

DEPOSITARY RECEIPT MARKET AND STOCK MARKET DEVELOPMENT RELATIONSHIP IN CENTRAL AND EASTERN EUROPE EMERGING COUNTRIES

Marcin Kalinowski

Gdansk School of Banking, Poland

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Abstract

During the last two decades the growing importance of financial markets has been observed. Moreover, a link between financial markets in the world has become conspicuous. Financial markets have become global markets. This means that transactions involve entities operating internationally. One of the symptoms of companies international operations, among other things, is issuing depositary receipts in foreign financial markets.

The aim of this study is to analyse relationship of the DR market development and the stock market development in Central and Eastern Europe (CEE) emerging countries. The main research hypothesis is the statement: DR market development in CEE emerging countries is correlated with stock market development in these countries.

Research on DR market development and stock market development in emerging countries has been carried out to achieve the aim of the study. The article presents a statistical analysis of depositary receipts and stock markets in the period of 1995-2009. A regression test and Pearson's correlation test were used in the research.

Research results indicate that the DR market development is highly correlated with the development of the stock market in emerging CEE countries.

Type of the article: Research report.

Keywords: depositary receipt market, stock market.

JEL Classification: G10, G15.

1. Introduction

During the past two decades the growing importance of financial markets has been observed. Moreover, a link between financial markets in the world has become conspicuous. Financial markets have become global markets. This means that transactions involve entities operating internationally.

Globalisation of financial markets brings both benefits and risks. The benefits include the fact that globalisation should encourage the management of funds where they can be used most effectively. Industrialized countries and developing countries that have made appropriate adjustments to the economy management gained the most in this process (Dollar & Kraay, 2001). One of the symptoms of international operations by companies, among other things, is issuing depositary receipts in foreign financial markets.

That is why in the era of globalisation, it is worth paying attention to a specific part of the market - the depositary receipts market. The development of this market, and thus the entry of domestic companies into foreign stock exchanges, is a clear sign of globalisation. The transfer of trading abroad has become part of the globalisation process, especially in emerging markets. Many companies in these countries are currently cross-listed on international financial markets. Depositary receipts (DR) are an increasingly popular instrument of moving investments abroad. **The aim** of this study is to analyse the relationship of DR market development and stock market development in Central and Eastern Europe (CEE) emerging countries. The main research

hypothesis is the following statement: DR market development in CEE emerging countries is correlated with stock market development in these countries.

Depository receipts (DR) are negotiable certificates that represents shares of foreign firms. They are created in a process in which a depository bank purchases a foreign firm's shares in the firm's home market, deposits them in an account at a custodian bank, and then issues depository receipts that represents those shares in another country (host country) where the DRs start trading (Korczak & Korczak, 2011).

After the year 2000 the total number of cross-listings flattened and while there are still between 100 and 200 new companies entering overseas markets via DR programmes every year (BNY Mellon, 2010), many firms decide to withdraw from foreign exchanges, sparking a discussion on the attractiveness of global financial centres to foreign issuers (e.g., Zingales, 2007; Doidge *et al.*, 2009).

This study describes the DR market in CEE countries. There is no clear definition of an emerging country in literature. The term "emerging market" was brought into fashion in the 1980s. Emerging countries were considered to be in a transitional phase between developing and developed status. Kvint (2009) published a definition of "emerging market": "Emerging market country is a society transitioning from a dictatorship to a free-market-oriented-economy, with increasing economic freedom, gradual integration with the Global Marketplace and with other members of the GEM (Global Emerging Market), an expanding middle class, improving standards of living, social stability and tolerance, as well as an increase in cooperation with multilateral institutions".

More critical scholars have studied key emerging markets such as Mexico and Turkey. Thomas Marois (2012) argues that financial imperatives have become much more significant and has developed the idea of "emerging finance capitalism" - an era wherein the collective interests of financial capital principally shape the logical options and choices of government and state elites over and above those of labour and popular classes.

Julien Vercueil (2012) recently proposed a pragmatic definition of "emerging economies", as distinguished from "emerging markets" coined by an approach heavily influenced by financial criteria. According to his definition, an emerging economy displays the following characteristics:

1. Intermediate income: its PPP per capita income ranges between 10% and 75% of the average EU per capita income.
2. Catching-up growth: during at least the last decade, it has experienced a brisk economic growth that has narrowed the income gap with advanced economies.
3. Institutional transformations and economic opening: during the same period, it has undertaken profound institutional transformations which contributed to its deeper integration into the world economy. Hence, emerging economies appears to be a by-product of the on-going globalisation.

At the beginning of the 2010s, more than 50 countries, representing 60% of the world's population and 45% of its GDP, met these criteria.

There are different classifications of emerging markets. In this article CEE emerging countries have been selected on the basis of International Monetary Fund classification. Three countries have not been included in IMF emerging countries classification (Czech Republic, Slovakia, Slovenia).

In this study the author concentrates on domestic stock market development and DR market development and their correlation. This work is an attempt to answer the question: Is there noticeable relationship between stock market development and DR market development in emerging countries?

2. Data Gathering and Research Method

The aim of this study is to analyse relationship of the DR market development and the stock market development in CEE emerging countries. To achieve the aim of the study a research has been carried out on DR market development and stock market development in emerging countries.

The first stage of the research was data collection. The data on DR market concerns 14 European emerging countries: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Romania, Russia, Slovak Republic, Slovenia and the Ukraine. These are countries classified by the International Monetary Fund and Dow Jones as emerging markets in 2012. The data comes from the period 1995 - 2009. It was collected from Bank of New York Mellon, JPMorgan, Citi, Deutsche Bank and the World Bank Depository Receipt Market reports. All the information was additionally cross-checked with listing directories of the New York Stock Exchange, Nasdaq, London Stock Exchange, OTC Bulletin Board and local stock exchanges in CEE countries, as well as the information on company websites and in Datastream database. There are two aggregates of data: variables regarding DR market developments and variables regarding stock market development. In the former aggregate there are three indicators: "Number of companies with DRs", "Number of DR firms / Total number of domestically listed firms", "Market capitalisation of DR firms / Total domestic market capitalisation". In the latter date base pertaining to stock market development group, there are two variables: "Stock market capitalisation / GDP" and "Value traded / GDP". Part of the variables have been calculated on the basis of raw data.

The development level of both the DR market and the stock market is varied in the analysed countries. On the basis of these data the DR market development and stock market development in the selected countries have been evaluated. The highest level of DR market development is noticed in Russia. By contrast, Bulgaria, Romania, the Slovak Republic and Slovenia are at the other end of the scale. The relevant data are presented in Table 1.

Table 1. DR market development and stock market development variables in the years 1995-2009

		Bulgaria	Croatia	Czech Rep.	Estonia	Hungary	Kazakhstan	Latvia	Lithuania	Poland	Romania	Russia	Slovak Rep.	Slovenia	Ukraine
Number of companies with DRs	1995	0	0	2	-	5	-	0	0	1	0	3	1	0	-
	2000	0	3	5	2	14	2	2	4	18	2	50	2	2	8
	2005	0	2	4	2	12	6	3	2	13	0	63	0	0	24
	2009	1	3	3	2	9	12	1	2	11	1	98	0	0	47
No of DR firms / Total no of firms listed domestically	1995	0	0	0	-	0.12	-	0	0	0.02	0	0.02	0.06	0	-
	2000	0	0.05	0.04	0.09	0.23	0.09	0.03	0.07	0.08	0	0.2	0	0.05	0.06
	2005	0	0.01	0.11	0.13	0.27	0.1	0.07	0.05	0.05	0	0.21	0	0	0.11
	2009	0	0.01	0.12	0.13	0.21	0.17	0.03	0.05	0.03	0	0.35	0	0	0.16
Market cap. of DR firms / Total domestic market cap.	1995	-	0	0.19	-	0.54	-	0	0	0	-	0	-	0	-
	2000	-	0.44	0.81	0.47	0.82	-	0.02	0.29	0.66	-	1.26	-	0.06	-
	2005	-	0.1	0.83	0.41	0.9	-	0.02	0.11	0.47	-	0.81	0	0	-
	2009	-	0.3	0.77	0.53	0.94	0.31	0.01	0.15	0.26	-	0.79	0	0	0.47
Market cap. / GDP	1995	0	0.03	0.28	-	0.05	-	0	0.02	0.03	0	0.04	0.05	0.01	-
	2000	0.05	0.13	0.19	0.33	0.25	0.07	0.07	0.14	0.18	0.03	0.15	0.04	0.13	0.06
	2005	0.19	0.29	0.31	0.25	0.3	0.18	0.16	0.32	0.31	0.21	0.72	0.07	0.22	0.29
	2009	0.15	0.41	0.28	0.14	0.22	0.53	0.07	0.12	0.31	0.19	0.7	0.05	0.24	0.15
Value traded / GDP	1995	0	0	0.07	-	0.01	-	-	0	0.02	0	0	0.03	0.02	-
	2000	0	0.01	0.12	0.06	0.25	0	0.03	0.02	0.09	0.01	0.08	0.03	0.02	0.01
	2005	0.05	0.02	0.33	0.18	0.22	0.02	0.01	0.03	0.1	0.03	0.21	0	0.02	0.01
	2009	0.01	0.02	0.11	0.02	0.2	0.04	0	0.01	0.13	0.01	0.55	0	0.02	0.01

Source: Own study

In this article the research on the development of the DR market and the stock market in CEE emerging countries is based on the analysis of collected data and calculated indicators of stock market and DR market development. In addition, the work applied statistical correlation measures such as Pearson's correlation test and line regression between the variables.

3. Results

The second step of the research, after collecting the data, was to analyse DR market and stock market development based on selected indicators. The first three indicators describe DR market development. These are: "Number of companies with DRs", "Number of DR firms/Total number of

firms listed domestically” and “Market capitalisation of DR firms/Total domestic market capitalisation”.

Most companies with DRs occur in Russia (98) and Ukraine (47) in 2009. None of the companies with DRs are to be found in Slovak Republic and Slovenia (0). There is an upward trend or stability on the market according to this measure during the research period.

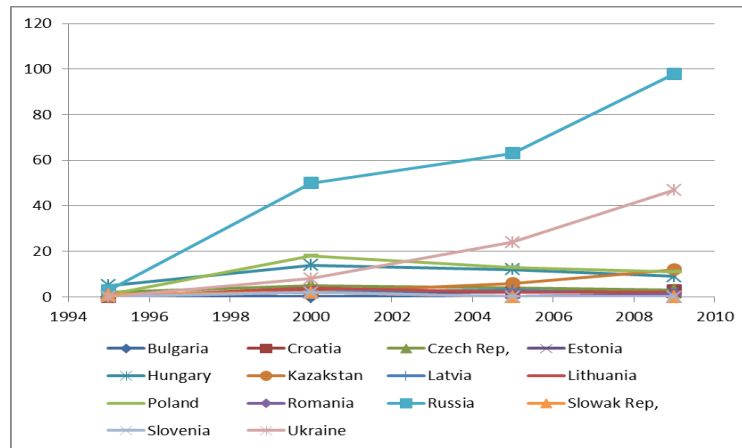


Figure 1. Number of companies with DRs

Source: Own study

The second DRs market development ratio is “Number of DR firms / Total number of listed firms domestically”. The highest level of this ratio was in Russia (0.35), Hungary (0.21) and Kazakhstan (0.17) in 2009 and the lowest in Bulgaria, Romania, Slovak Republic, Slovenia. There is general upward trend during the research period but in some countries the described ratio is on the 0 level at the end of research (Bulgaria, Romania, Slovak Republic, Slovenia).

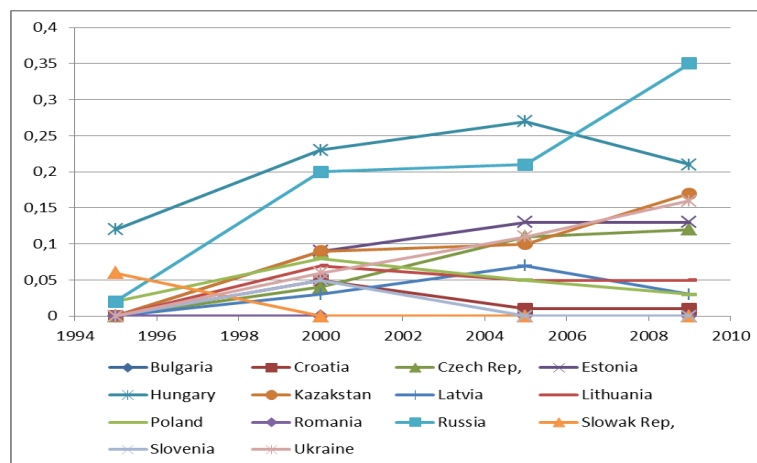


Figure 2. Number of DR firms / Total number of firms listed domestically

Source: Own study

The third DR market development variable described in this study is “Market capitalisation / Total domestic market capitalisation”. The highest level of this ratio is found in Hungary (0.94), Russia (0.79) and the Czech Republic (0.77). There are some countries with a very low level of this ratio: Slovak Republic (0.0), Slovenia (0.0) and Latvia (0.01). The highest level of the analysed ratio was observed in the year of 2000. There is no definite trend in the researched countries.

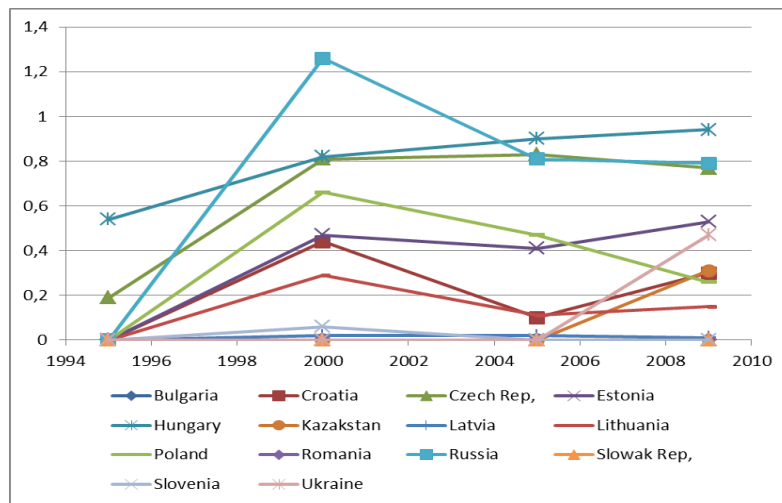


Figure 3. Market capitalisation of DR firms / Total domestic market capitalisation

Source: Own study

Stock market development variables were also used in the research. The most popular stock market development ratio is “Market capitalisation/GDP”. In a group of CEE emerging markets the highest level of this ratio is seen in Russia (0.7), Kazakhstan (0.53) and Croatia (0.41). The lowest level is to be observed in Slovak Republic (0.05), Latvia (0.07) and Lithuania (0.12).

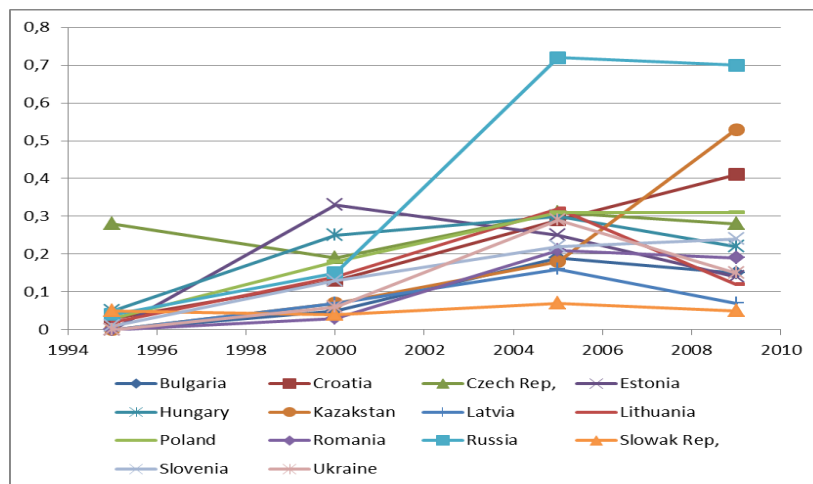


Figure 4. Market capitalisation / GDP

Source: Own study

The second stock market development ratio is the liquidity ratio (Value traded / GDP). At the end of the research period (2009) the highest level of this variable may be seen in Russia (0.55), Hungary (0.2) and Poland (0.13). The lowest level was observed in Latvia, the Slovak Republic (0), Bulgaria, Lithuania, Romania, and the Ukraine (0.01).

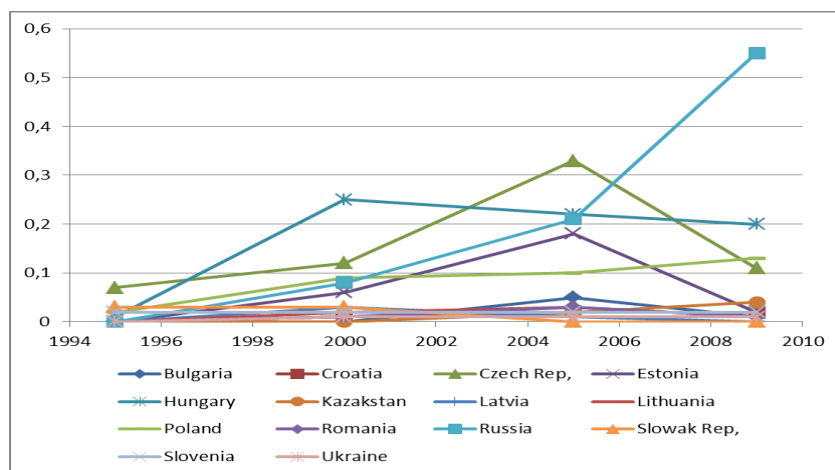


Figure 5. Value traded / GDP

Source: Own study

To achieve the aim of the study, market regression lines have been designed and correlation ratios between DR market development variables, and stock market development variables have been calculated.

In Appendix 1. there is presented the study of the relationship between the DR and stock market development. Slope indicators of the regression lines vary between 0.0057 and 1.169. All of them are positive so there is positive dependence between DR development variables and stock market development variables. A positive correlation has been confirmed by Pearson’s correlation test. The results of this test are presented in Table 2.

Table 2. Pearson’s correlation ratio of DR market development variables and stock market development variables

	Market capitalisation / GDP	Value traded / GDP
Number of companies with DRs	0.6246	0.6492
Number of DR firms / Total number of firms listed domestically	0.5986	0.7400
Market capitalisation of DR firms / Total domestic market capitalisation	0.4603	0.6480

Source: Own study

Person’s correlation ratios are between 0.4603 and 0.7400. The lowest correlation (Person 0.4603) exists between the following indicators: “Market capitalisation / GDP” and “Market capitalisation of DR firms / Total domestic market capitalisation”. The highest level of the correlation index (Pearson 0.7400) is noticeable between “No. of DR firms / Total no. of firms listed domestically” and “Value traded / GDP”. Other correlation coefficients of variables of the DR market and the stock market are at the level of 0.59 to 0.65. As we can observe, stock market liquidity is more correlated with DR market development than stock market capitalisation.

4. Discussion

There are studies connected with the relationship between cross quotations and the development of the local stock market in expert literature. Hargis shows how internationalisation can turn a divided, local, low liquid market into an integrated market with high liquidity and capitalisation by changing the incentives for businesses and individuals to participate in the market (Hargis, 2000). He points out that profits from cross-trading depend on the degree of correlation between the domestic and global stock markets and the relative size of the domestic stock market. Moel (2001) explores the role of ADR depositary receipts (American Depositary Receipts) in the

development of emerging equity markets.

Over the last decade, we can see a growing migration of activity in the securities market to major international financial centres such as New York or London. As part of the globalisation process, depositary receipts are becoming an increasingly popular instrument. Many scientific studies indicate that the internationalisation process is the result of attempts by domestic companies to escape from a poor environment inside a country with weak institutions and a poorly functioning market (Karolyi, 2004). This point of view shows that capital market reform reduces the incentive for companies to go international, which will result in less activity in the stock market abroad.

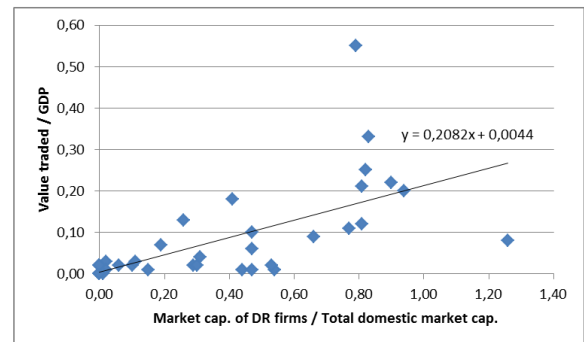
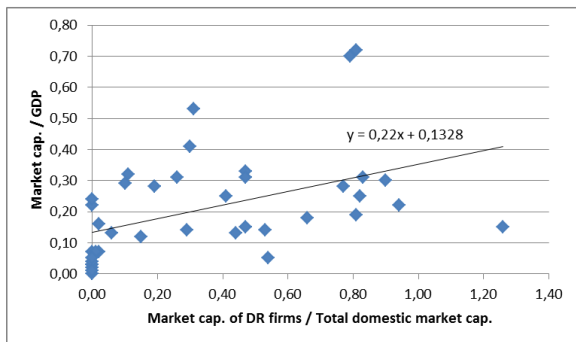
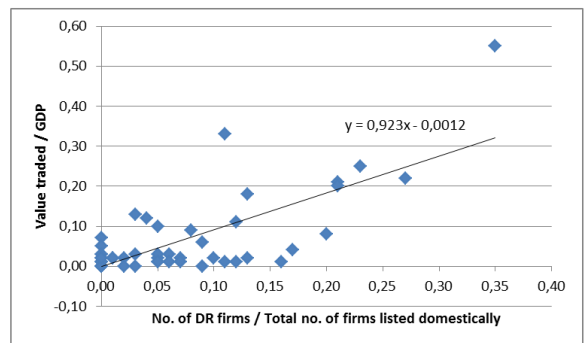
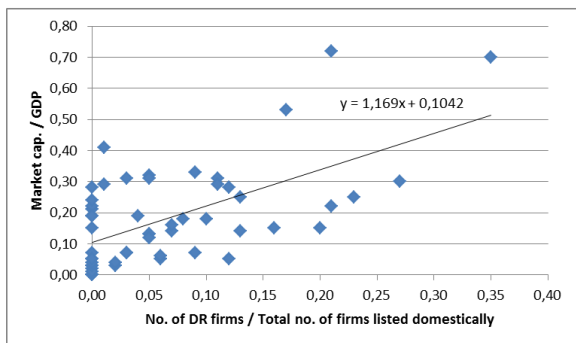
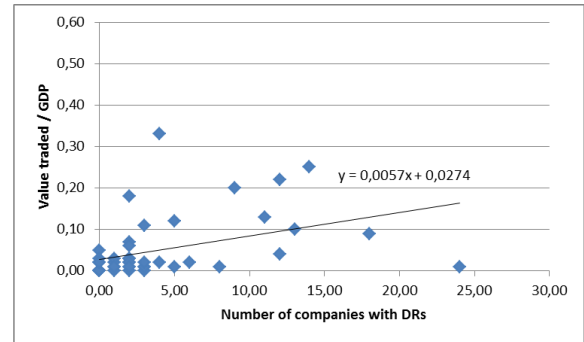
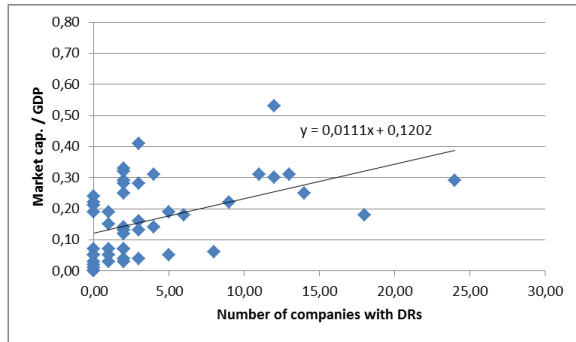
According to research conducted in emerging countries, DR market development is highly correlated with the development of the stock market. Pearson's correlation coefficients between variables for the development of the stock market and the DR market in 1995-2009 are at the level of 0.4603 to 0.7400. It can therefore be concluded that the development of the DR market is dependent on the level of stock market development.

Further studies ought to aim at examining other determinants of DR market development in emerging countries.

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Appendix 1. The relationship between DR market development and stock market development variables and regression lines



Source: Own study