# EURO COINS SHINE BRIGHTER: THE IMPACT OF EUROPEAN MONETARY INTEGRATION ON FOREIGN DIRECT INVESTMENT

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# EURO COINS SHINE BRIGHTER: THE IMPACT OF EUROPEAN MONETARY INTEGRATION ON FOREIGN DIRECT INVESTMENT

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## Abstract

This paper investigates the relationship between integration into the Euro Area and foreign direct investment (FDI) flows and distinguishes between Low- and High-GDP nations to examine differing effects. It measures a twenty-year period consisting of the ten years preceding and the ten years following a country's integration up until 2021. An Ordinary Least-Squares regression with a dummy variable is utilized to capture the expected annual change in FDI flows after integration. The findings reveal that on aggregate, both inward and outward FDI flows increase upon integration. However, when distinguishing between Low- and High-GDP countries, the relationship is statistically significant for Low-GDP countries only, suggesting that a diminishing marginal relationship between growth and FDI flows may exist. The results support the argument that economic openness and common fiscal policy attract inward investment as well as increase outward investment. This paper provides an interpretation of the theory that investment outflows are reactive to inflows and supports this argument with examples of firms' investment activity. The empirical results and interpretation offer insight for governments, investment agencies and firms regarding economic policy when seeking to improve their foreign investment positions.

KEYWORDS: Foreign direct investment, monetary integration, euro area, Low-GDP, High-GDP

JEL CODES: F21, F23, F36, F45

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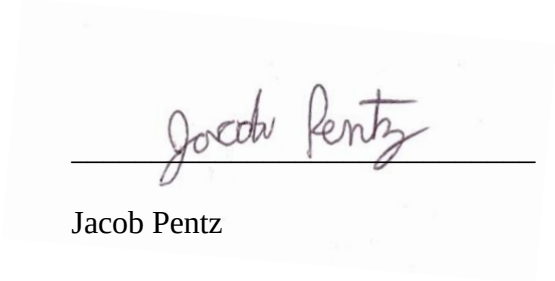

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## Introduction

The modern global economy is characterized by globalization in which foreign direct investment (FDI) has become vital to the development of businesses, industries, and countries. Global FDI is promoted through economic integration such as trade unions, free trade areas, and monetary integration. Monetary integration, in which countries in a similar region adopt a common currency, is one of the most important ways to encourage macroeconomic stability by eliminating exchange rate volatility, encouraging trade, and stabilizing global commodity prices (Hämäläinen, 1999). One of the most prominent global monetary unions is the European Monetary Union, or Euro Area, made up of the now-twenty countries within the European Union (EU) that use the euro as their currency.

The euro currency was established in 1999 in non-tangible form and was primarily only used for book entries in information systems. It was not used for retail or personal banking purposes until 2002 when tangible euro coins and banknotes were introduced (Directorate-General for Communication). Following World War II, Europe established a precedent of economic and political integration directed at fostering peace and collaboration throughout the region. In succession to the European Union, the creation of the European Monetary Union aimed to extend European collaboration through the establishment of a common fiscal policy (Hämäläinen, 1999). At the meeting of the Institut International d'Etudes Bancaires in 1999, Sirkka Hämäläinen, Member of the Executive Board of the European Central Bank, explained that "a single monetary policy in the euro area which is firmly geared towards price stability will enhance political and economic stability… and on a microeconomic level, the use of the same currency in the euro area will increase cross-border competition and market integration, thereby

improving the efficiency of the markets for goods, services and capital in the participating countries" (Hämäläinen, 1999).

Within the Euro Area, the common currency enables its member-states to trade across borders, invest in foreign stock, and purchase foreign commodities with much greater ease, transparency, and confidence (Sondermann & Vansteenkiste, 2019). A common fiscal policy allows each country's national bank, in tandem with the European Central Bank, to control nominal interest rates, eliminate exchange rate volatility, and control trade procedures (Angelopoulou & Liargovas, 2014). The transparency of similar exchange rates, inflation rates, and interest rates allows countries to improve their global credit as any reservations due to cross-currency risk are eliminated. Additionally, each country is backed by the European Central Bank so there is no risk of default (Kaminski, 2001). The euro fosters an economic climate that promotes business globalization and foreign direct investment, and as the Euro Area has developed, its economic promise has become intriguing for many countries.

FDI, both inward and outward, is valuable to European firms and countries large and small. FDI is considered an important way to promote the modernization of new entrants to the EU (United Nations Conference on Trade and Development, 1996), characterized by the accession of several smaller and lesser-developed nations than the founding members of Belgium, Germany, France, Italy, Spain, Netherlands, Portugal, Ireland, Finland, Austria and Luxembourg. FDI is also an important way for large firms and countries to expand their influence and simultaneously distribute their advanced levels of technology, skilled employees, and management techniques to lesser developed areas, serving as public goods and creating positive externalities abroad (Barrios, Dimelis, Louri, & Strobl, 2004).

Inward FDI has been shown to increase a host country's macroeconomic stability, productivity, and access to technology (Directorate-General for Trade, 2023). Similarly, outward FDI can increase a country's market competitiveness, boost exports, and serve to acquire technologies (Stephenson & Perea, 2018). FDI can be carried out in two forms: greenfield investment and mergers and acquisitions, including the value of equity purchased by or sold to foreign investors. Greenfield investment involves the creation of a new company or establishment of facilities abroad, and mergers and acquisitions include the transfer of ownership of existing assets to an owner abroad (Directorate-General for Trade, 2023). In a merger, two companies converge to form one, while in an acquisition one company is taken over by another. Foreign investment is necessary to firms' research and development, market access, and means of production, and thus is one of the most important ways to expand profitability and growth.

When engaging in foreign direct investment, firms choose an investment location that entails the highest expected level of profitability either because it minimizes production costs or maximizes the expected return (Sondermann & Vansteenkiste, 2019). Attractive economic indicators in an investment location include a large-sized or high-potential market, high economic growth, low relative factor prices, high trade openness, the existence of a common trade policy framework, macroeconomic stability, a low tax rate, sound institutions and a stable political system (Sondermann & Vansteenkiste, 2019). Thus, it is no surprise that countries seeking to engage in FDI view the Euro Area as a premier investment location and position for investment. Based on European Commission data, the European Union is the world's main provider and the top global destination of foreign investment. FDI stocks in the rest of the world held by EU-residing investors amounted to €8.990 billion at the end of 2019, and FDI stocks held by third country investors in the EU amounted to €7.138 billion at the end of 2019

(Directorate-General for Trade, 2023). As the Euro Area comprises 20 out of 27 EU countries, it is evident that its members contribute largely to these numbers.

This paper contributes to research surrounding the relationship between Euro Area monetary integration and FDI flows, and specifically the differences in FDI flows between large and small countries. My work builds on prior literature but differs from previous research in several ways. To the best of my knowledge, this is the first paper that examines the difference in relationships between Euro Area integration and FDI between countries of high and low GDP. In addition, my model includes countries that joined the Euro Area up until 2015 which is the most recent, measurable time frame. Also, rather than considering one consistent time period, I implement the ten years before and after integration for each individual country. Throughout this paper, I examine the following questions:

- How does Euro Area integration impact FDI inflows for its member-states?
- How does Euro Area integration impact FDI outflows for its member-states?
- How does the impact of Euro Area integration on FDI flows differ between Low-GDP and High-GDP countries, and why?

The remainder of the paper is structured as follows. Section II discusses relevant empirical literature including common themes and results, Section III discusses the data and methodology used to test my research questions, and I report and interpret my results in Section IV. Section V concludes my findings and considers possible ways to further my research.

## Literature Review

### Empirical Results

Prior literature suggests that Euro Area integration increases FDI flows for its members and that wealthier, more developed countries benefit more than smaller ones (Sondermann & Vansteenkiste, 2019). Sondermann and Vansteenkiste (2019) find that the adoption of the euro increases intra-EU FDI flows, on average, by between 11-21 percent for a given country (Sondermann & Vansteenkiste, 2019). However, studies have proven that various macroeconomic, political, and geographical factors determine the levels of both inward and outward FDI that a given country receives or invests.

Most studies concur with the theory that host countries with higher institutional quality, economic growth, trade openness, and a closer proximity to wealthy nations see higher increases in FDI flows. A common way to evaluate a country's likelihood to attract FDI is through an FDI gravity model. The original gravity equation indicates that the amount of trade flow between two countries increases with their economic size and decreases as transport costs rise, whereby transport costs are proxied by the distance between the economic centers of the two countries (Sondermann & Vansteenkiste, 2019). Researchers often alter the variables of the gravity equation to test various hypotheses for what drives FDI between two nations. Sondermann theorizes that FDI inflows are encouraged by a large-sized market or a market with high potential, low relative factor prices, high trade openness, the existence of a common trade policy framework, macroeconomic stability, tax benefits or a low tax rate, sound institutions, and a stable political system (Sondermann & Vansteenkiste, 2019).

Sondermann's results hold consistent with his gravity model: the size of the host and the investor countries are positively related to higher FDI inflows, while a longer distance between

the host and investor country is associated with lower FDI flows. Moreover, a higher cost of production leads to lower FDI inflows. Sondermann's findings confirm that institutional and structural features of the economy are relevant not only for developing but also for developed economies (Sondermann & Vansteenkiste, 2019).

Sondermann demonstrates that host countries with better institutional quality have seen stronger FDI inflows following the introduction of the euro, whereas the countries that have lagged are losing out relatively to those former countries (Sondermann & Vansteenkiste, 2019). In addition, Delitheou (2011) tests the correlations between regional FDI in Greece and each region's GDP, labor productivity per person, and gross expenditure on research and development (R&D). He finds that each variable, apart from gross expenditure on R&D, is positively associated with FDI flows, leading to the conclusion that FDI tends to be found in areas with a relatively high growth rate (Delitheou, 2011). These areas are consequently developing the highest percentage of infrastructure, business activity and market potential and have various general economic and social features that make them attractive to FDI (Delitheou, 2011).

The strength, technological advancement, and growth of a country's domestic businesses are also used as predictors for FDI. Barrios and Strobl (2002) examine whether a firm conducts R&D and whether a firm exports to measure a country's FDI absorptive capacity. Cohen and Levinthal (1990) speculate that firms that already undertake R&D deem it important and are capable of absorbing new technologies and production techniques if these are available (Cohen & Levinthal, 1990). Angelopoulou and Liargovas' (2014) results support this theory, demonstrating that if R&D increases by 1 percent, FDI increases by more than 124 percent in Euro Area members (Angelopoulou & Liargovas, 2014). Kaminski (2001) discusses that an important aspect of foreign investment, often neglected in economic commentary, is the fact that

FDI allows for easier access to international markets through distribution channels of a parent company. Available evidence suggests that establishing presence in international markets often requires expending significant resources (Kaminski, 2001). Access to foreign markets is thus an important asset of foreign owned firms, and a country's trade openness is thus a determinant of a foreign firm's ability to expand to that country.

Nonnenberg and Cardoso de Mendonça (2004) stress that the openness of an economy is a proxy for the willingness of a country to accept FDI and find that it is an important factor in attracting capital (Nonnenberg & Cardoso de Mendonça, 2004). Likewise, Bevan and Estrin (2004), who study the determinants of FDI from Western countries to Central and Eastern European countries, conclude that countries that have higher trading shares receive significantly more FDI (Bevan & Estrin, 2004). In agreement, Angelopoulos and Liargovas (2014) find that for each 1 percent increase in trade openness for all EU-27 countries, FDI inflows increase by 21-24 percent (Angelopoulou & Liargovas, 2014).

**Differences between Large and Small Economies**

Research examining the differences in FDI determinants between large and small countries is relatively inconclusive. Lyroudi, Papanastasiou, and Vamvakidis (2004) test the relationship between economic growth and FDI inflows for transition countries, and after splitting their sample into low- and high-income countries, conclude that economic growth does not have any significant relationship with FDI (Lyroudi, Papanastasiou, & Vamvakidis, 2004).

However, Cham (2016) theorizes that capital moves from places where it exists in abundance to places where it is limited. He examines this theory through the impact of monetary integration in West Africa on the investment levels of OECD countries. Out of the eleven OECD countries he considers, the results indicate that monetary integration positively impacts FDI

inflows (Cham, 2016). This finding holds consistent with research examining the Euro Area in that integration as a proxy for trade openness makes a country more attractive as an FDI host.

**Differentiation between the European Union and the European Monetary Union**

This paper examines the relationship between Euro Area accession and FDI flows, and therefore it is important to discuss literature surrounding European Union accession and FDI. The European Union includes 27 countries, and only 20 of those countries currently use the euro. This paper examines 18 of those countries, as Croatia joined the Euro Area on January 1, 2023, and there is insufficient data regarding Luxembourg who adopted the Euro in 1999. However, it is inevitable and unavoidable that the results of this study will be influenced by variables implied by European Union membership that are not solely attributable to the euro or monetary integration.

Angelopoulou and Liargovas (2014) examine the relationship between economic growth and FDI using samples that include the EU-27 and the Euro Area-16, as of 2014. Their study finds a statistically significant, positive association between FDI and trade openness and research and development, predicting an increase of 3 percent more FDI per 1 percent increase in trade openness (Angelopoulou & Liargovas, 2014). Suggesting that countries with a common monetary policy have a higher level of openness, Euro Area countries may receive more FDI than non-Euro Area countries (Angelopoulou & Liargovas, 2014).

**Conclusion**

While research suggests that Euro Area integration increases FDI flows on aggregate, an inadequate amount of research distinguishes integration's effect on inward and outward FDI flows between large and small economies. Should my results confirm prior literature, I expect to

find a significant, positive association between Euro Area integration and FDI flows on aggregate. However, it remains unclear as to how FDI flows differ after Euro Area integration for small and large countries.

## Data and Methodology

In this study, I use an Ordinary Least-Squares Regression model with a dummy variable representing accession into the Euro Area, labeled "Euro Area," to measure the effect of integration on FDI inflows and outflows. Years preceding a country's integration are represented as 0, and years following the country's integration, including the integration year, are represented with a 1. This allows the model to produce an accurate coefficient indicating the expected annual change in FDI after integrating into the Euro Area. To limit the possibility of skewed results, my model also consists of seven variables that control for years of economic downturn and levels of economic stability within each country, the European Union, and globally. The control variables include a dummy variable for the 2000 European economic crisis, "2000 Recession," for which the years 2001 and 2002 are controlled for, the 2008 global economic crisis, "2008 Recession," for which the years 2008 and 2009 are controlled for, GDP per capita of the European Union, China's GDP, the United States' GDP, each nation's inflation rate, and each nation's GDP. All monetary variables are recorded in the value of 2022 USD, and FDI is measured in thousands, GDP in millions, and GDP per capita in real value. Because the data is depicted in the same currency, there is no effect of inflation. Data for all variables were obtained from World Bank Open Data (2022), and the World Bank's definitions for each variable are listed below.

- GDP: GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S.

dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates (The World Bank, 2022).

- GDP per Capita: GDP per capita is gross domestic product divided by mid-year population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources (The World Bank, 2022).

- Inflation Rate: Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula[1] is generally used (The World Bank, 2022).

- FDI Inflows and Outflows: Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship (The World Bank, 2022).

[1] The Laspeyres Index is calculated by working out the cost of a group of commodities at current prices, dividing this by the cost of the same group of commodities at base period prices, and then multiplying by 100.

The model measures a twenty-year period consisting of the ten years preceding a country's accession and the ten years following a country's accession up until the year 2021. In the cases of Latvia and Lithuania, who integrated in 2014 and 2015, respectively, there are fewer years measured following accession due to lack of data availability. I perform two separate regressions for FDI inflows and FDI outflows.

In my analysis, I examine three sample categories. The first category comprises all the Euro Area countries with the exceptions of Luxembourg and Croatia. Luxembourg is left out due to insufficient FDI data collected by the World Bank, and Croatia just recently integrated into the Euro Area on January 1, 2023. I then group the eighteen countries into a Low-GDP or High-GDP category to measure the difference in effect on FDI after integrating based on country size and production level. Using the country's GDP at the start of the measuring period, I categorize the Low-GDP nations as those that had a GDP below $100 billion at the start of their measurement period. Dividing the categories in this manner ensures that the GDP levels are unbiased and reflect each country's earliest size before entering the Euro Area. While I could have chosen a consistent year to group the countries by GDP, any given year would not reflect the same circumstances for each country. For instance, should I have chosen 2002, several countries in the sample would have already been integrated. Should I have chosen 1989, ten years before the Euro Area was created, countries such as Latvia, Estonia and Lithuania, were amid the 1989 Revolutions and would reflect a skewed GDP level. The start of the measuring period appears to be the most accurate way to categorize the countries, and $100 billion is a significant dividing point. The countries and their GDPs for each category are depicted in the table below (The World Bank, 2022).

Table 1:

| Category | Country | Year Integrated | GDP (Millions of USD) |
|---|---|---|---|
| Low-GDP Countries | Cyprus | 2008 | 10,248.62 |
| | Estonia | 2011 | 6,254.65 |
| | Ireland | 1999 | 39,238.39 |
| | Latvia | 2014 | 14,435.70 |
| | Lithuania | 2015 | 26,097.68 |
| | Malta | 2008 | 4,010.57 |
| | Portugal | 1999 | 60,594.09 |
| | Slovakia | 2009 | 30,463.67 |
| | Slovenia | 2007 | 20,763.10 |
| High-GDP Countries | Austria | 1999 | 133,105.81 |
| | Belgium | 1999 | 164,221.06 |
| | Finland | 1999 | 119,012.05 |
| | France | 1999 | 1,025,211.80 |
| | Germany | 1999 | 1,398,967.44 |
| | Greece | 2002 | 116,224.67 |
| | Italy | 1999 | 928,661.33 |
| | Netherlands | 1999 | 258,336.71 |
| | Spain | 1999 | 414,757.06 |

As depicted by Table 1, the largest Low-GDP country at the beginning of their measurement period is Portugal whose GDP was $40 billion below $100 billion. The smallest High-GDP country at the start of their measurement period is Greece, whose GDP was over $16 billion above $100 billion. While the GDPs of each country are in different years, the model controls for each country's GDP when measuring FDI to eliminate bias and capture the focused effect of integration. The regression results are discussed in the following section.

## Empirical Results and Interpretation

### Inward FDI Flows

The results of the inward FDI model are summarized in the tables below.

Table 2:

*Dependent Variable: FDI Inflows (Thousands of USD)*

| | **Summary Statistics** | | |
|---|---|---|---|
| | **Total Countries** | **Low-GDP Countries** | **High-GDP Countries** |
| Multiple R | 0.401 | 0.414 | 0.390 |
| R-Square | 0.160 | 0.171 | 0.152 |
| Adjusted R-Square | 0.141 | 0.131 | 0.113 |
| Standard Error | 48,420,118.69 | 10,938,616.94 | 66,230,944.64 |
| Observations | 355 | 175 | 180 |

Table 3:

*Dependent Variable: FDI Inflows (Thousands of USD)*

| | **Regression Coefficient** | | |
|---|---|---|---|
| | **Total Countries** | **Low-GDP Countries** | **High-GDP Countries** |
| Euro Area | 25,809,131.62*** | 9,817,323.91*** | 24,683,658.97 |
| | *(3.54)* | *(3.69)* | *(1.04)* |
| GDP (Millions, USD) | 12.08*** | 5.60 | 3.88 |
| | *(2.96)* | *(0.30)* | *(0.60)* |

Notes: Numbers in parentheses under the coefficients denote T-Statistics
*** Denote statistical significance at the 1% level
** Denote statistical significance at the 5% level
* Denote statistical significance at the 10% level

Non-displayed control variables include 2000 recession, 2008 recession, EU GDP per capita, China GDP, United States GDP, and inflation rate.

There appears to be a positive relationship between Euro Area integration and FDI inflows for all three categories, however the relationship is not statistically significant for the High-GDP category. The data indicate that on aggregate, FDI inflows are $25.809 billion higher in the ten years after a country adopts the euro than in the ten years before they adopt the euro, and Low-GDP countries receive $9.817 billion more in FDI in the ten-year period after adopting the euro. It cannot be concluded that High-GDP countries see a notable increase in FDI after adopting the euro. The significant result for the Total Countries category corroborates with Sondermann and Vansteenkiste (2019) as well as Nonnenberg and Cardoso de Mendonça (2004), Bevan and Estrin (2004), and Angelopoulos and Liargovas (2014) in that trade openness leads to an increase in FDI, given that integration is a proxy for trade openness.

There is a significant, positive association between a country's GDP and the amount of FDI inflows for the Total category, but the relationship is not significant when the data is focused into Low or High-GDP categories. On aggregate, it is expected that a country in the Euro Area will receive $12,080 more in FDI as its GDP increases by $1 million. This supports the argument that economic growth is associated with higher FDI, however, the relationship between FDI and GDP is not significant when the data is split. While it is possible that this may be attributed to the limitation of a smaller sample size, the relationship may also be ambiguous.

The High-GDP category's larger Euro Area coefficient for FDI inflows than the Low-GDP category holds consistent with Delitheou (2011)'s and Sondermann and Vansteenkiste (2019)'s gravity model in that larger GDP countries have higher FDI flows. However, while Low-GDP nations see a statistically significant increase in FDI inflows whereas High-GDP nations do not, the findings suggest that Euro Area integration serves as more significant for

smaller, less wealthy nations than well developed, large nations regarding the ability to receive FDI.

**Outward FDI Flows**

The results of the outward FDI model are summarized in the tables below.

Table 4:

*Dependent Variable: FDI Outflows (Thousands of USD)*

| | **Summary Statistics** | | |
|---|---|---|---|
| | **Total Countries** | **Low-GDP Countries** | **High-GDP Countries** |
| Multiple R | 0.522 | 0.448 | 0.496 |
| R-Square | 0.273 | 0.200 | 0.246 |
| Adjusted R-Square | 0.256 | 0.162 | 0.211 |
| Standard Error | 48,491,845.78 | 13,089,855.45 | 65,440,327.96 |
| Observations | 355 | 175 | 180 |

Table 5:

*Dependent Variable: FDI Outflows (Thousands of USD)*

| **Variable** | **Regression Coefficient** | | |
|---|---|---|---|
| | **Total Countries** | **Low-GDP Countries** | **High-GDP Countries** |
| Euro Area | 26,871,532.08*** | 7,876,796.18** | 21,292,996.25 |
| | *(3.68)* | *(2.47)* | *(0.91)* |
| GDP (Millions, USD) | 25.15*** | 52.88** | 15.93** |
| | *(6.16)* | *(2.39)* | *(2.50)* |

Notes: Numbers in parentheses under the coefficients denote T-Statistics
*** Denote statistical significance at the 1% level
** Denote statistical significance at the 5% level
* Denote statistical significance at the 10% level

Non-displayed control variables include 2000 recession, 2008 recession, EU GDP per capita, China GDP, United States GDP, and inflation rate.

Consistent with the results for FDI inflows, the relationship between Euro Area integration and FDI outflows is positive for all three categories, but statistically significant only for Total and Low-GDP countries. On aggregate, FDI outflows are $26.872 billion higher in the ten years post-integration than pre-integration, and Low-GDP countries invest $7.877 billion more post-integration. The relationship between Euro Area integration and outflows for the High-GDP category is ambiguous. The significant result for the Total category also concurs with Sondermann and Vansteenkiste (2019), Nonnenberg and Cardoso de Mendonça (2004), Bevan and Estrin (2004), and Angelopoulos and Liargovas (2014) in that trade openness leads to an increase in FDI, given that integration is a proxy for trade openness.

The data also indicate a statistically significant, positive relationship between a country's GDP and FDI outflows for all three categories. In total, it is expected that a country invests $25,150 more as its GDP increases by $1 million. For Low-GDP countries, the expected increase in outflows is $52,880 per $1 million increase in GDP, and the expected increase is $15,930 per $1 million for High-GDP countries. This also supports the argument that economic growth is associated with higher FDI flows, however, the significant result for each category suggests that a country's GDP may be more important to a nation's ability or willingness to invest abroad than to receive FDI.

The High-GDP category's larger coefficient for FDI outflows than the Low-GDP category holds consistent with Delitheou (2011)'s and Sondermann and Vansteenkiste (2019)'s gravity model in that larger GDP countries have higher FDI flows. However, while Low-GDP nations see a statistically significant increase in outflows whereas High-GDP nations do not, the

findings also suggest that integration serves as more significant for smaller nations regarding the ability to outwardly invest FDI.

**Discussion: Low-GDP vs. High-GDP countries**

The increase in both FDI inflows and outflows upon Euro Area integration is statistically significant for Low-GDP countries but not for High-GDP countries. Thus, the results may suggest a diminishing marginal relationship between economic growth and FDI flows, implying that Low-GDP countries have more substantially improved their investment positions than High-GDP countries. This is likely due to a combination of several factors.

Regarding inward FDI, large countries with robust trade frameworks already have well-established foreign influences whereas integration may serve as a door to opportunity for smaller countries. For instance, firms and investment organizations invest capital in locations with high growth rates, macroeconomic stability, political stability, and sound institutions (Sondermann & Vansteenkiste, 2019). Estonia, Cyprus, Latvia, Lithuania, Malta, Slovakia and Slovenia– the bulk of the Low-GDP category– joined the European Union in 2004. Pre-Euro Area accession, these countries had a period of several years– three years for Slovenia, four years for Malta and Cyprus, five years for Slovakia, seven years for Estonia, ten years for Latvia, and eleven years for Lithuania– to improve their trade openness, political stability, economic stability, institutional quality, and assimilate to the other EU countries. Therefore, these countries were in periods of high growth and rapid development when they joined the Euro Area and were likely viewed as promising locations for FDI by larger countries already using the euro, and therefore may have received investment at higher rates than High-GDP countries.

In addition, the economic and business policies adopted by Low-GDP nations inevitably influence their investment attractiveness and capabilities. Delitheou (2011) theorizes that the

importance of FDI has affected the attitude of most countries, making them adopt liberal policies in order to attract new investments to enhance the extroversion of domestic companies (Delitheou, 2011). Upon examination, this concept holds true to these smaller countries as most cite their competitive and open business climates as selling points to foreign investors.

For instance, the Investment and Development Agency of Latvia discusses that in addition to their economic integration and stability, the country's adoption of policies that align with the cultivation of free markets make it a desirable place to invest (Investment and Development Agency of Latvia, 2022). The Agency advertises that it can help investors incorporate a company in a single day and cooperate with investors to increase their competitiveness, which can be demonstrated by the breadth of thriving industries and firms within Latvia (Investment and Development Agency of Latvia, 2022). Similarly, Estonia advocates for their trade openness and ease of doing business. Estonia offers investors an enticing 0% income tax on retained or reinvested profits, offers business services 100% online, and emphasizes its unique position as a leader in IT research and development (Estonian Investment Agency, 2022). In addition, Estonia's productivity to cost of labor ratio ranks best out of the nations in the northern European region (Estonian Investment Agency, 2022). Slovenia flaunts that it is the cheapest country in the world to launch a new corporation, and coupled with its political and economic stability, argues that it is a smart and modern investment location (Slovenia Business Development Agency, 2022). Lithuania advertises its top rank in the EU for GDP per capita growth between 2000 – 2020, its fifth ranking globally for digital skills availability, and that it is the eleventh-freest economy in the world (Lithuanian Investment Promotion Agency, 2022). Slovakia, Cyprus, Malta, Portugal and Ireland all emphasize their open business climate as a primary factor in their investment attraction. The focus on economic

stability, growth, and business openness concurs with prior literature and it is no surprise that these traits are impactful to attracting investment.

While liberal policies and high economic growth provide a strong explanation for the rise in FDI inflows in Low-GDP nations, Delitheou (2011) also theorizes that these policies can increase the extroversion of domestic firms (Delitheou, 2011). In addition, Kaminski (2001) points out that FDI allows for easier access to international markets through distribution channels of a parent company (Kaminski, 2001). As multinational enterprises establish facilities in newly integrated countries, these firms purchase equity and loan capital to foreign enterprises, either within their organization or separate, which may increase the host country's outward FDI. Similarly, as domestic firms receive investment, the abundance of capital may encourage their outward investment. Thus, a possible explanation is that outward FDI can work as a product of inward FDI (Stephenson & Perea, 2018).

To explore this phenomenon further, the impact of inward FDI on outward FDI should be statistically analyzed. The regression results are shown in the tables below.

Table 6:

*Dependent Variable: FDI Outflows (Thousands of USD)*

| | **Summary Statistics** | | |
|---|---|---|---|
| | **Total Countries** | **Low-GDP Countries** | **High-GDP Countries** |
| Multiple R | 0.94 | 0.90 | 0.94 |
| R-Square | 0.88 | 0.80 | 0.88 |
| Adjusted R-Square | 0.88 | 0.79 | 0.87 |
| Standard Error | 19,590,089.28 | 6,523,751.04 | 26,601,017.21 |
| Observations | 355 | 175 | 180 |

Table 7:

*Dependent Variable: FDI Outflows (Thousands of USD)*

| **Variable** | **Regression Coefficient** | | |
|---|---|---|---|
| | **Total Countries** | **Low-GDP Countries** | **High-GDP Countries** |
| FDI Inflows (Thousands) | 0.92*** | 1.02*** | 0.90*** |
| | *(43.09)* | *(22.95)* | *(29.48)* |

Notes: Numbers in parentheses under the coefficients denote T-Statistics
*** Denote statistical significance at the 1% level
** Denote statistical significance at the 5% level
* Denote statistical significance at the 10% level

Non-displayed control variables include 2000 recession, 2008 recession, EU GDP per capita, China GDP, United States GDP, inflation rate, and GDP.

Table 7 depicts that the association between inward FDI and outward FDI is significant at the 0.01 level for all categories, and that the level of linearity is very strong as indicated by the high R-Square values. Overall, it is very convincing that an increase in inward FDI correlates with an increase in outward FDI. The ratio is roughly 1:1 for each category with Low-GDP being the highest at 1.02, Total at 0.92 and High-GDP at 0.90. Thus, Low-GDP countries will invest 102 percent the amount they receive, and High-GDP countries will invest 90 percent the amount they receive. The disparity in coefficients in Table 7 supports the idea of a diminishing marginal relationship between economic growth and FDI outflows, or that countries receiving a higher rate of investment will invest at a higher rate.

For instance, Ireland's famously low corporate tax rate has made the country a hub of technological advancement with large multinational firms such as Google, Apple, Microsoft, Intel, Pfizer, and Johnson & Johnson establishing headquarters there (Beard, 2018). The high

level of production and investment from these firms has led to a sharp increase in Ireland's GDP. For instance, in 2015, a new Irish tax relief led to a rush of multinational companies transferring intellectual property assets to Ireland, leading to a recorded GDP growth of 26 percent in one year (Beard, 2018). As many of Ireland's firms are multinational, their extroverted operations allow them to easily relocate and invest capital abroad. Ireland is an example of how open business policy not only serves to attract foreign investment, but also to outwardly invest the technology and capital its companies produce.

Inward FDI following integration may also enable domestic firms to invest outside the country. For example, Slovenia serves host to entrepreneurial companies such as Gen-I Group, a renewable energy provider and trader, and Petrol, a gas station brand. While Petrol is a long-established company, Gen-I was established in 2004. However, since integrating into the Euro Area, Gen-I has established operating locations and services in twenty-two European countries and Petrol has established over one-hundred stations in Croatia (Flanner, 2017). These companies, which are outward FDI leaders in Slovenia, exemplify the impact that an abundance of capital and the support of integration may have on the investment extroversion of firms in small countries.

The examples in this discussion support the arguments that open business policies can increase FDI flows and that outflows can work as a product of inflows; however, they do not confirm or prove these theories. While it is intuitive that openness encourages investment, and it is convincing that outflows are positively associated with inflows, it remains unclear as to why. This discussion only aims to illustrate how these relationships may function, not to provide a definitive explanation of why they are true. Further empirical research is required to explain why

the differences in significance exist between Low- and High-GDP countries regarding the relationship between integration and FDI flows.

## Conclusion and Recommendations for Further Research

### Concluding remarks

I have examined the association between integration into the Euro Area and foreign direct investment flows for the monetary union's member states. The results of this study consider data from the twenty-year period including the ten years before and after each country's date of integration. This paper has explored how FDI flows are impacted by Euro Area integration, the differing effects for Low-GDP and High-GDP countries, and possible explanations as to why these differences exist.

Regarding the overall impact of integration on FDI, I conclude that Euro integration has a statistically significant, positive association with FDI flows. On aggregate, Euro Area countries receive $25.809 billion more per year in inward foreign investment during the ten years following integration than the ten years preceding integration. Regarding outflows, Euro Area members invest $26.872 billion more per year in foreign locations during the ten years after integration than the ten years leading up to integration.

However, the positive associations between Euro Area integration and both FDI flows are statistically significant for Low-GDP countries but not for High-GDP countries. Thus, I conclude that a diminishing marginal relationship between growth and FDI flows may exist, implying that Low-GDP countries more substantially improve their investment positions following integration than High-GDP countries. I interpret that the increase in FDI inflows can likely be attributed to the nations' open business policies and high economic growth, based on prior literature. In addition, I interpret that in corroboration with a diminishing marginal relationship, countries receiving investment at a higher rate may therefore invest at a higher rate.

The final regression analyzes the tandem impact that FDI inflows have on outflows, and I conclude that there is a significant, positive association between inflows and outflows. Through examples of firm expansion within Low-GDP countries, I demonstrate that the implications of integration can enable multinational and domestic firms to both elect to relocate to Low-GDP countries as well as to invest abroad. My discussion aims to provide a robust explanation of how this relationship may function, not to provide a definitive answer for why it is true.

My research is important to governments, investment agencies, and firms of any size, region, or scope of influence. I illustrate the value of monetary integration and economic openness on an area's ability to both receive investment as well as invest and conclude that these effects are especially significant for Low-GDP countries and regions. The relationship that I prove in this paper can help economic policymakers make important decisions regarding their foreign investment positions.

In addition, I illustrate the importance of foreign investment for firms. Firms should consider my discussion regarding the impact of foreign investment on business growth when seeking to engage in both inward and outward FDI. I determine that countries receive investment and invest at a higher rate after integrating monetarily, and thus should consider investing or relocating in areas located within a monetary union.

**Limitations and recommendations for further research**

While this paper provides empirical evidence that Euro Area integration more substantially increases FDI flows for Low-GDP nations than for High-GDP countries, my model does not perfectly describe the effect of integration. For instance, there are infinitely more variables not included in my model that influence FDI flows. The seven variables I utilize to control for macroeconomic circumstances serve as useful, yet there are many other economic,

political, geographical, and unknown reasons as to why FDI flows differ for large and small countries. Further research should implement various other control variables in order to provide more accurate results and should test more variables for their impact on FDI. In addition, it remains unclear how the implications of European Union integration compound with the pure effect of monetary integration. A meta-analysis could also serve as useful to gauge the impact of certain variables across different studies.

In addition, it should be noted that the Pearson's R-values for the integration regressions are relatively low, indicating that the model's linear relationship is weak. The R-squared values for FDI flows range from 0.152 to 0.273, indicating that at the highest, only 27.3 percent of variance in FDI flows can be explained by the regression model. Thus, a model with a higher R-squared value may provide a more accurate indication of integration's effect on FDI.

Finally, while I show that an increase in FDI inflows is associated with an increase in outflows, I do not prove why this relationship exists. The discussion included in my results section only aims to shed light on possible explanations and instances that support this theory, however, it remains unclear whether firms increase their foreign investment activity as a direct result of receiving FDI. My interpretation aims to invoke a discussion for researchers to build upon, and this finding is certainly impacted by a breadth of other factors. Further studies can contribute by comparing firm data in Low-GDP and High-GDP countries to empirically test the relationship between the amount firms receive and the amount they invest, and why, following Euro Area integration.

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