Results of cross-border mergers and acquisitions by multinational enterprises from emerging countries: the case of Poland

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Abstract

In recent years, a noteworthy number of huge mergers and acquisitions involving firms from both advanced and emerging economies took place. The determinants of such transactions have been frequently revealed and the motives were to a certain extent apparent. However, the real results of these transactions have not been widely recognised. This paper has been devoted to the analysis of the financial effects of mergers and acquisitions abroad by firms from an emerging country, that is, Poland. I analyse several financial performance indicators of acquiring enterprises: revenues, gross profit, ROE, ROA. The time span of the analysis includes both periods proceeding and consecutive the transactions. The main conclusion drawn from the comparative analysis is that firms that took over a stake in a foreign firm or a complete business abroad where better off in absolute terms, but their financial ratios were weaker.

JEL Classification: F21; F23

Keywords: foreign direct investment, cross-border mergers and acquisitions, heterogeneous firms, emerging countries

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1. Introduction

When an acquisition is announced we can frequently notice a sudden decline in share prices of a publicly traded acquirer. Such facts are in a sharp contradiction to potential gains promised by managers of an acquiring company. Mergers and acquisitions (M&A) are frequently justified by achievable synergies or access to new markets. Moreover, cross-border M&A create a bulk of flows of foreign direct investment (FDI).

Although some investors react negatively for a potential deal and sell shares of an acquirer. It is said that financial markets are very efficient in assessing the real value of equities and discounting future. Their decisions may be motivated by anticipated drop in profits, which is directly associated with the dividend for shareholders. Other drawbacks of M&A deals may also take place, for example, organizational problems or further expenditure for turnaround and integration of the acquired entity. Moreover, firms that take over foreign firms may deteriorate their financial position due to a high price of the deal.

If the damaging value deals are the case I will investigate it taking into consideration post-acquisition financial results of acquirers. The performance of a firm may be analysed using various indicators. In this paper I will focus on financial measures covering different areas of business activities. Indicators describing profitability, market power and effectiveness of using assets and equity will be of a particular interest.

This study will employ data of Polish firms and investigate causal results of their foreign M&A. Such selection of the analysed population will increase the meaningful of finding as they will be related to firms from emerging economies. I expect that the fact of acquirers' origination in one of the emerging countries may also influence the post-acquisition results. Firms from emerging countries are said to have less experience abroad and weaker organizational structures comparing to firms from advanced economies. Therefore the success rate of their M&A may be also lower.

An issue that should be also underlined in the analysis of performance of firms is a selection bias. In the case of firms acquiring foreign firms, the potential improvement of performance after the transaction may not be caused by the transaction, but earlier superior characteristics of the firms. To alleviate the issue the difference-in-difference approach is combined with propensity score matching. Thanks to the method I compare firms of very similar characteristics thus minimising the selection bias.

The remainder of the paper is organised as follows. Section 2 delivers a review of previous contributions in the field of performance of cross-border mergers and acquisitions;

Section 3 contains data description; Section 4 delivers the outline of an econometric strategy; Section 5 contains results of the analysis; and Section 6 delivers concluding remarks.

2. Previous theoretical and empirical contributions

The number of contributions dealing with the issue of post-acquisition performance of multinational corporations is rather robust. Main area of research concern the impact of cross-border mergers and acquisitions on the results of target companies. Arndt and Mattes (2010) analysed the productivity of German multinational corporations that were acquired by foreign investors. Similarly, target firms' performance was analysed by Chen (2011), but the main question concerned the effect of investor origin. The buyers were divided into three groups: domestic, originating in an industrial country or in a developing country. According to her findings, acquirer origin heterogeneity led to mixed results in the productivity and other performance gauges in a few years after the acquisition. The case of Japanese target firms was analysed by Fukao et. al (2006). They found a positive impact of foreign acquisitions on target firms productivity and profitability. The positive impact of foreign acquisitions on plant productivity in Indonesia was also confirmed by Arnold and Javorcik (2009). The common feature of the mentioned papers was that they used similar methodology – combination of difference-in-difference and propensity score matching. However, the main interest of the researchers was to investigate the target firms.

To the best knowledge of the author, contributions dealing with the effects for the acquirer were rather scarce. The study of UK firms that acquired foreign entities in the 1990s confirms negative returns in a few years after the deal (Aw and Chatterjee, 2004). The reasons for the poor performance was incomplete information about the real value of target firms or paying too high premium for entering foreign markets. On the other hand, a subsequent investigation of UK foreign acquisition brings rather neutral consequences of announcement of cross-border deals and does not support the thesis of possible gains from such deals (Uddin and Boateng, 2009). There is also a vast literature in the field of finance investigating the issue from the perspective of a shareholder and market returns, however the same strategy is not feasible for non-publicly listed firms.

There are also new papers published on the issue of results of M&A on multinationals from emerging countries. The analysis of the emerging acquiring firms in the case of Russia confirms value destruction after such deals (Bertrand and Betschinger, 2012). The distinguishing characteristics influencing results of the deals by Chinese publicly traded firms

were investigated by Chen and Young (2010). The issue of performance of multinational corporations from emerging countries was not of a particular popularity. Therefore this work should also add new insights to the discussion.

Why should we expect any changes in a firm performance due to a foreign acquisition? These transactions, as a type of foreign direct investment, are generally motivated by an access to foreign market or lower costs of production (Navaretti and Vanables, 2004, 49). These factors can lead to more market power and higher profitability of a firm. But the superior performance is the necessary condition to overcome high sunk cost of entering foreign a foreign market (Helpman, Melitz and Yeaple, 2004). Therefore it is expected that firms undertaking any form of FDI should be better equipped with capital and other assets, that will alleviate negative impact of operating abroad. The high costs of entering foreign market can influence the firms results in the first years after the transaction. Positive effects are expected to come a little later.

3. Data and variables

The econometric analysis in this paper was conducted using two basic sources of data. First part of the dataset was composed of data on cross-border mergers and acquisitions. Initially, 239 deals by Polish firms in the period from year 2007 to 2010 were extracted from DealWatch database provided by ISI Emerging Markets. Some ordering had to be done. Cases when an acquirer consisted of more than one entity were deleted. Investment funds or private equity firms were also removed from the list of investors.

DealWatch does not include as many performance details as were required for the analysis. Therefore, additional data were extracted from Amadeus database by Bureau van Dijk. Cross-border mergers and acquisitions were predominantly conducted by larger companies, therefore the threshold of at least 10 million EUR turnover in 2010 was imposed. The analysed firms should be also active in year 2006, what led to selecting only firms operating over the period of the five years. Then the two datasets were merged. After deleting observations with missing values the final dataset consisted of 83 foreign transactions by 56 firms in years from 2007 till 2010. To ensure the similar industry pattern between treated and control group, industries like financials, public hospitals or associations were removed from the database.

The idea of this paper is to compare the performance of firms one year before the transaction with post-treatment results. I focused on variables describing the financial

performance of analysed firms. The motivations to choose these variables were the following. Firstly, I wanted to assess the firms both using absolute values and financial ratios. Secondly, these characteristics are universal measures of firms efficiency.

The variable sales was employed to explain the market power of a firm, but it is also a proxy for size of a firm. Firms with larger domestic sales are better suited for foreign expansion as they can bear high fixed costs of entering foreign markets. Previous contributions confirm a positive impact of larger sales on the propensity to undertake foreign acquisitions instead of a greenfield projects (Klimek 2011). The additional measure of the size of firms was the value of total assets. The other variable that was taken into consideration as a measure of firm's strength is the gross profit. Its value expresses the cash that can be spent on the foreign expansion. It is also partially a measure of effectiveness of a given firm.

The two remaining ratios were applied to purely measure the financial performance. Return on assets (ROA) is a ratio of net profit on total assets of a firms. It informs about the capability of earning profits and efficiency of asset utilisation. The higher the ratio the better financial position of a given entity.

Return on equity (ROE) is calculated as ratio of net profit on shareholder equity. It is an indicator of efficiency of generating profits from the shareholders' equity. The higher value of the indicator the more efficiently are invested capitals utilised.

Table 1. Definitions of variables

Variable name	Definition
rev10	Operating revenues in year 2010 [in '000 EUR]
rev6	Operating revenues in year 2006 [in '000 EUR]
asset6	Total assets in year 2006 [in '000 EUR]
profit6	Profit before taxation in year 2006 [in '000 EUR]
profi10	Profit before taxation in year 2010 [in '000 EUR]
roa10	Return on assets in year 2010 [in %]
roe6	Return on equity in year 2006 [in %]
roe10	Return on equity in year 2010 [in %]
dprofit	Difference between profit10 and profit6
droa	Difference between roa10 and roa6
droe	Difference between roe10 and roe6

Each of the variables for year 2006 were also squared to control for the nonlinear effects. Raising the variables to the power of two was crucial in reducing the bias of the matching procedure described in the subsequent section.

4. Econometric strategy

The aim of the paper is to investigate the development of Polish firms that made foreign acquisitions. I would like to know what would be the performance of the firms if they did not undertake such transactions. Naturally, the counterfactual situation is impossible to observe for the same firm. Therefore I use an econometric method known as matching to assess the possible outcome if there was no acquisition. The roots of application of this method are traced to investigating the effectiveness of labour market programs (see e.g. (Dehejia i Wahba 1999). The basic idea of the method is to use a group of treated participants (in this case acquirers of foreign firms) and a large group of nonparticipants (in this case firms not active in cross-border mergers and acquisitions). The control group should be of maximum similarity to the treated group in all dimensions in a pre-treatment period. The matching method should be based on a carefully selected groups of participants and controls. However, nonexperimental studies cannot guarantee obtaining a perfect comparison group (Heckman, Ichimura and Todd, 1998).

It may impossible to observe all relevant covariates, therefore some approximation can be applied. One way to overcome the problem is to apply a balancing score, which is a function of the observable covariates (Rosenbaum and Rubin, 1983). The balancing score may be expressed as a propensity score, which is a probability of acquisition taking into consideration the observable characteristics of firms. It will make the results of comparison of treated and control groups more meaningful. The method that uses probabilities in matching is named propensity score matching (PSM).

Following (Rubin, 1974) the treatment effect for an individual firm in a case of binary treatment can be written as:

$$\delta_i = y_i(1) - y_i(0) \tag{1}$$

where the potential outcome for an individual firm is given as $y_i(v_i)$; v is a treatment indicator for i firm which takes 1 for acquirers and 0 for firms that did not undertake the acquisition. Each firm can have only value 1 or 0, but not both simultaneously. As the

observation of this counterfactual outcome is not feasible the *average treatment effect on the treated* (ATT) for the entire population has to be introduced. The performance y of the same firms before and after treatment is given by the following equation:

$$\delta_{ATT} = E[\delta|v = 1] = E[y(1)|v = 1] - E[y(0)|v = 1] \quad (2)$$

see e.g. (Caliendo and Kopeinig, 2005). Similarly to the counterfactual income for an individual firm observing the counterfactual mean for treated $E[y(0)|v = 1]$ is not possible. Therefore some approximation has to be applied. Before presenting the model with the substitutes an additional condition has to be introduce. Unconfoundedness (or conditional independence assumption, CIA) implies that participation in the treatment group is independent from the outcome. It other words, the transactions of acquiring foreign firms are caused by observable covariates X. It means that when applying the method the covariates should describe the characteristics of an individual before the treatment or constant over time (e.g. gender or industry code). Given that CIA holds:

$$E[y(0)|X, v = 1] = E[y(0)|X, v = 0] = E[y(0)|X] \quad (3)$$

then

$$\delta_{ATT} = E[y(1) - y(0)|X] \quad (4)$$

As matching all covariates X is not necessary I apply the propensity score $p(X) = \Pr(v = 1|X)$.

$$\delta_{ATT} = E[y(1) - y(0)|p(X)] \quad (5)$$

The propensity score p was estimated using logit model.

5. Estimation results

The subsequent analysis was conducted using different sizes of samples. The base sample was composed of 4553 firms, including 4497 controls and 56 treated. For the robustness check two other samples of different characteristics were also estimated.

One of the control groups consisted of only domestic firms. To achieve the sample foreign firms (with 100% foreign stake) were deleted from the database. It led to the sample of 3321 control and 56 treated entries. The rationale behind such move was that foreign-owned firms are only affiliates of foreign firms and their activities are limited to the most efficient processes. They have access to foreign technology and vast resources of the headquarters. Moreover, they were established in Poland not to expand abroad, but rather to focus on the host market. Removing the foreign firms alleviates one of the selection biases, because they were not expected to be treated, even if the covariates would be favourable.

The last estimation was run using only a control group of domestic firms from the industries that were represented by firms undertaking foreign transactions. Thanks to this restrictions the characteristics of the control group was the most similar to the treated multinationals. This sample consisted of 842 control firms and still 56 treated.

Firstly, three logit models containing all variables for year 2006 were estimated (tables 6-8 in the appendix). It is important to note that the estimated coefficients cannot be treated as marginal effects of explanatory variables on the response variable. This estimation was conducted for the purpose of deriving propensity score for the model.

In the further step, the matching procedure was applied. The computations were done using Stata extension *psmatch2* by (Leuven i Sianesi 2003). The matching procedure significantly reduced the differences between control and treated groups comparing to the unmatched input (tables 9-11 in the appendix). I applied nearest matching neighbours, where the best matches between treated and control firms were assigned with respect to the propensity score. Matching procedure using nearest neighbours proved to work very well as the percentage bias after matching in almost all instances lower than conventional 5%. The matching procedure reduced the bias very significantly, up to 98,7%.

The analysis of absolute values of the revenues confirms that firms undertaking foreign projects were on average larger than their peers (table 2). It was confirmed by the analysis of the three different controlling groups. Firstly, the treated firms recorder higher revenues before undertaking the foreign projects. This result is in line with expectations as larger firms are better suited for expansion abroad. It is even more important that after the acquisitions sales of the multinationals rose. The value of sales was of about EUR 100 million higher for the treated firms than their peers. If the main motivation for the deals was to obtain more market I can assess the results positively.

Table 2. Average treatment effect on the treated regarding revenues

Sample	Variable	Sample	Treated	Controls	Difference
Full population	rev6	Unmatched	529859	55603	474256
		ATT	230487	131839	98649
	rev10	Unmatched	822164	72136	750028
		ATT	359108	158825	200283
	drev	Unmatched	292305	16534	275771
		ATT	128620	26986	101635
Only domestic firms	rev6	Unmatched	529859	47664	482195
		ATT	230487	147434	83053
	rev10	Unmatched	822164	61316	760848
		ATT	359108	163288	195820
	drev	Unmatched	292305	13652	278653
		ATT	128620	15854	112767
Only domestic firms with treated industries	rev6	Unmatched	529859	51548	478311
		ATT	208066	132091	75976
	rev10	Unmatched	822164	70319	751845
		ATT	326063	149781	176283
	drev	Unmatched	292305	18772	273534
		ATT	117997	17690	100307

Note: differences may occur due to rounding

When I used profit as an outcome the results were also favourable for the acquirers (table 3). In all three estimations the acquirers generated more profit than control firms. Moreover, profits after the acquisitions were significantly higher than in the year proceeding the transaction. For the multinational firms the gross profit rose of over EUR 9 million more than for the domestic firms operating in industries of interest. Higher profits mean higher possible dividend for shareholders. Therefore they should not oppose such deals as they can bring more value to their shares.

Table 3. Average treatment effect on the treated regarding profit

Sample	Variable	Sample	Treated	Controls	Difference
Full population	profit6	Unmatched	35600	3259	32341
		ATT	18482	15680	2801
	profit10	Unmatched	52220	4194	48026
		ATT	26084	14088	11996
	dprofit	Unmatched	16620	934	15685
		ATT	7602	-1592	9194
Only domestic firms	profit6	Unmatched	35600	2760	32840
		ATT	18482	15966	2515
	profit10	Unmatched	52220	3788	48431
		ATT	26084	19258	6826
	dprofit	Unmatched	16620	1028	15591
		ATT	7602	3292	4310
Only domestic firms with treated industries	profit6	Unmatched	35600	3219	32381
		ATT	16092	13017	3075
	profit10	Unmatched	52220	4255	47964
		ATT	21739	9637	12103
	dprofit	Unmatched	16620	1036	15584
		ATT	5647	-3380	9028

Note: differences may occur due to rounding

Different picture of the performance of treated firms was provided by the financial ratio ROE (table 4). The results of the estimation indicate that ROE for year 2006 was of around 0,42 percentage points lower for the treated units comparing to the control group. The difference was far higher (-15,92 percentage points) in year 2010 what confirms a negative impact of foreign transactions. Over these 5 years treated firms lost almost 6 percentage points from their performance, whilst domestic firms gained almost 10.

Table 4. Average treatment effect on the treated regarding ROE

Sample	Variable	Sample	Treated	Controls	Difference
Base sample	roe6	Unmatched	14.54	20.69	-6.15
		ATT	14.82	17.33	-2.51
	roe10	Unmatched	9.42	13.7	-4.29
		ATT	9.39	14.60	-5.21
	droe	Unmatched	-5.12	-6.99	1.87
		ATT	-5.44	-2.73	-2.70
Only domestic firms	roe6	Unmatched	14.54	21.51	-6.97
		ATT	14.82	16.54	-1.71
	roe10	Unmatched	9.42	13.58	-4.16
		ATT	9.39	10.53	-1.15
	droe	Unmatched	-5.12	-7.94	2.82
		ATT	-5.44	-6.00	0.57
Only domestic firms with treated industries	roe6	Unmatched	14.54	26.30	-11.76
		ATT	14.99	15.41	-0.42
	roe10	Unmatched	9.42	15.39	-5.97
		ATT	9.40	25.32	-15.92
	droe	Unmatched	-5.12	-10.90	5.78
		ATT	-5.59	9.91	-15.50

Note: differences may occur due to rounding

The second measure of the financial performance applied in the analysis is in line with previous findings. ROA is still lower for firms that take over foreign firms in the analysed period (table 5). In the sample of only domestic firms in industries of interest, the ratio dropped from 7,72% in year 2006 to 5,11% in year 2010. The control firms also faced moderating the indicator due to unfavourable conditions in the world economy caused by the economic crisis.

Table 5. Average treatment effect on the treated regarding ROA

Sample	Variable	Sample	Treated	Controls	Difference
Base sample	roa6	Unmatched	7.61	9.00	-1.39
		ATT	7.76	9.53	-1.77
	roa10	Unmatched	5.23	7.21	-1.98
		ATT	5.20	8.20	-2.99
	droa	Unmatched	-2.38	-1.79	-0.59
		ATT	-2.55	-1.33	-1.22
Only domestic firms	roa6	Unmatched	7.61	9.12	-1.51
		ATT	7.76	9.50	-1.74
	roa10	Unmatched	5.23	7.01	-1.77
		ATT	5.20	7.11	-1.90
	droa	Unmatched	-2.38	-2.11	-0.27
		ATT	-2.55	-2.40	-0.16
Only domestic firms with treated industries	roa6	Unmatched	7.61	9.43	-1.81
		ATT	7.72	9.04	-1.32
	roa10	Unmatched	5.23	7.56	-2.33
		ATT	5.11	7.88	-2.77
	droa	Unmatched	-2.38	-1.87	-0.52
		ATT	-2.61	-1.16	-1.45

Note: differences may occur due to rounding

Various measures presented above confirm that foreign transactions can bring positive changes to the absolute values, but may be damaging for the efficiency of equity or assets. Even more striking is the finding that firms undertaking foreign expansion had some performance indicators for a period preceding M&A transactions weaker than purely domestic firms. It is in an opposition of the fact that multinational corporations are the most efficient firms in the economy.

6. Conclusions

This paper has been devoted to the analysis of performance of Polish multinationals after they engaged in foreign acquisitions. The technique applied to investigate the issue was propensity score matching. It allows to analyse the effects of a counterfactual situation. In this paper the counterfactual situation was the performance of acquirers in the non-occurrence of cross-border mergers and acquisitions. I utilised four main financial indicators to embrace the performance of analysed firms.

The main conclusion drawn from the comparative analysis is that firms that took over a stake in a foreign firm or a complete business abroad where better off in absolute terms, but their financial ratios were weaker. Moreover, the acquisitions made the ROA and ROE ratios even worse in a period of five years. It can be interpreted as the firms grew in size and market power, but it was on the account of lower performance. If we add to the interpretation the fact that the post-acquisition analysis was conducted early after the deal we can conclude that the initial goal of higher revenues and profits was accomplished whilst improving the financial ratios, like ROE or ROA will take more time. Additionally, after acquiring a foreign firm further significant investment has to be done in order to integrate both firms and it can deteriorate efficiency ratios.

The worse performance of acquirers may be also caused by the inexperience in foreign deals what was a plague for many firms both from developed and emerging countries. Drop in ROA means that the assets do not generate as much profit as in earlier periods. It can be interpreted as a high price paid for the assets that are not very profitable. Calculating the proper price of such deals is one of the most challenging tasks. Furthermore, the value of a target firm does not only comprise the book value, but also a premium convincing current owners to sell their business. The situation is even more complicated if there are some other strategic goals behind the deal, for example, blocking the competitors.

Further work on the issue of post-acquisition performance should also include the analysis of nonfinancial results. They may be revealed as potential technological advance or organisational expertise. As a rule they are neither quantifiable by financial ratios nor occurring in a short run.

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Appendixes

Table 6. Logit estimation results (base sample)

Variable name	Coefficient	Squared coefficient
rev6	-2.39e-06 (1.53e-06)	6.64e-13 (5.25e-13)
asset6	2.77e-06*** (9.61e-07)	-2.02e-13* (1.23e-13)
roe6	-.0360107** (.015128)	-.0001445 (.0001248)
roa6	.2156921*** (.0803428)	-.0081473** (.0033662)
profit6	.0000526*** (.0000143)	-2.20e-10*** (7.77e-11)

Note: standard errors in parentheses; *, **, *** represent statistical significance at 0,1, 0,05, 0,01 level respectively

Table 7. Logit estimation results (only domestic)

Variable name	Coefficient	Squared coefficient
rev6	-1.53e-06 (1.69e-06)	7.46e-13 (7.19e-13)
asset6	1.48e-06 (1.25e-06)	-5.65e-14 (1.62e-13)
roe6	-.0407963*** (.015633)	-.0001423 (.0001146)
roa6	.2196544*** (.0807796)	-.0078836** (.0032723)
profit6	.0000684*** (.0000216)	-3.10e-10** (1.33e-10)

Note: standard errors in parentheses; *, **, *** represent statistical significance at 0,1, 0,05, 0,01 level respectively

Table 8. Logit estimation results (only domestic and treated industries)

Variable name	Coefficient	Squared coefficient
rev6	-3.35e-06**	1.28e-12***
	(1.38e-06)	(3.71e-13)
asset6	7.78e-06***	-5.75e-13**
	(2.78e-06)	(3.30e-13)
roe6	-.0627584***	-.0001531**
	(.0191444)	(.0000646)
roa6	.2777207***	-.0087736**
	(.09534)	(.0037235)
profit6	.0000678**	-5.00e-10***
	(.0000301)	(1.49e-10)

Note: standard errors in parentheses; *, **, *** represent statistical significance at 0,1, 0,05, 0,01 level respectively

Table 9. Balance matching results (base sample)

	Unmatched Matched	mean		bias	
Variable		Treated	Control	%bias	%reduct
rev6	Unmatched	5.3e+05	55603	34.5	
	Matched	2.3e+05	1.3e+05	7.2	79.2
rev62	Unmatched	4.0e+12	3.6e+10	21.4	
	Matched	3.1e+11	7.6e+10	1.3	93.9
asset6	Unmatched	5.8e+05	40304	40.0	
	Matched	2.3e+05	1.6e+05	4.9	87.8
asset62	Unmatched	3.8e+12	3.5e+10	26.3	
	Matched	1.9e+11	9.5e+10	0.7	97.4
roa6	Unmatched	7.6147	8.9991	-15.7	
	Matched	7.7597	9.5291	-20.1	-27.8
roa62	Unmatched	90.098	203.11	-29.8	
	Matched	92.902	124.22	-8.3	72.3
roe6	Unmatched	14.538	20.692	-17.4	
	Matched	14.823	17.334	-7.1	59.2
roe62	Unmatched	406.46	2730.9	-12.4	
	Matched	419.51	426.83	-0.0	99.7
profit6	Unmatched	35600	3259.2	42.5	
	Matched	18482	15680	3.7	91.3
profit62	Unmatched	1.2e+10	5.7e+08	22.8	
	Matched	1.7e+09	8.1e+08	1.7	92.6

Table 10. Balance matching results for the (only domestic)

	Unmatched Matched	mean		bias	
Variable		Treated	Control	%bias	%reduct
rev6	Unmatched	5.3e+05	47664	35.1	
	Matched	2.3e+05	1.5e+05	6.0	82.8
rev62	Unmatched	4.0e+12	3.0e+10	21.4	
	Matched	3.1e+11	1.0e+11	1.2	94.6
asset6	Unmatched	5.8e+05	36915	40.2	
	Matched	2.3e+05	1.8e+05	3.7	90.7
asset62	Unmatched	3.8e+12	3.8e+10	26.3	
	Matched	1.9e+11	1.3e+11	0.4	98.4
roa6	Unmatched	7.6147	9.1178	-17.0	
	Matched	7.7597	9.5021	-19.7	-15.9
roa62	Unmatched	90.098	207.02	-29.5	
	Matched	92.902	126.48	-8.5	71.3
roe6	Unmatched	14.538	21.512	-19.6	
	Matched	14.823	16.537	-4.8	75.4
roe62	Unmatched	406.46	2789.8	-11.5	
	Matched	419.51	486.34	-0.3	97.2
profit6	Unmatched	35600	2759.9	43.1	
	Matched	18482	15966	3.3	92.3
profit62	Unmatched	1.2e+10	6.0e+08	22.6	
	Matched	1.7e+09	9.2e+08	1.5	93.5

Table 11. Balance matching results for the (only domestic and treated industries)

	Unmatched Matched	mean		bias	
Variable		Treated	Control	%bias	%reduct
rev6	Unmatched	5.3e+05	51548	34.7	
	Matched	2.1e+05	1.3e+05	5.5	84.1
rev62	Unmatched	4.0e+12	4.4e+10	21.3	
	Matched	2.9e+11	7.2e+10	1.2	94.5
asset6	Unmatched	5.8e+05	30556	40.7	
	Matched	1.9e+05	1.5e+05	3.5	91.3
asset62	Unmatched	3.8e+12	2.3e+10	26.4	
	Matched	1.4e+11	8.3e+10	0.4	98.6
roa6	Unmatched	7.6147	9.4289	-21.2	
	Matched	7.7205	9.0407	-15.4	27.2
roa62	Unmatched	90.098	202.12	-28.9	
	Matched	92.295	111.32	-4.9	83.0
roe6	Unmatched	14.538	26.295	-32.4	
	Matched	14.996	15.413	-1.1	96.4
roe62	Unmatched	406.46	3131.6	-15.5	
	Matched	430.29	538.32	-0.6	96.0
profit6	Unmatched	35600	3219.4	42.4	
	Matched	16092	13017	4.0	90.5
profit62	Unmatched	1.2e+10	6.5e+08	23.2	
	Matched	1.5e+09	5.8e+08	1.8	92.2