

Common currency's impact on European Union

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Abstract

Common Currency is the term used when two or more countries share a standard currency/monetary system in their day-to-day functioning. This paper aims to study the effects of Common Currency on The European Union with respect to multiple regards. This study seeks to show the positive and the adverse effects of the Common Currency used in The European Union, i.e., the Euro. Various aspects like trade, economic convergence, financial integration, foreign investments etc. are taken into consideration while evaluating the effects of the common currency. It also intends to analyze if events that have affected specific countries in the union have affected the currency, other countries in the union or have been affected themselves due to the common currency itself. This paper intends to recognize the research gaps present and further attempts to suggest the scope for future research as well as the overall impact on the European Union.

Introduction

The Euro, as a common currency for the European Union made spectators believe that it will open the paths to growth, employment, and trade. A national currency is a

symbol of the state's sovereignty. It acts as an emblem of the country's identity and cultural heritage. The common currency, Euro, looked promising enough for the countries in the European Union to give up their national currencies. What were the reasons that the countries were willing to give up their independent instruments of monetary policy to choose a common currency that would be controlled by a central institution?

The grounds for the European Monetary Union come from the 1960's long before the formation of the European Union in 1991. The volatility in exchange rates in the 1960's and the demise of the Bretton Woods system in 1971 showcased the ill effects of currency volatility and the damage due to it on growth and trade. The need for a shift to a credible and consistent currency started becoming visible henceforth. It would help in integrating the European countries and give a boost to their growth.

The European Single Market was formed, which was the first big step towards economic integration. It has 15 member states currently and has freedom of movement of individuals, capital, goods, and services. This led to the removal of trade barriers which resulted in better market prices for the consumers. This led to an increase in employment and added up to 1.5% of the European Union's growth.

The Euro as a common currency removes the variability of exchange rates, thus making investments and trade decisions more consistent and predictable. This increases profitability as financing trade and investments becomes easier. Thus, further leads to greater development and increase in employment. It also reduces transaction costs as currency conversion and cross-border transfer costs are eliminated. Euro promotes

healthy competition by creating a transparent market as all commodities are easily comparable in a common currency and the consumer would be able to easily recognize the cheapest products. This would also increase trade between European Union members.

Other than its economic and financial benefits, the common currency also promotes travel as traveling to foreign countries with the same currency would not involve the hassle of currency exchange and increase in travel would also lead to cultural integration which would help in acceptance of others' opinions and perspectives creating a more open and accepting environment.

This paper will analyse, if the common currency, Euro, has helped the European Union grow and progress and in detail assess a few components that are affected due to the Euro. It will talk about the introduction of the Euro, its aim to converge the economies, the impact of common currency on trade, FDI and financial markets. The aim is to put forth a holistic view of the effects and identify areas for further research.

Launching the Euro

Kurt Juul (1999) in his paper describes the preparations to introduce the Euro. It began in 1998 and a list of countries was decided which would be allowed to take on the Euro as their currency from 1st January, 1999. These countries were Austria, Belgium, Finland, France, Germany, Italy, Ireland, Luxembourg, Netherlands, Portugal, and Spain. The United Kingdom, Denmark and Sweden qualified for the membership but postponed their entry due to asynchronous business cycles and political considerations. He mentions the criteria laid down for smooth operation of the

monetary union also known as the 'convergence criteria' which the potential eurozone members had to conform to. The criteria included factors like Price Stability, Budget Deficit, Public Debt, long term interest rates, and exchange rate stability. Greece on the other hand could not join as it did not qualify the criteria which was sustainable economic convergence. The European Central Bank was established, and it was to take all decisions for the behavior of single monetary policy and exchange rate policy for the Euro. Before the launch, there was a preparatory period to ensure smooth transition. Private companies made a significant investment with expectations during the launch of Euro. The 'outsider' countries had a major impact as they also had to prepare for the coming of the Euro as postponing it indefinitely could cost them exchange costs and put them at a competitive disadvantage compared to the members of European Monetary Union. The UK also announced a "national changeover" plan. Greece prepared to qualify for the EMU criteria. On 1st January 1999, the national currencies of the Euro adoption countries fixed an exchange rate to 1 Euro till January 2002 from when they would cease to exist. From January 2002 the third and final phase of launching the Euro began and Euro notes and coins began being circulated as legal tender to replace previous national currencies. According to the author, the launch of the Euro was a success. Europeans believed that a unified Europe is more valuable than the combined total of individual nations and the Euro acted as a depiction of this credence.

Pierre Weiss (1998) suggests governments to use a policy mix to eventually solve the structural difficulties they'll face. In the long run both their monetary and budgetary policy would be influenced by the monetary union. He also goes on to state that the stabilization from the currency should promote growth and employment in the long

run. It could also result in negotiations of wage rate in the labour market due to the transparency between the

nations and a common comparable currency. In the banking, financial and insurance sectors there will be merging and restructuring of operations. The aim of converging economies could be affected as less developed member nations would have to rely on their own resources because of the weak impact of the EMU budget.

Aligning the Economies

Dr. Ognian Hishow (2007), discusses how common currency has been detrimental to the European goals of growth, job creation, and achieving a balanced budget. Since the introduction of the Euro, The European Monetary Union region has been reporting relatively less than its competitors worldwide like the US. The inflation rates in the member nations sometimes tend to differ a lot resulting in diverging wage costs. This brings it back to the same problem of whether one monetary policy works for all countries or not.

According to Andrew Moravcsik (2012), the long-term goal of the European countries was to make the economies of the European countries converge. This meant assuring that their individual macroeconomic behavior is similar enough to one and another such that a single economic policy can be implemented to fulfill the demand focused upon in a similar manner. For this to happen smoothly, countries must align their public spending, inflation, competitiveness, and other similar trends affecting these decisions. Applying a single policy and exchange rate to such a diverse range of countries is the cause of fundamental disequilibrium. He also states that a common

currency came along with high levels of risk for individual European nations because countries like Greece and Italy were in deficit and if they couldn't persuade Germany to change it then it would be very difficult for them to converge to similar economies. These goals were also considered to be very ambitious as the member nations of the European Monetary Union were required to give up on certain tools without which it is very difficult to offset their difference with Germany.

In the paper written by Periklis Gogas (2012), he has assessed the effectiveness of the procedures and policies that worked towards the economic convergence of the nations participating in the European Monetary Union. He does an empirical analysis by using the estimation of correlation coefficient, linear regression, and a sign concordance index. He aims to analyze whether the business cycles have synchronized or not with the implementation of Euro in the European Monetary Union. He has used quarterly data for Gross Domestic Product from Quarter 1, 1992 to Quarter 4, 1997. Data for 14 countries was used and was sourced from the Organization of Economic Cooperation and Development database. The analysis has been divided into two sub time periods i.e., 1992-2001 which is before the Euro was adopted and 2002-2007 which is post the adoption of the Euro. He also mentions that research and study to assess the same aim has been done by a few others and also pose to have contradicting results because the methodology used in the calculations were different and secondly, there is no consensus on the amount of correlation to determine the synchronization of business cycles. The results of the empirical analysis show that the synchronization of the business cycles among the individual national economies in the European Union became weaker post the adoption of Euro as a common currency. According to the author, it did not live up to the vision of a strong political and economic union.

Impact on Trade

Mcallum (1995) states that the size of intra-national trade is biased by a ratio of 20:1 in case the countries share, the result was corroborated by Helliwell (1996). These links are empirically verified using the gravity model which is a very dependable framework.

According to Andrew Rose (2000), Common Currency has a large impact on trade. Lower exchange rate volatility tends to increase trade, so with an elimination in exchange rate volatility due to common currency trade can be 3 times higher if compared to being otherwise. EMU sceptic, Feldstein (1997) agrees that substituting a single common currency in place of multiple national currencies reduces transaction costs to a great extent. This makes trade relatively cheaper compared to countries with their own national currencies.

Andrew Rose's (2000) journal also states that increased trade will have important repercussions. Increase in volume of trade will increase the number of trade disputes. An increase in competition could lead to layoffs and may pressurize the labour market, which would call for greater social safety measures. Increased level of trade will lead to greater economic integration which may further lead to greater political integration. Other non-member countries may form their own currency unions which will increase global integration. Lastly, an increase in trade results in a gain for the consumers inside the currency union.

Rose and Glick (2002) found that bilateral trade approximately doubles/halves when a

pair of countries form/dissolve a currency union, *ceteris paribus*. Frankel (2003) explains in his paper three factors which would affect the desirability of choosing a common currency with an increase in trade among the member nations. The first factor is growth in the long run as it increases openness which further leads to an increase in real income. The second factor are derived from the theory of optimum currency areas. It considers the benefits of fixed exchange rates alongside the advantages of floating exchange rates. The third factor accounts for cyclical fluctuations. It accounts for the biggest advantage of a floating exchange rate which is to respond to deflation and inflation using monetary policy.

According to the papers by Nitsch (2002,2004), Berger and Nitsch (2005) they are very sceptical of the data and conclusions from research within currency union research. They argue that minor manipulations of the data decrease the effect of common currency on trade by about half. He also goes on to mention challenging Rose's data set as it mainly comprises small countries or islands who have accepted the currency of a larger nation, but the outcome won't be as beneficial as they look for the larger nation.

Naik Alakbarov (2012) used a gravity model in his paper to evaluate the effects of currency unions and exchange rate volatility on trade. According to his findings, countries that operate in the same currency have greater trade volumes but the effect of the currency union on trade is not huge. Their effect is not as large as mentioned in Rose (2000) and Glick and Rose (2002).

Naik Alakbarov also believes that the suitability of the member nations among EMU cannot be judged based on historical data as the setting of these economies will have a complete change with the monetary union.

Impact on FDI Flows

Aristotelous (2005) tested the effect of Euro on US FDI flows into the Eurozone using data from a panel of 15 countries between 1966 and 2003. The model consisted of supply and demand related determinants of FDI. The findings of the paper were that common currency had a positive and statistically significant impact on US FDI flows into the Eurozone. However there was no FDI Diversion which meant that there wasn't any decrease of US FDI in the three countries (UK, Denmark and Sweden).

De Sousa and Lochard (2006) used a gravity model to test the estimate of the impact of the European Monetary Union on FDI flows and stocks. They used data from 22 OECD countries between 1982 to 2002. They have taken market size, exchange rate volatility, exchange rates, production and transaction costs, merger and acquisition determinants and skilled labor endowments as their factors to estimate the results. Their findings were that the common currency led to an increase in FDI in the EMU countries.

Kyriacos Aristotelous and Stilianos Fountas (2012) investigated the effect of the Euro and European Monetary Union on FDI Inflows by using panel data from 22 OECD countries between 1973 and 2006. A common currency can affect FDI inflows positively for numerous reasons, the primary reason being elimination of exchange rate risks, it also makes prices comparable and transparent along with profitable mergers and international acquisitions. The paper also suggests that majorly empirical work focuses on currency union's effect on trade; however trade may be indirectly increasing due to an increase in FDI. In this the author uses a Fixed Effect regression model. Their findings show that real GDP and real GDP growth rate have a statistically significant

effect on inward FDI. The effect of exchange rate volatility and effective exchange rate also have a positive impact on the FDI.

Impact on Financial Markets

Prati and Schinasi (1997), specify that the eurozone private bond market would also become more attractive for borrowers and investors due to reduction in transaction costs and elimination of currency risks. It would result in direct investment in the markets by investors removing intermediaries and would also contribute to securitization in Europe.

Bordo et al. (2001) documented that with rising banking and currency crises in recent times due to the globalization of investment, trade, and financial flows the scope of the domino effect increases from a country to another in case of a crisis in a particular country. This means that common currency can be a major factor to strengthen or weaken the domestic financial system.

Liliane Karlinger (2002) in her paper assesses the degree of financial integration in the eurozone. To assess financial market integration, there are two tests. The first test is to assess the price convergence of financial assets. The second test measures the intensity of cross border financial flows which includes testing for independence of domestic investment from domestic savings. The report's findings indicate retail bank interest rates have declined which implies growing integration of retail banking in the Eurozone. The European Commission (2001) also reported that the stock markets in the Eurozone except the Dutch had higher explanatory powers of foreign returns post the formation of the European Union by 57%. The author expects EMU to stimulate

financial stability because the adoption of Euro eliminates all prospects of exchange rate adjustments or collapses among the member countries as well as promotes diversification of portfolios across borders which allows them to distribute their risk carefully as the risk return trade off improves. This paper also describes the effect on the banking sector in Europe. The banks charged transition costs and earned revenue from foreign exchange which was eliminated. The introduction of Euro was also expected to increase the competition in the Banking sector. He also mentions that such an effect should also lead to elimination of banks as intermediaries and result in direct investments in the capital market. The paper also suggests a few methods in which banks could follow to get in line with the new situation.

Contagious Events

A paper by Michael G. Arghyrou and Alexandros Kantonikas (2011) discusses the European Economy. The paper talks about how a Global Financial Crisis led to the Greek Debt Crisis right after. The Greek Debt Crisis soon turned into the European Sovereign Debt Crisis. It highlights how the withdrawal of Greece from the international bonds market has put pressure on the bonds of other countries in the union like Ireland, Portugal, and Spain. It also considers how the Monetary Union is a major reason for Greece not being able to get out of such a situation even after rescue packages because a lot of short run responses regarding monetary and fiscal decisions specific to the country could not be implemented. The researchers also perform a variety of empirical analysis and conclude that Credit Default Swap (CDS) was not the reason for the spread of this debt crisis rather it was the intra-macroeconomic

equations within the monetary union that one after the other led to the contagion of this debt crisis.

Another paper by Joao Carlos Graca, Joao Carlos Lopes and Rafael Marques analyzing the Portuguese Debt Crisis, also talks about how macroeconomic balances created due to the common currency affected their economic situation as had it been their separate currency, they could have gone through a series of devaluations which might have saved the situation at hand. It is very similar to the Greek Debt Crisis and such restrictions may be one of the possible reasons as to why a country's debt crisis turned into the European Sovereign Debt Crisis.

Joudi Majbour (2022) in his paper discusses how Brexit affected the EMU. The UK's exit affected the Euro adversely causing it to decline by 2%. This also caused some of the countries to face a recession as they tried to cope up with Brexit. The conclusion from his paper also supports our previous evidence of how the EMU affects trade and FDI. It reduces the free market area of the European Union thus reducing trade in that region. Countries previously dependent on free trade with the UK now have to deal with trade regulations or deal with other alternatives which are also going to have some regulations hence making it impossible to cover up for that loss of trade. The paper also states that there was a decline in FDI outflows from the UK towards the EU. This shows that a monetary union increases FDI flows within the Union.

Michele Chang (2017) in her paper talks about how the UK held a major stake in the European Union and how its probable exit has impacted the Euro as well as the union as a whole. The UK was also the major contributor to the budget of the EMU and its exit

would take a hit on the investments in the union and leave a budget gap. It highlights the dependence of the Union on a single country and how multiple countries get majorly affected by the independent decisions of a major stakeholder. The UK previously had also proposed the idea of a multi currency financial framework. Now the EU is trying to adopt measures with greater cooperation to reduce macroeconomic imbalances and make frequent decisions regarding their monetary policies.

Methodology

In the paper we regress the gravity model. The gravity model is a widely used economic model that aims to explain the patterns of trade between countries. It is based on the assumption that the trade flows between two countries are directly proportional to their economic size (measured by population and GDP) and inversely proportional to the distance between them.

In its simplest form, the gravity model assumes that the bilateral trade or migration flows between two countries can be modelled as the product of the economic sizes of the two countries and an inverse function of the distance between them. The model can be represented mathematically as:

$$T_{ij} = A \times (Y_i \times Y_j) / D_{ij}$$

where T_{ij} represents the volume of trade flows between countries i and j , Y_i and Y_j represent the economic sizes of the two countries, and D_{ij} represents the distance between them. A is a constant that represents the overall level of trade or migration

between countries, and it is estimated empirically.

The model in this research is an advanced form of simple gravity model which includes more variables that determine trade.

$$Trade_{ij} = \beta_0 \times Pop_i^{\alpha_1} \times Pop_j^{\alpha_2} \times GDP_i^{\alpha_3} \times GDP_j^{\alpha_4} \times Lang_{ij}^{\alpha_5} / Dist_{ij}^{\alpha_6}$$

$Trade_{ij}$: represents the volume of trade between country i and country j (Imports + Exports in US \$)

Pop_i and Pop_j : represent the population of country i and j, respectively.

GDP_i and GDP_j : represent the GDP of country i and j, respectively (In US\$) $Lang_{ij}$: is a dummy variable that takes the value 1 if country i and j share a common language and 0 otherwise

$Dist_{ij}$: represents the distance between country i and j

β_0 : is a constant or intercept term

α_1 , α_2 , α_3 , α_4 , and α_5 : are coefficients that represent the impact of each variable on trade flows, and are estimated through regression analysis.

Through this analysis we see if the gravity model holds true and analyze the regression output.

We also check the trade data for a structural break to analyse if the formation of EMU has generated any impact on trade.

The top 5 EMU countries (by GDP) have been chosen as a proxy to represent the entire monetary union which are France, Germany, Italy, Netherlands and Spain.

Data

In the above model, the dependent variable used is trade and the data has been extracted from the WITS website. The independent variables in the model are the population of the two countries trading, both their GDP, the distance between the two countries and the data has been extracted from the World Bank database. Common Language has been used as a dummy variable where it takes the value 1 if the countries share a common official language otherwise it takes the value 0. The language data has been manually coded by cross referencing the common languages for each country.

Results and Discussions

The OLS output was:

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Call:
lm(formula = TRADE ~ Language + log(Distance) + log(Pop1) + log(Pop2) +
    log(GDP1) + log(GDP2))

Residuals:
    Min       1Q   Median       3Q      Max
-54896875 -15908077  -4242034  11182788  86488741

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -2.514e+09  7.263e+07 -34.615 < 2e-16 ***
Language      7.889e+07  4.013e+06  19.659 < 2e-16 ***
log(Distance) -1.957e+07  2.942e+06  -6.654 7.35e-11 ***
log(Pop1)      9.071e+06  4.296e+06   2.111 0.035236 *
log(Pop2)      1.503e+07  4.296e+06   3.499 0.000508 ***
log(GDP1)      4.178e+07  4.116e+06  10.149 < 2e-16 ***
log(GDP2)      4.000e+07  4.116e+06   9.716 < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 23940000 on 513 degrees of freedom
Multiple R-squared:  0.8054, Adjusted R-squared:  0.8031
F-statistic: 353.8 on 6 and 513 DF, p-value: < 2.2e-16

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The output is the result of a linear regression model using ordinary least squares (OLS) to estimate the relationship between trade (dependent variable) and language, log of distance, log of population of country 1 and country 2, and log of GDP of country 1 and country 2 (independent variables).

The coefficients for each independent variable represent the estimated impact on trade, holding other variables constant.

- Language: For countries that share a common language (Language=1), the model estimates an increase in trade of approximately 78.9 million units, holding all other variables constant.
- Distance: A one percent increase in distance between two countries is associated with an estimated decrease in trade of approximately 19.57 million units, holding all other variables constant.

- Population: A one percent increase in the population of country 1 (or country 2) is associated with an estimated increase in trade of approximately 9.07 million (or 15.03 million) units, holding all other variables constant.
- GDP: A one percent increase in the GDP of country 1 (or country 2) is associated with an estimated increase in trade of approximately 41.78 million (or 40 million) units, holding all other variables constant.

The intercept of -2.514×10^9 represents the estimated trade when all independent variables are equal to zero. However, since all countries have non-zero populations and GDPs, this intercept value does not have a practical interpretation.

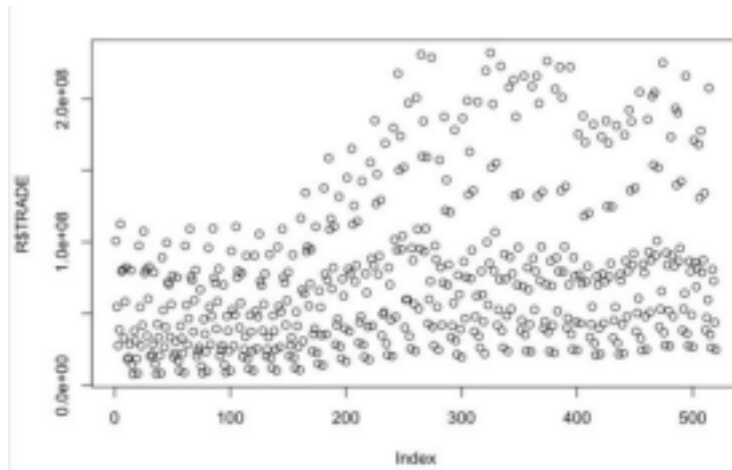
The p-values for all coefficients are less than 0.05, indicating that all independent variables are statistically significant in explaining the variation in trade.

The multiple R-squared value of 0.8054 indicates that the model explains approximately 80.5% of the variation in the dependent variable, while the adjusted R-squared of 0.8031 suggests that the model may be slightly overfitting.

The F-statistic of 353.8 and p-value of $< 2.2 \times 10^{-16}$ indicate that the overall model is statistically significant in explaining the variation in trade.

Thus, we understand that the gravity model holds true for EMU.

Now we analyze the structural break test results:



This test indicates there was a break around the 190th observation which is in the year 2004. So a few years after the formation of EMU we notice an increase in trade between countries and with the gravity model holding true throughout we can say that it was the formation of the EMU that triggered this increase in trade rather than any other factor during the time frame.

Limitations

There are a few limitations in the research conducted above:

Only the top 5 countries were used as a proxy for the EMU because the data set for 20 countries was too large to be analyzed in the research time frame. Analysis was only conducted for trade. There is further scope to work on FDI Inflows and Financial Markets. It involves a degree of complexity that requires time and data to conduct an analysis on the same.

Conclusion

The impact of the common currency on the European Union was difficult to consolidate into a single stance on the basis of the literature available. While the launch of the Euro was smooth and had public support, research has produced contradicting results on its impact. However, trade has undoubtedly benefited due to increased volumes and decreased transaction costs, leading to greater integration. The elimination of exchange rate risks has also led to a diversification of portfolios and an increase in Foreign Direct Investment inflows. However, the integration also comes with the potential negative consequences of decreased autonomy for countries and banks, and a lack of short-term monetary and fiscal decision-making power.

However, the results of above tests and analysis give a definitive conclusion that the impact of the Common Currency which led to the formation of EMU has been positive and has significantly impacted trade. The Common currency had several factors like reduced transaction costs and greater policy integration which led to an increase in trade volumes soon after common currency was introduced.

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