The Impossible Trinity and the Euro's most fundamental problem

To gain a footing in an increasingly globalised world, the European Union (EU) established an Economic and Monetary Union through the Maastricht Treaty: creating the Eurozone. For some members of the union, the Euro experiment yielded desirable results, leading to growth and increased international influence. But for others, the union did not favour their economy, and instead stripped them of defence mechanisms in times of crisis. This essay identifies the Euro's most fundamental problem as the absence of autonomous monetary policy in the Eurozone and discusses the implications on its members, exploring its characteristics and the conditions required to overcome the problem.

The Impossible Trinity

We begin our analysis by introducing a theoretical framework to illustrate the limitations of a monetary union. A monetary union is the most extreme form of a fixed exchange rate system (European Commission, 2023b), as the ECB acts no differently from a central bank in a fixed regime. Since the Eurozone also has very mobile capital flows (European Commission, 2023a), it is appropriate to apply the Mundell-Fleming model to model a Eurozone country.

Mundell-Fleming Analysis

Modelling a small[1] open economy with perfect capital mobility implies the interest rate of the economy (r) is determined exogenously by the world interest rate (r*). The Investment-Saving (IS) curve of an open economy is derived from aggregate demand: consumption (C) as a function of tax rate (T) and real income (Y), Investment (I) as a function of interest (r), Government spending (G), and Net exports (NX) as a function of exchange rate[2] (e):

$$Y = C(Y - T) + I(r^*) + G + NX(e)$$

The Liquidity and Money (LM) curve in an open economy is given by exogenously determined money supply (M) and price level (P), where liquidity preference (L) is a function of interest (r*) and real income (Y):

$$M/P = L(r^*, Y)$$

(Mankiw, 2009) (Karmakar, 2015) (Mundell, 1963)

Using observations from the Keynesian cross, exports market, and interest rate parity, we arrive at Fig.1 which depicts the general equilibrium for the goods market and money market in an open economy:

[1] In this context, 'small' refers countries that cannot alter the world interest rate with their borrowing and lending activities

[2] Assumes nominal exchange rate is proportional to real exchange rate

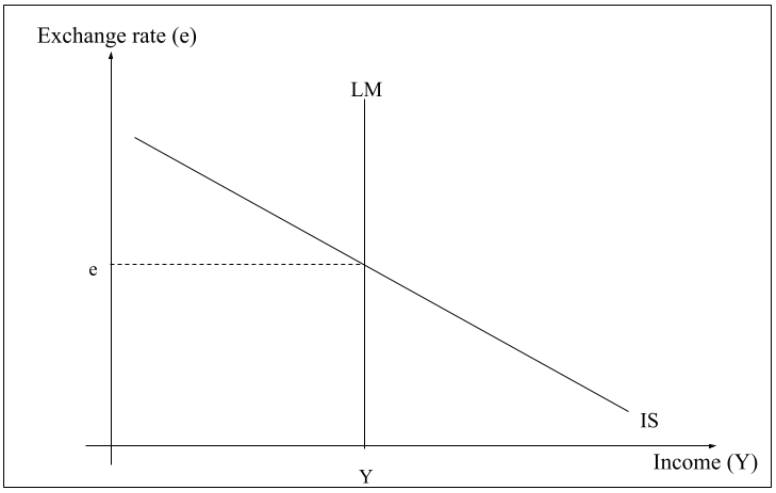

Fig.1 Mundell-Fleming model

According to liquidity preference theory, if we undergo expansionary monetary policy and increase the money supply, it shifts LM to LM1 as shown in Fig.2 and Fig.3:

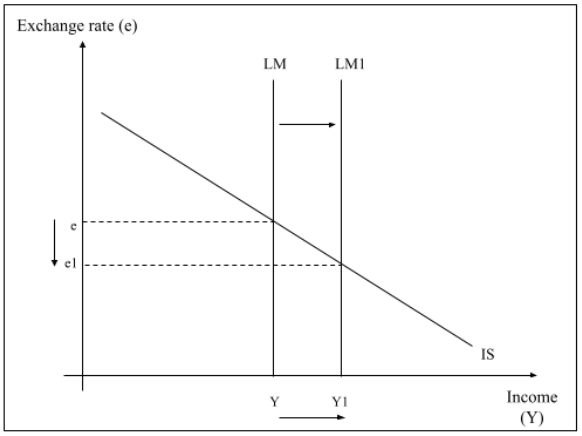

Fig.2 MF model with floating rate

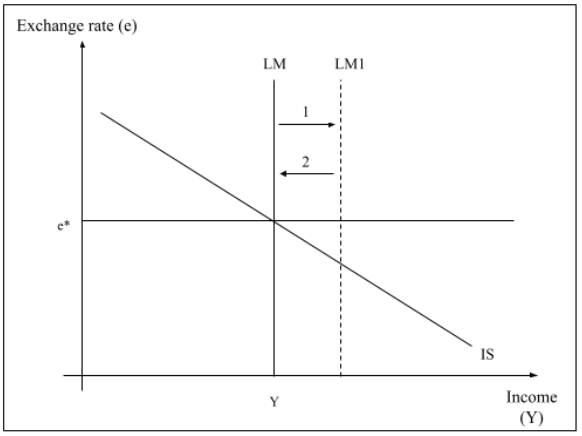

Fig.3 MF model with fixed rate

Assuming perfect mobility of capital, in a floating regime (Fig.2), increasing the money supply applies downward pressure on the exchange rate, thereby increasing net exports, foreign investment, and thus income. However, this mechanism breaks down in a fixed regime (Fig.3).

With the ECB effectively fixing the Euro for the Eurozone in Fig.3, if a Eurozone member tries to increase the money supply by decreasing the reserve ratio or decreasing the base rate relative to the ECB (LM to LM1), arbitrageurs holding Euros retrieve their capital in search of higher returns in other member countries: causing LM to return to the original position; contractionary monetary policy is similarly ineffective. Crucially, the Mundell-Fleming model shows that members of the Eurozone do not have the ability to exercise independent monetary policy: they relinquish control of their money supply in return for exchange rate stability and capital mobility. Hence, it puts the burden of cyclical maintenance almost entirely on fiscal policy (Fig.4):

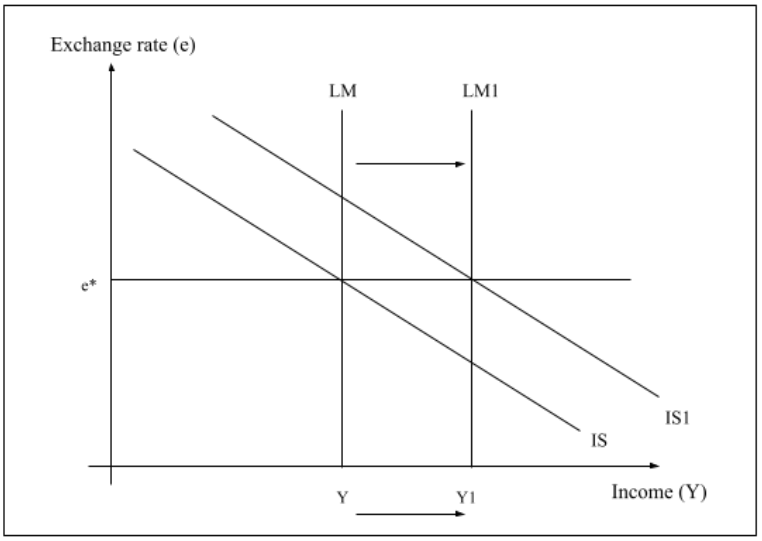

Fig.4 Expansionary fiscal policy fixed rate

Expansionary fiscal policy through lower taxation or higher government spending shifts IS to IS1, applying upward pressure to the exchange rate and shifting LM by the aforementioned mechanisms of capital movement, therefore increasing real income. To summarise, Mundell (1962) posits that the 'impossible trinity' (Fig.5) illustrates the tradeoff all countries face when establishing international monetary policy agreements.

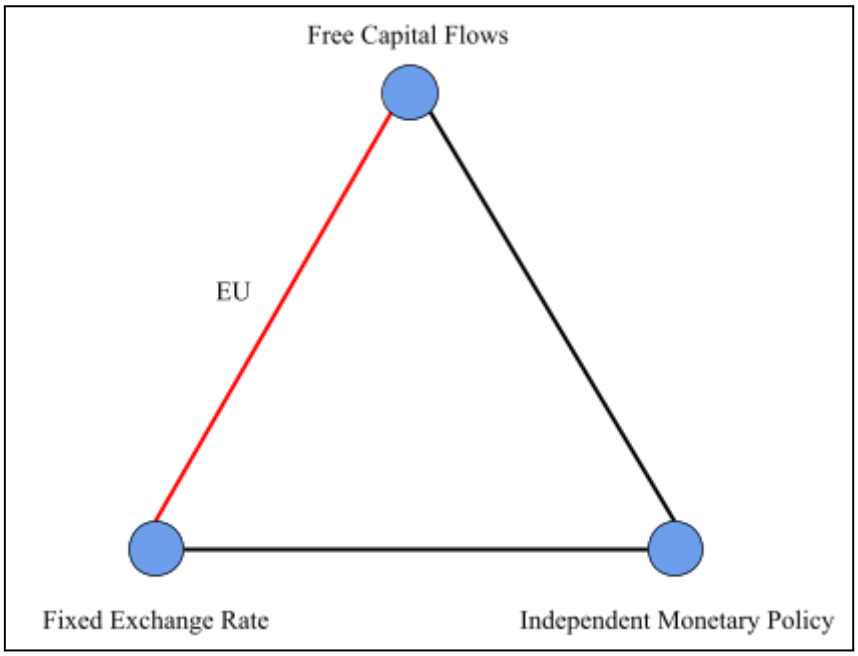

Fig.5 The Mundell-Fleming Trilemma[3]

Hitherto, we have demonstrated that autonomous monetary policy is impossible to obtain whilst pursuing a monetary union with perfect capital mobility and a fixed exchange rate using the

[3] Based on Investopedia & Majaski, 2022

Mundell-Fleming model. Next, we will pinpoint precisely why non-autonomous monetary policy is the Euro's most fundamental problem and discuss its implications to members of the union.

Implications of non-autonomous monetary policy

One size doesn't fit all. Structurally, each economy is unique, and thus requires different monetary policy at different periods of time. Equally, non-autonomous monetary policy removes essential defence mechanisms for countries in times of crisis.

In Europe, most countries specialise in certain goods and sectors, leading to asynchronous business cycles as well as idiosyncratic shocks (The Economist, 2016). Artus (2018) contends that cyclical asymmetries arising from divergence in markers such as productivity levels (Fig.6)[4], real per capita income (Fig.7), and industry specialisation (Fig.8, Fig.9) is the most significant challenge the EU has to overcome to maintain a stable monetary union which benefits its members.

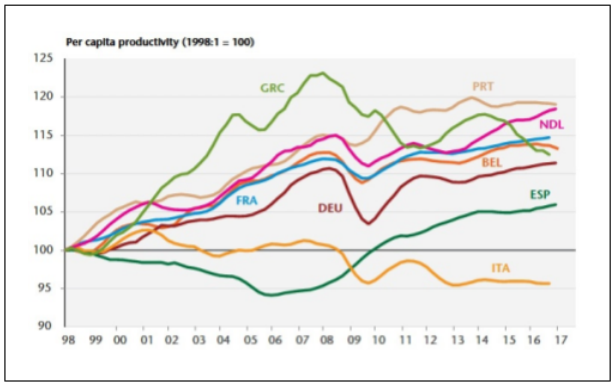

Fig.6 Productivity per capita

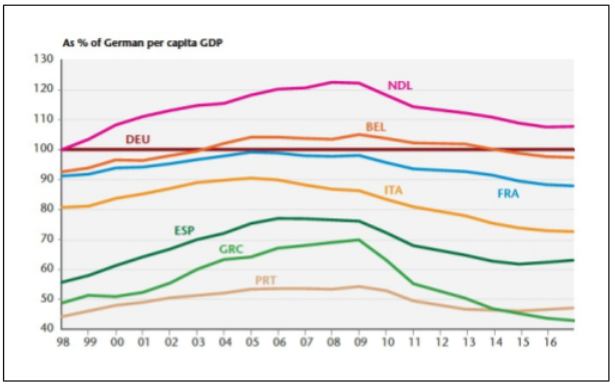

Fig.7 GDP per capita

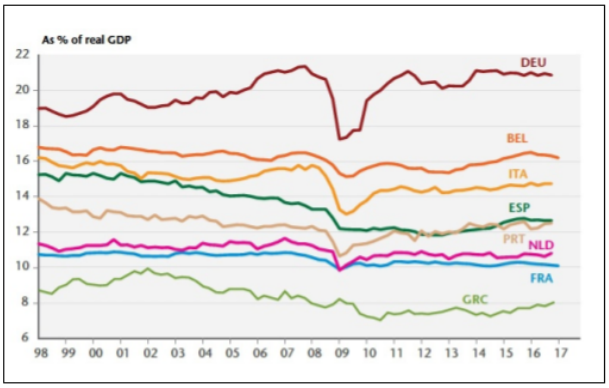

Fig.8 Manufacturing industry

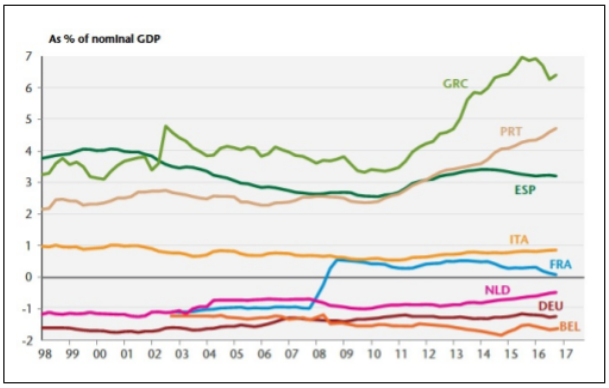

Fig.9 Tourism industry

Similarly, these trends are supported by an empirical report conducted by the IMF, where it found increasing divergence in business cycle amplitudes, and stagnating progress on convergence between the real economy of northern and southern nations (Franks et al., 2018). Alcidi (2019) reached complementary conclusions with β-convergence[5] (Fig.10) and σ-convergence[6] (Fig.11) analysis:

[4] Fig.6, Fig.7, Fig.8, Fig.9 sourced from (Artus, 2018), data from Datastream, Eurostat, Natixis; DEU: Germany, BEL: Belgium, ESP: Spain, FRA: France, GRC: Greece, ITA: Italy, NDL: Netherlands, PRT: Portugal.
[5] Describes the 'catch up effect' described in neoclassical growth theory, sourced from (Alcidi, 2019) and Eurostat
[6] Describes convergence income levels across economies, sourced from (Alcidi, 2019) and Eurostat

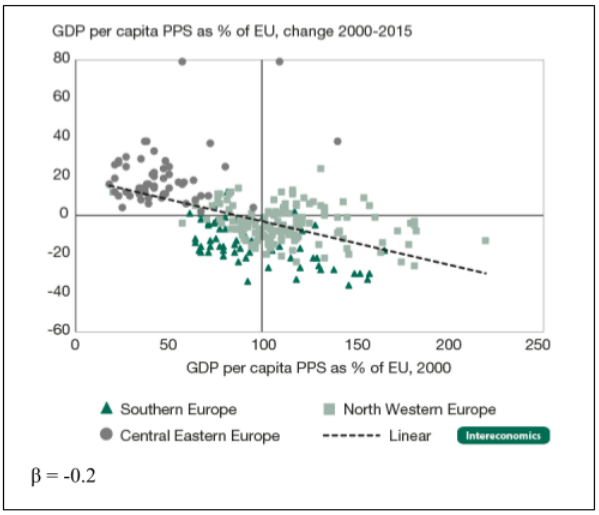

Fig.10 β-convergence (NUTS-2 regions)

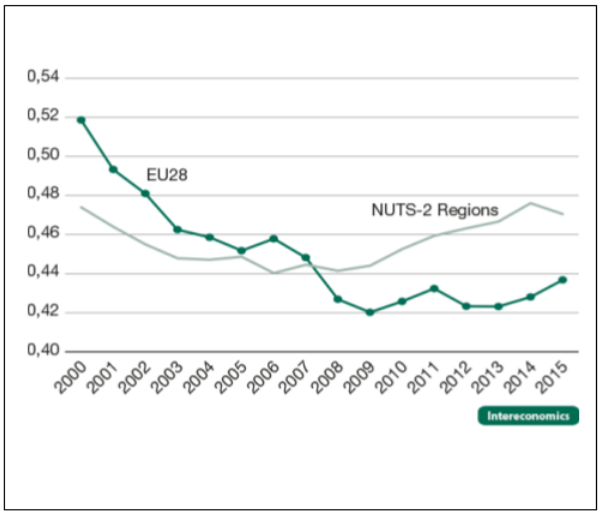

Fig.11 σ-convergence

In the context of the real economy, using NUTS-2 classification, Fig.10 affirms the β-convergence hypothesis, given the negative gradient of the trend line. However it is important to note that a large concentration of Southern European countries have shown divergence since 2000. In the context of income, σ-convergence analysis shows divergence in NUTS-2 regions after 2008, and stagnating convergence after 2008 when comparing EU nations.

Macroscopically, the synchronisation and effectiveness of the ECB's monetary policy decreases as structural and cyclical differences between its members increase. Fundamentally, the ECB is unable to simultaneously hike interest rates for high growth economies in a boom and lower interest rates for low growth economies in a slump; together, non-autonomous monetary policy and economic divergence across the Eurozone create suboptimal economic environments which need to be compensated with fiscal policy.

Income divergence indicates a disparity in competitiveness, which leads to external deficits and instability in the balance of payments (Gurría, 2012). Historically, Germany runs a trade surplus, while less competitive countries such as Malta run a trade deficit. This destabilised growth patterns and led to divergence in business cycles, making it more difficult to coordinate monetary policy. Income convergence across the EU has vital social and political implications, namely pursuing welfare and maintaining political will. Aspiring members must meet certain convergence metrics before joining the union, such as price stability, exchange rate stability, and sustainable public finances (European Council, 2023a). Yet, these measures were clearly insufficient to prevent a crisis arising from the inability to exercise independent monetary policy.

The combined effect of non-autonomous monetary policy and divergence in essential economic markers manifested in the Eurozone crisis. The sovereign debt crisis is found to be attributed to the limitations of a monetary union in crisis situations and a "lack of banking union and other European-level buffer mechanisms" (Lane, 2012). Southern nations such as Greece, Portugal, Spain, and Italy were badly affected by the balance-of-payments crisis, which led to a lack of foreign capital inflows which originally financed their debt. Constrained by fiscal space and non-autonomous monetary policy, they resorted to arduous internal devaluation by lowering wages or received bailouts in return for implementing austerity (CEPR et al., 2015). This resulted in a severe reduction in welfare and highlighted the Euro's inability to handle idiosyncratic shocks.

Reforms to the Eurozone

Comparisons are often drawn between the Eurozone and its historically successful counterpart in the US'. Two key differences between the Eurozone and the US monetary union explain the contrasting results. Firstly, labour is very mobile in the US due to the lack of cultural barriers, which allows for better optimisation of goods and factor markets (Bordo, 2004). And secondly, the Federal fiscal budget redistributes income from wealthy regions to poorer regions, reducing divergence in income (Tobin, 2001).

It is clear that a united Europe is imperative to reduce divergence and reap the benefits of the Euro experiment. It is also clear that the recurring theme of heterogeneity in the Eurozone limits the success of the Euro under centralised monetary policy. While 'United States of Europe' adopting federalism is unlikely to come to fruition, the current Eurozone is still scarred by the debt crisis and necessitates reform. Already, the introduction of Eurobonds and relaxation of ECB regulations improved versatility; the monetary union avoided catastrophe during COVID with debt-sharing and increased cooperation. Further reorganisation of fiscal discipline and crisis measures will likely maintain better price stability, and control animal spirits.

Closing remarks

The Euro's most fundamental problem is the combination of non-autonomous monetary policy and economic divergence. The Mundell-Fleming model showed the impossibility of autonomous monetary policy in the Eurozone. Economic divergence under centralised monetary policy can lead to economic instability and threaten the integrity of the Eurozone and lead to disaster under fiscal mismanagement. Conversely, internal synchronisation is paramount in a monetary union, thus economic convergence is imperative to achieve long-term stability and success. United, the Eurozone must overcome cultural and political barriers to eliminate the Euro's fundamental weakness, and navigate the globalised world as a European Union.

Word count: 1497

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