Institutional Changes and Trend Behaviour of FDI flows towards EU

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Abstract

This paper investigates whether major economic and institutional changes in Europe, such as the *IMP and the EMU,* have caused significant impacts and changed the behavior of FDI flows from USA and Japan towards twelve members of the European Union,. The empirical methodology employs the Lee and Strazicich (1999, 2004) approach, LM unit-root test, for one and two structural breaks. The results provide evidence that FDI flows from USA and Japan towards EU are stationary series with one or two structural breaks that coincide with IMP and EMU inauguration dates. More specifically, the US flows present shifts the period before the implementation of the EMU, while the Japanese few years before the implemenatation of Internal Market Program.

Keywords: Stationarity, FDI flows, structural changes, European Union

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1. Introduction

In 1986 the *Single European Act (SEA*) was signed in Luxemburg and Hague, known as *Internal Market Program (IMP),* as well. The aim of this act was to remove remaining barriers in the cross border mobility of goods and services, capital and people in the European Union (EU), in order to increase the competitiveness of the European economy. In 1992 *"The Treaty of European Union (TEU)"* was signed in Maastricht aiming at the creation of the European Monetary Union (EMU). From 1st January 1999 euro became the official currency in eleven participating countries while others followed later. The SEA and the TEU caused a concern that efforts would be made to keep non EU- goods and businesses out of the Union's member- states in order to be sheltered from the impact of globalization. "Fortress Europe" was the term given to this syndrome (J. Peter Neary, 2002).

These changes motivated the EU and non-EU multinational companies to increase further trade and investment. In response to the IMP many transnational corporations, especially US and Japanese, sought to position themselves strategically in the EU, through increased investment flows. Foreign Direct Investment (FDI) flows to the EU experienced an impressive growth in the second half of 1980s and 1990s (appendix, tables 6 and 7, figures 1 and 2). More specifically, for the period 1985-1989, the growth rates of flows from USA and Japan towards EU became 23.4% and 46% respectively (UNCTC, World Investment Directory, 1991).

Dunning (1997b) argued that, in the framework of the FDI traditional determinants, the IMP could be responsible for shifts in the parameters of the Ownership- Locational- Internalization model. Rugman and Verbeke (1985) expected that non- EU companies will establish themselves in the EU before 1992 in order to avoid potential barriers to entry and forced to change their strategies. Norman (1995) observed that the improved market accessibility is increasingly encouraging companies to adopt a pan- European view. Pain and Lansbury (1997) claimed that the initial stage of liberalization could cause a rise in investment flows, as firms move in order to make use of the new opportunities. According to Venables (1996, 1998), economic integration leads to agglomeration of industries, given that firms are likely to locate close to each other, and causes positive impacts on FDI decisions (Mardas et al, 2007).

Yannopoulos (1990), Eden (1994) and Vernon (1994) empirically investigated the impact of the IMP on FDI flows towards the EU but due to lack of long- range data series their attempts were limited to only a few countries. Neven & Siotis (1996) found evidence that the anticipation of a barriers-free Europe significantly affects FDI flows towards EU. Buigues & Jacquemin (1994) concluded that a non-tariff barrier was a major determinant for Japanese FDI flows, but a minor

one for US. Finally, Balaubramanyam & Greenaway (1992, 1993) and Yamada & Yamada (1996) argued that Japanese FDI flows towards EU have been positively influenced by the IMP.

With regard to the formation of the EMU, the removal of the exchange-rate uncertainty would encourage cross-border investment in the EU economies (Commission, 1990, ch. 1), because the EMU is expected to minimize destabilizing speculation, increase transparency and reliability of rules and policies. The above are important benefits since uncertainty about future returns may discourage investment (Dixit and Pyndick, 1994). Stiegert et al. (2006) found evidence that investment patterns towards EU were significantly influenced by Maastricht Treaty and the cross border effects that took place after 1992. Finally, the development of financial markets and the exchange- rate liberalization increase predictability for the decision process and enhance investor confidence (Culem, 1988).

Such structure- wise changes in FDI strategies could be further studied by the investigation of the integration properties of the FDI flow series. More specifically, this study attempts to address the following issues. First, to investigate whether Foreign Direct Investment flows could be characterized as a unit root (non- stationary) process or as a trend stationary process with shifts in the level and /or slope in a deterministic trend. Secondly, to detect possible structural breaks and identify the break dates of the two major economic and institutional events, IMP and EMU, in order to evaluate their importance for the FDI flows towards EU. We employ an LM-type test, proposed by Lee and Strazicich (1999, 2004), that allows for testing the unit root hypothesis in the presence of one or two endogenously determined structural breaks in the intercept and/ or the slope. . The empirical analysis uses annual data for Japanese and US FDI flows towards twelve countries of the EU for the period 1965 to 2005.

The paper is organized as follows: The second section of the paper introduces the theoretical framework. The third section presents the methodology. The fourth section reports the data and the empirical results. Finally, the fifth section offers some concluding remarks.

2. Theoretical Issues

The US multinationals have already had a strong presence in the EU since 1950s. This could explain the relative low FDI inflows in the late 1980s and 1990s (appendix, table 7) US multinationals enjoyed a competitive advantage compared to their Japanese and European competitors, since they were in a position to capitalize on their experience and make the most of the advantage of market union to address the benefits of competition from the national level to the European level. This competitive advantage constitutes a major factor in the formation of their globalization strategies during the 1990s. On the other hand, the Japanese FDI flows

increased dramatically in the 1980's (appendix, table 6) and Japan became the most important overseas investor for the EU. This constitutes a new strategy for the Japanese firms, since over the previous decades they used to rely mainly on exports to US and European economies.

Radical transformations, such as the European economic integration, through the IMP, significantly influence the international business environment, as well as the sourcing patterns (A.T. Tavares, 2006). European economic integration accelerates the free movement of capital, goods, services and labor, the internalization of the production and strengthens the role of multinational enterprises (MNEs). The IMP, increases competition and productivity in both national and European markets by eliminating the non-tariff barriers. Furthermore, it is expected to harmonize the intra-EU conditions of production and lower the intra- EU trade cost. This integration process encourages firms located in EU to exploit intra-regional product and process specialization (Dunning, 1997), economies of scale, decrease the price level and cost and generate growth (UNCTC, 1990). Baldwin (1989) showed that the one-time efficiency gained from the IMP will be multiplied into a medium-run growth bonus because of its dynamic effects through innovation, faster productivity gains, greater investment and higher output growth.

In order to understand how economic integration may exert an impact on transnational activities and FDI, it is necessary to underly the forces affecting the decisions of multinational firms. The theoretical framework developed by the literature on FDI can be divided into two categories, the *theory of multinationals* and the *new trade theory*.
The first accepts that in order a firm to invest overseas must possess firm- specific advantages over its competitors. Such advantages may emerge from economies of scale or superior production technology (Hymer, 1976). Buckley and Cason (1985) observed that multinationals, in order to decide to enter foreign markets, have to posses an "internalization" advantage over other alternative modes of business. Finally, Dunning (1998) argued, in his OLI paradigm, that a firm engages in foreign-value activities if and where three conditions are satisfied. These are the firm specific Ownership advantages of foreign relative to domestic investors, the Locational advantages of particular host countries and the Internalization advantages of FDI as compared with alternative means of serving foreign markets.
According to *new trade theory*, trade and gains from trade arise independently of any pattern of comparative advantage because firms achieve scale economies and pursue strategies of product differentiation, relying in the assumption of perfect competition (Markusen, 1995). (ti leie o markusen sto biblio poy soy ;edvsa

The decisions of multinationals to invest abroad is related to a number of variables such as the market size and growth (Buckley and Casson, 1981), the natural resources and distance and proximity of the host country. Also, labor costs and labor skills, agglomeration effects, policy

towards foreign investors, exchange rate variability and infrastructure are some of the main determinants of foreign investments (Pournarakis and Varsakelis, 1997, Pain and Barrel, 1999, and Mardas, Papachristou Varsakelis, 2007 forthcoming Rvta ton Marda gia thn parapomp;h). Cost advantage (He and Long, 2003) and the absorptive capacity of the host country (Katolay, 2000) are frequently held to be key criteria in deciding FDI locations.

Yannopoulos (1990a,b) proposed the combination of the framework of the OLI paradigm with (or to?) the theory of international integration. He distinguished four types of investment reactions by multinational firms, identifying the static and dynamic effects of economic integration with the possible strategic responses of multinationals which intend to expand their production internationally:

- A defensive import-substituting investment results from locational advantages generated by tariff elimination and represents a firm's response to maintain its market share.
- Offensive import-substituting investment seeks to take advantage of the opening up of the markets.
- Reorganisation investment refers to the increase of intra EU-FDI trade and FDI flows as a consequence of the advantageous cost conditions in the unified European market.
- Rationalised investment that refers to investment undertaken in order to take advantage of the effect of improved efficiency.

Dunning (1997b) sets four hypotheses regarding the effects of the IMP on FDI due to shifts in the parameters of the OLI paradigm. .First, the IMP has a positive effect on inward FDI. This is in line with Rugman and Verbeke (1985), who expected that non- EU companies forced to change their strategies and established themselves in the EU before 1992 in order to avoid potential barriers to entry. Also, Norman (1995) observed that the improved market accessibility is increasingly encouraging companies to adopt a pan- European view. Finally, Pain and Lansbury (1997) claimed that the initial stage of liberalization could cause a rise in investment flows for the exploitation of the new opportunities.

Second, IMP has ambivalent effect on the geographic distribution of FDI within EU (Dunning, 1997b). Clegg (1996), investigating the effects of European economic integration on US FDI, pointed out that demand conditions determine the location of production because the large size of the market leads to the reduction of transaction cost. However, Culem (1988) claimed that EU market size is not a significant determinant of the US FDI decisions. According to Venables (1996, 1998), economic integration leads to a process of agglomeration of industries, given that firms are likely to locate close to each other, and causes positive impacts on FDI decisions (Mardas et al, 2007).

Third, IMP may affect the foreign ownership of activities in the EU. It is likely to observe an increase in investments in sectors where firm level economies of scale dominate the plant level economies of scale. In those sectors, IMP is likely to enable multinationals to spread better the extra- plant fixed costs and reduce the costs of co-ordinating foreign production (Brainard, 1993a).

Fourth, Dunning (1997b) considers the fact that some sectors are likely to be affected more, by the IMP, than others. Similar conclusions can be found in other studies investigating the effects of European integration on FDI [Pain and Lansbury (1997); Yannopoulos (1990 a, b) ; Young et al. (1991)].

Yannopoulos (1990), Eden (1994) and Vernon (1994) empirically investigated the impact of the IMP on FDI flows towards to some EU member states due to time seriesavailability. Neven & Siotis (1996) found evidence that the anticipation of a barriers-free Europe significantly affects FDI flows towards EU. Buigues & Jacquemin (1994), concluded that non-tariff barriers was a major determinant for Japanese FDI flows, but a minor one for US. Finally, Balaubramanyam & Greenaway (1992, 1993) and Yamada & Yamada (1996) argued that Japanese FDI flows towards EU have been positively influenced by the IMP..

Thus, we posit the following hypothesis:

H_1 : "The IMP implementation changes the parameters (one or two structural breaks) of the Foreign Direct Investment flows from USA and Japan towards EU ".

Monetary union aims to limit government interventions in the area, to reduce fluctuations and to increase national income (Balassa, 1961). European Monetary Union (EMU) constitutes a major institutional change in the world economy because minimizes exchange rates speculation and increases transparency and reliability of rules and policies. EMU also reduces macroeconomic instability, even with the cost of the loss of a policy instrument (Lane, 2006). The European Central Bank (ECB), established in 1999, has successfully minimized inflation and may better responds to shocks than non-coordinated monetary policies. The above are significant benefits since uncertainty about future returns may discourage investment (Dixit and Pyndick, 1994). Hence, the designers of the EMU expected that the single currency would be a powerful motivation to cross- border extra-EU investment (Commission, 1990, ch. 7). Finally, the development of financial markets and the exchange- rate liberalization increase predictability for the decision process and enhance investor confidence (Culem, 1988).

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Eliminating intra – EU exchange rate volatility, monetary integration increases the certainty value of expected profits of risk adverse firms, promotes intra-EU FDI, reduces trade costs and favours vertical FDI. This means that firms can split their production and locate their activities in different countries to exploit international differences in factor prices or other locational advantages. However, for the case of horizontal FDIs, the removal of exchange rate volatility may decrease FDI and increase trade flows as a substitute. Molle and Morsink (1991b) examined the effect of Monetary Union on FDI and concluded that exchange rate risk discourages FDI. Thus, EMU by reducing the exchange rate volatility is expected to increase the FDI flows. Similarly, Aizenman (1992) and Goldberg and Kolstad (1995) arguie that fixed exchange rates regime is more conducive to FDI than the flexible exchange rate. According OECD (1992), investors are attracted by the prospect of a large unified market, with stable exchange rate, monetary discipline and lower costs.Furthermore, the single currency has an ambivalent affect on FDI. If euro is devaluated, it plays the role of the tariff for the foreign exporters and induces tariff-jumping FDIs. If it is overvalued, reduces FDI in favour of exports. Froot and Stein (1991) argued that the exchange rate effects on US FDI appear to be pervasive and supported the claim that a depreciated currency can encourage distant owners to take the control of domestic productive assets. Therefore, a weaker real exchange rate leads to an increase in the inflow of FDI and, on the contrary, a stronger real exchange rate reduces FDI flows. Klein and Rosengreen (1992) tested whether relative wage cost and relative wealth between US and other industrial countries, which are mostly influenced by the exchange rate movements, have had significant effect on FDI. Their results supported the significance of the relative wealth hypothesis.

Concluding the previous discussion, we posit the following hypothesis:

H_2: *"The EMU implementation changes the parameters (one or two structural breaks) of the Foreign Direct Investment flows from USA and Japan towards EU"*

3. Methodological Issues

To investigate if the integration properties and previous major shocks have permanent or transitory effects on US and Japanese FDI flows towards EU, we perform an advanced and contemporary test of tThe null hypothesis of one or more unit roots and the existence of possible structural breaks. Rejection of a unit root supports the alternative of a stationary series in which shock effects are temporary and endogenously generated. Furthermore, the indication of stationarity about a broken trend has important implications for de-trending the data series and modeling co- movements between foreign direct investments and other related economic variables. The existence of a possible unit root in the considered variable may induce the problem of spurious regression and this may lead to misleading inferences when research efforts

focus on economic modeling and forecasting in the framework of cointegration analysis and Granger causality.

Literature well documents the importance of allowing for structural breaks in unit root tests . Whereas Perron (1989) assumed that the break point was exogenously given, following literature has allowed for the break point to be determined from the data. Perron identified three models to account for possible structural breaks either in the level of the trend function, or in the slope, or in both the trend level and the slope of the examined series.The three models of structural change are the following:

- Model A, which is known as “Crash model” , allows for an one time shift in intercept under the alternative hypothesis.
- Model B, which is known as “Changing growth” , allows for a change in trend slope under the alternative hypothesis.
- Model C, which is known as “Growth path” , allows for a shift in intercept and change in trend slope under the alternative hypothesis.

Perron (1989) noted a potential loss of power when using conventional unit root tests in the presence of structural break(s). He showed that failure to allow for an existing structural break reduces the ability to reject a false unit root. To counter this loss of power, Perron proposed the inclusion of dummy variables that allow for one known structural break in the unit root test. Later, Zivot and Andrews (1992) suggested the adoption of a minimum statistic that determines the break point where the unit root t- test statistic is minimized. Zivot & Andrews (1992) and Perron (1997), among others, proposed unit root tests that allow a structural break to be determined “endogenously” from the data. Finally, Lumsdaine and Papell (1997) extended the Zivot & Andrews one- break test for two breaks.

The most important issue regarding these endogenous break unit root tests is that they omit the possibility of a unit root with break. If a break exists under the unit root null hypothesis, two undesirable results can follow. First, tThe break date iscould be incorrectly estimated and secondly the tests will exhibit size distortions such that the unit root null hypothesis is rejected too often Lee and Strazicich (2004) noted the problems on these tests and proposed an alternative approach for one and two- breaks unit root test. They performed simulations and found that the one and two break tests proposed by Zivot & Andrews and Lumsdaine and Papell respectively are subject to the same spurious rejections in the presence of any break(s) under the null. and they often select the break point where bias is maximized.

To avoid the possibility of spurious rejection we employ the one and two break(s) LM unit root test proposed by Lee and Strazicich (1999b), using the two models for structural break proposed by Perron, namely model A and model C. These tests have the property that their test statistics

are unaffected by the existence of break under the null what???. Therefore, the results of the LM tests are more reliable, since the rejection of the null what?is not spurious.
The methodology of the minimum LM tests is summarized as follows[1].

One break test

According to the LM principle, unit root test statistic is obtained from the following regression:

$$\Delta y_t = \delta' \Delta Z_t + \varphi S_{t-1} + \varepsilon_t \qquad (1)$$

where Δ is the difference operator, δ are the coefficients from the regression of Δy_t on ΔZ_t , $S_t = y_t - \psi_\chi - Z_t \delta$ is the detrended series, t= 1,2,,T, ψ_χ is the restricted MLE of ψ_χ,where $\psi_\chi=\psi+X_0$ given by $y_1-Z_1 \delta$,ε_t is the contemporaneous error term and is assumed to be independent and identically distributed with zero mean and finite variance (i.i.d., $N(0, \sigma^2)$).
ΔZ_t is described by [1, B_t] in model A and [1, B_t , D_t] in model C, where $B_t = \Delta D_t$ and $D_t = \Delta DT_t$. Thus, B_t and D_t correspond to a change in intercept and trend under the alternative and to a one period jump (permanent) change in drift under the null hypothesis, respectively. The unit root null hypothesis is described by $\varphi= 0$ and the LM t-test statistic is given by:

τ = t-statistic testing the null hypothesis $\varphi =0$

ΔS_{t-j} j=1,2,…,k is included in order to correct for possible serial correlation in equation (1), as in the standard ADF test.
The location of the break (T_B) is determined by searching all possible break points for the minimum (the most negative) unit root test statistic as follows :

$$Ln\, f\, \tau(\lambda) = lnf\, \tau(\lambda)$$

, where $\lambda= T_B / T$.

Two break test

The *two break minimum LM test* is based on the Lagrange Multiplier (LM) unit root test suggested by Schmidt and Philips (1992) and can be seen as an extension of the one break minimum LM test developed by Lee and Strazicich (1999b).

[1] See Lee & Strazicich (1999, 1999b) for amore detailed discussion of the one and two break minimum LM unit root test.

The two break minimum LM unit root test can be described as follows. According to the LM principle, a unit root test statistic can be obtained from the following regression.

$$\Delta y_t = \delta' \Delta Z_t + \varphi S_{t-1} + \Sigma \gamma_t \Delta S_{t-1} + \varepsilon_t \qquad (3)$$

, where Δ is the difference operator, δ are the coefficients from the regression of Δy_t on ΔZ_t , $S_t = y_t - \psi_\chi - Z_t \delta$ is the detrended series, t= 1,2,..,T, ψ_χ is the restricted MLE of ψ_χ where $\psi_\chi = \psi + X_0$ given by $y_1 - Z_1 \delta$, ε_t is the contemporaneous error term and is assumed to be independent and identically distributed with zero mean and finite variance (i.i.d., $N(0, \sigma^2)$), Z_t is a vector of exogenous variables contained in the data generating process.

The unit root null hypothesis is described in equation (3) by $\varphi = 0$ and the test statistic is a t-statistic for this null, which is defined by:

$$\tau = \text{t-statistic for the null hypothesis } \varphi = 0 \qquad (4)$$

To endogenously determine the location of two breaks ($\lambda_j = T_{Bj} / T$, j = 1,2), Lee & Strazicich use a grid search to determine the combination of two break points where the t- statistic in (4) is at a minimum. Therefore, the critical values correspond to the location of the breaks.
The critical values of the t-statistic for 1%, 5% and 10% level of significance, over all possible break dates are calculated and tabulated by Lee Strazicich (1999b). If the t- statistic exceeds the associated critical value, then the null hypothesis that the FDI flows are integrated processes without an endogenous structural break is rejected in favor of the alternative hypothesis that FDI flows are trend stationary with one or two endogenous breaks at one or two distinct unknown dates. The estimated break dates are the values of T_B for which the absolute value of the t-statistic for a is minimized.

To implement this test, Lee & Strazicich first determined the number of augmentation terms ΔS_{t-j} j=1,2,…,k, to correct for possible serial correlation in equation (3).

We use the one and two break minimum LM test to endogenously determine one or two structural breaks in the FDI flows. We also test for a unit root. The minimum LM test does not suffer from problems such as spurious regression and bias relating to break point estimation, and is invariant to both the magnitude and location of the break. The FDI flows are tested in 12 countries – members of European Union.

4. Data and Empirical results

Data

The data employed in the empirical analysis is the annual FDI flows from USA and Japan towards twelve countries-members that signed the IMP treaty. The data sample for the US FDI flows towards Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain and United Kingdom covers the period 1966 – 2006 (appendix table). The data for the Japanese FDI flows do not start from the same year and thus they are used from the first available year until 2004 (see appendix Table 8). The data for US FDI flows comes from BEA (Bureau of economic analysis), while the data for Japan comes from JETRO (Japanese Trade and Investment Statistics). All series are measured in billions of $US.

Empirical Results

In the first step of the empirical analysis, we test for the integration properties of the FDI series, accounting for one possible structural change by means of models A and C. Tables 21 and 23 report the results of the application of the LM-test. The results reveal that for most EU member-states the null hypothesis of a unit root is rejected. More particular, when we apply the one break minimum LM unit root test to the Japanese flows the model A suggests that 9 of the 12 FDI series are stationary with a segmented trend. The detected break dates for the 9 countries are as follows: Belgium (2000)[2], Denmark (1980), France (1985), Germany (1989), Greece (1977), Ireland (1990), Luxemburg (1986), Portugal (1997) and Spain (1981). Next, the application of model C suggests that 10 of 12 FDI series are stationary with a shift in intercept and a change in slope. The detected break dates for the 10 countries are as follows: Belgium (2000), Denmark (1985), France (1984), Greece (1998), Italy (1988), Ireland (1990), Netherlands (1985), Portugal (1985), Spain (1983) and U.K (1989).

The application of the one break minimum LM unit root test to the US flows the model A suggests that 6 of the 12 FDI series are stationary with a segmented trend. The detected break dates for the 6 countries are as follows: Belgium (1993) Denmark (1992), Ireland (1988), Luxemburg (1997), Netherlands (1993) and Spain (1998). Next, the application of model C suggests that 9 of 12 FDI series are stationary with a shift in intercept and a change in slope. The detected break dates for the 9 countries areas follows: Belgium (1993), Denmark (1991), Germany (1992), Ireland (1992), Luxemburg (1992), Netherlands (1992), Portugal (1991), Spain (1998) and UK (1988).

Next, we proceed with testing the integration properties of the FDI series, accounting for the existence of two possible structural breaks. The application of the two breaks minimum LM unit root test to the Japanese flows for the model A suggests that 4 of the 12 FDI series are stationary

[2] The dates in the parenthesis is the date when the structural break occured

with a segmented trend. The detected break dates for the 4 countries are as follows: Belgium (1988/2000), Greece (1977/1982), Portugal (1986/1988) and Spain (1978/1981). The application of model C suggests that 10 of 12 FDI series are stationary with a shift in intercept and a change in slope. The detected break dates for the 10 countries are as follows: Belgium (1988/2000), Denmark (1985/1988), France (1984/1997), Greece (1977/1980), Italy (1987/1992), Ireland (1983/1990), Luxemburg (1982/1987), Netherlands (1981/1988), Portugal (1985/1989) and UK (1983/1993).

The application of the two breaks minimum LM unit root test to the US flowsfor the model A suggests that 1 of the 12 FDI series is stationary with a segmented trend. The detected break dates for Denmark are 1992 and 1999. The application of model C suggests that 8 of 12 FDI series are stationary with a shift in intercept and a change in slope. The detected break dates for the 8 countries are as follows: Belgium (1990/1994), Germany (1991/1994), Ireland (1992/1996), Luxemburg (1998/2001), Netherlands (1988/2001), Portugal (1983/1990), Spain (1987/1993) and UK (1990/1994). Based on the results reported in table 3, the min t-statistics obtained from Model A are not significant at the 10% level for the majority of the FDI flows towards EU, either from Japan (4 out of 12) or from USA (1 out of 12). The corresponding min t- statistics obtained from model C are, in contrary, significant and reject the null hypothesis of a unit root in 10 and 8 out of 12 cases, respectively.

From table 11, we can imply that most of the Japanese FDI flows present structural breaks at some point in the period 1985- 1992, while most of the US flows present a shift in the period 1993- 2001. The fact that FDI flows from Japan increased rapidly during the 1980s, while the US affiliates have a long investment history in Europe, may explain why the null hypothesis is strongly rejected in the case of Japan but not for the USA. We can imply that the Japanese affiliates have been attracted by the announcement of the implementation of the IMP, while the corresponding US affiliates by the announcement of the implementation of the EMU. Therefore, the concentrated structural breaks that are detected throughout these periods are of major importance, since they reveal that the two major institutional changes in Europe have affected endogenously the behavior of Foreign Direct Investment flows from the two greater world investors the last decades, USA and Japan, towards European Union. Thus, a change in the US and Japanese MNEs strategies is likely to be attributed to the institutional changes, IMP and EMU, that took place in Europe.

5. Conclusions

During the second parts of the 1980s and 1990s decades a big wave of foreign investments towards twelve countries-members of EU was observed. The impact of IMP and EMUon trade, policies, production, rules and other significant factors in the European statesgave an impetus and motivation to the non-EU multinational companies to increase trade and investments

(Yannopoulos (1990a), Neven & Siotis (1996), Aristotelous and Fountas (1996)). The abolition of existing import tariffs and other trade costs, the likely exploitation of economies of scale, the low labor costs and the stability of exchange rates are some of the most important incentives. This changing regulatory framework in combination with the possibility of future difficulties in exporting to the region from outside the EU, due to the "Fortress Europe" syndrome, could explain the rapid growth of foreign investments stocks and flows from the USA and Japan.

We investigated the integration properties of FDI flows from Japan and USA and the potential existence of one or more endogenously determined structural breaks(s). We tested whether Foreign Direct Investment flows could be characterized as a unit root (non- stationary) process or as a trend stationary process with shifts in the level and /or slope in a deterministic trend. The shocks, that are depicted after the application of the two break Minimum LM test, are mostly observed at some point in the periods 1985-1992 and 1995- 2001, which is an indication that that the two major institutional changes in Europe, IMP and EMU, have affected endogenously the behavior of Foreign Direct Investment flows from the two greater world investors the last decades, the USA and Japan, towards European Union.

. Thus, a change in the US and Japanese MNEs strategies is likely to be attributed to the institutional changes, IMP and EMU, that took place in Europe. H. Yamawaki (2006) provided evidence that US and Japanese multinationals choose different locations to invest and do not share the same motives. However, their investment preferences to EU countries imply that the IMP and its effects constitute itself a significant motive.

The difference in the volume of FDI flows form USA and Japan towards EU implies that multinationals' strategies are different, since the Japanese affiliates have been attracted by the announcement of the implementation of the IMP (1985- 1992), while the corresponding US by the announcement of the implementation of the EMU (1994- 2000). US investment history in Europe goes back earlier period than the Common market (Vernon, 1961) and this could be an explanation of the gradual shift of US affiliates' FDI flows. Another possible explanation could be the co-operations between EU and USA that took place the previous decade. Transatlantic Declaration, the New Transatlantic Agenda and the Transatlantic Economic Partnership landmarks are the landmarks in EU-US relations during 1990s. The Transatlantic Declaration was adopted by the US and the EU in 1990. It set the principles for better EU-US collaboration. Cooperation in the economic, educational, scientific and cultural fields, as well as translational challenges, was established. In 1995 the New Transatlantic Agenda (NTA) and the EU-USA Action plan implemented. The NTA and the Action Plan provide a framework for EU-US partnership across an extensive range of activities, like promoting stability and peace, democracy and growth around the world, contributing to the expansion of world trade and encouraging tighter bonds, building bridges across the Atlantic.

Regarding Japanese volume of FDI flows towards EU-12, they showed a surge the last five years of 1980s. This shift is much more sudden that the US since the Japanese affiliates located in Europe much later. The depreciation of yen against the US dollar could be an explanation of the preference of Japanese affiliates on EU countries than USA. Depreciation lowers the costs of production and investment in host countries relative to the cost in source countries, making foreign investment more profitable. Therefore, in the 1980s EU countries did not share the same currency and yen was much stronger than most of the members of EU currencies. At the same time the forthcoming implementation of IMP made EU more attractive.

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Appendix

Table 1 Dates of the structural Breaks of Japanese and US FDI flows

Country	Japanese flows 1st Break Date	Japanese flows 2nd Break Date	US flows 1st Break Date	US flows 2nd Break Date
Belgium	1988	2000	1990	1994
Denmark	1985	1988		
France	1984	1997		
Germany			1991	1994
Greece	1977	1980		
Ireland	1983	1990	1992	1996
Italy	1987	1992		
Luxemburg	1982	1987	1998	2001
Netherlands	1981	1988	1988	2001
Portugal	1985	1989	1983	1990
Spain			1987	1993
U.K.	1983	1993	1990	1994

Table 1 Dates of the structural Breaks of Japanese and US FDI flows

Japanese flows	**US flows**	**US flows**
2nd Break Date	**1st Break Date**	**2nd Break Date**
2000	1990	1994
1988		
1997		
	1991	1994
1980		
1990	1992	1996
1992		
1987	1998	2001
1988	1988	2001
1989	1983	1990
	1987	1993
1993	1990	1994

Table 2. ONE BREAK MINIMUM LM UNIT ROOT TEST

MODEL A: FDI(t) = [S(t-1), (lags..omitted), 1, B(t)

	Lags	**Min t- statistic**	**Date**	**T-statistic dummy B(t)**
Japan- Belgium	0	-5.4875*	2000	1.2321
Japan- Denmark	0	-6.4766*	1980	-0.9517
Japan- France	0	-5.1359*	1985	1.5038
Japan- Germany	2	3.5001*	1989	2.6051*
Japan- Greece	0	-5.7438*	1977	1.5697
Japan- Ireland	0	-6.4855*	1990	0.6927
Japan- Italy	0	-3.0327	1988	5.5936*
Japan- Luxemburg	0	-3.2192*	1986	-1.4801
Japan- Netherlands	2	-2.7	1986	1.1999
Japan- Portugal	0	-4.1327*	1997	-2.2976*
Japan- Spain	0	-5.0808*	1981	2.1823*
Japan- U.K.	3	-2.128	1971	3.07278
USA- Belgium	0	-4.6375*	1993	-6.6331*
USA- Denmark	0	-5.7597*	1992	-2.2288*
USA- France	0	-2.6849	1992	0.999

USA- Germany	0	-2.2948	1991	0.8727
USA- Greece	0	-2.7165	1973	1.8661
USA- Ireland	0	-5.2082*	1988	-0.1918
USA- Italy	2	-3.2569	2000	-3.60658
USA- Luxemburg	0	-6.128*	1997	-0.1325
USA- Netherlands	0	-6.2611*	1993	-1.5741
USA- Portugal	0	-3.96438	1992	-3.6244*
USA- Spain	2	-3.9087*	1998	-3.4825*
USA- U.K.	0	-3.049	2000	-1.7229

Model C: ZFDI(t) = [S(t-1), (lags..omitted), 1, B(t), D(t)]

	Lags	Min t-statistic	Date	T-statistic dummy B1(t)	T-statistic dummy B2(t)
Japan- Belgium	1	-6.621*	2000	-1.448	3.9338*
Japan- Denmark	0	-6.6326*	1985	-1.2449	1.6881
Japan- France	0	-6.3381*	1984	-0.9933	3.5001*
Japan- Germany	2	-3.6955	1987	-0.9142	2.2497*
Japan- Greece	0	-6.0591*	1998	1.8183	-1.3479
Japan- Ireland	0	-8.8905*	1990	2.6868*	-2.9609*
Japan- Italy	0	-4.3774*	1988	6.1699*	-1.3667
Japan- Luxemburg	1	-3.8962	1985	2.0666*	-2.2465*
Japan- Netherlands	0	-5.0796*	1985	3.2592*	-3.2285*
Japan- Portugal	1	-5.7948*	1985	-1.2068	3.385*
Japan- Spain	0	-6.0637*	1983	4.2889*	-1.9023
Japan- U.K.	2	-5.464*	1989	4.8436*	-5.0441*
USA- Belgium	0	-4.7066*	1993	-7.15318	-0.1728
USA- Denmark	0	-6.2475*	1991	1.852	-5.0167*
USA- France	0	-3.5487	1990	1.7494	-2.6192
USA- Germany	5	-5.1686*	1992	3.861*	-5.5816*
USA- Greece	0	-3.554	1982	-0.6387	-2.2967
USA- Ireland	2	-6.8363*	1992	3.8914*	-5.8171*
USA- Italy	2	-3.8204	1992	1.7252	-3.7403
USA- Luxemburg	0	-6.8139*	1992	1.6807	-2.4822
USA- Netherlands	0	-7.7033*	1992	1.9827	-4.2042*
USA- Portugal	2	-4.5476*	1991	1.7645	-3.2894*

USA- Spain	3	-4.4784*	1998	-2.7236*	-1.4073
USA- U.K.	0	-4.259*	1988	1.5286	-0.8531

Table 3 TWO BREAKS MINIMUM LM UNIT ROOT TEST

Model A : FDI(t) = [S(t-1), (lags..omitted), 1, B1(t), B2(t)]

	Lags	Min t- statistic	Date	Date	T-statistic dummy B1(t)	T-statistic dummy B2(t)
Japan- Belgium	0	-5.7451*	1988	2000	1.0286	1.1337
Japan- Denmark	2	-1.8154	1974	1979	0.3042	-1.6111
Japan- France	0	-5.0014	1983	1985	0.3856	1.3448
Japan- Germany	0	-2.9888	1986	1989	1.2818	2.4388
Japan- Greece	0	-5.5944*	1977	1982	1.4432	-0.9673
Japan- Ireland	2	-3.8207	1970	1992	0.3925	-3.9565
Japan- Italy	0	-3.6446	1988	1991	5.9867	-1.0559
Japan- Luxemburg	2	-1.0573	1983	1986	2.6922	-2.6451
Japan- Netherlands	2	-2.6303	1980	1986	-0.2102	1.2198
Japan- Portugal	0	-6.1523*	1986	1988	6.1061	-4.8403
Japan- Spain	0	-5.592*	1978	1981	1.3357	1.9686
Japan- U.K.	3	-1.3908	1973	1992	-1.2769	-0.2873
USA- Belgium	2	-2.2556	1993	1996	-7.5249	-2.0294
USA- Denmark	0	-6.0359*	1992	1999	-3.2357	-1.436
USA- France	0	-2.6538	1992	1998	1.0482	-0.8099
USA- Germany	1	-2.2324	1990	1993	2.4506	-13.0689
USA- Greece	0	-2.821	1982	1993	-1.2396	-5.4968
USA- Ireland	1	-2.0721	1984	1986	0.4424	0.6607
USA- Italy	2	-1.1965	1986	1993	1.529	-6.8239
USA- Luxemburg	3	-4.5062	1992	2001	1.4421	0.9466
USA- Netherlands	0	-2.035	1985	1999	0.6586	-1.2669
USA- Portugal	0	-4.2705	1987	1991	0.9906	-3.6855
USA- Spain	3	-3.4743	1985	1992	0.7669	-3.4009
USA- U.K.	0	-2.9333	1991	2000	1.3001	-1.5415

Model C : FDI(t) = [S(t-1), (lags..omitted), 1, B1(t), B2(t), D1(t), D2(t)]

	Lags	Min t-statistic	Date	Date	T-statistic dummy B1(t)	T-statistic dummy B2(t)	D1(t)	D2(t)
Japan- Belgium	2	-7.5356*	1988	2000	0.7532	-2.5623	0.7659	5.1921*
Japan- Denmark	0	-7.2821*	1985	1988	-2.4592	-1.1685	3.0998*	-1.9285
Japan- France	1	-10.6879*	1984	1997	-2.2053	-5.2637	6.5412*	6.5989*
Japan- Germany	1	-4.5381	1986	1990	-0.1909	0.7269	4.0571*	-6.7194*
Japan- Greece	1	-8.3395*	1977	1980	-2.2035	1.6921	5.5205*	-5.8504*
Japan- Ireland	3	-10.4286*	1983	1990	-4.0703	6.98	7.5495*	-9.5787*
Japan- Italy	2	-5.8788*	1987	1992	-2.1972	0.5468	5.5944*	-5.6518*
Japan- Luxemburg	2	-6.098*	1982	1987	2.8457	2.2615	3.3508*	-3.8934*
Japan- Netherlands	3	-16.0829*	1981	1988	-10.5947	6.4066	15.5716*	-16.0892*
Japan- Portugal	1	-9.8418*	1985	1989	-4.8481	1.6118	7.5322*	-6.5133*
Japan- Spain	3	-4.1689	1980	1995	-2.5466	-1.4483	3.6882*	-1.6745
Japan- U.K.	2	-5.8879*	1983	1993	-0.6468	5.2646	1.9049	-5.1528*
USA- Belgium	2	-6.1693*	1990	1994	-0.5692	2.8499	2.2197*	-3.7621*
USA- Denmark	3	-4.0333	1992	1997	-1.8118	2.6685	-0.6366	-1.4654
USA- France	2	-3.2661	1986	1993	0.0226	-15.5109	2.9046*	-1.0645
USA- Germany	0	-8.3973*	1991	1994	0.6928	0.1475	0.8076	0.7819
USA- Greece	0	-4.5197	1972	1994	-0.728	-0.7277	2.3022*	-2.3613*
USA- Ireland	3	-8.1923*	1992	1996	5.2287	-5.7452	-5.3994*	8.294*
USA- Italy	1	-4.9773	1988	1994	-0.532	1.249	2.3778*	-1.6172
USA- Luxemburg	3	-6.7686*	1998	2001	-0.0547	-3.2855	0.9575	1.188
USA- Netherlands	3	-6.3332*	1988	2001	0.3663	-0.3494	2.1566*	1.0664
USA- Portugal	3	-6.8462*	1983	1990	0.0837	3.8836	-0.2063	-6.7465*
USA- Spain	3	-5.6101*	1987	1993	-0.6344	-0.4361	2.5123*	-0.0615
USA- U.K.	0	-5.7124*	1990	1994	-0.2666	-0.4681	2.0001*	-0.0852

* Significant at 10 % .

Table 4 Critical Values of the One- break Minimum LM test

Model A

1%	5%	10%
-4.239	-3.566	-3.211

Model C

λ	1%	5%	10%
0.1	-5.825	-5.286	-4.989
0.2	-5.07	-4.47	-4.2
0.3	-5.15	-4.45	-4.18
0.4	-5.05	-4.5	-4.18
0.5	-5.11	-4.51	-4.17

Table 5 Critical Values of the Two- break Minimum LM test

Model A

1%	5%	10%
-4.545	-3.842	--3.504

Model C

	.4	.6	.8
.2	-6.16, -5.59, -5,28	-6.40, -5.74, -5.32	-6.33, -5.71, -5.33
.4	-	-6.46, -5.67, -5.31	-6.42, -5,65, -5.32
.6	-	-	-6.32, -5.73, -5.32

Table 6 Total FDI flows from Japan towards EU-12 in the period 1984- 2000

Countries/ Date	Belgium	Denmark	France	Germany	Greece	Ireland	Italy	Luxemburg	Netherlands	Portugal	Spain	U.K.	TOTAL
1984	71	1	117	245	9	1	22	315	452	0	140	318	1691.121
1985	84	1	67	172	35	81	32	300	613	0	91	375	1850.941
1986	50	1	152	210	0	72	23	1092	6651	3	86	984	9323.571
1987	70	6	330	403	0	58	59	1764	829	6	283	2,473	6280.251
1988	164	2	463	409	1	42	108	657	2359	7	161	3,956	8329.653
1989	326	24	1136	1083	0	133	314	654	4547	74	501	5,239	**14031.48**
1990	367	7	1257	1242	4	49	217	224	2744	68	320	6,806	13305.07
1991	222	6	817	1115	1	102	322	266	1,960	10	378	3,588	8786.173
1992	281	3	456	769	0	113	216	68	1,446	12	332	2,948	6644.46
1993	135	0	545	760	4	469	188	44	2,175	57	207	2,527	7110.852
1994	858	0	418	727	0	343	172	14	1,050	2	184	2,169	5937.696
1995	366	0	1619	549	0	356	123	107	1,492	4	51	3,454	8121.138
1996	89	4	503	571	0	397	109	416	1,099	5	318	3,438	6948.239
1997	88	0	1736	732	0	566	139	29	3,295	8	232	4,118	10943.07
1998	195	0	522	569	0	414	112	34	2,146	5	126	9,784	13906.74
1999	126	33	1134	652	0	576	49	38	10,387	48	534	11,718	**25295**
2000	276	0	331	320	0	49	58	142	2,764	0	33	19,176	23149.21

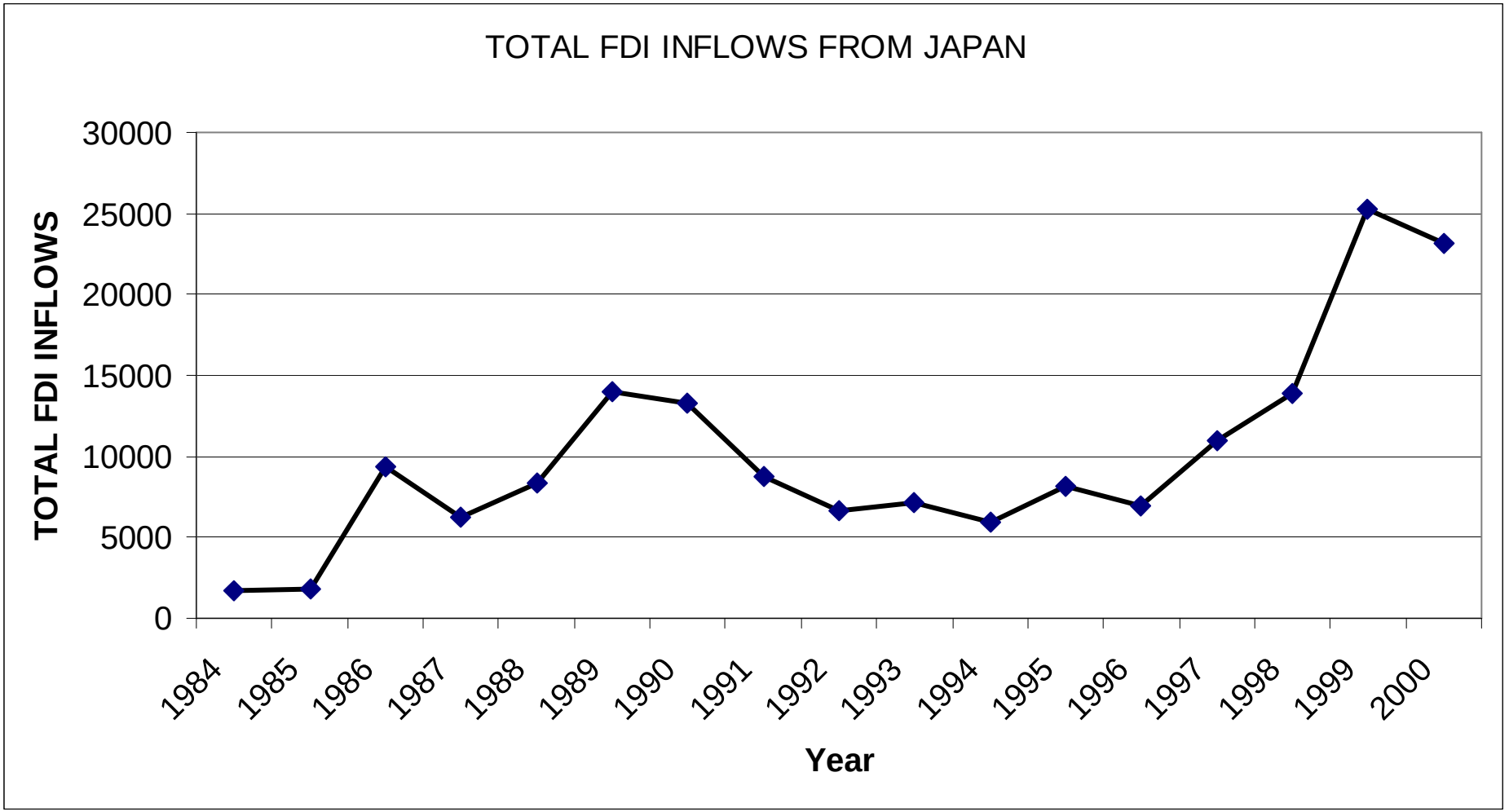

Figure 1 Total FDI flows from Japan towards EU-12 in the period 1984- 2000

Table 7 Total FDI flows from USA in the period 1980- 2000 towards EU-12

Year/ Country	Belgium	Denmark	France	Germany	Greece	Ireland	Italy	Luxemburg	Netherlands	Portugal	Spain	U.K.	TOTAL
1980	6259	1266	9347	15415	347	2319	5397	652	8039	257	2678	28460	80436
1981	6288	1377	9132	15841	346	2701	5275	655	8813	299	2876	30316	83919
1982	5549	1155	7391	15463	412	2031	4316	1098	7660	277	2350	27537	75239
1983	5087	1275	6613	15451	315	2517	4335	1240	6917	222	2331	28086	74389
1984	5202	1263	6434	15055	239	2964	4745	493	6207	210	2224	29265	74301
1985	5619	1383	7747	17176	179	3762	6137	795	7552	243	2407	34066	87066
1986	5568	1164	9323	21476	129	4412	7745	957	12203	302	2882	36974	103135
1987	7719	1120	12335	25128	164	5530	9726	874	15507	528	4334	46489	129454
1988	7839	1182	13567	22784	216	6063	10046	1122	16765	583	5220	51734	137121
1989	7710	1524	16443	23673	210	4665	11221	1560	19160	675	6500	67722	161063
1990	9464	1726	19164	27609	282	5984	14063	1697	19120	897	7868	72707	180581
1991	10611	1940	21569	32411	306	6471	15085	1734	20293	1034	8088	79819	199361
1992	11381	1676	25157	33003	372	7607	13015	2031	20700	1290	8757	85176	210165
1993	11697	1735	24312	36811	410	9019	12748	5611	20911	1264	6689	109208	**240415**
1994	2004	360	2634	2863	50	0	2646	517	7605	252	1551	9615	30097
1995	2750	0	5196	3349	0	695	2506	0	9386	137	158	13830	38007
1996	1349	454	4463	1956	92	1954	416	1041	6308	245	1183	16421	35882
1997	-46	14	2971	2464	69	2266	123	2444	12450	86	204	22961	46006
1998	932	415	4323	3051	6	7891	-910	4084	22213	-16	1821	29094	72904
1999	1431	1318	2111	5658	32	4741	3729	4535	13320	782	5689	47265	**90611**

2000	-1508	1621	1967	3811	106	9823	6404	2474	961	532	2249	28317	56757

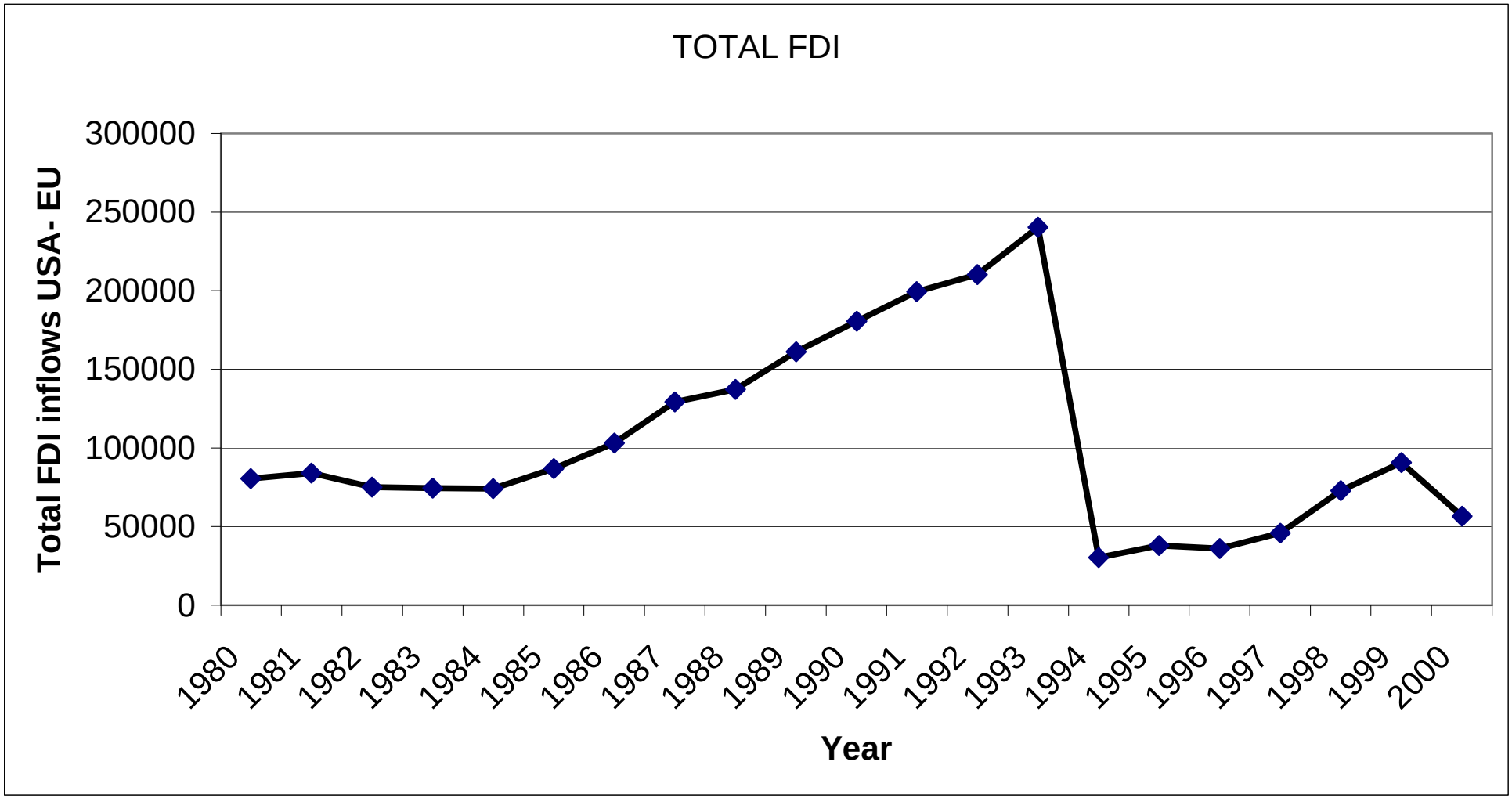

Figure 2 Total FDI flows from USA in the period 1980- 2000 towards EU-12

Table 8 First Available Year of the FDI flows from Japan towards EU

FDI flows from Japan towards :	**First Available Year**
Belgium	1965
Denmark	1977
France	1968
Germany	1965
Greece	1971
Ireland	1973
Italy	1965
Luxemburg	1968
Netherlands	1968
Portugal	1967
Spain	1970
U.K.	1965

Data series :

FDI outflows from USA and Japan towards 12 countries-members of the European Union: Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain and United Kingdom (UK)