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Journal of Economics and Business
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Effects of European Monetary Integration on Intra-EMU Foreign Direct Investment

Pantelis Pantelidis[a], Dimitrios Kyrkilis[b], Efthymios Nikolopoulos[c]

[a]*Department of Economics, University of Piraeus, E-mail: pantel@unipi.gr,*
[b]*Department of Balkan, Slavic and Oriental Studies, University of Macedonia, E-mail: kyrkilis@uom.gr*
[c]*Department of Balkan, Slavic and Oriental Studies, University of Macedonia, E-mail: eythimiosgr@yahoo.gr*

Abstract

The creation of the European Monetary Union (EMU) created the conditions for increased trade and economic growth for the member countries. The initial hypothesis regarding the impact of euro launch in terms of Foreign Direct Investment (FDI) inflows was that monetary integration will affect positively the FDI. The aim of this paper is to construct and test a model explaining the intra-EMU FDI position of various EMU countries on the basis of their location advantages during 1985-2011 period. The model consists of variables approximating location advantages as these are suggested by economic theory and empirical research like market size, labor cost, openness, technology, interest rate and introduction of the Euro. The model focuses on the impact of EMU on FDI inflows and indicates that the monetary union has no significant impact on FDI inflows across individual member countries. The European market integration degraded the motives for market seeking FDI. Individual markets are now easier to be served through the conventional trade networks, and import substituting FDI becomes a less attractive option for the expansion of firms in Europe.

JEL Classification: F15, F21, F23.
Key Words: FDI, EMU, euro.

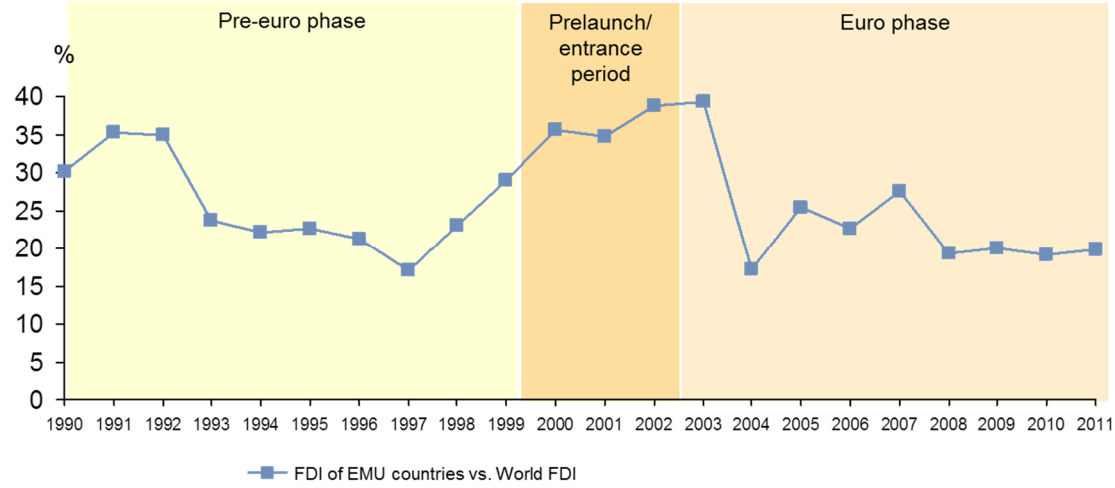
1. Introduction

The launch of euro in 2002 was a milestone in the history of Europe. The creation of the European Monetary Union (EMU) created the conditions for increased trade (Rose 2004) and economic growth for the member countries. The initial hypothesis regarding the impact of euro launch in terms of Foreign Direct Investment (FDI) inflows was that monetary integration would affect positively the FDI inflows both due to elimination of uncertainty regarding price variables and due to reduction of transaction costs associated with international investment flows (Aristotelous and

Fountas 2009). The FDI of initial EMU member countries vs. the total world FDI increased during the years before euro launch, reached a high of 39.4% in 2003 but then declined to 19.9% in 2011 (Figure 1).

Figure 1

FDI of initial EMU countries vs. World FDI



Source: UNCTAD, World Investment Report, Various issues

Various major theories have been developed throughout the years concerning the rationale, motives and determinants of FDI (Hymer 1960, Caves 1982, Vernon 1966, Meyer 1998, Dunning 1977,1988a, 1993, Markusen et al 1998). According to Clegg et al (1999), the multinationals have constraints both globally and in regions. This means that a flow of a FDI in one part of the EU or EMU might have, as a result, a reduction somewhere else, and this is how the race for the attraction of FDI among the countries can be explained.

Various empirical studies took place during the first years after the creation of EMU in order to identify the impact of the union on inward FDI. More specifically Aristotelous (2005) identified that EMU had a positive and statistically significant impact on US FDI inflows and that the increase of FDI into the EMU members was not accompanied by a decrease in FDI into the three countries (Denmark, Sweden and UK) which did not participate in the union.

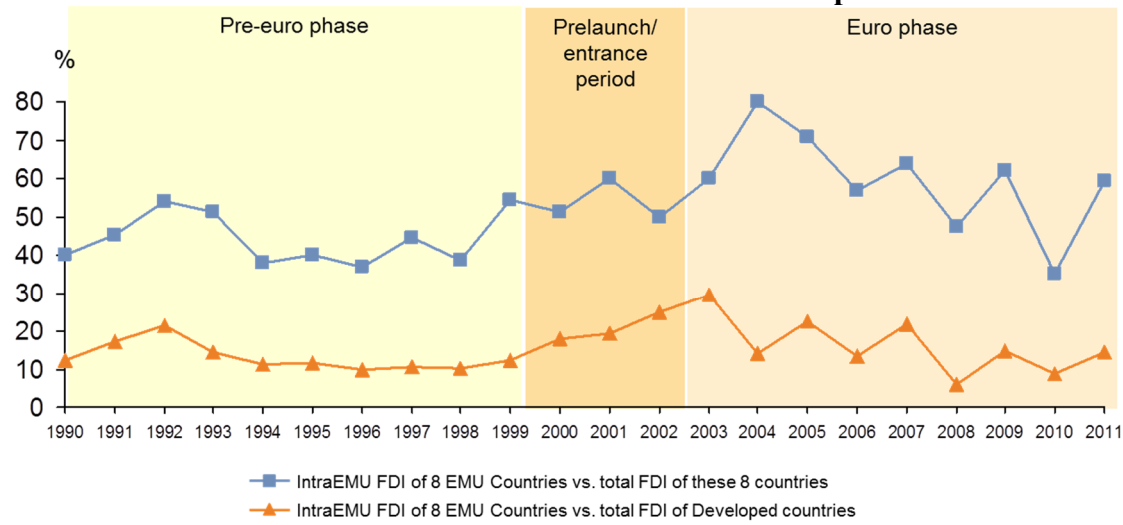
Furthermore the research of Petroulas (2006) indicated that the introduction of euro increased FDI by 14-16% within the euro area but also that the FDI is concentrated to large economies. Additionally the research study of Brouwer et al (2007) provided evidence which support the argument that a potential EMU enlargement to the ten new EU countries could result to positive effects on the amount of FDI these countries are expected to receive. Aristotelous and Fountas (2009) suggest that EMU led to a statistically significant overall increase in FDI to countries that adopted the euro. However the research study indicates that the flows differ substantially across member countries with the core countries having benefited mostly. Souca and Lochard (2011) showed that there was no negative effect on non-EMU countries from the creation of euro. However Pantelidis, Kyrkilis and Nikolopoulos (2012) showed that the creation of EMU had a significant negative impact on the FDI inflows of Greece.

While significant research has taken place regarding the impact of EMU on FDI inflows, a question that has arisen is about the impact of the European Monetary

Union on the intra-EMU FDI inflows. Initial research by Sousa and Lochard (2011) indicates that intra-EMU FDI stocks increased on average by around 30% as a result of the creation of EMU. Also, research of Lane (2005) indicated that the relative importance of intra-EMU trade has not dramatically increased. In figure 2 it is indicated that, with the exception of the first years after EMU launch, the percentage of intra-EMU FDI vs. total FDI did not increase significantly.

Figure 2

% of intra EMU FDI vs. total FDI and vs. total FDI of developed countries



8 countries: Finland, France, Germany, Ireland, Italy, Netherlands, Portugal, Spain

Source: OECD

It should be stated that these studies have used relatively few years of data after creation of EMU and thus further research is needed to verify the impact of the launch of euro on inward intra-EMU FDI. Also the majority of the papers use as kickoff point of eurozone the year 1999 when the euro was created (however with no physical presence). Thus it would be interesting to examine potential differentiation in terms of the impact of EMU on intra-EMU FDI after the physical launch of euro bank note and with significant number of years as data of observation, after launch of euro. The aim of this paper is to construct and test a model explaining the impact of EMU in terms of intra-EMU FDI inflows for various countries.

2. The model

The model equation is estimated by OLS and the data used are annual. The model has as dependent variable the intra-EMU FDI inflows per country. The independent variables of the model are the market size, the technological capabilities, host country exports and imports, the labor cost, interest rate and a dummy variable for the entrance in the European Monetary Union.

Dependent Variable

- *Annual intra-EMU FDI Inflows*

Independent Variables

- *Market size*

A positive relation between market size of the host country and inward FDI is expected. A large host market facilitates the exploitation of economies of scale and gives scope for the production of more varieties of the same product. Production and marketing of differentiated products is a strong competitive advantage of MNEs. However, in the case of product differentiation the absolute quantity of demand should be associated with differentiated consumption. The latter is attributed to economies of adequate incomes and therefore of development levels[1].

GDP is proposed as an approximation for both market size and level of development. The higher the level of GDP the more advanced the country and the greater its aggregate demand is expected to be, and then the higher the level of inward FDI.

- *Technological Capabilities*

The ability of a country to transfer, adapt and create technological inputs constitutes a very important part of its location advantages. Both rationalised and strategic asset seeking FDI, take advantage of locally available technological inputs which either complement or strengthen the ownership advantages of the parent company. The proposed approximation for a country's technological ability is the number of patent applications. The higher this number the higher the country's technological ability is, and then the higher the rate of FDI inflows.

- *Host Country Exports and Imports*

World market integration of a country is associated with both export orientation and a liberal attitude towards imports. An internationally oriented strategy is based on the country's competitive advantages and applies policies aiming at their restructuring. Usually FDI is more likely to be attracted in countries pursuing liberal policies because, first, it is considered as a vehicle of world market integration and advancement of local competitive advantages; second, intra-firm trade of resources and goods is easily pursued; third, it may take advantage of the continuous upgrading of local resources in order to build exports; and fourth, imports may be used for creating demand, that at a later stage will be met by direct production if other factors, e.g. economies of scale and scope, production and transportation costs, possibility of using the specific country as a regional center of production and marketing, etc. favor this option.

- *Labor Cost*

Relatively low labor cost either of the general workforce or of specific types of labor and skills is an important motive for FDI. Cheap unskilled labor may attract export platform FDI of goods at the declining phase of their cycle or the labor intensive parts of vertical regionally integrated FDI. Cheap semi-skilled or skilled labor may motivate rationalized FDI. Strategic asset FDI may be oriented to countries with available low cost research and scientific personnel. However, as FDI accumulates that may cause pressures in segments of the host country labor market and eventually wage increases. The same may occur in the case of fast productivity increases in conditions of skills scarcity either generally or in segments of the market.

[1] There is extensive literature on the relationship between FDI and market size. For theory see indicatively Buckley et al (1981) and for empirical testing see among others Scaperlanda et al (1969, 1972) and Culem (1988).

- *Interest Rate*

Domestic interest rates indicate both the local cost of money, and the availability of capital, and they are related to the government's monetary and exchange rate policies. Low interest rates make investments financed via local capital sources more profitable. On the contrary, high interest rates lead to investment financing through foreign capital markets. MNEs given their ability to pursue international capital sourcing are expected to finance their already existing affiliates in a country through local or foreign sources according to the relative cost of borrowing in the host market. Higher domestic interest rates relatively to interest rates abroad is expected to increase borrowing in foreign currencies in order to finance investments of already established subsidiaries and to limit local financing in new direct investments, and therefore to increase FDI inflows[2]. The nominal lending interest rate in each country is suggested as a proxy for the cost of borrowing. The higher this rate is the higher the FDI inflows are expected to be.

- *European Monetary Union*

The elimination of exchange rate risk, after the launch of euro, would tend to increase the FDI inflows inside the currency union. Also the increase on trade volume would tend to create a stronger incentive to expand the production activities inside the union and thus increase FDI. However this does not mean that the impact will be same and positive for all the members of the monetary union. A country in order to gain from the monetary union and increase its FDI inflows should have specific competitive advantage vs. the rest members of the union in order to attract investment. At the same time since both direct and indirect (exchange rate) potential trade barriers have been eliminated by the membership of the countries in EU and especially in EMU, specific countries might have a positive impact while others might have mixed or even negative impact from the participation in a monetary union, in terms of FDI.

3. Estimation and Results

The model can be summarised in the following equation estimated by OLS:

FDI= f(Y, PA, W, X, M, I, EMU)
(+) (+) (-) (+) (+)
Where:
FDI = Intra-EMU Inward foreign direct investment
Y = Real GDP which is a proxy for market size.
TE = Patent applications. That variable is a proxy for technological capabilities.
W = wage rate index is a proxy for labour cost.
X = exports
M = imports.
I= interest rate
EMU = Dummy variable for membership in Euro area (takes the value 1 since 2002).

[2] On the issue of financing foreign operations of MNEs see Gilman (1981)

The equation is estimated by OLS in log-linear form with annual data for period 1985-2011[3] for eight EMU countries. The expected signs are shown below the relevant coefficients. The equation has a log linear form because under this specification elasticities given by the estimated coefficients are constant. There is also no strong indication of multicollinearity, since all the statistically significant coefficients have the expected signs.

The estimated equation after correction for autocorrelation is presented in Table 1.

TABLE 1

OLS Estimates of Inward intra- FDI for Period 1985-2011

	Y(+)	PA (+)	W (-)	I (+)	EMU	X(+)	M	R^2	F stat
Portugal	+*	-	-*	+*	-	+	+	0.61	5.12
Germany	+*	+*	-*	-	-	+	-*	0.60	3.91
Netherlands	+*	+*	-*	-	+*	+	-	0.75	6.31
Ireland	+*	+*	-*	+	+	+*	-*	0.62	3.68
France	+*	+*	-*	+*	-	+*	-*	0.94	36.81
Finland	+*	+*	-*	+	+	+	-	0.59	3.51
Spain	+*	+	-*	+*	-	+*	-*	0.89	17.73
Italy	+*	+*	-*	+	+	+	-*	0.59	3.65

*means significant at 5% level.

The intra-EMU FDI variable has been taken from OECD, Patent applications, interest rate, GDP and exports and imports of goods and services have been taken from World Bank. Unit labor cost has been taken from OECD

Euro zone membership is not statistically significant for the majority of countries. However while for Ireland, Finland, Italy the Euro area membership is a positive determinant, for Portugal, Germany, France and Spain the membership is a negative determinant. Also for Netherlands the EMU membership is a positive and significant FDI inflow factor.

The introduction of a common currency completed the pre-existing common market and advanced the financial integration in Europe, thus it led to the complete elimination of barriers to trade and to the movement of capital. The consequent market integration degraded the motives for market seeking FDI (especially for intra-FDI due to the already low barriers as result of the already established European Union). Individual markets are now easier to be served through the conventional trade networks, and import substituting intra-EMU FDI becomes a less attractive option for the expansion of firms in Europe. Import substituting FDI is significant in the cases of Ireland, France, Spain, Italy and Germany, thus any depreciation of the motives for such FDI after the introduction of the Euro would lead to a negative influence of Euro membership on FDI inflows. Although the motivation for market seeking FDI is now less significant, motives for both rationalized and strategic assets seeking FDI remain strong after the formation of the Euro zone. Both FDI types are based on the competitive advantages individual countries have to offer on production cost, agglomeration economies, and technological inputs. Both factors are proved to be positive and statistically significant determinants of intra-EMU FDI, see the

[3] The intra EMU-FDI variable has been taken from OECD, Patent applications, exchange rate, GDP and exports and imports of goods and services have been taken from World Bank. Unit labor cost has been taken from OECD

variables “technology”, “wages”, and “Income”. The fact that the impact of these factors is amplified after the formation of the common currency zone make the deterioration or appreciation of such factors across economies to skew FDI upwards or downwards accordingly.

4. Conclusion

The econometric model has an adequate explanatory ability and highlights market, labour cost, technological capabilities, interest rates and openness as the more decisive determinants. Moreover, after the creation of EMU, the motivation for market seeking intra-EMU FDI is less significant while motives for both rationalized and strategic assets seeking FDI, based mainly on the competitive advantages of individual countries, remain strong. These factors provide explanation regarding the reasons of mixed results of EMU countries in terms of intra-FDI inflows, while at the same time highlight as crucial determinants of success various elements of potential competitive advantage (technology, income, wages).

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