



# Theoretical foundations of a monetary union and their application to the Slovak economy

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*One of the most discussed issues in the theory related to monetary unions is the fixed versus variable exchange rate regime and the optimal currency area (OCA) theory. The OCA specifies the conditions, under which it is economically advantageous for a country or a group of countries to give up its own currency and to adopt a common currency. Several economists have set up the theoretical preconditions, whether and under which it would be advantageous for a country to abandon its national currency and to join a monetary union. In the following text, these preconditions are subject to comparison with the conditions in the Slovak Republic.*

Shocks that can hit a country are generally specified as symmetric or asymmetric, and temporary or permanent. Symmetric shocks are shocks that hit all or most countries of the union at the same time and the central bank of the union then takes steps to mitigate them. Asymmetric shocks, on the other hand, are shocks that hit only one country of the union. Thus the central bank will not change the monetary conditions in order not to disrupt the performance of other countries, and the country hit by the shock has to cope with the problem by itself.

The OCA theory appeared for the first time in the year 1960 characterized by the Bretton-Woods monetary system, capital controls in many countries and the initial process of European integration. The OCA was the result of a debate on the importance of a fixed versus flexible exchange rate regime and of comparisons of some features of the American and European economy. Besides gold, it was the American dollar that played a fundamental role in the Bretton-Woods monetary system, the exchange rates of other countries have been set against the American dollar according to a fixed parity. A new flexible exchange rate regime was presented in 1973. However, just like the fixed exchange rate regime, the new regime had advantages and disadvantages. Monetary integration is currently under way among economic areas and the advantageousness of a fixed rate or a common currency is winning recognition.

An important proponent of the flexible exchange rate regime was Friedman (1953). In his work he emphasizes that a basic condition for free trade is a floating exchange rate. He points out the fact that the preference of a flexible exchange rate is not identical with the preference of an instable exchange rate. The primary goal of a country should be a highly stable, floating exchange rate. According to Friedman, the instability of the foreign exchange rate is a symptom of

an instable economic structure. An elimination of this symptom by means of administrative freeze on the exchange rate will not eliminate any of these difficulties, rather the opposite, it will render the adaptation process of the country more difficult and drastic.

## **ADAPTATION BY MEANS OF A FLEXIBLE EXCHANGE RATE**

Under a flexible exchange rate determined on the free market, the primary influence of disequilibrium of the balance of payment is reflected in the exchange rate. If the country has a balance of payment surplus, the foreign exchange rate tends to appreciate. If the reasons for appreciation are temporary, the holders of the currency of the given country will try to sell that currency to be able to buy it back at a lower price in the future when the currency depreciates. They take reverse steps if the country faces a deficit and if its exchange rate tends to depreciate temporarily. These speculative transactions with the flexible exchange rate serve the country to absorb a surplus or to eliminate the balance of payment deficit.

If permanent tendencies towards a balance of payment surplus occur in a country, the result will be a more permanent appreciation of the exchange rate. In such a case, too, a self-regulating compensatory mechanism comprising the following steps starts. If the domestic currency appreciates, domestic products become more expensive for foreign subjects and foreign products become cheaper for domestic entities. This difference arises by means of a change in the exchange rate, while the price levels at home and abroad remain stable. That stimulates domestic entities to buy foreign products, i.e. to increase the imports. For this, it is necessary to buy foreign currency and to sell domestic currency, so that this effect will also have an impact on the depreciation of domestic currency. The disequilibrium of the foreign bal-



Chart 1 The development of the exchange rate of the Slovak koruna and of Slovakia's GDP growth



Source: NBS.

ance is thereby eliminated and changes towards a balanced state arise automatically without any interventions and without a tendency to crisis.

Friedman (1953) also disagrees with the opinion that a flexible exchange rate creates price uncertainty for exporters and importers. Under a floating rate regime, the traders can secure themselves against exchange rate changes by means of hedging. If they hedge the exchange rate, at which they buy or sell funds at a set time in the future, the whole risk of uncertainty is borne by traders constituting the other side of this hedging transaction. The opinion that a floating rate regime creates uncertainty among traders is wrong according to the author and, on the contrary, it is the fixed exchange rate regime that creates much more uncertainty among traders. The reason for this is that, when entering into a transaction with a foreign partner, the parties involved can insure themselves against the exchange rate risk. If however the country has a fixed exchange rate regime, traders do not insure themselves and they bear the risk of a change in the exchange rate conditions themselves.

Furthermore, according to Friedman, the use of a fixed exchange rate regime has no stabilizing effects, but, on the contrary, creates opportunities for speculations, which has a destabilizing effect on the economy. These negative effects can even lead to a crisis. According to Friedman, the countries should prefer a flexible exchange rate formed by market forces, because such an exchange rate has stabilizing and self-regulatory effects, which automatically creates a balance of payment equilibrium.

Since its creation, except for the years 1998 and 2006, the Slovak Republic has had a negative balance on current account, financed by a surplus balance on capital account. Since 2002, when the balance has reached the highest surplus in its history, the Slovak koruna has appreciated by 53% against the USD and by 21% against the EUR. The first half of Friedman's theory has proved to be correct, except small inaccuracies, in Slovakia.

Although the balance of payment has constantly shown a surplus, that surplus has not been due to the current, but the capital and financial account. In other words, the imports have constantly exceeded the exports in Slovakia within foreign trade, which should rather be reflected in a depreciation of the exchange rate. The exchange rate, however, has been and still is supported by considerable direct and other investments.

Slovakia has reached a permanent balance of payment surplus, which is also reflected in a considerable appreciation of Slovakia's exchange rate. According to Friedman, however, a self-regulatory mechanism should arise in that foreign entities should stop buying the Slovak koruna due to the – on their part – unfavorable exchange rate, and, on the contrary, they should start to sell it. Because according to balance of payment data, the Slovak koruna is held by foreign investors who have bought it in order to invest it, this would mean that according to this theory the same investors would start to withdraw their direct and other investments from Slovakia within the self-regulatory compensatory mechanism. The foreign exchange rate of the Slovak koruna would depreciate and a balance of payment equilibrium would arise, but the country would lose foreign investments. Since investors get profit from their invested capital, this loss is rather unlikely to occur.

In its studies, the European Commission (1990) disproves the effect of an influence of the nominal exchange rate on the establishment of a balance of payment equilibrium. If the country is hit by a negative demand shock, the demand for its goods shifts from this country to another country. The result will be a balance of trade deficit. According to some economists, a devaluation of the national currency, which would facilitate exports and make imports more difficult, would help the country. As a result, exports would increase and equilibrium would be recreated. The Commission, however, interprets this as follows. A weakening of the nominal exchange rate has only a temporary effect on the real exchange rate. Within a short time, a devaluation of the nominal exchange rate will bring about a decrease in the prices of goods of the given country and an increase in prices of foreign goods. A short-term balance equilibrium arises, but the ratio of prices, i.e. the real exchange rate, does not change. Shortly after, an adaptation of the price levels takes place. The higher price level from abroad is imported to the given country, because when the consumers find out that they need to spend more funds to buy goods stemming from abroad, they found out that their real wages have decreased. They automatically start to demand a growth of nominal wages, which can either be transmitted to a growth of unemployment or can be reflected in the growth of the price level, since domestic firms have to transmit higher wage claims to higher prices of goods. This implies that the effect of a devaluation of the nominal exchange rate is ultimately zero and as opposed to positive effects (facilita-



tion of exports) it has an impact on the growth of inflation and/or of the unemployment rate.

According to studies of the European Commission, a fixed exchange rate regime or a common currency regime is more favorable for a country as compared to a flexible exchange rate for two reasons. The first one is that the advantages of a floating exchange rate regime are only of short-term nature. The other reason is exchange rate volatility, which also influences the volatility of other macroeconomic quantities of the given country, thereby causing instability and the risk of a crisis of the given economy.

### OPTIMAL CURRENCY AREA THEORY

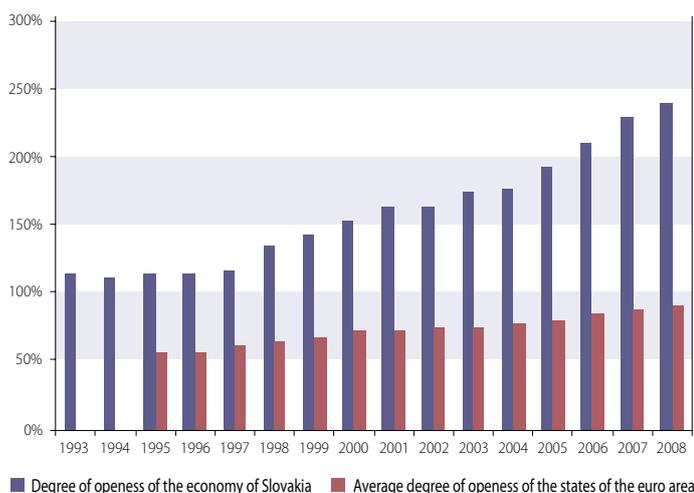
Because by joining a monetary union a country loses the exchange rate instrument, various economists have dealt with issues as to what the given country should fulfill if it wants to join a union.

The author of the first theoretic knowledge about optimal currency area (OCA) was Mundell (1961). He considers the mobility of production factors to be a necessary condition for the forming of a monetary union. If the country was affected by an asymmetric demand shock, which would cause a demand shift from country A to country B, unemployment in country A and pressure on inflation growth in country B would come into being. Since these two countries would form a monetary union, the central bank would not be able to intervene because favoring one country would handicap the other. Misbalance of these two countries would be then solved by the mobility of workers, who would move from country A to country B, which would eliminate unemployment as well as inflationary pressures. However, these considerations still remain theoretical, because it is not possible for the labor force to move from one country to another in case of decrease of demand for the given goods. There are several types of barriers within the European Union such as economic barriers as well as the national and linguistic ones.

The OCA theory was then extended by McKinnon (1963) by adding the consideration that an optimal exchange rate regime of a country depends also on the size and structure of the economy. If the country is relatively open, the variable exchange rate has a considerable influence on the internal price level as a consequence of the fact that the ratio of tradable to nontradable goods and services is high and the costs of tradable goods and services are then increased by fluctuations of the exchange rate. His argument is that the more open an economy is, the more accessible to a fixed exchange rate it should be, or that a flexible exchange rate regime is more advantageous for more closed economies.

This means that the Slovak Republic, whose degree of openness of the economy in 2007 was as much as 229%, certainly is among the countries, which should join the monetary union. The Slovak Republic is almost three times as open as other euro area countries, whose average imports and

**Chart 2** The ratio of exports and imports to GDP in Slovakia and the euro area



■ Degree of openness of the economy of Slovakia ■ Average degree of openness of the states of the euro area  
Source: Eurostat.

exports share of GDP is currently 87%. According to the methodology of the Statistical Office of the Slovak Republic<sup>1</sup>, Slovakia is able to export everything moveable including energy. This means that the ratio of the tradable to the nontradable sector is also considerable.

In the author's opinion, since the degree of openness of Slovak economy is very high, the flexible exchange rate can destabilize it. Exchange rate fluctuations can also have a destabilizing effect on the domestic price level. According to a model of National bank of Slovakia<sup>2</sup>, a 1% Slovak koruna exchange rate depreciation would immediately cause a fall in the inflation rate of 0.02%, but the overall impact of currency depreciation would become visible one year later by a growth of inflation by 0.09%. This implies that the effect of exchange rate development on the price level is insignificant. If, however, the converse was true, the Slovak Republic could profit from the continuous appreciation trend of the Slovak koruna in favor of inflation dampening after the potential introduction of the euro in 2009.

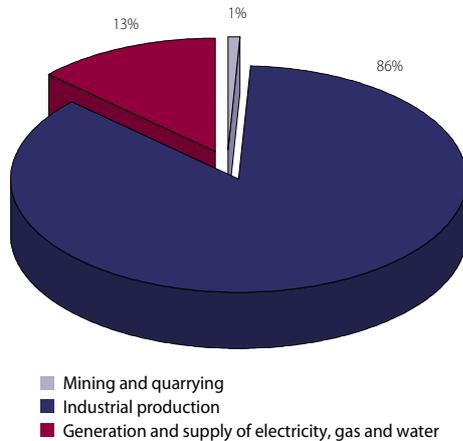
Kenen suggests another characteristic of an OCA – the product differentiation of a country. According to him, a well-diversified economy rarely encounters demand shocks. Asymmetric demand shocks in a well-diversified economy are less important than they are in less diversified one. The reason for this is that if a country focused on various areas of production is affected by an asymmetric demand shock, the unemployed are able to find a job quickly in areas unaffected by the shock. This does not require labor force mobility, which is rather inflexible in general. This means that the positive changes in other areas caused by diversification of the economy will be offset by negative changes in the affected area. Kennen also argues that product diversification lowers the probability of asymmetric shocks and reduces their negative effects. That's why the fixed exchange rate regime is more advantageous for a well-diversified economic structure.

<sup>1</sup> [www.statistics.sk](http://www.statistics.sk)

<sup>2</sup> Výškrabka, M.: Odhad pôsobenia výmenného kurzu na domáce ceny. Biatec, ročník 15, 11/2007, Národná banka Slovenska.



Chart 3 The structure of Slovakia's industry by production volume

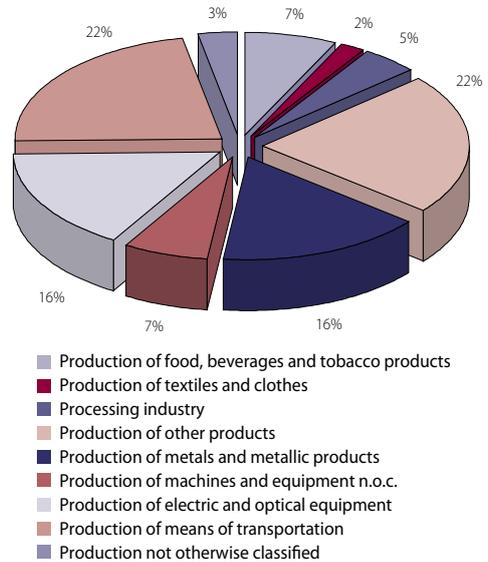


Source: Statistical Office of the Slovak Republic.

The following charts show that the structure of Slovak industry in 2007 was concentrated in industrial production making up 86% of the total industry. However, industrial production was well diversified, although the majority share was constituted by the production of means of transport making up 22% of the total output of industrial production. If an asymmetric demand shock, negatively affecting the automobile industry, occurred, 19% of the total Slovak industry would suffer. However, this demand could be also transferred to other products, which can be also located in the Slovak Republic due to its varied industrial structure. This would not entail a 19% loss of industrial production, because production in another part of industrial production could increase in part (for example, the demand for automobiles would shift to the demand for electronic equipment).

Friedman (1953) also admits the option to renounce the national currency in favor of a monetary union, but provided that certain conditions are fulfilled. If the prices and wages are flexible in a country considering to join a monetary union,

Chart 4 The structure of industrial production within Slovakia's industry by production volume



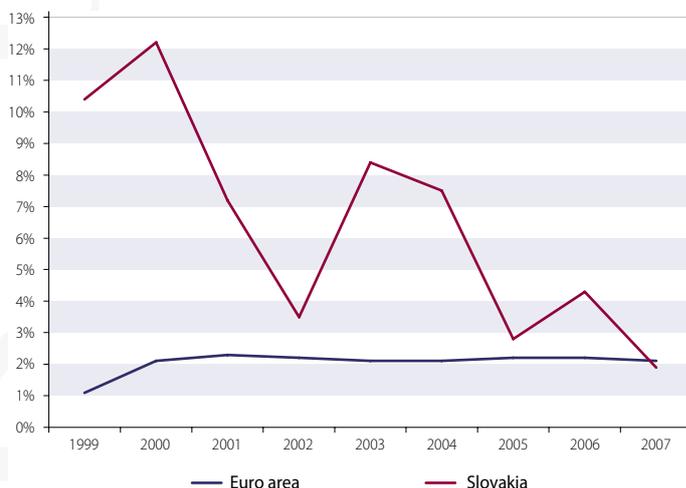
Source: Statistical Office of the Slovak Republic.

that country is less likely to be hit by unemployment or inflation. The previous argument eliminates the need of adaptation by means of a flexible exchange rate in case of negative demand shocks. If the prices and wages of the country are inflexible downwards, then if the country is hit by a negative demand shock, the adaptation by means of the foreign exchange rate can also soften the blow.

External inequalities can be also caused by a permanent gap between national inflation rates. Fleming (1971), Corden (1972) and Giersch (1973) have already pointed out the importance of these differences. Fleming (1971) comments that in case of similar inflation rates of individual countries, the trading conditions (or price level) also remain stable. This affects the stability of the current account and that's why an adaptation by means of the foreign exchange rate is not necessary. Slovakia's inflation rate is currently converging to the European one, therefore it will be advantageous for Slovakia to adopt the common currency.

Ingram (1969) claims that economic reasons of optimal currency area are often not on the front burner when the step is politically advantageous. He supposes that the geographical expanse of the monetary union does not matter, it can be small or large. He does not think that the optimal size of a monetary union could be given by real economic determinants, such as labor force mobility or output homogeneity, though these factors are able to influence the speed of adaptation in case of shock. In his opinion, the effectiveness of a monetary union depends on the political program adopted by the government, on the attitude of the population in the process of adaptation, on the structures of financial and other institutions and on other factors omitted from the OCA considerations.

Chart 5 Comparison of the rate of inflation



Source: Eurostat.



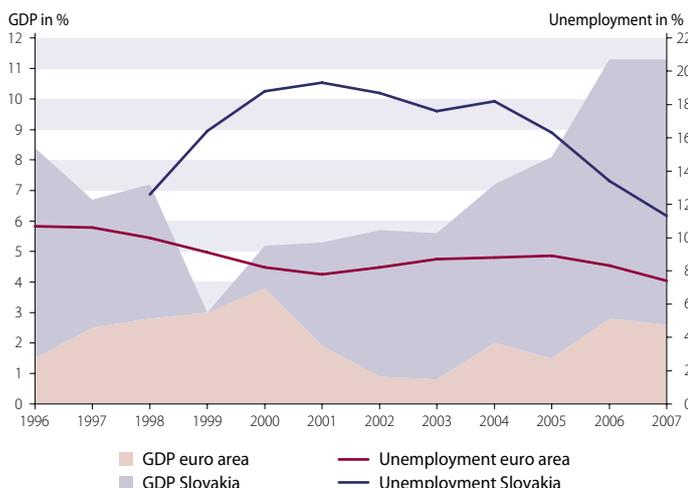
### CRITICISM OF THE OPTIMAL CURRENCY AREA THEORY

Critical opinions on the Optimal Currency Area theory focus on the question whether it is probable that asymmetric shocks occur among European monetary union countries. In the opinion of the European Commission (2000), demand shocks within the monetary union occur only sporadically. The reason is as follows. Trade between European industrial countries is rather intra-industrial. This means that the country is specialized in several fields, not only in a single one. The trade is based on economies of scale and imperfect competition (product differentiation). This leads to a trade structure, in which the countries purchase and sell the same category of products from and to each other. Country A sells and buys cars to the country B and vice versa. Such trade structure means that in case of demand shocks both countries will suffer in a similar same way. Hence, most shocks are of symmetric, and not asymmetric, nature. In the case of an asymmetric shock, the central bank will not be in a quandary about whether to support the country threatened by inflation or the country threatened by unemployment. The effect of its monetary policy will be identical or similar in all countries.

A negative demand shock represents a decrease in aggregate demand, which is reflected in simultaneous decrease of the GDP and unemployment. The demand shock has to affect most of the monetary union countries to be symmetric, so that these countries must have mutually identical economic cycles. Chart 6 shows that the cycles of the euro area and Slovakia have been symmetric approximately since 2003. Moreover, Slovakia's unemployment rate has been falling gradually since 2001. The unemployment rate in the euro area has been low in the long run. Theoretically, it is possible to conclude that if the euro area is affected by a negative demand shock, Slovakia is also affected and vice versa.

Countries wanting to form a monetary union can also differ in terms of the pace of economic growth. Some of them might be growing faster and some of them slower. In his paper, De Grauwe (2005) also discusses the issue, whether such differences in the economic growth can be a problem, if the countries want to form a monetary union. He illustrates this using the following example. Country A grows 5% a year and country B grows 3% a year. Assuming that the income elasticity of imports of country A from country B equals 1 and vice versa, the income elasticity of imports of country B from country A equals 1, as well. Then the imports to country A will grow 5% a year from country B and the imports to country B from country A will grow 3% a year. That will cause problems to the balance of payments in country A, because its imports will grow faster than its exports. To avoid the balance problems, country A will have to lower the prices to make the exports more competitive. It can do this in two ways – either it uses the devaluation

Chart 6 Development of the GDP and unemployment

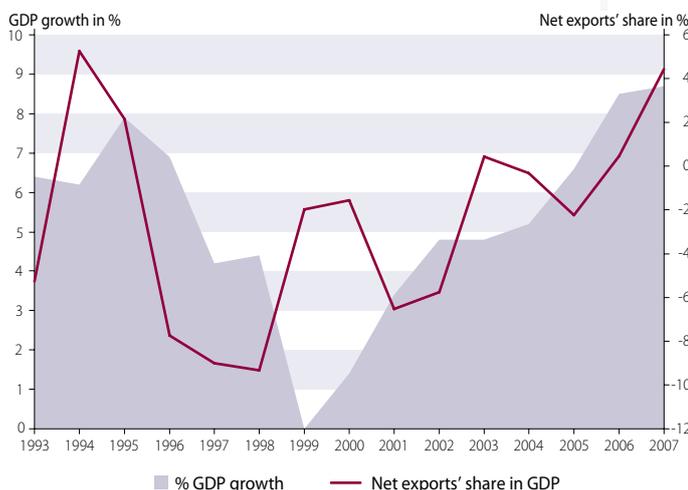


Source: Eurostat.

of its currency to lower the prices, or it lowers the price level of exported goods. Since country A is in a monetary union with country B, only the second option comes into consideration. By decreasing the prices, it will conduct a deflationary policy, which will bring about a decrease of the economic growth.

The Krugman study (1989), however, confutes this point of view. In his observation of quickly growing European countries, Krugman reached the conclusion that despite the fact that country is growing quickly, its exchange rate is appreciating. He finds no link between economic growth and depreciation of the national currency. He sees the development of new products in the given economy as the reason for a fast growth. In his opinion, fast growing countries are countries that are able to develop a new product or an old one with new qualitative features. The result of this growth is that the income elasticity of exports of a quickly growing country is automatically higher than the elasticity of a slowly growing country. In other words, the income elasticity of exports of a quickly growing country is higher than the in-

Chart 7 Development of GDP and net exports in Slovakia



Source: Eurostat.



come elasticity of imports of the same country. These countries can grow faster as well as without balance of payments problems.

Despite a considerable currency strengthening since 2002, Slovakia has been growing at a hot pace. However, external trade was characterized by negative net exports to GDP figures over most of the period (from the creation of the Slovak Republic). This fact confirms Krugman's opinion. Hence, by adopting the euro, Slovakia should not risk a slow-down of its economic growth on the grounds of losing its national currency. In spite of a stagnation of the manufacturing of new products in Slovakia, the country can rely on old products produced with new qualitative features and a new design (electronics, automobiles), and at the same time it profits from the low-costs advantage (cheap labor force).

Another reason, which Krugman uses to defend this idea, is the existence of capital flows. A quickly growing country usually also has a quickly growing capital productivity. This difference in capital productivity attracts investments from slowly growing countries to quickly growing countries. These capital flows then enable the quickly growing countries to finance their current account deficit without the need to devalue their domestic currency. It can be inferred from this that differences in the pace of economic growth of countries should not be considered an obstacle for the monetary integration, and that quickly growing countries will not face a slow-down of their economic growth, if they adopt a common currency.

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