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RATE OF SPECIALIZATION OF PRODUCTION SECTORS AND SECTORS OF ECONOMIC SERVICES AND ITS IMPACT ON THE VOLUME OF CROSS-BORDER MERGERS AND ACQUISITIONS IN THE SOURCE COUNTRIES OF THE EUROPEAN AREA

MIERA ŠPECIALIZÁCIE VÝROBNÝCH SEKTOROV A SEKTOROV SLUŽIEB EKONOMIKY A JEJ VPLYV NA OBJEM CEZHRANIČNÝCH FÚZIÍ A AKVIZÍCIÍ V ZDROJOVÝCH KRAJINÁCH EURÓPSKEHO PRIESTORU

Abstract: *The main goal of the paper is to quantify the impact of the degree of specialization calculated on the basis of the Michael index on the volume of cross-border mergers and acquisitions in the source countries of the European area in the period 1998-2015. The paper focuses on the degree of specialization (Michael's index), which is defined as the difference between the share of the surveyed commodity group in total national exports and the share of the surveyed commodity group in national imports. In the period 1998-2015, countries such as Belgium, Cyprus, Finland, and Greece achieved an average level of specialization in the manufacturing and services sectors, with a gradually improving business environment.*

Key words: *Export, import, Michaely index, cross-border mergers and acquisitions*

Kľúčové slová: *Export, import, Michaelyho index, cezhraničné fúzie a akvizície*

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JEL: F15, F21, F23

Introduction

During the twentieth century, mergers and acquisitions (M&A) activities expanded and became more and more interesting, mainly due to the growing interest of foreign investors in countries in transition. [1]. Market liberalization and the growing competition associated with it are leading companies to look for ways to improve their competitiveness and increase their market share, with mergers and acquisitions being one of the ways to achieve this. [2].
Cross-border M&As is considered an important strategy to obtain resources and gain access to local markets in host countries [3], but at the same time, M&As are considered to have a high risk for failure [4], particularly due to the problematic integration stage in cross-border M&As [5]; [6]; [7]; [8]; [3]; [9]; [10]; [11].

M&A strategy is based on two main objectives: maximise the synergy potential along with efficiency gains. Therefore, the goal of the integration stage is to seize the synergy potential [12]; [10] and reduce costs [13].

M&As can affect the export competitiveness of a firm in two possible ways. On the one hand, M&A may result in greater monopoly power, and when it is so, lack of competitive threat in the market is likely to reduce efficiency and export competitiveness of the firms. On the other hand, integration of firms through M&A can help the firms to reap the benefits of large-scale production and hence to lower costs and prices of the products in the international market. The nature of impact of M&A on export competitiveness of a firm, therefore, depends on the relative strength these diverse possibilities [14]; [15].
Globalization, liberalization, industrial consolidation, privatization, growing competition as well as rapid technological change are global phenomena that have supported business strategies aimed at external growth, strengthening competitiveness and companies' own key market positions. The allocation of capital within and between countries is becoming increasingly complex [16]. According to Ferenčíková et al., The desire of companies to increase competitiveness (2013) [17] is taking place in an environment of growing simultaneous fragmentation and globalization of markets, the rapid pace of change and the removal of tariff barriers on a global scale, in an environment that is a natural driving force for the growth of multinational corporations in various sectors. M&A are forms of organizational concentration that are part of the growth strategies of companies around the world [18].
According to Bobáková, Hečková (2007) [19], whatever the approaches to defining competitiveness, it is certain that the substantive content of this concept is the different value of the commodity in foreign markets depending on the influence of various factors that determine the country's competitiveness. This is ultimately reflected in economic growth, pricing policy and employment. The qualitative characteristics of the sources of competitive advantage significantly affect the long-term sustainable growth performance of the economy.

The concept of competitiveness is inextricably linked to economic development in a market economy [20].

Bovée, Thill (1992) define competitiveness as the ability of a national industry to innovate and modernize to the next level of technology and productivity. They describe four basic factors of [21] competitiveness:

- strategy, structure and rivalry as conditions for the creation, organization and management of enterprises,

- conditions of demand, including market size, exposure to goods, services and ideas,

- related industries,

- the conditions of the factor, such as natural resources, levels of education and experience and wages.

Data and methodology

As part of this paper, we discuss the degree of specialization (measured by the Michael index) and its impact on the volume of cross-border mergers and acquisitions in the source countries of the European area in the manufacturing sector and in the services sector in the period 1998-2015. The dataset containing records of mergers and acquisitions in Europe was based on

Zephyr data (Bureau van Dijk 2016) [22], which we supplemented with data on exports and imports of individual countries from the statistical offices of the monitored countries.
This database includes data on completed mergers and acquisitions from 16 source countries (Belgium, the Republic of Cyprus, Denmark, the Republic of Finland, the French Republic, the Hellenic Republic, the Netherlands, Luxembourg, the Republic of Malta, the Federal Republic of Germany, the Republic of Poland, the Portuguese Republic and the Republic of Austria, Spain, Italian Republic, United Kingdom) to 25 target countries (Belgium, Republic of Cyprus, Republic of Cyprus, Czech Republic, Denmark, Republic of Estonia, Republic of Finland, French Republic, Greek Republic, Netherlands, Republic of Lithuania, Republic of Latvia, Luxembourg, Hungary , Republic of Malta, Federal Republic of Germany, Portuguese Republic, Republic of Austria, Romania, Slovak Republic, Republic of Slovenia, Spain, Italian Republic, Turkey, United Kingdom) within the manufacturing sector (Chemical, rubber, plastic and non-metallic products, Construction, Food, beverages and tobacco, Gas, water and electricity, Machinery, equipment, supplies ar e-recycling, Metals and metal products, Textiles, clothing and leather) and the service sector (Banking, Hotels and restaurants, Insurance companies, Post and telecommunications, Transport).
Michael Michaely (1962, 1967) [23] constructed the so-called country diversity index in order to measure the overall difference in the composition of the commodity trade. The value of the index ranges from 0-1; the higher the value of the index, the less similar the composition of exports and imports of the observed country.

The Michael Index (MI) has a wide range of applications. Its use is recommended when measuring the degree of similarity of business models, e.g. comparison of import and export models of a country, export and import models of two countries or a group of countries, etc. The index is an excellent indicator of the dynamics of the country's export structure, i. the dynamics of the comparative advantage revealed. It indicates the intensity of the change rather than its direction [24]. The Michaely index is also used as a measure of international trade specialization at the sector level [25].

The Michaely index assesses competitiveness at the sector level on the basis of the difference between the share of the surveyed commodity group in total national exports and the share of the surveyed commodity group in national imports [26]:

$$MI = \frac{X_{ij}}{\sum X_{ij}} - \frac{M_{ij}}{\sum M_{ij}},$$ whereas:

X_{ij} - export of commodity group and country j.

M_{ij} - import of commodity group and country j,

$\sum X_{ij}$ - total national exports,

$\sum M_{ij}$ - total national import.

The formulation of the achieved results depends on the achieved value of the index.

The following applies to the Michael index:

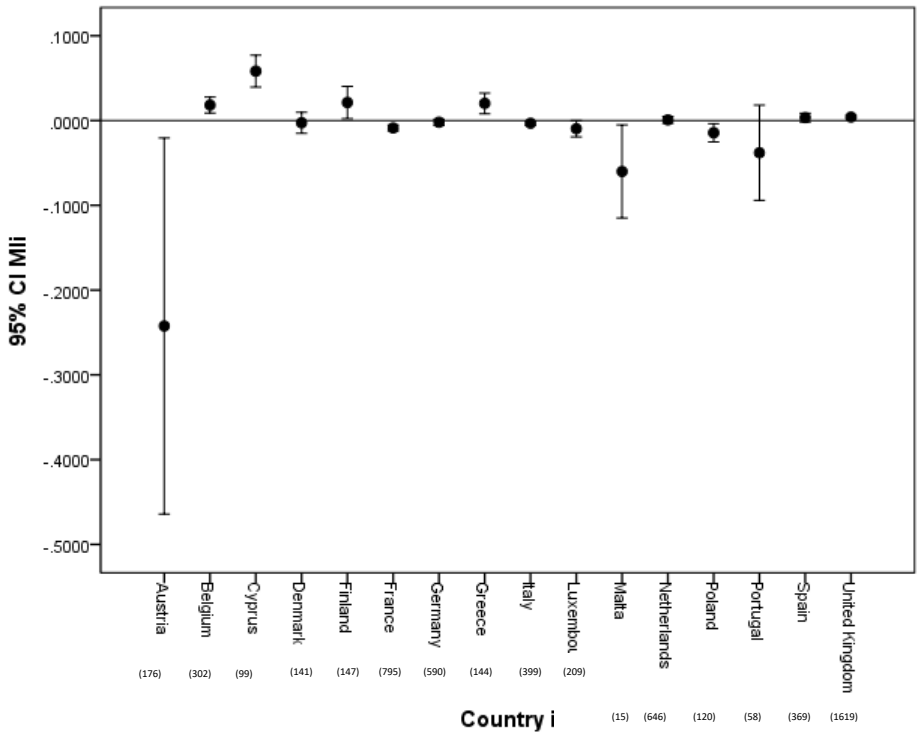
$0 < M_{ij} < 1$ points to a certain degree of country specialization in a given commodity group,

$-1 < M_{ij} < 0$ indicates insufficient specialization of the country in the commodity group.

Analysis and results

The main objective of this paper is to quantify the impact degree of specialization in the volume of completed cross-border mergers and acquisitions in the source countries of the European area in the reference period 1998-2015.

We measured the degree of specialization of the manufacturing sector and services sector in the countries of the European area for the observed period 1998-2015 using the above-mentioned Michael index. We calculated the Michaely index from the obtained data on exports and imports of individual manufacturing and service sectors in the countries of the European area, which is shown in Figure 1.



Legend: The numbers in () are the numbers of M&A in each source country in all sectors

Picture 1 Average values of realized cross-border mergers and acquisitions within sectors in the source countries of the European area in the reference period 1998-2015 (Michaely index)

(Source: own processing)

The average values with a 95% confidence interval of the Michael index in the case of source countries, ie countries from which cross-border mergers and acquisitions were directed, are

shown in Figure 1. For countries whose average values of the Michael index are below the line (with y = 0), we speak of insufficient average specialization of the country. On the contrary, for countries whose average values of the Michael index are above the line (with the directive y = 0), we speak of the average specialization of the country in the sectors we consider (manufacturing sector and services sector). The extreme values are Austria, France, Luxembourg, Malta, Poland and Portugal, where the value of the Michael index is less than 0, and thus the countries do not have narrowly specialized manufacturing and service sectors. During the observed period of years, 15 transactions in the form of cross-border mergers and acquisitions took place in Malta, ie with the decreasing degree of specialization, the number of transactions in the country also decreased. 795 cross-border mergers and acquisitions took place in France and 209 cross-border mergers and acquisitions in Luxembourg. In these countries, the degree of specialization did not affect the number of cross-border mergers and acquisitions carried out. In 2010, France was one of the most important European regions for the development of investment activities, which may have had a positive effect on the number of cross-border mergers and acquisitions in the country.

The calculated Michaely index, which is higher than 0 in Belgium, Finland, Greece and Cyprus, indicates to us the average specialization of countries in the production and services sectors. Using the T bar (T bars) showing the 95% confidence interval for estimating the average value of the Michael index, we see that the highest number of cross-border mergers and acquisitions was in Belgium and Finland, which could be due to the improving business environment. The essence of the degree of specialization is the knowledge that the countries of the European area can increase their standard of living and real income precisely by specializing in the production and provision of services that they can produce and provide with the highest labor productivity and the lowest costs. It is with such products and services that a country will enter into foreign trade relations with other countries in order to obtain from them goods and services that are more advantageous for it to import than to produce and provide at home. The highest number of cross-border mergers and acquisitions in the period under review was in France (795), Germany (590), the Netherlands (646) and the United Kingdom (1619). The number of cross-border mergers and acquisitions in the source countries mentioned could have been influenced by a high-quality business environment, developed infrastructure and scientific and technological advances.

Table 1 Competitiveness of production and service sectors in the source countries of the European area in the reference period 1998-2015 analysed by the Michael Index

		Banks	Chemicals, rubber, plastics, non-metalic	Construction	Education, Health	Food, beverages, tobacco	Gas, Water, Electricity	Hotels & restaurants	Insurance companies	Machinery, equipment, furniture, recycling	Metals & metal products	Other services	Post and telecommunications	Primary Sector (agriculture, mining, etc.)	Publishing, printing	Textiles, wearing apparel, leather	Transport	Wholesale & retail store	Wholesale & retail trade	Wood, cork, paper
		Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli	Mli
Austria	Mean	-1.03	-0.25	0.00	.	0.01	-0.01	0.01	-0.01	0.01	0.02	-0.04	.	-0.06	-0.89	0.00	0.08	0.00	0.01	0.01
	Count	37	15	7	0	10	14	1	9	12	3	28	0	9	1	3	8	2	3	9
Belgium	Mean	-0.03	0.04	0.01	0.00	0.01	0.05	0.00	0.00	0.01	0.03	0.04	0.01	0.00	0.00	0.01	0.00	.	0.01	0.05
	Count	36	21	2	1	19	15	2	9	22	16	110	3	4	4	5	7	0	10	7
Cyprus	Mean	0.00	0.03	0.00	.	-0.03	.	.	.	0.00	-0.04	0.11	.	0.00	.	0.06	-0.02	.	0.03	.
	Count	29	2	2	0	1	0	0	0	1	3	51	0	2	0	1	2	0	4	0
Denmark	Mean	-0.01	0.00	.	0.00	0.00	0.00	0.04	0.01	0.06	.	-0.03	0.00	0.00	0.05	-0.01	0.00	-0.01	0.01	.
	Count	3	8	0	1	17	12	2	1	17	0	54	1	2	1	2	10	2	6	0
Finland	Mean	-0.08	-0.06	-0.01	.	0.01	0.00	-0.03	0.00	0.02	0.03	0.05	.	.	-0.01	-0.02	-0.01	.	0.06	0.04
	Count	7	7	4	0	9	4	1	1	23	10	53	0	0	2	1	3	0	3	15
France	Mean	-0.07	0.06	0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.03	-0.01
	Count	122	32	12	2	35	34	13	38	36	9	331	12	3	12	3	21	7	40	11
Germany	Mean	-0.01	0.01	0.01	.	0.01	0.00	.	0.00	-0.01	0.00	0.00	0.00	0.00	-0.02	-0.01	0.00	0.02	0.00	-0.01
	Count	66	38	7	0	12	39	0	14	81	13	216	11	7	7	3	22	10	29	1
Greece	Mean	0.03	-0.04	0.03	-0.02	0.00	.	0.11	0.00	0.02	0.00	0.02	.	-0.01	-0.01	0.09	-0.02	.	-0.02	.
	Count	69	5	2	4	13	0	1	1	5	4	24	0	6	1	3	1	0	4	0
Italy	Mean	-0.01	-0.01	-0.01	.	0.01	0.00	0.00	0.00	-0.01	0.01	0.00	.	-0.03	0.03	0.02	0.00	0.00	0.00	0.00
	Count	47	28	2	0	12	25	13	10	73	9	116	0	7	8	11	18	1	11	2
Luxembourg	Mean	0.04	0.00	-0.01	-0.01	-0.02	0.00	0.00	.	-0.04	0.02	-0.02	0.00	-0.02	-0.02	-0.02	0.01	-0.01	0.01	.
	Count	23	3	3	1	2	2	3	0	4	15	133	2	2	4	2	5	1	2	0
Malta	Mean	0.04	.	.	.	.	-0.18	.	.	.	-0.13	-0.06	0.00	.	.	.	.	.	.	.
	Count	1	0	0	0	0	1	0	0	0	1	11	1	0	0	0	0	0	0	0
Netherlands	Mean	-0.02	-0.01	0.00	0.00	0.05	-0.01	0.00	0.00	-0.04	0.00	0.01	0.03	0.00	0.00	0.01	0.03	0.01	0.01	0.01
	Count	36	30	8	2	34	12	11	15	62	16	298	6	13	8	12	17	6	32	9
Poland	Mean	-0.05	0.00	0.04	.	0.02	-0.01	0.01	-0.01	0.01	-0.12	-0.03	-0.01	.	.	-0.03	0.05	-0.05	-0.04	.
	Count	2	18	1	0	4	1	5	3	14	2	53	1	0	0	1	1	1	9	0
Portugal	Mean	0.03	-0.02	0.01	0.00	-0.08	-0.01	-0.02	0.03	-0.01	-0.05	-0.04	0.02	.	.	-0.01	-0.07	.	0.11	-0.39
	Count	7	10	3	2	3	8	3	1	1	1	10	1	0	0	1	1	0	2	4
Spain	Mean	0.01	-0.05	0.01	0.04	0.03	0.01	0.00	0.00	-0.09	0.01	0.02	0.01	.	0.00	0.01	0.00	0.01	0.02	-0.01
	Count	61	27	15	5	25	25	17	14	19	11	95	3	0	6	1	12	2	11	16
United Kingdom	Mean	-0.03	-0.01	-0.01	-0.04	0.01	-0.01	0.01	0.03	-0.01	0.01	0.01	-0.01	0.00	-0.01	0.00	0.00	0.01	0.01	0.00
	Count	59	60	12	5	54	18	21	21	138	23	954	9	14	27	8	66	9	100	10

(Source: own processing)

The achieved results of the average values of the degree of specialization calculated by the Michael index in the observed period 1998-2015 in 16 source countries of the European area in manufacturing and service sectors and the total number of cross-border mergers and acquisitions in these countries and sectors are shown in Tables 1. The index values are marked in green, the value of which is greater than 0, and thus the country in the given sector achieved a degree of specialization, and in red, the values of indices whose value is less than 0, and thus the country in the given sector did not have the degree of specialization.

For each source country, the number of cross-border mergers and acquisitions in the sector is also given. Above-average numbers of above-average numbers of observations, whose values were higher than 50% of observations, are marked. The degree of sectoral specialization suggests that countries can increase countries' competitiveness and the number of cross-border mergers and acquisitions by increasing sectoral specialization. Countries that have achieved a degree of specialization in these production and service sectors in the period under review have specialized in the production of goods and services for which they have a higher degree of specialization than the partner country. We have highlighted countries that have implemented an above-average number of cross-border mergers and acquisitions in the manufacturing and services sectors during the period under review.

In these countries, we can see that the higher the degree of specialization in the manufacturing and services sectors, the higher the number of cross-border mergers and acquisitions. The monitored countries have a quality business environment suitable for the monitored sectors in the given sectors, a qualified workforce and a well-developed infrastructure. Source countries in Europe that, on the basis of the Michael Index calculations, have not achieved a degree of specialization and have an absolute disadvantage in producing all products could benefit from engaging in international trade if they export goods or provide services from the most efficient sectors as a second country. International trade in countries makes it possible to allocate factors of production to the most efficient sector, and other goods are simply imported into these countries. As in the case of countries with a degree of specialization, we highlighted a disproportionate number of cross-border mergers and acquisitions in countries that did not have a sufficient degree of specialization in the manufacturing and services sectors during the period under review. The number of cross-border mergers and acquisitions carried out was positively affected mainly by scientific and technological progress, economic growth and the geographical location of these countries.

Discussion

Based on the results of calculations of the degree of specialization (Michael's index) according to the MI index, we can state that the manufacturing and services sectors in the source countries of the European area in the observed period 1998-2015 achieved the degree of specialization in some source countries (Belgium, Cyprus, Finland, Greece, Switzerland and the United Kingdom). Countries that have achieved a degree of specialization were considered suitable countries for several forms of investment, e.g. cross-border mergers and acquisitions. Source countries are attracted mainly due to the country's growing competitiveness, low taxes and improving business environment. The most attractive sectors, which were the main goal of the

merger, are considered to be e.g. banking, chemical, rubber, plastic and non-metallic products, wholesale and retail trade and other services. Countries that have achieved a degree of specialization in the manufacturing and services sectors need to be seen from two perspectives. On the one hand, individual sectors of the countries of the European area face increasing competition from other developed economies, especially in the field of high-tech. On the other hand, production in several sectors is increasingly shifting to low-cost economies, some of which are targeting higher value-added segments.

Conclusion

At present, it is crucial for the countries of the European area to assert themselves while maintaining ever-growing global markets. The constant increase in competition, increasing demands and requirements from companies are reflected in mergers in the form of mergers or acquisitions and thus limit opportunities for weaker and less competitive companies in source countries.

Based on the results of the impact of the degree of specialization (MI) in the source countries of the European area for the period 1998-2015 on the volume of cross-border mergers and acquisitions, we can say that the degree of specialization of source countries affects the volume of cross-border mergers and acquisitions of companies they are looking for trading companies as an investment opportunity.

Záver

V súčasnosti je kľúčové pre krajiny európskeho priestoru presadiť sa a zároveň sa udržať na neustále sa rastúcich globálnych trhoch. Neustály nárast konkurencie, zvyšujúce sa nároky a požiadavky od obchodných spoločností sa prejavujú spájaním formou fúzií či akvizícií a tak obmedzujú príležitosti pre slabšie a menej konkurencieschopné obchodné spoločnosti zdrojových krajinách.

Na základe výsledkov vplyvu miery špecializácie (MI) v zdrojových krajinách európskeho priestoru za sledované obdobie rokov 1998-2015 na objem realizovaných cezhraničných fúzií a akvizícií, môžeme konštatovať, že miera špecializácie zdrojových krajín, vplýva na objem realizovaných cezhraničných fúzií a akvizícií obchodných spoločností, ktoré vyhľadávajú obchodné spoločnosti ako investičnú príležitosť.

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