A Comparative Performance Analysis of Foreign and Domestic Manufacturing Companies in Turkey

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Abstract

We analyze whether foreign-owned firms perform better financially than domestically-owned firms in manufacturing sector in Turkey. The impacts of several firm indicators like age, size, assets, R&D, expenses, and firm risks on the four corporate performance measures, ROE, TFP, BEP and ROA are investigated by a panel data model. We focus on effects of foreign ownership on firm performance. Although there is no much study on this issue in Turkey, contrary to the findings of former studies, our results reveal that there is no significant difference between the performances of foreign-owned and domestically-owned firms.

Keywords: *Foreign-owned Companies, Domestically-owned Companies, Financial Performance*

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Introduction

Foreign direct investments (FDIs) are welcomed by many developing countries since it is believed that FDIs bring firm specific assets such as technological know-how, effective management skills and foreign trade connections in addition to capital. Usage of these assets may generate very important progresses in firm performance. FDIs are also thought to have spillover effects. Besides, domestically-owned companies may become more productive and competitive due to the increased competition. Moreover, FDIs increase employment, production and exports in developing countries, and therefore alleviate foreign trade and current account deficit problems in the host countries.

Turkey could not attract FDIs as much as it desired and FDIs to Turkey fluctuated at very low levels until the beginning of the 2000s (Karatas, 2005: 5). FDIs to Turkey were also at relatively low levels in the period from 2001 to 2004 as shown in Table 1. However, FDIs to Turkey accelerated substantially with the inauguration of membership negotiations with the European Union (EU) in 2005. FDIs to Turkey shifted to $9,803 million and $20,106 million in 2005 and 2006, respectively.

In order to review Turkey's current position in FDIs, it is necessary to compare Turkey and rival countries that have similar features with Turkey from the FDIs perspective. Table 1 shows FDIs to several EU member countries from Central and Eastern Europe in addition to FDIs to Turkey in 2000s. As illustrated in the table, the beginning of membership negotiations with the EU increased FDIs to Turkey to comparable levels with these countries. The amount of FDIs attracted by Turkey was higher than FDIs to these countries in 2005. However, FDIs as a percentage of Gross Domestic Product (GDP) in Turkey were still the lowest among these countries in 2005. Turkey's FDIs to GDP ratio was 3% in 2005 while the same ratio was 10% in Bulgaria and 7% in Romania in the same year.

Table 1. Foreign Direct Investments to Turkey and to some European Union Countries in Central and Eastern Europe in 2000s

Years	Turkey		Bulgaria		Romania		Hungary		Slovak Republic		Poland	
	Million $	FDIs (% of GDP)	Million $	FDIs (% of GDP)	Million $	FDIs (% of GDP)	Million $	FDIs (% of GDP)	Million $	FDIs (% of GDP)	Million $	FDIs (% of GDP)
2001	3,352	2	813	6	1,157	3	3,944	7	1,584	8	5,714	3
2002	1,137	1	905	6	1,144	2	3,013	5	4,104	17	4,131	2
2003	1,752	1	2,097	10	1,844	3	2,177	3	559	2	4,589	2
2004	2,883	1	2,653	11	6,443	9	4,666	5	1,261	3	12,890	5
2005	9,805	3	2,614	10	6,630	7	6,436	6	1,908	4	9,602	3

Reference: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=6.

When Turkey's unique economic successes in recent years and the galvanizing effect of EU membership negotiations are taken into account, Turkey is expected to attract FDIs at substantial amounts in the near future. FDIs are very important to increase employment, production, exports and growth in Turkey. Besides, movement of firm specific assets such as technological know-how, effective management skills and foreign trade connections in accordance with FDIs may provide additional benefits through spillover effects to Turkey for further economic development. This study aimed at evaluating the effectiveness of FDIs in Turkey. We investigated whether foreign-owned firms performed better than domestically-owned firms. The remainder of the paper is organized as follows: in the second section, literature about foreign direct investments is reviewed. Third section describes data and research methodology. Empirical results are discussed in the fourth section and the fifth section summarizes and interprets the findings.

Literature Review

Economic results of foreign-owned and domestically-owned firms are compared in a wide range of studies. Most of these researches confirm that the performance of

foreign-owned firms is significantly better than those of domestically-owned firms. In some other studies, it was found that there was no significant difference in the performance of foreign-owned and domestically-owned firms.

Globerman et al. (1994) determined that foreign-owned firms had significantly higher value-added per worker and paid higher wages than Canadian-owned firms. However, these differences did not hold when firm features such as size and capital intensity were controlled. Omer et al. (1998) indicated that the degree of multi-nationality did not have a significant influence on the risk and return performance of the sample firms.

Doms and Jensen (1998) found that foreign owned plants were more productive and more capital intensive. Besides, they found that foreign-owned plants paid higher wages than domestically-owned plants even after controlling for industry, size, location, and plant age. King (1999) showed that foreign-owned firms had superior performance than domestically-owned firms. Buckley et al. (2002) found that multinational enterprises generated technological and international market access spillover benefits for Chinese firms. Hallward-Driemeier et al. (2002) determined that firms with foreign ownership were significantly more productive than domestically owned firms. Their analysis showed that even after controlling for sector, size, and export orientation, firms in which foreigners had substantial ownership presented higher productivity compared to domestically-owned firms in all countries except Korea. Halpern and Murakozy (2004) showed that there was significant intra-industry spillover from foreign-owned firms to domestically-owned firms. They also determined that exporters were more productive, showing that foreign customers were forcing and encouraging exporting firms to produce higher standard products. Fukao et al. (2005) determined that foreign-owned companies had 5% higher total factor productivity as well as higher earnings and returns on capital. Their results also showed that foreign-owned companies had higher labor productivity and wage rates. Kimura and Kiyota (2007) indicated that foreign-owned firms performed better than domestically-owned firms on return on assets (ROA), value added productivity, and total factor productivity. Corrado et al. (2007) determined that although MNCs accounted for 40% of the total output of the non-financial sector between 1977 and 2000, they accounted for three-fourths of the increase in non-financial sector labor productivity over this period. They think that this result confirmed the important role played by MNCs in the aggregate productivity of the U.S. economy. Wang and Yu (2007) showed a curvilinear relationship between foreign presence and spillover benefits in

Chinese manufacturing sectors. However, the relationship between foreign capital and spillover benefits was linear in technology-intensive sectors.

Performance of foreign-owned companies operating in Turkey was analyzed in a few studies. Karatas (2005) compared the performance of domestic and foreign equity companies listed in ISE for the period 1992 – 2001. He included 219 firms, 37 of which were foreign equity firms and calculated 30 non-overlapping financial ratios. He concluded that foreign equity firms were better performers and the degree of internalization explained a substantial part of the financial performance differentials among the foreign-owned firms.

Aydin et al. (2007) investigated whether foreign-owned firms performed significantly better than domestically-owned Turkish corporations listed on the Istanbul Stock Exchange (ISE), for the period 2003 – 2004. They included operating profit margin, ROA and ROE ratios as performance measures and tested if there was a significant difference between foreign-owned and domestically-owned firms by utilizing t-statistics. Their results revealed that foreign-owned firms performed better than domestically-owned firms based on only ROA measure. They argue that this result is an indication of the positive effect of foreign ownership on performance of firms.

Yasar and Paul (2007) investigated the relationship between productivity and FDIs, along with some other firm characteristics by including Turkish manufacturing firms from apparel, textiles and motor vehicles industries. They found that productivity was most closely related to foreign ownership especially for larger plants. However, their survey covered data of several sections of manufacturing sector from 1990 to 1996. Taymaz and Ozler (2007) found that foreign plants are more profitable than domestic ones when they are first established in Turkish market by using data from 1983 -2001 period. They also found that the better performance is not caused by foreign ownership, but larger size, capital intensity, growth rate and quality of labor force. They also found that foreign ownership does not increase survival rate.

Research Methodology

Sample Selection

In this study, we analyze whether being a foreign-owned company is effective on the corporate performance in Turkey. A foreign-owned firm is defined as a firm in which more than 10% of the equity is foreign-owned excluding publicly trading shares. Istanbul Stock Exchange (ISE) listed 160 manufacturing sector companies

are included in the study. After excluding the outlier firms at 5% level of significance by the test of Mahalanobis Distance, the sample for the analysis was made up of 136 manufacturing plants. Although the number of foreign and domestic firms were changing from year to year, approximately 102 of these companies are domestically-owned and 34 of them are foreign-owned. The analysis covers 4 years from 2003 to 2006 and includes annual data. Return on Equity (ROE), Total Factor Productivity (TFP), Basic Earning Power (BEP) ratio and Return on Assets (ROA) are used as corporate performance measures. ROE is the ratio of net income to common equity. TFP is efficiency scores of firms calculated by taking operating expenses, number of employees and total assets as inputs and gross profit as the output in the given period by utilizing Malmquist index model. BEP is the ratio of earnings before interest and taxes to total assets and ROA is the ratio of net income to total assets.

Corporate variables which are supposed to be effective on corporate performance and widely used in the literature are used in this study. They are firm age, number of employees, total assets, operating expenses, R&D expenses as a percentage of sales, leverage ratio, total assets, corporate risk and a dummy differentiating domestic or foreign ownership. Financial statements of ISE listed manufacturing sector companies are disclosed on the ISE web site. All of the variables are taken directly or computed from those financial statements on an annual basis for each firm. Descriptive statistics of the firms in the sample data are given in Table 2.

Table 2: Descriptive statistics of the firms in the sample data

	2003		2004		2005		2006	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	33.271	14.101	34.358	14.239	35.429	14.018	36.454	14.212
Num. Employ.	745.805	883.414	762.746	973.328	778.519	991.922	813.698	1043.030
Tot. Assets	221094349	330145460	259040136	392729381	274559764	408954786	317912870	485555192
Op. expenses	25626451	35523577	32158331	49428221	33362183	50304293	37362088	52214144
R&D / Sales	2.043	3.711	2.128	4.010	2.823	5.382	2.764	5.124
Leverage	0.412	0.205	0.424	0.229	0.443	0.239	0.449	0.237
Risk	617.446	292.905	443.870	230.721	370.123	198.239	253.284	141.553

ROE	0.039	0.235	-0.002	0.276	-0.015	`0.373	0.053	0.315
BEP	0.063	0.078	0.060	0.109	0.058	0.113	0.097	0.118
ROA	0.029	0.072	0.020	0.091	0.023	0.104	0.041	0.118
TFP	0.954	0.173	0.926	0.203	1.024	0.202	0.958	0.188
Num. of Domestic and Foreign firms	96 33		101 33		99 34		97 33	

The Method

A panel data regression analysis is used to estimate the relations between ROE, TFP, BEP and ROA and the predictor variables which are firm age, number of employees, total assets, operating expenses, R&D expenses as a percentage of sales, leverage ratio, total assets, corporate risk and firm affiliation. The analysis particularly focused on the performance of foreign and domestic firms. Panel data analysis is a cross-section data surveyed periodically over a certain time period. There are several types of panel data analytic models. Fixed effects models and random effects models are the mostly utilized two of those models. In the random effects model, the individual-specific effect is a random variable that is uncorrelated with the explanatory variables. Random effect model is estimated by generalized least squares. In the fixed effects model, the individual-specific effect is a random variable that is allowed to be correlated with the explanatory variables. Fixed effect panel regression models involve subtracting group means from the regressors. This means that one can only include time-varying regressors in the model. Since firms usually belong to one industry the dummy variable for industry does not vary with time. Hence it is excluded from the model by softwares, since after subtracting the group mean from such variable one will get that it is equal to zero. In our model foreign or domestic firms are coded as a dummy variable and hence fixed effect model drops this variable from the analysis. Therefore to be able to compare foreign and domestic firm`s performance we will apply random effects model. Another type of panel model called pooled model, has constant coefficients, referring to both intercepts and slopes. In the event that there is neither significant firm nor significant temporal effects. All of the data are pooled and run an ordinary least squares regression model. Although most of the time there are either cross section or temporal effects, there are occasions when neither of these is statistically significant. We run Bre-

usch-Pagan Lagrange multiplier test to decide between a random effects regression and a simple OLS regression. The null hypothesis in the Breusch-Pagan Lagrange multiplier test is that variances across entities is zero. This is, there is no significant difference across units. Failing to reject the null hypothesis conclude that random effects is not appropriate. Therefore it is necessary to run a simple OLS regression. The result of Breusch-Pagan Lagrange multiplier test of our data is is given in table 3. The results of the tests reject null hypothesis at an accaptable level of significance. Therefore we use random effects regression model instead of pooled OLS regression.

The following hypotheses are tested within the framework of the analysis:

H_1: The ROE ratios *of foreign-owned firms are significantly higher than the ROE ratios of domestically-owned firms*

H_2: The TFPs of foreign-owned firms are significantly higher than the TFPs of domestically-owned firms.

H_4: The BEP ratios of foreign-owned firms are significantly higher than the BEP ratios of domestically-owned firms.

H_4: The ROA ratios of foreign-owned firms are significantly higher than the ROA ratios of domestically-owned firms.

The regression models are as follows,

$$\left.\begin{matrix} ROE_{it} \\ TFP_{it} \\ BEP_{it} \\ ROA_{it} \end{matrix}\right\} = \begin{cases} \alpha + \beta_1 Age_{it} + \beta_2 Employees_{it} + \beta_3 Ownership_{it} + \beta_4 TotAssets_{it} + \beta_5 OpExpenses_{it} + \\ \beta_6 R\,\&\,D_{it} + \beta_7 Leverage_{it} + \beta_9 Risk_{it} + u_{it} \end{cases}$$

Where $i = 1,2...,137$ *and* $t = 2003,....,2006$

Results of Analysis

Our analysis is based on unbalanced panel data. The results of random effects regression analysis for dependent variables ROE, TFP, BEP and ROA appear in Table 4. Firms have 10% or more FDIs in their capital are classified as foreign-owned companies and coded by 1 otherwise 0.

Table 3: Breusch and Pagan LM test for random effects		
	chi2	sig
ROE	7.82	0.005
TFP	3.34	0.067
BEP	131.74	0.000
ROA	77.92	0.000

The results of the analysis reveal a positive and statistically significant impact of age, and assets on ROE, but a negative impact of leverage and operating expenses on ROE. The only effective variable among the predictor variables on TFP is the assets. Bigger firms according to assets have higher total factor productivity than the smaller ones. Age and assets show a positive relationship with BEP. However, number of employees, operating expenses and leverage show a negative relationship with BEP. While age and assets have positive impacts on ROA, leverage has negative impact on ROA.

When we read the table by row wise, we see that the relationship between age and ROE, BEP and ROA is significant and positive. Number of employees is significant for only BEP, it has a negative effect on BEP. While ownership structure, operating expenses, R&D/Sales and firm risk have no significant effect on any of the four dependent variables, assets affects all of the four dependent variables positively. Leverage has a negative impact on ROE, BEP and ROA.

The regression results indicate no impact of foreign-ownership on corporate performance. These results imply that there is no difference between foreign-owned and domestically-owned firms, in terms of profitability (ROE, ROA, BEP) and productivity (TFP).

Table 4. Panel Data Models: Determinants of Corporate Performance								
Random-effects regression								
Dep.Var.	ROE		TFP		BEP		ROA	
	Coef.	sig.	Coef.	sig.	Coef.	sig.	Coef.	sig.
Age	0.004	0.006	-0.001	0.38	0.001	0.023	0.001	0.028
ln(employees)	-0.012	0.61	-0.005	0.688	-0.021	0.012	-0.006	0.4
Foreign-dom	0.016	0.715	0.026	0.209	-0.002	0.921	0.002	0.864
Ln(assets)	0.076	0.007	0.035	0.015	0.039	0.000	0.037	0.000
Ln(expenses)	-0.041	0.171	-0.006	0.682	-0.002	0.807	-0.013	0.151
RD/Sales	-0.003	0.509	-0.001	0.525	-0.001	0.287	-0.001	0.371
Leverage	-0.304	0.000	0.043	0.265	-0.132	0.000	-0.174	0.000
Risk	0.000	0.309	0.000	0.618	0.000	0.725	0.000	0.47
Constant	-0.682	0.048	0.435	0.011	-0.469	0.000	-0.386	0.000
R-sq	0.155		0.009		0.227		0.341	
wald chi sq	38.310		15.890		68.690		109.620	
sig.	0.000		0.044		0.000		0.000	

Conclusion

FDIs to Turkey are expected to continue at an increasing pace in the membership negotiations process with the EU. This means foreigners will purchase additional domestic firms and/or establish new businesses in Turkey in the near future. Therefore, the financial performance of foreign-owned firms is an important issue for Turkey's economic development. It is claimed that foreign direct investors bring useful firm specific assets such as technology, managerial ability, effective corporate governance and foreign trade connections to Turkey. The movement of these firm specific assets to Turkey is crucial in order to increase productivity, efficiency and competitiveness. This is because increased productivity, efficiency and competitiveness are among the few ways of increasing exports further and

providing sustainable economic growth in the current macroeconomic situation of Turkey. Therefore, applying policies that promote FDIs will help Turkey to solve her macroeconomic problems.

In this study, we analyzed and compared the financial performance of foreign-owned and domestically-owned ISE listed non-financial companies of Turkey. Our results show that according to four dimensions of the financial performance of foreign-owned firms are not significantly higher than that of domestically-owned firms. These findings are not consistent with the results of previous research (Karatas, 2005 and Aydin et al. 2007). Contrary to the previous years, this is probably because of that; Turkish firms` performance is improved recently. Turkish firms have abilities to compete to foreign counterparts according to technology, managerial ability, and effective corporate governance.

For further research, in-depth analyses of foreign firms from the areas of export volume, productivity, efficiency and competitiveness might be explorative about the effects of FDIs. Investigating whether these firm specific assets spill over to domestically-owned companies can also make a valuable addition to the literature on FDIs to Turkey.

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