively related to three of the performance measures. The joint effect of firm size and FDI is positive on three measures of performance. R&D and FDI have a positive joint effect on three measures of performance. And, capital intensity and FDI has a positive joint relationship with the four measures of performance.