HOME COUNTRY MACROECONOMIC DETERMINANTS OF OUTWARD FDI: THE CASE OF ROMANIA

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Abstract: *The 90s marked the remarcable increase of foreign direct investment (FDI) flows globally. Thus, global FDI outflows increased from 244 billion dollars in 1990 to 1,35 trillion dollars in 2014, with a peak record of 2,13 trillion dollars in 2007, according to UNCTAD statistics. In Romania, the value of outward FDI stock increased from 66,1 million dollars in 1990 and reached a peak in 2010, when total outward FDI stock cumulated 1510,7 million dollars. As the global economic and financial crisis has led to the unfavorable evolution of the Romanian economy, the business opportunities and the investment resources of Romanian companies have decreased significantly. Since 2011 the value of outward FDI stock entered a downtrend that was maintained until 2014, when outward FDI stock cumulated 695,7 million dollars. As a percentage of GDP, Romania's outward FDI stock recorded only sub-unit values from 1990 to present. The aim of this empirical research is to analyze the influence of several macroeconomic factors on outward FDI from Romania, during 1991-2014. Using simple regression models, the empirical study reveals that factors such as interest rate, inflation rate, money supply, exchange rate and gross domestic product (GDP) have an important role in explaining outward FDI from Romania, while the influence of trade openness is weak. Between the outward FDI stock and money supply, exchange rate, gross domestic product, respectively trade openness, there is a direct and linear correlation and between the outward foreign direct investment stock and the interest rate, respectively the inflation rate, there is an inverse linear correlation. The results obtained from our empirical study emphasize that the evolution of macroeconomic factors in Romania, as a home country, represents an important stimulus for Romanian companies to invest abroad. The presence of Romanian companies on the international market was very limited and that is why an increase of the competitiveness of domestic companies on the national and then global market is imposed.*

Keywords: outward FDI; macroeconomic determinants; Romania.

JEL classification: F21.

1. Introduction

The 90s marked the remarcable increase of foreign direct investment (FDI) flows globally. Thus, global FDI outflows increased from 244 billion dollars in 1990 to 1,35 trillion dollars in 2014, with a peak record of 2,13 trillion dollars in 2007, according to UNCTAD statistics.

In Romania, the value of outward FDI stock increased from 66,1 million dollars in 1990 and reached a peak in 2010, when total outward FDI stock cumulated 1510,7 million dollars. As the global economic and financial crisis has led to the unfavorable evolution of the Romanian economy, the business opportunities and the investment resources of Romanian companies have decreased significantly. Since 2011 the value of outward FDI stock entered a downtrend that was maintained until 2014, when outward FDI stock cumulated 695,7 million dollars. As a percentage of GDP, Romania's outward FDI stock recorded only sub-unit values from 1990 to present. According to UNCTAD statistics,

outward FDI stock in 2010 recorded the highest percentage of GDP, i.e. 0.9%, while in 2005 it recorded the minimum of 0.2%.

The differences between inward and outward FDI are significant, therefore, in Figure 1 we have presented data on different scales, in order to show the comparative evolution of the two indicators during the period 1990-2014.
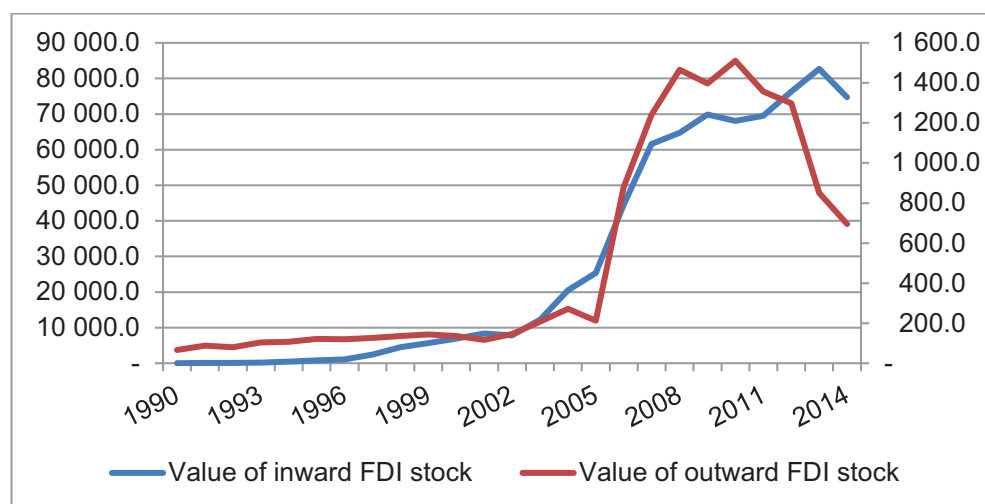

Figure 1: The evolution of Romanian inward and outward FDI stock during 1990 – 2014 (in millions USD)

Source: realized by the author based on data from UNCTAD statistics on inward and outward FDI stock, by region and economy, 1990-2014, [Online], Available: http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx.

The low level of outward FDI stock is an obvious sign of weak competitiveness of Romanian companies on the international market. Our research will highlight the directions of action at the macroeconomic level in order to create a national framework to stimulate Romanian companies to invest abroad.

Although there is a vast empirical literature on the determinants of FDI, fewer studies examined the home country determinants (push factors) of outward FDI. Therefore, the objective of this study is to analyze the impact of several macroeconomic factors on outward FDI from Romania, during 1991-2014. Based on previous research in the literature, we selected the following macroeconomic factors: market size, measured by gross domestic product (GDP) nominal value, the interest rate, trade openness, money supply, exchange rate and inflation rate. The next section of the paper includes a literature review on the determinants of FDI outflows, section 3 provides information on the variables selected, data and the methodology used, section 4 presents the results of the empirical study and the last section of the paper provides the conclusions of the study.

2. Literature review

The field literature on the determinants of FDI flows revealed the multitude of studies focused on the subject. The vast majority of studies have analyzed the determinants of FDI from the viewpoint of host countries and fewer only from the perspective of home

countries. A well known theory in the field literature is the eclectic paradigm, also known as the Ownership, Internalization and Locational (OLI) theory (Dunning, 1980). According to this theory, companies engage in pursuing abroad investments due to certain ownership (O) advantages which may be granted by internationalization (I) in countries that offer the desired location (L) advantages. The increased activity of multinational firms from transition and developing economies made it necessary an adaptation of OLI theory, and therefore, Dunning (1981) proposed the investment development path (IDP) theory

which states that there is a relationship between the development level of a country (reflected by GDP per capita) and the net international investment position. Thus, according to this theory, a country's higher income levels generate higher levels of outward FDI.

According to UNCTAD (2006:155), market and trade conditions, costs of production, local business conditions and home government policies are considered home country drivers (push factors) of outward FDI. From the viewpoint of the current account balance, in the long run, outward FDI can have a positive contribution (UNCTAD, 2015:77).

Kyrkilis and Pantelidis (2003) conducted a research and analysed the main determinants of outward FDI using time series data for five European Union members and four non-European Union countries. They identified real gross national product as the most important determinant of outward FDI, but exchange rate proved also to be one of the most influencing factors. Certain researchers (Liu et al., 2005) have looked at how the domestic competition affects firm's international activity. According to Liu et al. (2005), economic development, measured in terms of GDP, economic market liberalization and improved competitiveness in the world market represent important stimulus for Chinese firms to pursue outward FDI.

Kueh et al. (2009) analyzed Malaysia outward FDI from a macroeconomic perspective and found that real income (measured by real GDP), the exchange rate and trade openness are factors that stimulate abroad investments. In contrast with the findings of other researchers, they found that, in the short run, interest rate doesn't influence outward FDI. Kayam (2009) examined the home country determinants of outward FDI from 65 developing and transition countries, during the period 2000-2006, and revealed that the size of the economic activity, development level, infrastructure and labour market conditions represent push factors of outward FDI from these countries. Another finding refers to the fact that inward FDI contribute to the intensification of the competition in the domestic market, leading further to an increase in outward FDI. Interesting, Kayam (2009) showed that, as government stability, investment profile and bureaucracy quality in the home country improves, outflows of capital decreases.

Regarding Russia, Kalotay and Sulstarova (2010) pointed that home country market size, reflected by GDP growth, positively influences outward FDI. Chen and Zulkifli (2012) investigated the relationship between outward FDI and economic growth for Malaysia, over the period 1980-2010, and revealed that there is a positive long run relationship between outward FDI and economic growth (reflected by GDP growth) as well as long-run bi-directional causality between them. Saad et al. (2014) focused their research on identifying the push factors of Malaysian outward FDI, during 1981-2011. Their research supports the idea that GDP, level of inward FDI stocks, productivity level, exchange rate, export level and patent are the major determinants of outward FDI.

The field literature specifies that a higher degree of openness is associated with greater level of outward FDI. The positive correlation between exports and outward FDI was highlighted by Kumar (2007) who argued that companies that were engaged in exporting are more likely to become outward investors as they accumulate knowledge about foreign markets. The knowledge acquired and the skills in running and developing operations

abroad will facilitate the process of becoming foreign investors. Lu et al. (2010) found that supportive government policies stimulate both strategic asset-seeking and market-seeking outward FDI. According to them, firms' technology-based competitive advantages and a high level of industry research and development intensity enable strategic asset-seeking outward FDI, whereas firm's export activity and higher domestic industry competition stimulate market-seeking outward FDI.

Among the push factors we can also consider the interest rate. Foreign investments require financial resources and low interest rate in the home country will stimulate companies to access necessary funding to finance their investments abroad, as shown by Lall (1980) or Grunbaugh (1987). In this regard, Calvo et al. (2001) also found that USA FDI to emerging countries are lower when interest rates rise. Levi-Yeyati et al. (2007) found that FDI flows from source areas USA and Europe to developing countries are countercyclical with respect to output and also interest rates, while Japanese FDI flows are acyclical or mildly procyclical.

The importance of the exchange rate regarding outward FDI activity is revealed by many researchers such as Barrell and Pain (1996), Blonigen (1997) or Stevens (1998). The researchers have demostrated that the appreciation of the home country currency enables firms to invest abroad, in countries with a weaker currency. The higher wealth position of home country firms compared with firms from countries with a weaker currency lowers the capital requirements for outward FDI in national currency units.

Based on previous studies in the field literature, we will further analyse the influence of the main macroeconomic determinants (push factors) on outward FDI from Romania.

3. Variables, data and research methodology

The aim of this reseach is to study the correlation between outward FDI stock and several macroeconomic determinants, in order to find out which home country factors favor and stimulate Romanian companies to invest abroad.

We have collected annual data with respect to Romania, over the period 1991 – 2014, regarding the following variables considered determinants of outward FDI:

- Market size, measured by nominal GDP value expressed in millions of lei, current prices;
- National Bank interest rate (monetary policy interest rate, from 1 September 2011);
- Trade openness, expressed as the sum of exports and imports of goods and services measured as a share of GDP;
- Exchange rate, proxied by the real effective exchange rate index;
- Money supply, M2 monetary aggregate specifically, expressed in millions of lei;
- Inflation rate.

The size of the economy, measured by GDP, is expected to be a positive and significant determinant of outward FDI stock because a larger market may result in higher level of cash reserve in the hands of companies which may encourage them to invest abroad. The interest rate in the home country has an important role in stimulating investments abroad. Lower financing cost represents a major source of competitive advantage for firms and increases the profitability of investments abroad. Trade openness is expected to positively influence outward FDI due to a liberalisation of the country's foreign economic transactions. The appreciation of home country currency is associated with a higher wealth position of home country firms compared with firms from countries with a weaker currency and this should, therefore, stimulate home firms to invest abroad in order to take advantage of the reduced capital requirements for outward FDI, in national currency units, and of the opportunity to reduce production costs. We use as a proxy for the exchange rate

the real effective exchange rate index, which represents, according to World Bank, the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs. An increase in money supply raises the number of buyers, stimulates economic activity in the market by influencing the income and the cost of financing, and, thus, we expect to have a positive influence on outward FDI. A high rate of inflation represents a sign of currency devaluation which may determine investors to suspend their abroad investments. On the other hand, the increase of the inflation rate can discourage domestic investments by increasing the cost of capital and reducing profitability and puts forward the alternative of investing abroad, where lower inflation rate makes investments less expensive and enables the reduction of production costs. So, we can expect both a negative or positive influence of the variable inflation rate.

Table 1 shows, for each variable, the source from where the data were collected.

Table 1: Variables and data sources

Variable	Data source
Outward FDI stock	UNCTAD, http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx
GDP	Eurostat http://ec.europa.eu/eurostat/data/database
BNR monetary policy interest rate	National Bank of Romania, the Interactive Database http://bnr.ro/Baza-de-date-interactiva-604.aspx National Bank of Romania. Annual reports http://bnr.ro/Publicatii-periodice-204.aspx
Trade openness	World Development Indicators Database http://data.worldbank.org/indicator/NE.TRD.GNFS.ZS
Real effective exchange rate	World Development Indicators Database http://data.worldbank.org/indicator/PX.REX.REER
Money supply, M2 monetary aggregate	National Bank of Romania. Monthly and annual reports http://bnr.ro/Publicatii-periodice-204.aspx
Inflation rate	Romanian National Institute of Statistics. TEMPO Online Database http://statistici.insse.ro/shop/?lang=ro

Source: realized by the author

Further, we will investigate and test the following hypotheses, in order to verify the correlation between the endogenous variable, Romanian outward FDI stock, and the exogenous variables, presented above:

H1: An increase of gross domestic product has a positive influence on outward FDI stock.

H2: The decrease of interest rates positively influences outward FDI stock.

H3: Higher trade openness has a positive influence on outward FDI stock.

H4: National currency appreciation has a positive influence on outward FDI stock.

H5: An increase in the money supply has a positive influence on outward FDI stock.

H6: The increase of the inflation rate has a negative influence on outward FDI stock.

These hypotheses will be validated based on the results of simple regression models, elaborated using the Eviews software. Thus, we will identify the strength of the correlation between the two categories of variables and its statistical significance.

4. Results

This empirical investigation is elaborated using simple regression models. Based on these models, we will identify the strength of the correlation between the chosen variables, its shape and we will determine the model parameters. We will also test the research hypotheses and validate or invalidate them.

Taking into account the exponential evolution of the chosen variables, the numerical values were transformed by logarithm. Also, Tramo-Seats method was used to deseasonalize some of the data.

The variables used in the modelling and their symbol are shown in table 2.

Table 2: Variables used in the modelling and their symbol

Name of the initial variable	Symbol for the initial data series	Symbol for the transformed variable
Outward FDI stock	FDI	LOG_FDI
GDP	GDP	LOG_GDP
Interest rate	IR	LOG_IR
Trade openness	OP	LOG_OP
Money supply, M2 monetary aggregate	MS	LOG_MS
Real effective exchange rate	REER	LOG_REER
Inflation rate	I	LOG_I

Source: realized by the author

In order to describe the correlation between the chosen variables, explained above, and the endogenous variable, outward FDI stock, we will use the scatter plot between LOG_FDI and the exogenous variables.
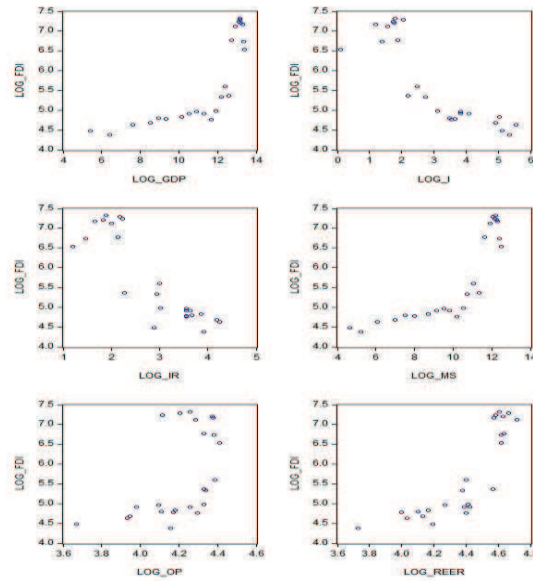
Figure 2: The scatter plot between outward FDI stock and the exogenous variables
Source: author calculus using Eviews

Based on the above graphical representations, we can state that between the outward FDI stock and gross domestic product, money supply, trade openness, respectively the real effective exchange rate, there is a direct and linear correlation. Between the outward FDI stock and the interest rate, respectively the inflation rate there is an inverse linear correlation. Regarding the variable trade openness, starting from the scatter plot, we tested several models and we have concluded that the most performant is the linear one.
The research hypotheses mentioned above will be confirmed on the basis of econometric modelling. We will develop simple linear regression between the endogenous variable, outward FDI stock, which is considered in the logarithmic form, and the selected exogenous variables. Table 3 shows the estimation results:

Table 3: Estimation results of linear simple regression model between outward foreign direct investment stock and the exogenous variables

Exogenous variable	R-squared $\hat{\bar{R}}^2$	Fisher statistic F_{calc}	P	Coefficient of exogenous variable	t Statistic	P
LOG_GDP	0.619	35.76	0.000005	0.3714	5.9803	0
LOG_IR	0.763	71.20	0	-1.0499	-8.4380	0
LOG_OP	0.270	8.15	0.009198	3.1633	2.8554	0.0092
LOG_MS	0.686	48.28	0.000001	0.3798	6.9487	0
LOG_REER	0.685	47.98	0.000001	3.5596	6.9268	0
LOG_I	0.732	60.14	0	-0.6316	-7.7553	0

Source: author calculus using Eviews

The correlation coefficient (R-squared) expresses the intensity of the influence that each exogenous variable has on the variable LOG_FDI. The closer the value is to 1, the stronger the correlation between variables. As shown in Table 3, the intensity of the correlation regarding the sample of 24 observations is strong and statistically significant between LOG_FDI and the variables LOG_IR, LOG_I, LOG_MS, LOG_REER and LOG_GDP. The intensity of the correlation between LOG_FDI and LOG_OP is weak at the sample level but is statistically significant at population level. It is a direct correlation from the LOG_MS, LOG_REER, LOG_GDP, LOG_OP and reverse from LOG_I and LOG_IR.

By analyzing the significance of the coefficients, we can observe that all of them are significantly different from 0, the probability that they are null featuring in the last column of the table 3 (it can be seen that it is zero in most cases). The coefficients of interest rate and inflation rate are negative, which means that a raise of their value has a negative impact on Romanian outward FDI. The validity of the models is confirmed through the tests relating to residual variable ε_t: White test for the homoscedasticity of the errors, Durbin Watson for the independence and Jarque Berra for the normality of errors.

Based on the above econometric modelling, we can take the following decisions regarding the research hypotheses:

Table 4: Research propositions and related decisions using linear models

Research propositions	Decision
H1: An increase of gross domestic product has a positive influence on outward FDI stock.	Validated
H2: The decrease of interest rates positively influences FDI stock.	Validated
H3: Higher trade openness has a positive influence on outward FDI stock.	Validated, weak correlation
H4: National currency appreciation has a positive influence on outward FDI stock.	Validated
H5: An increase in the money supply has a positive influence on outward FDI stock.	Validated
H6: The increase of the inflation rate has a negative influence on outward FDI stock.	Validated

Source: author results using Eviews

5. Conclusions

The results obtained in our empirical study reveal that macroeconomic factors such as interest rate, inflation rate, money supply, exchange rate and gross domestic product have the most important influence on Romanian outward FDI stock, while the influence of trade openness turned out to be weak.

We identified that between outward foreign direct investment stock and money supply, exchange rate, gross domestic product, respectively trade openness, there is a direct and linear correlation and between outward foreign direct investment stock and the interest rate, respectively the inflation rate, there is an inverse linear correlation.

The presence of Romanian companies on the international market was very limited and that is why an increase of the competitiveness of domestic companies on the national and then global market is imposed. Also, policy makers efforts should be focused on developing strategies to support the increase of companies competitiveness, on improving the performance of Romania's economy and especially of the indicators which have a significant impact on outward FDI, as our research revealed. Our findings support the idea that home country macroeconomic factors can create advantages to improve outward FDI from Romania.

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