The Performance of Multinational Affiliates versus Domestic Firms

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While some authors argue that multinational companies (MNCs) have several firm and location specific advantages over domestic firms, others point to the liability of foreignness as a handicap to MNCs. We argue that while the impact on the ultimate performance of MNC in foreign countries is unclear, the impact on firms affiliated to these MNC should be positive. We also hypothesize that the age of the affiliate is an important moderator for the benefit of affiliation with an MNC. We find that MNC affiliates outperform domestic firms and that the benefit of affiliation decreases with the age of the affiliate.

INTRODUCTION

Much of the IB research is built upon the idea that multinational firms draw on their location advantages to expand to other countries and outperform domestic firms. These country-based differences are also likely to last, as they are embedded in institutions that have evolved differently over times (North, 1990), and are very slow to change (Williamson, 2000). More recent work has reminded us that unfamiliarity with a country is still likely to put an MNC at a disadvantage (Zaheer, 1995). The little empirical research that compares systematically the performance of MNCs versus domestic firms also shows mixed results. It is hence not clear whether the liability of foreignness will outweigh the resource-advantage for an MNC.

In this paper, we argue that while the theory does not help us disentangle between the benefit and disadvantages of an MNC in a foreign country, it does speak on the performance of domestic firms that are affiliated with MNCs (thereafter MNC affiliates).When a local firm is affiliated with a multinational, it will not suffer from the liability of foreignness and is also likely to be able to tap the MNC for additional resources. As such, local firms that are affiliated with MNCs will outperform purely domestic firms. We also propose that this relationship will be moderated by the age of the affiliate. Older firms with established routines will benefit less from their ties to foreign MNCs as these will either need the MNC to a lesser extent or are more likely to suffer from inertia and have established mental models that make it harder to use ties beneficially.

We test our propositions using data from a survey jointly conducted by the World Bank and the European Bank for Reconstruction and Development (EBRD) in 2002 and 2005, for a sample of over 20,000 firms in 27 transition and 7 non-transition countries, and over 1400 panel firms. Our results show that indeed MNC affiliates outperform purely domestic firms and that the older the affiliate the less likely its performance is to benefit from its affiliation with an MNC.

This paper contributes to the international business literature by shedding light on the differential performance between MNC affiliated and purely domestic firms and by introducing age as an important moderating effect.

In the following, we present our theory and hypotheses. We then describe the method and data and present our results. Finally, we discuss our results and the study's limitations and conclude presenting implications for future research.

MNC PERFORMANCE IN FOREIGN COUNTRIES

When exploring the relative performance of MNCs versus domestic firms, two streams of theories are of relevance. Unfortunately, these lead to opposing conclusions. On one hand, the 'MNC advantage' literature argue that firm-specific advantages (FSAs) combined with location-specific advantages (LSAs) and host country resources, give the MNC an advantage over domestic firms. On the other hand, another stream of literature argues that MNCs are at a disadvantage in the unknown foreign environment and hence suffer from the liability of foreignness. The following presents these ideas in more detail.

The MNC Advantage

The country specific advantage that MNCs have is reflected in their resource base, their organizational design, and their strategies. Starting with the work of the legendary Dunning, we were made aware of location-specific advantage that may accrue to firm. Dunning argues those firms draw on country-specific advantages that are present in the home country and build upon them as they internationalize. As firms employ the resources conferred by their home nations they are able to develop a competitive advantage in foreign markets which grants them a favorable position compared to local firms which are unable to exploit the same assets (Nachum, 2003). Scholars have also acknowledged that national characteristics influence the organizational design of an MNC (McKendrick, 2001). Bartlett and Ghoshal (1989) also highlight the influence of national characteristics in the global strategy employed by MNCs from various countries.

In addition to the location specific advantages of home nations, MNCs are also likely to have firm specific advantages. Only companies with strategic assets or a competitive advantage are likely to first succeed in their countries. As they consider internationalization, these firms already have an arsenal of resources that they can use to defend against competitors, be it local or global. In addition, these MNCs are larger and are able to reap economies of scale (Caves, 1996). For example, some firms may share the same brand globally, such as the Walt Disney Company, and hence have lower marketing and advertising costs. Others, such as WPP, may combine their purchasing and are able to negotiate lower prices of supply. In addition, these firms are able to spread their overhead costs over numerous divisions and hence will reap the advantage of economies of scope (Tallman and Li, 1996). As they internationalize, these firms will also build up essential skills on the internationalization process and the process of entering into a new country and will develop routines that will help them lower the cost of entry into a country (Kobrin, 1991). When firm-specific advantages are combined with location specific advantages and unique resources that are available in host country resources (Porter, 1990), the MNC then has a seemingly insurmountable advantage.

While this above would have us conclude that MNC should always outperform domestic firms, we can see below that such conclusion could not be made easily.

The Liability of Foreignness

Hymer (1960) along other famous IB gurus such Kindleberger (1969) pointed to the dangers that the unfamiliarity with a particular foreign country may pose to an internationalizing firm and to the additional cost that MNCs have to incur when investing abroad which he referred as the "cost of doing business abroad". Hymer famously stressed the distinct disadvantages faced by foreign firms vis-à-vis national firms which possess "the general advantage of better information about their country, its economy, its language, and its politics." Zaheer (1995) fleshed out these ideas arguing that foreign firms face a 'liability' that is derived from the firms' lack of experience and knowledge about the foreign environments in which they operate. She coined the highly popular 'liability of foreignness' term which has helped spur much research in this area. Zaheer revisited the original "cost of doing business abroad" idea developed by Hymer who focused on "market-driven costs" to concentrate on the "structural/relational and institutional costs of doing business abroad" (Zaheer, 2002). The author defined the "structural/relational costs associated with a foreign firm's network position in the host country and its linkages to important local actors" (Zaheer, 2002). Kostova and Zaheer (1999) asserted that institutional costs impact the legitimacy of foreign firms vis-à-vis local companies.

HYPOTHESES

As outlined in the previous section, when exploring the relative performance of MNCs versus domestic firms, two opposing streams of theories are available. On the outset, it is not clear which should prevail, the 'MNC advantage' or the 'liability of foreignness'. But what about domestic firms that are affiliated with an MNC? We hypothesize that the theory regarding these affiliates is actually more straightforward. MNC affiliates can use the network relationship that they have with MNCs to tap their resource and informational pool. They could benefit for example from licensing agreements that allow them to use costly to develop but already established production processes. The affiliation with the MNC may also give them more clout in the financial markets and a superior ability to raise financing for worthy investment projects. MNC Affiliates will also not suffer from the liability of foreignness.

Unlike MNCs, local firms, be it purely domestic or MNC affiliated, are likely to have a denser network of relationships within the local countries. They will thus be able to keep their fingers sort-of-speak on the 'pulse' of institutional winds and to better keep abreast of the likely institutional development and hence the resources that need to be built up and the shape and form of competition in this often constantly evolving market. These local companies that are associated to MNCs are likely to have the same informational advantage locally that aids them in predicting institutional infrastructure (Roth & Kostova, 2003). As stated earlier, these firms are also able to tap the MNC(s) to which they are tied for resources and knowledge that will give them an advantage in the local market. As such, we expect what we call MNC affiliates to have an advantage over purely domestic firms and hence to outperform them. This translates into the following hypothesis:

Hypothesis 1: All else being equal, MNC affiliates will outperform purely domestic firms. Having hypothesized on the difference of performance between the two groups of firms, we now turn our attention to an important characteristic of foreign-affiliated firms, age and its effect of the performance of foreign-affiliated firms. Population ecology claims that organizations are subject to inertial forces that might hinder their success, survival, and ability to effectively adapt to changes, these forces being referred to structural inertia. This research stream has also inquired about the effect of age on organizations. It is argued that aging organizations are exposed to a risk of "senescence" that would affect negatively their performance and could lead to possible failure (Baum and Shipilov, 2004). As Baum and Shipilov (2004) asserted, "aging brings about senescence: an accumulation of internal friction, precedent, and political pacts that impede action and reliable performance." The literature also posits that structural inertia arises with age and established organizations have developed routines that prevent them from adapting to new environmental conditions or new organizational structures and processes (Hannan and Freeman, 1984). In order to survive and succeed, organizations would need to develop capabilities that will enable them to overcome this inertia and circumvent their lack of adaptation to changes in the environment (Schreyo and Kliesch-Eberl, 2005). MNCs start their existence in the host countries with a higher degree of complexity and with a larger baggage of already established routines compared to purely domestic firms and therefore will be more exposed to the negative effects of age. Building on this literature and relating its central arguments to our discussion of MNC affiliated versus purely domestic firms, we hypothesize that age will negatively affect the ability of MNC affiliates relative to domestic firms to reap the benefits of their ties as inertial forces derived from age hinder their aptitude to adapt to the new organizational structures, organizations, and processes that the MNCs' affiliation would necessitate. These inertial forces that are associated with older firms will hence moderate the relationship between MNC affiliation and performance. This leads us to formulate the following hypothesis:

Hypothesis 2: All else being equal, age will negatively moderate the relationship between foreign affiliation and performance, such that the effects of multinationality on performance will be stronger for younger firms.

METHODS

Statistical Method and Models

The study uses ordinary least square regression the test the hypotheses above. The model tested is as follows:

Firm Performance = Alpha * Controls Variables + Beta1 * MNC Affiliate Dummy + Beta2 * Age + Beta3* Affiliate Dummy * Age

Alpha represents a vector of control variables' weights.

We ran this model for the full sample of data (Sample A), a matched sample (Sample B), and also for a smaller panel data (Sample C) for which firm data was available for the two years of the survey. In the panel data sample, we used a fixed effect model to check that we indeed controlled adequately for fixed firm effects. We also assumed that the error within a country is correlated and hence clustered the data by country.

Sample and Data

Our study addresses the question of the effects of multinationality on the performance of over 20,000 domestic and foreign firms from 34 countries. It uses the database of Business Environment and Enterprise Performance Survey (BEEPS) that is conducted jointly by the World Bank and the European Bank for Reconstruction and Development (EBRD). This survey was conducted three times for firms in transition economies, mainly countries of Central and Eastern Europe and Commonwealth of Independent Countries (see Appendix 1 for detailed information about participating countries): in 1999 (more than 4,000 firms), 2002 (more than 6,600 firms), and 2005 (around 9,500 firms). In year 2005 the survey was conducted for comparison reasons in seven more countries (see Appendix 1), mostly developed countries. However, we used data from the two latest rounds because the relevant questions could not be matched with the 1999-questionnaire. Moreover, more than 1,400 firms participated in both rounds and allows therefore for the establishment of a panel dataset. The table in Appendix 2 summarizes the sampling criteria for both rounds in 2002 and 2005 (see also, MEMBR, 2002; Synovate, 2005).

Using these data, we have created three samples. Sample A includes more than 20,000 firms that have filled the BEEPS survey in at least one of the survey years 2002 and 2005. In order to allow for robustness tests, from the previous sample we created a restricted sample (Sample B) with over 3,000 observations, where we matched each firm with foreign affiliation, i.e. firms that stated having a foreign firm as the largest shareholder, with a randomly chosen domestic firm from the same country and industry and in the same size category. We expected this second, more conservative, sample to control for systematic differences between foreign-affiliated and purely domestic firms. Finally, sample C contains only the 1,445 firms that participated in both rounds and constitutes a panel sample.

Measures

Table 1 below provides information on the variables used to test our hypotheses.

TABLE 1RESEARCH VARIABLES

	Variable	Description	Source
Dependent Variables	Sales Change	For both sales and exports firms were asked: "Over the last 36 months how have the following changed (increased/decreased) and what is the percent of change for your company, in real terms (i.e., after allowing for inflation)"	Calculated based on BEEPS
	Export Change	(same)	
Independent variables	Foreign Affiliation International Orientation	When companies chose 'Foreign firm' as the largest shareholder of the firm When companies chose 'Foreign firm' as the largest shareholder of the firm and/or were created as a joint venture with a foreign firm	BEEPS Calculated by the authors based on BEEPS-data
	Age	The difference between the year of establishment and the year of survey	Calculated by the authors based on BEEPS-data
Control Variables	Year2002 Year2005	Dummies describing the survey year	BEEPS
	Size	Different categories for the number of employees	BEEPS
	Industry: Mining and quarrying Construction, Section Manufacturing, Section Transportation, storage and communications Wholesale, retail, repairs Real estate and business service Hotels and restaurants Other community, social and personal activities Country	Dummies for the industries in accordance with the ISIC-system.	BEEPS

The Dependent Variable

Firm Performance: in order to measure performance, we chose sales growth over the last three years expressed in percentage. This measure is considered reliable in this setting and can be measured in a consistent manner across the countries in the study. We also examined our results using the change in exports over the last three years of operation as an additional measure of performance.

The Independent Measures

MNC-Affiliation: we measured the foreign affiliation in two different ways. The first measure (Foreign Affiliation) is a dummy variable equal to one if the company stated that the largest shareholder is a foreign firm and zero otherwise. Applied to Sample A, this measure resulted in 19,219 domestic firms and 1,556 foreign affiliates. For the panel data, out of 2,892 firm-observations, there were 2,633 pertaining to domestic firms and 259 foreign affiliates. For Sample B, every foreign firm defined this way was matched with a domestic firm and therefore the numbers were identical. The second measure (International Orientation) that allows for some additional robustness tests considered as foreign firms that were established as joint ventures with foreign firms, even though their largest shareholder was domestic. This broader definition of

foreign affiliation created 18,990 domestic firms and 1,785 firms with international orientation. The corresponding observations for the panel data were 2,600 domestic and 292 foreign affiliates.

Age: age was computed as the year of the survey minus the year of incorporation, as provided in the survey.

Control Variables: we controlled for firm size using categories for the number of employees, respectively small, medium, and large companies. Table 2 shows the distribution of firms by size for different samples. In addition, we controlled for industry.

	Sam	iple A	Sai	nple B	Sample C		
	Freq.	Percent	Freq.	Percent	Freq.	Percent	
Small	14,752	71.01	1,284	41.45	2,019	69.81	
Medium	3,743	18.02	991	31.99	548	18.95	
Large	2,280	10.97	823	26.57	325	11.24	
Total	20,775	100	3,098	100	2,892	100	

 TABLE 2

 DISTRIBUTION OF FIRMS BY SIZE FOR DIFFERENT SAMPLES

The industry categorization used for the survey is based on ISIC. The table in appendix 3 provides information on the distribution of firms by industry for all three samples used in our study. In all models, we controlled for the country of operations and the year. In addition, for the panel sample (Panel C) we controlled for unobserved firm fixed-effects.

RESULTS

Table 3 presents our regression results for Sales Change. Models M1 through M5 refer to Sample A. Model 1 shows our basic model that contains only the control variables, namely the measure of size as well as country and industry dummies. Models 2 presents our regression results with only the main effect for Foreign Affiliation. Following Cohen and Cohen (1983), we test for the significance of the interaction term in Hypothesis 2 by entering this term hierarchically into the regression. Models 3 shows the full set of results including the main effect (Foreign Affiliation) as well as Age and the hypothesized interaction between Foreign Affiliation and Age. Models 4 and 5 show similar regression models using International Orientation as the measure of foreign affiliation. As can be seen in column 2, the results support our Hypothesis 1 that foreign affiliated firms perform better than domestic ones (p<0.01). Results in column 3 show that the interaction term is significant (p<0.01) and is in the expected direction, namely negative, providing support for the Hypothesis 2 that Age negatively moderates the effect of being affiliated with a foreign company on performance. In other words, the gap in performance between foreign affiliated and domestic firms decreases with the age of the firm. Interestingly, Age itself has also a significant (p<0.01) and negative effect on performance. Models 4 and 5 use International Orientation instead of Foreign Affiliation as our main independent variable and confirm the significant results for both the main effect and the interaction in the predicted directions.

	Full Sample					Matched Sample					Panel				
Sales Change	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
Foreign		10 202	11.5(4				10 502	11.172				12 5(1	22.179		
Annation		10.393	(1.02)**				10.393	(2.97)**				13.301	(1.80)		
		(5.3)**	(4.83)**				(4.39)**	(3.8/)**				-1.37	(1.89)+		
Intl. Orientation				9.526	10.416				10.374	10.905				13./15	22.591
				(5.46)**	(4.68)**				(4.23)**	(3.69)**				(1.79)+	(2.42)*
Age			-0.183		-0.183			-0.204		-0.205			0.156		0.162
Foreign			(8.78)**		(8.60)**			(3.87)**		(3.84)**			-0.95		-0.98
Affiliation x															
Age			-0.149					-0.11					-0.599		
Intl Orientation			(2.58)*					(1.73)+					(2.62)*		
x Age					-0.138					-0.108					-0.658
					(2.31)*					(1.69)+					(2.67)*
Year2002	5.985	5.482	5.229	5.513	5.268	9.331	7.656	7.394	7.711	7.446	10.649	10.235	10.297	10.224	10.239
	(2.00)+	(1.84)+	(1.76)+	(1.85)+	(1.77)+	(2.62)*	(2.16)*	(2.09)*	(2.17)*	(2.10)*	(3.21)**	(3.11)**	(3.07)**	(3.10)**	(3.05)**
Size	4 777	4 043	5 948	4 094	6.001	4 907	4 924	6.616	4 913	6.612	4 639	4 412	4 164	4 407	4 174
Size	(5.84)**	(1 08)**	(7.28)**	(5.10)**	(7 38)**	(3 20)**	(3.28)**	(1 26)**	(3 27)**	(1 25)**	0.01	0.87	0.82	0.87	0.82
Industry	(3.64)	(4.98)	(7.20)	(3.10)	(7.58)	(3.29)	(3.28)	(4.20)	(3.27)	(4.23)	-0.91	-0.87	-0.82	-0.87	-0.82
Dummies	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES
Country	1125	1125	1125	1125	1L5	1125	1125	1125	1125	1125	1123	1123	1123	1125	1123
Dummies Included	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES	VES
Firm Fixed	1125	1125	1125	1125	1123	1125	1125	1125	1125	1125	1123	1123	1123	1125	1123
Effects											YES	YES	YES	YES	YES
Constant	1.801	2.626	3.645	2.505	3.518	2.368	-1.934	-0.075	-1.852	0.026	11.181	10.39	7.721	10.729	8.011
	-0.77	-1.14	-1.6	-1.09	-1.54	-0.36	-0.3	-0.01	-0.28	0	-1.01	-0.93	-0.63	-0.97	-0.66
Observations	20003	20003	19992	20003	19992	2946	2946	2946	2946	2946	2777	2777	2775	2777	2775
Number of firms											1442	1442	1442	1442	1442
R-squared	0.08	0.08	0.08	0.08	0.08	0.07	0.09	0.09	0.08	0.09	0.03	0.03	0.04	0.03	0.04
Robust t statistics	in	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.00	0.07	0.00	0.00	0.01	0.00	0.01
parentheses + significant at 10	%·*sionif	icant at 5%	· **												
significant at 1%	,,,, ,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,												

TABLE 3OLS REGRESSIONS FOR SALES CHANGE

Models M6 through M10 apply the same models to Sample B. Although Sample B has substantially less observations, all the results hold. The main effects for both Foreign Affiliation and International Orientation are highly significant (p<0.01). The interactions remain also significant (p<0.05) and in the predicted direction.

Finally, models M11 through M15 test the hypotheses using panel data. Here, in addition to the controls mentioned earlier, we included firm fixed-effects, i.e. controlling for unobserved firm characteristics. The results, as shown by models M13 and M15, confirm that the findings still hold even under very conservative conditions. Both main effects remain significant (p<0.10 for the Foreign Affiliation and p<0.05 for the International Orientation) and the interactions are also significant (p<0.05) and in the predicted direction.

We applied the whole set of models to another measure of performance, namely the Export Change. As can be seen in the regression table in Appendix 4, we find similar results for Sample A and Sample B. However, the results for this particular dependent variable are not significant if applied to the panel data (Sample C).

DISCUSSION AND CONCLUSION

In this paper, we develop a theory of how MNC affiliation is likely to impact firm performance and how this relationship will be moderated by age. Our results support both formulated hypotheses that firms with foreign affiliation outperform domestic firms and that this effect becomes weaker with the age of the firm.

Although the superiority of the foreign affiliated firms has been theoretically predicted and empirically investigated, our study brings a valuable contribution by including a large number of countries and industries. Moreover, we test our hypotheses in various settings and using different samples. The results hold even in the most restrictive conditions which increases the validity of our conclusions.

In comparison to the first hypothesis, our second prediction that age will negatively moderate the relationship between foreign affiliation and performance has been less investigated. We find very strong and robust support for our theoretical prediction. It seems that age affects domestic firms to a lesser degree compared to MNC-affiliated firms. A possible explanation for this phenomenon is provided by the spill-over effects of the operations of MNC-affiliated firms. Indeed, with time domestic firms start to understand the competitive advantages of MNC-affiliates and improve their efficiency as a result of interacting with them.

Although we focused on the interaction of Age with Foreign Affiliation, it is worth to mention that we found generally strong negative main effects also for Age. A possible explanation is that early entrants were not among the top performers.

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Country	2002	2005
EVDOM	VEC	VEC
FINUM Serbia and Montanagra	I ES VEC	I ES VES
Albania	I ES VES	I ES VES
Albania	I ES VES	I ES VES
Tradica	I ES	I ES
	I ES	I ES
Bosnia and Hercegovina	YES	YES
Slovenia	YES	YES
Poland	YES	YES
Ukraine	YES	YES
Belarus	YES	YES
Hungary	YES	YES
Czech Republic	YES	YES
Slovak Republic	YES	YES
Romania	YES	YES
Bulgaria	YES	YES
Moldova	YES	YES
Latvia	YES	YES
Lithuania	YES	YES
Estonia	YES	YES
Georgia	YES	YES
Armenia	YES	YES
Kazakhstan	YES	YES
Azerbaijan	YES	YES
Uzbekistan	YES	YES
Russia	YES	YES
Tajikistan	YES	YES
Kyrgyz Republic	YES	YES
Germany	NO	YES
Portugal	NO	YES
Greece	NO	YES
South Korea	NO	YES
Vietnam	NO	YES
Spain	NO	YES
Ireland	NO	YES

APPENDIX 1 PARTICIPATING COUNTRIES

APPENDIX 2 DESCRIPTION OF THE SAMPLE

Data Source	BEEPS 2002 and BEEPS 2005
Sector	Composition in terms of manufacturing vs. services determined by the relative
	contribution in GDP; at least 15 % from each. Firms that operated in sectors subject
	to government price regulations and prudential supervision, such as banking, electric
	power, rail transport, and water and wastewater were excluded.
Subsectors and ISIC	
section	
Industry	Mining and quarrying, Section: C: 10-14
Industry	Construction, Section: F: 45
Industry	Manufacturing, Section: D: 15-37
Services	Transportation, storage and communications, Section: I: 60-64
Services	Wholesale, retail, repairs, Section: G: 50-52
Services	Real estate and business service, Section: K: 70-74
Services	Hotels and restaurants, Section: H: 55
Services	Other community, social and personal activities, Section: O ¹⁾ :
	92.1-92.4 and 93 included, 90.0-91.3 and 92.5-92.7 excluded
Enterprise size	Of the total sample, at least:
	- 10% small (2-49 employees)
	-10% medium (50-249 employees) ³⁾
	- 10% large (250-9,999 employees)
	Firms with only one or more that 10,000 employees excluded.
Ownership	At least 10% of the firms should have foreign control and 10% state control ²)
Exporters	At least 10% of firms should be exporters (exported 20% or more of total sales)
Location	At least 10% in the category of "small city or countryside" (population under
	50,000).
Year of establishment	Later than 2000 excluded for BEEPS 2002; 2002, 2003, and 2004 excluded for
	BEEPS 2005
Remarks	Excluded/included subcategories reported only for 2002
	Control defined as at least 50% shareholding only for 2005
	The restriction not mentioned in 2005

APPENDIX 3 DISTRIBUTION OF FIRMS BY INDUSTRY FOR DIFFERENT SAMPLES

	Sam	ple A	Sai	nple B	Sample C	
Industry	Freq.	Percent	Freq.	Percent	Freq.	Percent
Mining and Quarrying	210	1.01	44	1.42	29	1
Construction	2,329	11.21	140	4.52	328	11.34
Manufacturing	6,682	32.16	1,299	41.93	741	25.62
Transport storage and communication	1,436	6.91	245	7.91	216	7.47
Wholesale, retail, repairs	5,543	26.68	834	26.92	835	28.87
Real estate, renting and business services	2,086	10.04	297	9.59	359	12.41
Hotels and restaurants	1,400	6.74	171	5.52	195	6.74
Other	1,089	5.24	68	2.19	189	6.54
Total	20,775	100	3,098	100	2,892	100

	Full Sample					Matched Sample					Panel				
Export Change	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
Foreign Affiliation		7.178	8.389				8.144	9.15				0.444	0.695		
		(4.61)**	(5.17)**				(4.35)**	(4.47)**				-0.16	-0.2		
Intl. Orientation				6.516	7.469				8.036	9.091				-1.875	- 0.968
				(5.08)**	(5.53)**				(4.30)**	(4.43)**				-0.58	-0.24
Age			-0.079		-0.079			-0.088		-0.087			0.026		0.03
			(4.29)**		(4.34)**			(2.18)*		(2.10)*			-0.36		-0.4
Foreign Affiliation			0.116					0 103					0.016		
лиде			-0.110					(1.73)+					-0.17		
Intl. Orientation x			(2.55)					(1.75)*					-0.17		-
Age					-0.103					-0.106					0.065
					(2.06)*					(1.76)+					-0.66
Year2002	0.987	0.703	0.57	0.721	0.594	0.629	-0.343	-0.486	-0.31	-0.46	2.198	2.182	2.246	2.27	2.314
	-1.43	-0.98	-0.8	-1.02	-0.85	-0.33	-0.17	-0.24	-0.16	-0.23	-1.51	-1.5	-1.52	-1.54	-1.55
Size	3.662	3.145	4.007	3.187	4.05	3.354	3.449	4.325	3.441	4.318	4.81	4.801	4.751	4.848	4.798
Industry Dummies	(5.70)**	(4.77)**	(5.29)**	(4.81)**	(5.32)**	(2.06)*	(2.11)*	(2.54)*	(2.11)*	(2.54)*	-0.94	-0.94	-0.92	-0.95	-0.93
included	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country Dummies Included	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects											YES	YES	YES	YES	YES
Constant	-2.514	-1.984	-1.568	-2.079	-1.662	5.696	1.32	1.773	1.368	1.794	2.558	2.534	2.035	2.683	2.131
	-1.6	-1.26	-1.03	-1.33	-1.09	-0.52	-0.12	-0.17	-0.13	-0.17	-0.24	-0.24	-0.2	-0.25	-0.2
Observations	17178	17178	17171	17178	17171	2728	2728	2728	2728	2728	2543	2543	2541	2543	2541
Number of M ID											1439	1439	1439	1439	1439
R-squared	0.03	0.03	0.04	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.01	0.01	0.01	0.01	0.01
Robust t statistics in	parentheses														
+ significant at 10%;	; * significar	nt at 5%; **	significant a	t 1%											

APPENDIX 4 OLS REGRESSIONS FOR EXPORT CHANGE