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Econometrics analysis and application of event study methodology on international mergers and acquisition activities of MNCs from Eastern Europe

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Abstract. The objective of this paper is to examine the impact of financial crisis on the International Expansion activities of MNCs from Eastern Europe. This study has two interrelated foci. The fist one provides an empirical analysis of international expansion activities that span around the period of 2006 – 2016. The second focus examines market reaction to the announcements of international mergers and acquisations actualized by these firms to see whether there is any value creation for firms in these activities. The paper utilizes Securities Database (SDC) Platinum Worldwide Mergers and Acquisitions database in examining 621 international mergers and acquisitions activities of various MNCs from the Czech Republic, Slovakia, Poland and Hungary. In order to assess value creation, the paper utilizes Event Study Methodology. Overall, the results suggest that Eastern European firms' global mergers and acquisition activities increase during the beginning of financial crisis, but later the activities have slowed down. Hence, the study indicates that the effects of crisis on these firms' activities were not immediate but began recently as their activities decreased since the beginning of 2009. Event Study results does not indicate value creation.
Keywords. Firms from the Eastern Europe, International investments, Foreign direct investment, Cross-border mergers and acquisitions, Emerging market multinationals, Internationalization, Event study.
JEL. F21, F23, F37, G30, G34.

1. Introduction

The financial crisis world-wide have been impacting Foreign Direct Investment Activities (FDI) and profitability of Multinational Corporations (MNCs) around the world periodically. According to the 2009 World Investment Report of UNCTAD, due to the current global economic and financial crisis global FDI fell 40 percent just during the first half of 2009 and continued to slow down until 2011. The crisis that resulted in tighter credit, sharp decrease of commodity prices and personal wealth, has negatively affected FDI activities of MNCs from the developed countries. As a result, many MNCs from the developed nation have suspended their international expansion activities due to market uncertainty.

However, some MNCs, although amidst the economic and financial turmoil, are actually increasing their international expansions and investments in order to capture opportunities created by the global crisis and to counteract negative effects of the crisis. MNCs from the Eastern European countries are among those firms.

The main purpose of this study is to examine whether global economic and financial crisis have any impact on the international expansion strategies of emerging market companies (EMCs) from the CzechRepublic (168 expansions),

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Slovakia (48 expansions), Poland (240 expansions) and Hungary (165 expansions) with total of 621 mergers and acquisitions expansion activities. In order to examine this interest, this paper looks at their behavior time frame of 2006-20016. The study integrates international mergers and acquisition activities of these. The data is collected from the Securities Database (SDC) Platinum Worldwide Mergers and Acquisitions database.

2. Conceptual framework

Internationalization of corporations from the emerging markets although relatively small in size has been in existence since the 1970s. In recent years, international expansion activities along with their sizes of Emerging Market Multinationals (EMCs) began to show indication of significant growth. In response to the global financial and economic changes and with the opening of new markets, they began to adapt their operations to the forces of globalization and hence exploited modus operandi, which showed gradual modification of firm strategy as a whole.

Historically, manufacturing was chosen to be the most prominent industry for operations among the EMCs. Specifically, in the 1980s, to pursue their manufacturing operations, a large number of EMCs explored such factors as securing and /or accessing a stable supply of raw materials and manpower through economies of scale, as well as obtaining technical know-how and transferring technology (Wells, 1977; Agrawal, 1981; Jo, 1981; White, 1981; Ting & Schive,1981; and Agrawal, 1985). Later, EMCs developed their competitive advantage by matching their competencies, and resources to the environments they operated in. As EMCs accumulated knowledge in managing international operations, they gradually built additional facilities in other countries. Once interaction and integration with different market environments increased, EMCs gradually internalized their comparative advantages by investing production facilities in developed countries and established their own subsidiaries in these major markets (Khan, 1986; Lau, 1992; Lim & Moon 2001).

The gradual global financial and economic changes triggered changes in the modes of international expansions of EMCs as well. In the early years of expansions, exports were favored for international operations. Especially, Asian and Latin American EMCs carried out trade-related export strategies and/or export led growth strategies and thereby established export businesses as incremental commitments throughout the 1980s (Wells, 1980; Chen, 1981).

Gradually EMCs from the Eastern European countries began to be seen amongst the successful EMCs that carried on International Expansion activities. In mid 1990s, changes in government policies, affected the firms from the former command economy systems. The economic growth within various Eastern European countries, the improvement of their balance of payments, and implementation of interregional programs as well as the consequence of industrialization put together facilitated the interregional and international investments of Eastern European firms.

Although Soviet and Eastern European FDI began in the 1960s as a new external strategy that meant to improve the structure of their foreign trade with the developed countries of the West, this was mainly due to needs and demands of centrally planned systems for raw materials and lower production costs. Therefore, investments were used to back up foreign policy objectives.

Gradually, however, the unabated opening of transitional economies of the Eastern European countries to the free-market economy and the surge towards international markets by other emerging market economies (countries of the South and Southeast regions), which moved up the per capita income ladder and experienced some outflow of FDI, have encouraged domestic firms in these countries to expand internationally and to be effective participants in global business. In recent years, the increasing integration of firms from various regions

of the world to business activities has come to contribute tremendously to the international economy.

In the early 1990s, their expansion activities such as, joint ventures and strategic alliances began to dominate the expansion scene. In 2000s Mergers and Acquisitions also began to be included in the expansion strategies of these firms. Besides these activities, the operations of EMCs have come to include, cooperative arrangements, and firm networks (Kogut, 1988; Hennart, 1991; Buckley & Casson, 1996; and Calantone & Zhao, 2001).

Due to these changes, EMCs have begun modifying their internal operations at intra- and inter-firm levels in a wider geographic access. Today, these multinational corporations hold offices and subsidiaries in more than one developed, developing and/or emerging country. Consequently, EMCs operate and organize their business activities in different international locations in line with their overall firm strategies and relate their technologies according to the environments they operate in. Their increasing growth shows that these firms generate efficient allocation of capital and labor, and create various inputs and skills wherever international operations take place (Lecraw, 1977; Wells, 1977; 1980, Kumar, 1981; Thee, 1981; White, 1981; Akinnusi, 1981; Agrawal, 1981; S. Lall, 1981; R.B. Lall, 1986; and Lau, 1992).

Hence, it can be said that their expansion activities are profitable for them as the value creation is apparent. In this way, most recent investments from these firms can be looked at from the perspective of Internationalization Framework, especially when mergers and acquisitions are considered. The literature suggests that firms obtain above normal returns from international investments by internalizing host country market imperfections when their firm specific assets cannot find comparable value elsewhere (Caves 1971, 1998; Williamson 1979; Hymer 1976; Buckley & Casson 1976; Morck & Yeung 1991 and 1992). The gains derived from internalization are expected to be capitalized into a higher value of the firm. This has been the case for many firms although the international operations of them were almost always impacted by global financial and economic issues.

The extant theories may explain the expansion behaviors of most firms including the Eastern European firms, although traditionally MNCs from emerging economies have been low global players. However, in explaining the expansion strategies of these firms during the current financial crisis, we may need to look at some of the newer theories, as there seems to be an increase of firm international activities during the recent years (see table 1, appendix). Dunning and Pitelis (2009) look at the competitiveness factor from micro level view and integrate firm-level elements into it. According to the authors, as the firm develops and attains more knowledge, "value capture" capabilities can gradually be gained. These capabilities finally lead the firm to the "catching-up" phase. This may explain the case for the Eastern European firms' expansion strategies.

According to Dunning (2006), emerging and developing countries are becoming significant investors and increasing their position in the global economy. He suggests in his Investment Development Path Theory (IDP) (1998) that since FDI benefits host country economy, it has a positive impact in specific economies with well-developed financial markets. The IDP theory posits that investments in receiving countries are correlated positively with the rate of economic growth and that rising economic growth measured by GDP per capita, inward and outward investment conditions change in any given country. The country's Net Outward Investment Position (NOIP), which is the difference between outward and inward investments advance from negative to positive as FDI inflows into that country continues to exist. Once the country is fully developed, the number will be zero. Dunning by dividing the economic development of countries into five different phases shows that it ranges from non-existent inward and outward FDI in the country to FDI high growth stage and finally "neutralization" stage, (Buckley & Castro, 1998). In the final stage relationship between the NOIP and its level of

development becomes less stable. Hence, firms achieve their ownership advantages not through markets, but within themselves internally (Dunning & Narula, 1998). Therefore, some affects of the global financial crisis on the expansion activities of EMCs from the Eastern European countries maybe positive in the beginning due to the reduction of transaction cost and the attainment of knowledge of the markets.

3. Data and methodology

EMC sample data are obtained from the United Nations' UNCTAD world investment report on transnational corporations and export competitiveness. Merger and acquisition as well as joint ventures transactions data for 2006-2016 are extracted from the Securities and Data Corporation's (SDC) Worldwide Mergers and Acquisitions database.

Here, the standard event study methodology is utilized to evaluate the impact of each expansion announcement on the firm value. The event-study methodology is inspired by the efficient market hypothesis that capital markets are efficient instruments to evaluate and process the impact of new information available on firms. The market model assumes a linear relationship between the return of any security and the return of the market portfolio. For each security i market model assumes that returns are given by:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_t ,$$

where,

$$E[ei] = 0 \text{ and } VAR[eit] = \sigma^2 ei \qquad (1)$$

and where *Rit* is the return on security *i* at time *t*. The subscript *t* indicates the time, the subscript *i* indicates a specific security, and the subscript *m* indicates the market. *Rmt* is the return on the market portfolio during period *t*. The model's linear condition arises from the assumed normality of returns. The ε_t is a random error term for security *i* at the time of *t*, and the βs are firm specific coefficients to be estimated.

Equation (1) is estimates a 255 - day estimation period from t = -11 to t = -265 where t = 0 is the event day. In this study, the window is defined as the period between 10 days prior to the event to 10 days after the event. The abnormal return (AR) due to the announcement on any given day of the event window is therefore equal to the actual return minus the predicted normal return, given by the prediction error:

$$AR_{it} = R_{it} - \alpha_i + \beta_i R_{mt} \qquad (2)$$

According to previous researchers suggest that that abnormal performance measures such as standardized cumulative abnormal returns (SCARs) are less likely to generate false rejections of market efficiency. In addition, distributional properties and test statistics for cumulative abnormal returns are better understood.[1]

4. Analysis and results

The results indicate that all international expansion events, on average, show negative abnormal returns during pre- and post- event day and on the actual event day. *SCARs – EMCs' (M&As).* A total of 66 events considered. Since significant for market reaction values are at (-10, +10), (-10, +5), (-5, +5) and (-5, +1), market

[1] Fama (1998), and Mitchell and Stafford (1998).

does seem to react to M&A announcements in longer intervals and not around the announcement day. At the interval (-5, +1), the market reacts positively to 36.36 percent of expansion announcements of acquirers from the Latin American region where the z values for median and positives/negatives are both at 5 percent level. At the interval (-10, +10), the significance level of the mean z value is at 10 percent where market reacts positively to 43.94 percent of all M&A expansion announcements of EMCs. Since the market reacts negatively to all announcements at all intervals, and since all SCARs are negative at all intervals. There does not seem to be value creation for EMCs from Eastern Europe that expand internationally through M&As. (See Table 1, Appendix)

SCARs – EMCs' (JVs). Total of 20 events considered. When JV announcements of EMCs from the Eastern European region are examined, the results clearly supports value creation and positive market reaction, as most SCAR values are positive and statistically significant except at the interval (-10, +10). The statistical significances of the values are noticeable at the following intervals. At the interval (-2, +1), the market reacts positively to 65.00 percent of all announcements with the significance levels of z values for both the mean and the median are at 5 percent level and the significance level for the z value of positives/negatives is 10 percent. At the interval (-5, +1), positive market reaction is 70.00 percent with the z value significance levels for both the mean and the median at 10 percent and for the positives/negatives at 5 percent.

The results indicate that there is definite value creation and positive market reaction, as all statistically significant results are positive. Value creation and positive market reaction are mostly apparent and statistically significant after the intervals (-1, +0) and (-1, +1). Therefore, the value creation and positive market reaction may both be more long-term than immediate. (See Table 1, Appendix)

SCARs – EMCs' SAs). Total of 9 events included. There is a definite evidence of positive market reaction and value creation for EMMs that expand internationally through SAs. Results indicate that all SCARs are positive at all intervals and positive market reaction averages around above 60 percent. At the interval (-1, 0), the market reacts positively to 66.67 percent all announcements where the mean significance value is at 10 percent.

The results indicate that the value creation and market reaction are both immediate and long term and mostly positive. All SCARs are positive and statistically significant at all intervals (See Table 1, Appendix).

The pattern seems intriguing suggesting Eastern European firms' global mergers and acquisition activities increase during the beginning of the fiinancial crisis. However, their recent international activities do suggest a negative impact by the current global financial crisis. Hence, the study indicates that the effects of crisis on these firms' activities were not immediate but began recently. The decrease in their activities since the beginning of 2009. is illustrated in the appendix.

The results maybe in line with both Pitelis' and Dunning's theories as these firms show "value capturing" and "catching up" capabilities. The results also suggest that most of these firms were investing more during later periods than previous years. Hence, the beginning of the crisis, the market seemed to have given these EMCs the opportunity to acquire and invest cheaper than ever before in a multitude of diverse nations.

5. Conclusion

This study investigates the cross-border expansion implications on value creation of EMCs for the period between 2006 and 2016. First, the paper explores the effects of cross-border expansion patterns on firm value creation. Second, it examines market reaction to the announcements of cross-border expansion patterns. Third, it evaluates firm performance in relation to the cross-border expansion activities.

This study finds that most EMCs do not earn significantly positive abnormal returns during the event windows defined in this study. However, it is generally evident that there is value creation in cross-border expansion activities. According to the event-study results, value creation is mostly associated with SAs. This finding is consistent with previous research (Shao-Chi & Kuo, 2001). It is also indicated that most SA announcements are received by the market positively. JVs also experience value creation during the event windows utilized in this study. However, value creation of JVs is not to the extent that of SAs. Market reaction to JV announcements is also positive, but not to the degree of SAs.

On the other hand, when M&As are considered, value creation seems insignificant during the intervals utilized in the event-study. Yet, value creation is mostly achieved in the long-run. Similarly, market reaction to M&A announcements are not necessarily positive. However, M&A announcements experience more immediate market reaction as opposed to that of SAs and JVs. Still, market reaction to SA announcements seems to be more immediate than JV announcements.

Through these findings, it can be assumed that M&A pattern of expansion is more recent for most EMCs than that of JVs and SAs. They are still new in venturing through M&As. The results attained are consistent with previous research. For example, a number of research suggests that cross-border M&As often decrease the acquirer's shareholder wealth. Previous research also suggests that the announcements of joint ventures are associated with positive market reaction. This positive effect is especially apparent a few days prior to the announcement in *informationally-efficient* markets. Therefore, this study shares the view of previous work, as JVs can be considered as value creation mechanisms. Furthermore, this study is also consistent with previous research on the value creation effects of SAs, as the previous expresses that establishing SAs creates significant value for the shareholders of all the partnering firms. The positive effects on value creation are more noticeable within technological alliances where firms experience greater abnormal returns.

Although value creation may not be apparent in the short- term for most expansions as in the case of M&As, it is certainly ostensible in the long-run. Hence, the study is consistent with previous research as the findings suggest the focus of EMCs is now mostly related to efficient use of capital and resource.

Appendix

Table 1 Panel C: *Daily and Standardized Cumulative Abnormal Returns of Cross-Border Expansion MA Announcements (EMM Region –Eastern Europe)*

Interval	Mean	Z-Value Mean	Median	WSRT Z for Positive: Median	Negative	Doukas Z for Positive: Negative	Total Number of Events	Positive Market Reaction %
(-10, +10)	0.004936	0.006845	-0.5217	0	1: 2	-0.57735	621	33.33%
(-10, +5)	0.170191	0.509052	-0.01858	0	1:2	-0.57735	621	33.33%
(-5, +5)	-0.22095	-1.11535	-0.06194	-1.1547	1: 2	-0.57735	621	33.33%
(-5, +1)	-0.106	-0.20546	-0.36004	0	1: 2	-0.57735	621	33.33%
(-2, +1)	-0.82408	-1.21443	-0.875	-1.1547	1: 2	-0.57735	621	33.33%
(-1, +1)	-0.60047	-0.75072	-1.10493	-1.1547	1: 2	-0.57735	621	42.56%
(-1, +0)	-0.70632 *	-1.58585	-0.53643 **	-1.73205	0: 3 **	-1.73205	621	0.00%

Notes: The table presents the Daily and Standardized Cumulative Abnormal Returns (SCARs) of 3 cross-border JV expansion announcements by Emerging Market Multinationals (EMMs) originate from Eastern Europe over the 2006-2016 period. Daily Standardized Cumulative Abnormal Returns (SCARs) are computed from the market model as prediction errors. Day 0 refers to the announcement day of acquisitions as reported SDC Database. Z-statistics [Wilcoxon Sign-Rank Test] is used to test for the statistical significance of mean [SCARs]. The statistical significance of mean [median] difference between groups is computed by One-Way ANOVA [Mann –Whitney Test for unmatched pairs]. Z statistics (Doukas' test) is used to test for the statistical significance of positives/negatives. ***, **, and * denote statistical significance at the 1%, 5%, 10% levels, respectively.

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