4. Monetary unions

1. Economic integration

"In general, this integration may take five main forms, which (in order of increasing degree of integration) are:

1) A preferential trading club, which is an agreement between two or more countries to reduce tariffs and other restrictions on imports from one to the other; each member, however, retains complete freedom to impose different tariffs and other restrictions on imports from non-member countries.

2) A free-trade area (or association), in which the partner countries abolish tariffs and other restrictions on imports from one to the other, while retaining complete freedom over their commercial policies towards the rest of the world.

3) A customs union, which, in addition to the provisions of the free-trade area, establishes a common external tariff schedule on all imports from non-member countries.

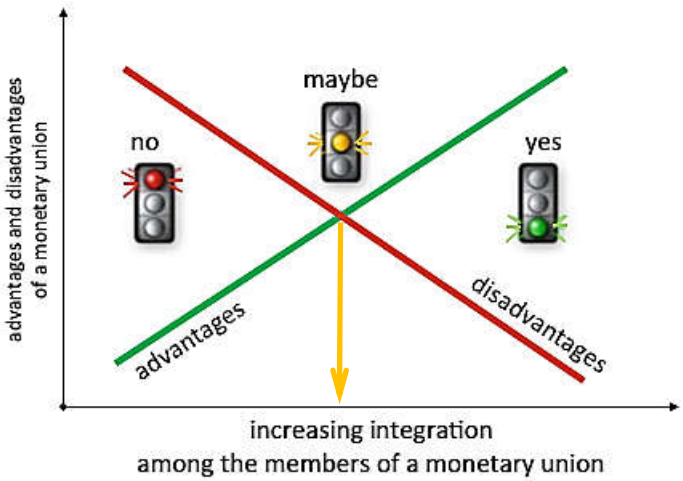
4) A common market, in which the countries, in addition to the provisions of the customs union, allow free movement of all factors of production among themselves.

5) An economic union, in which the partner countries, in addition to the provisions of the common market, proceed to unify their economic policies."

Gandolfo, Giancarlo (1987): *International economics I*, Springer.

2. An elementary model of monetary union creation

The figure on the right (taken from Herger, 2019) describes a model explaining when it pays to create a monetary union. The fundamental variable is the degree of integration (economic, social, cultural, etc.) between the potential members of the union.



On the one hand, the benefits and advantages of forming the union (the green line) tend to increase with the degree of integration: more integration, more advantages of forming a monetary union. On the other hand, the costs and disadvantages of creating the union (the red line) tend to decrease with the degree of integration: more integration, fewer disadvantages of forming a monetary union.

According to this model, a single currency would be adopted when a degree of integration is reached where the advantages outweigh the disadvantages (where the yellow arrow marks: beyond that point the level of integration is enough to justify currency integration).

Nils Herger (2019): *Understanding central banks*, Springer.

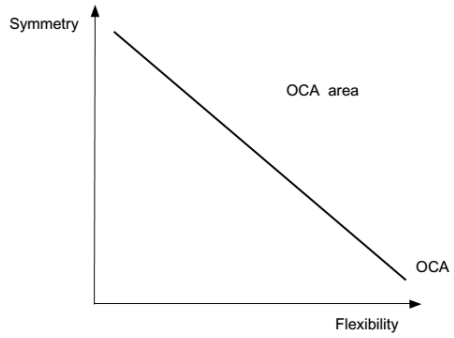
3. A basic theory of monetary unions

"The conditions that are needed to make a monetary union among candidate Member States attractive can be summarized by three concepts: Symmetry (of shocks); Flexibility; Integration.

Countries in a monetary union should experience macroeconomic shocks that are sufficiently correlated with those experienced in the rest of the union (*symmetry*).

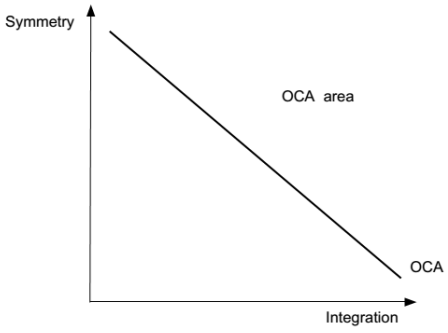
These countries should have sufficient *flexibility* in the labour markets to be able to adjust to asymmetric shocks once they are in the union.

Finally they should have a sufficient degree of trade *integration* with the members of the union so as to generate benefits of using the same currency."



"Figure 1 [on the left] presents the minimal combinations of symmetry and flexibility that are needed to form an optimal currency area by the downward-sloping OCA [optimal currency area] line. Points on the OCA line define combinations of symmetry and flexibility for which the costs and the benefits of a monetary union just balance. It is negatively sloped because a declining degree of symmetry (which raises the costs) necessitates an increasing flexibility. To the right of the OCA line, the degree of flexibility is sufficiently large given the degree of symmetry to ensure that the benefits of the union exceed the costs. To the left of the OCA line, there is insufficient flexibility for any given level of symmetry.

Figure 2 [on the right] presents the minimal combinations ofsymmetry and integration that are needed to form an optimal currency area. The OCA line represents the combinations of symmetry and integration among groups of countries for which the cost and benefits of a monetary union just balance.



It is downward sloping for the following reason. A decline in symmetry raises the costs of a monetary union. These costs are mainly macroeconomic in nature. Integration is a source of benefits of a monetary union, i.e., the greater the degree of integration the more the member countries benefit from the efficiency gains of a monetary union. Thus, the additional (macroeconomic) costs produced by less symmetry can be compensated by the additional (microeconomic) benefits produced by more integration. Points to the right of the OCA line represent groupings of countries for which the benefits of a monetary union exceed its costs.

The presumption of many economists at the end of the 1980s was that the EU countries should be located to the left of the OCA lines in Figures 1 and 2, i.e., given the degree of integration achieved in the EU there was still too much asymmetry and too little flexibility for the EU to form a monetary union whose benefits would exceed the costs."

De Grauwe, Paul (2018): *Economics of Monetary Union*, Twelfth edition, Oxford University Press.

4. Monetary union theories: Mundell I and Mundell II

"Mundell I is the traditional theory of optimal currency areas (OCA) pioneered by Mundell (1961) in the early 1960s and further elaborated by McKinnon (1963), Kenen (1969) and others. The OCA theory determines the conditions that countries should satisfy to make a monetary union attractive, i.e. to ensure that the benefits of the monetary union exceed its costs. This theory has been used most often to analyse whether countries should join a monetary union. It can also be used to study the conditions in which existing members of a monetary union will want to leave the union."

"In the world of Mundell II joining a monetary union should not be seen as a cost arising from the loss of the exchange rate as an adjustment mechanism, but as a benefit of eliminating a source of asymmetric shocks. For most countries, the exchange rate does not provide a degree of freedom but uses up a degree of freedom in their economic policy since they have to stabilize this asset price (…) The view expressed by Mundell II is based on the idea that foreign exchange markets are not efficient and should not be trusted to guide countries towards macroeconomic equilibrium. There is a second insight in Mundell II. This is that only in a monetary union can capital markets be fully integrated so that they can be used as an insurance mechanism against asymmetric shocks (…).

When countries remain outside a monetary union they cannot hope to profit from insurance against asymmetric shocks provided by capital markets in the rest of the world. The reason is that the large and variable exchange risk premia prevent these capital markets from providing insurance against asymmetric shocks. Thus the world of Mundell II is one in which countries that stay outside a monetary union will have to deal with large asymmetric shocks that arise from the instability of international capital flows. In addition, these countries' ability to insure against traditional asymmetric shocks is severely restricted when they stay outside a monetary union. With such an analysis it should not be surprising that Mundell II became a major promoter of monetary union in large parts of the world, and in particular in Europe."

De Grauwe, Paul (2006): "What have we learnt about monetary integration since the Maastricht Treaty?", Journal of Common Market Studies 44(4), 711-730.

5. European monetary union (EMU)

"The issue of European integration was framed by theoretical analyses most of which were undertaken as part of the orthodoxy of Optimum Currency Areas. The traditional OCA theory holds that in a monetary union of countries which meet certain criteria, namely a minimum level of convergence, less developed economies are expanding faster than developed ones. As a result, there is convergence of the levels of per capita income with the one of developed economies, namely real convergence. The arguments of this theory received strong criticism, thus giving rise to the endogenous OCA theory, according to which these criteria can be met ex post."

"Convergence, according to the endogenous growth theory is not the norm but the exception. Yet in particular these authors support that trade integration can possibly lead to an increase in the specialization of each country (…) and consequently to greater sensitivity towards a shock in the industrial sector, leading to more asymmetric business cycles (…) They also conclude that the creation of the EMU is easily justified ex-post. This conclusion is also supported by the argument of

the endogenous nature of financial integration (…) The overall conclusion is that the monetary union can strengthen trade integration and the synchronization of business cycles. Thus according to the theory of endogeneity, a process of structural transformations renders the member states more capable of satisfying the criteria of optimization ex-post."

"The anticipated benefits from the creation of an OCA, which must outbalance the relative cost, concern the reinforcement of internal and external equilibria and must facilitate the response to shocks. The main benefits include the elimination of the uncertainty involved in the exchange rate fluctuations – as trade between the members of the OCA and specialization are reinforced and scale economies are created – and the elimination of transaction costs and exchange rate risks."

"… the abandonment of Keynesian principles and the adoption of the monetarist Maastricht criteria (…) gave rise to strong concerns about the sustainability of the EMU. Ignoring the heterogeneity of member states of the union and imposing uniform rules of economic policy (…) created internal and external imbalances in the member states. These imbalances were reinforced by the global financial and economic crisis both within the EMU, and in the majority of the new EU members, creating debt crises and sovereign default risks. The European institutions have not provided an effective collective solution to the problem of the debt crisis. It was this gap that, within the framework of globalization, allowed dependence of problematic EU countries on international financial markets on high cost."

Makris, Georgios (2015): "Optimum currency area theory, nominal and real convergence controversies and the European experience after the recent global economic crisis", in Karasavvoglou, A.; S. Ongan; P. Polychronidou, P.; eds.: *EU crisis and the role of the periphery*, Springer.

Grubel, Herbert (2006): "The economics of monetary unions: Traditional and new", in *Regional Economic Integration: Research in Global Strategic Management, Volume 12*, pp. 55–75.

"The most distinctive feature of the European Monetary Union (EMU) is its uniqueness. It is impossible to find a single case since the beginning of the Industrial Revolution where a number of independent, sovereign states have created a *complete* monetary union with a common currency, central bank, monetary and exchange rate policies without first establishing a *political* union!"

"A political union becomes essential, therefore, if the constituent countries/regions are to be able: (a) to share similar values and goals; and (b) to mobilize their resources for the provision of public goods that benefit the whole union. It is also needed for creating the common institutions without which it is virtually impossible to pursue with consistency the objectives and policies that, by keeping regional and personal inequalities within socially acceptable limits, make it possible for the whole union to work towards the same goals without coercion."

"The greatest danger confronting the EMU in its present form is that economic stagnation in member countries, and the restrictions imposed on the ability of national governments to prevent it, are raising serious doubts about its long-term viability. Inflation apart, the European Central Bank shows little sensitivity to the economic problems of member countries (…) Economic and social inequalities within the eurozone are greater than in any of its member states. What is more, they are

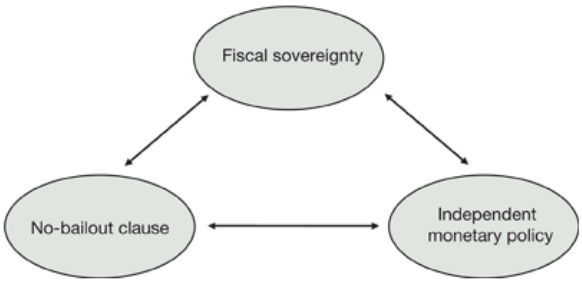
increasing (…) For the socio-economic benefits of such a union to outweigh the costs, it is imperative for the countries to create an institutional framework that ensures long-term improvement (…) in the economic security and welfare of *all* member states."

Panić, Milivoje (2011): *Globalization: A threat to international cooperation and peace?*, Palgrave Macmillan.

6. Trilemma of a monetary union

The eurozone crisis (https://en.wikipedia.org/wiki/Euro_area_crisis) illustrates Beck and Prinz's (2012) trilemma of a monetary union.

"… the key elements of the new impossible trinity are as follows:



- The first element is fiscal sovereignty, i.e. the ability to choose the level of debt and the size of the current budget deficit exclusively on a national level (…)
- The second element is the independent monetary policy of a supranational central bank within the monetary union. As a consequence, countries cannot accommodate their fiscal policy with an adequate monetary policy. In a sense, monetary policy in a currency union is a one-size-fits-all approach (…)
- The third element is the commitment not to bail out heavily indebted member countries of the union (…) A no-bailout clause implies that there will be different interest rates paid on sovereign debt within the monetary union as a consequence of the risks these debts provide for the respective investors. As long as the bond markets assume that there will be no bailout whatsoever, they will demand different risk premiums according to country-specific risks."

The trilemma can be justified in these terms:

> "… if the regulatory framework of the monetary union contains a bailout clause, there will be a certain potential for moral hazard, i.e. countries accumulating large amounts of sovereign debt, expecting that they will be bailed out by the union. Such behaviour will sooner or later surely destroy the foundation of the monetary union. As a consequence, a bailout clause requires restrictions on national sovereignty with respect to the budget which, in turn, means a loss of fiscal sovereignty. On the other hand, as long as there is a no-bailout rule which is strictly enforced no matter what happens, national fiscal sovereignty can be guaranteed. Put differently, it is impossible to ensure national fiscal sovereignty without a strictly enforced no-bailout clause."

Beck, Hanno; Aloys Prinz (2012): "The trilemma of a monetary union"
https://www.intereconomics.eu/contents/year/2012/number/1/article/the-trilemma-of-a-monetary-union-another-impossible-trinity.html

7. Padoa-Schioppa's inconsistent quartet

The open economy trilemma asserts a financial impossibility: under free international mobility of capital (no capital control), if it is not possible for an economy to control at the same time the foreign price of its currency (the nominal exchange rate) and its domestic price (the nominal interest rate).


T. Padoa-Schioppa

Tommaso Padoa-Schioppa suggested, in 1982, a variant of the open economy trilemma. In this variant, four apparently desirable goals (the inconsistent quartet, *quartetto inconciliabile*) cannot be simultaneously achieved. According to Padoa-Schioppa, a group of countries (such as the eurozone members) cannot have

- free trade (trade integration),
- international capital mobility (financial integration),
- independent domestic monetary policies (monetary sovereignty) and
- fixed exchange rates (exchange rate stability).

The open economy trilemma is framed in a bilateral context: just two countries are involved. When more countries are involved, nothing prevents that each one solves the trilemma differently. For instance, with three countries, 1, 2 and 3 could become financially integrated, 1 set a fixed exchange with 2 (and give up monetary independence), 2 choose the domestic interest rate (and care nothing about exchange rate stability) and 3 establish a fixed exchange rate with 1.

What could lead some countries to opt for exchange rate stability? One reason is to facilitate trade flows with the country with whose currency establish the peg. In this case, it is natural for trade integration to be mutual: a country lowering trade barriers with another would expect reciprocity.

The European Economic Community (EEC, the European Union antecedent) was born as a set of trading agreements. The road to a common market (and an economic union) means adopting eventually a full commercial integration. In that context, Padoa-Schioppa suggested the existence of an inconsistent quartet ('*quartetto inconciliabile*'): the impossibility for a group of countries of having at the same time

- financial integration of the group;
- commercial integration of the group (free trade, free mobility of goods);
- a fixed exchange rate regime within the group; and
- sovereign monetary policy for each member of the group.

At the begining of the 1990s, the EEC became the European Common Market: members adopted financial integration and free trade. Padoa-Schioppa's (1982) analysis pointed out that, in the presence of financial and commercial integration, all the Common Market members should make the same choice between exchange rate stability and monetary independence.

The justification runs as follows. If exchange rate volatility is allowed, some countries might take competitive advantage over the rest by manipulating the exchange rate, and thus tensions would arise that could endanger the stability, and even the existence, of the common market agreement. As a result, exchange rate stability within the group appeared necessary for the viability of a common market project. By the open economy trilemma, all the members of the group had to abandon monetary sovereignty.

Summing up, the European Common Market demanded a European Central Bank and, as the embodiment of fixed and irrevocable exchange rates, a new supranational currency: the euro.

The eurozone (the set of countries that have adopted the euro) involves a two-fold decision regarding the open economy trilemma and the quartet. On the one hand, with respect to themselves, eurozone members have chosen

- common market (free mobility of goods, services, capital, people, inputs);
- common currency (permanently fixed exchange rates: 1 EUR = 1936.27 ITL; 1 EUR = 166.386 ESP; 1 EUR = 1.95583 DEM; 1 EUR = 6,55957 FRF…); and
- supranational monetary policy determined by a central bank common to all the members.

Simultaneously, as a group of countries, the eurozone has chosen, against the rest of the world

- financial integration;
- floating exchange rates; and
- independent monetary policy (as dictated by the European Central Bank).

The eurozone haa solved the monetary tensions and conflicts associated with a deeper financial integration by 'moving upward' (towards global governance); that is, by supranacionalizing money. The other approach (supported by extreme liberalism positions) involves privatizing money ('moving downward' by strengthening the role of the private sector in monetary management; private cryptocurrencies, such as bitcoin, illustrate this approach).

These two strategies are in line with the two basic ways of organizing economic activity: cooperation and competition. Padoa-Schioppa supported cooperation and supranationalism to address some economic policy issues (for instance, the adjustment of trade imbalances and the global stabilization of exchange rates). There are economic activities and prices too important at a global scale to be left 'in the hands of the market'[1]. At the same time, by contrast, he adopted the subsidiarity principle: to leave the execution of policies to the competent and most descentralized (and close to the citizen) authorities.

Padoa-Schioppa, T. (1982) "Capital Mobility: Why is the Treaty Not Implemented?" in T. Padoa-Schioppa (1994): *The Road to Monetary Union in Europe*, Oxford: Clarendon Press, pp. 26-43.

Bini Smaghi, Lorenzo (2011): "Tommaso Padoa-Schioppa: Economist, policymaker, citizen in search of European unity", Speech given at the European University Institute, Fiesole, 28 January 2011, https://www.ecb.europa.eu/press/key/date/2011/html/sp110128.en.html

8. Fiscal rules and asymmetries in a monetary union

The sectoral balances identity can be used to justify the potential unfairness of setting the same fiscal rules to all the members of a monetary union.

[1] In Padoa-Schioppa's words: "When an unsustainable process 'comes to an end', variations in prices and quantities are of a magnitude and drama incomparably greater than one sees in the healthy conduct of economic life on a daily basis".

For simplicity, suppose the monetary union:

- has two countries (or groups of countries), N and S ('northern' and 'southern' countries);
- is autarkic or has a zero (or negligible) trade balance with the rest of the world.

By the sectoral identities (with NPS standing for 'net private savings', PD for 'public deficit' and NX for 'net exports'),

$$NPS_N = PD_N + NX_N$$

$$NPS_S = PD_S + NX_S.$$

By the assumptions above,

$$NX_N + NX_S = 0.$$

If N runs a trade surplus ($NX_N > 0$), then $NX_S < 0$.

Also, assume that the private sector makes plans that result in a surplus; that is, in the aggregate, the private sector is willing to accumulate financial wealth. This characteristically occurs after financial crises, which are associated with the accumulation of 'excessive' private debt (see as well the balance sheet recession theory). In sum,

$$\begin{array}{ccc} NPS_N & = & PD_N + NX_N \\ > 0 & & > 0 \end{array}$$

$$\begin{array}{ccc} NPS_S & = & PD_S + NX_S \\ > 0 & & < 0. \end{array}$$

In this situation, imagine that some common fiscal rule sets an upper limit to PD. It follows from the above that it is easier for N to satisfy the rule: depending on the values of NPS_N and NX_N, the public deficit PD_N could be positive, negative or zero. Yet, for S, there is no room for maneuver: necessarily, $PD_S > 0$ (and the larger the trade deficit NX_S, the larger also the public deficit PD_S and, consequently, the more likely the fiscal rule will not be met).

In sum, given $NX_N > 0$ and $NX_S < 0$, N and S are not in the same position to respect the fiscal rule: it is potentially harder for S than N.

It is even possible than, given NPS_S, NX_S and the fiscal limit on PD_S, it may be impossible for S to comply with the fiscal rule.

It is somewhat paradoxical that the ideological position favouring the adoption of fiscal rules (neoliberalism) is based on the presumption that the best policy is to allow as much economic freedom as possible to the private sector. This means that the values of NPS_S and NX_S are allowed to be unconstrained. The paradox is that this premise may be inconsistent with the adoption of a fiscal rule: if full freedom is given to the private sector (any value for NPS_S is admissible) and the foreign sector (any value for NX_S is acceptable), then no freedom is left (by the sectoral identity) to the public sector, which makes imposing fiscal rules (limits on PD_S) meaningless.

This analysis holds if $NX_N > 0$ and $NX_S < 0$ still hold if the rest of the world is considered.

An implication is that the symmetry that a monetary union imposes on monetary policy must be broken with respect fiscal policy: asymmetric fiscal policy should be allowed.