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European Economic and Monetary Union

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Foreword

This book was written to support the lecture material within the Economic and Monetary Union course for students of the Business Administration and Management BSc Programme **who have basic financial knowledge** – namely they finished the *Macroeconomics* and *Introduction to Finance* courses. Therefore no additional glossary is needed, but the reader shall utilize his/her already acquired basic knowledge within the field of the Economic and Monetary Union.

The chapters are structured to first analyse the euro as a currency (theoretical constraints and exchange rate regimes), then summarize the monetary policy and the macroprudential supervision. The third chapter presents the regulations concerning fiscal policy and crisis resolution methods. Then the last chapters are focusing on the New Member States and the EU 2020 strategy.

The text follows a constant **question-answer structure** to orient the reader and help the understanding of the different topics. The **third-layer titles** can be interpreted as "**self-checking" questions**, helping the students to prepare for the exam.

This learning material improves the **competencies** of an economist studying in the Business Administration and Management BSc programme in the following ways:

a) regarding knowledge, the student has a firm grasp on the essential concepts, facts and theories of economics. The student is familiar with the relationships of national and international economies, relevant economic actors, functions and processes;
b) regarding competencies, the student can uncover facts and basic connections, can arrange and analyse data systematically, can draw conclusions and make critical observations along with preparatory suggestions using the theories and methods

learned. The student can make informed decisions in connection with routine and partially unfamiliar issues both in domestic and international settings;

c) regarding attitude, the student is sensitive to the changes occuring to the wider economic and social circumstances of his/her job, workplace or enterprise. The student tries to follow and understand these changes;

d) regarding autonomy and responsibility, the student takes responsibility for his/her work and behaviour from all professional, legal and ethical aspects in connection with keeping the accepted norms and rules.

I. The euro as a currency

This chapter analyses the euro as a currency: how can it meet the Optimum Currency Area requirements, how is it affected by the impossible trinity and the reasons behind its floating regime. The chapter ends with the presentation of the euro's international role.

Keywords: exchange rate, optimum currency area, floating and fixed exchange rate regime, basket currency, gold, trade integration, monetary trilemma, euro

1. *Optimum Currency Area (OCA)*

The economic concept of the entire European Union and the eurozone emerged from the theoretical concept of the OCA, defined by Mundell in 1961. OCA is "*a geographical region which, if sharing a single currency, would be able to maximize economic efficiency in that area optimal characteristics for the merger of currencies or the creation of a new currency*".

To understand why merging currencies became so important for economists, it is necessary to state that currencies are simply mirroring all the underlying structures of the economy and society that use them. This is why the need for merging currencies originated both from the deep cross-border economic relations on the European continent and the lessons from two world wars – pointing to the fact that European leaders want to follow a peaceful unification of the continent.

a) What are the requirements to form an OCA?

To create an OCA with a single currency (or many fixed ones), we have to meet the following requirements:

1. labour mobility across the region;
2. openness with capital mobility and price and wage flexibility across the region;
3. production diversification;
4. similar business cycles for participant countries;
5. fiscal transfer mechanism to redistribute income to areas/sectors which have been adversely affected by labour mobility and openness;
6. similar (homogeneous) preferences/ideologies;
7. solidarity.

b) How is the institutional structure of the European Union determined by the OCA?

Some points are focusing on trade and external balances (1-2-3), while others have a clear fiscal motivation (5-6-7) as one of these is necessary to run a single monetary policy (4).

It is clear that the first two requirements were fulfilled by the well-known "four-freedoms" in the Maastricht treaty (Article 3, c) in 1992, which is the basis of the European Union: the free movement of capital, goods, services and labour force[1].

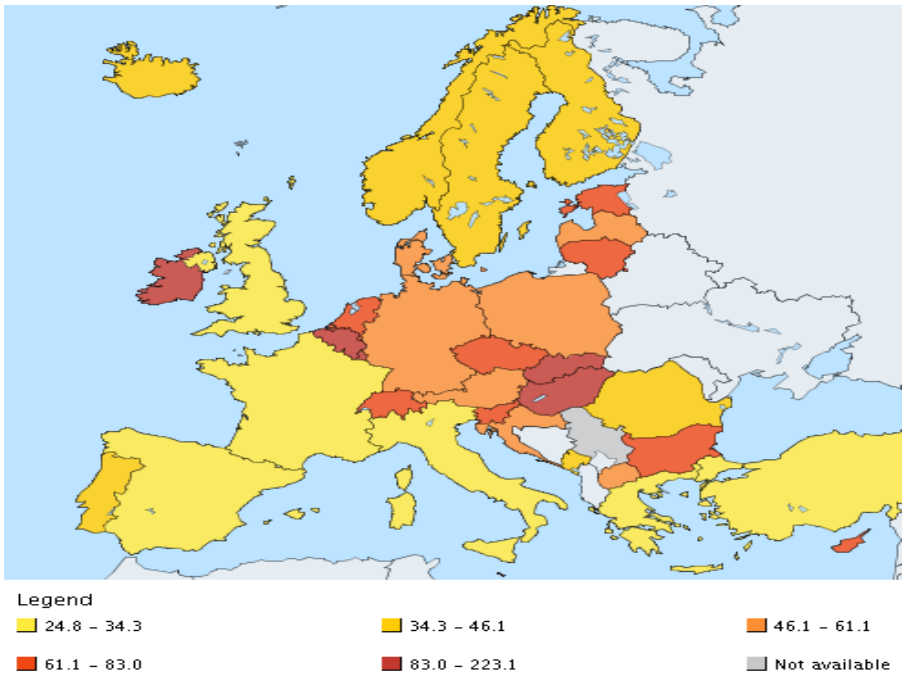
The budget of the European Union focuses on the fifth point by the redistribution of the 1% of the GDP. The last points call for common crisis resolution mechanisms like the European Stability Mechanism that supports member states to avoid falling into public defaults and to overcome banking crises since the 2011 crisis.

Monetary policy requires synchronized business cycles as otherwise some regions would be overheated while others would be in deep recession. Inter-regional redistribution via a common budget can help with that, but regional differences can't be eliminated completely.

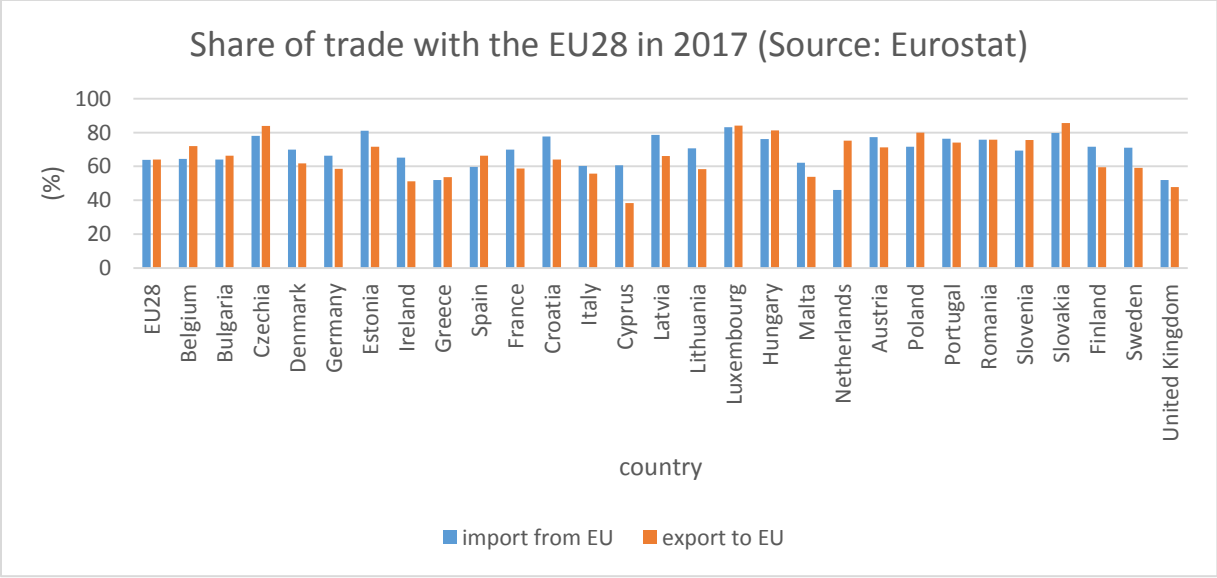
c) How deeply are the EU Member States' economies integrated?

Trade has an important role for all member states as the "Export of goods and services to GDP" ratio-map shows it from 2017: it can reach 80% of the GDP in the smaller member states while it can vary between 30-50% for the bigger ones.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:11992M/TXT&from=HU

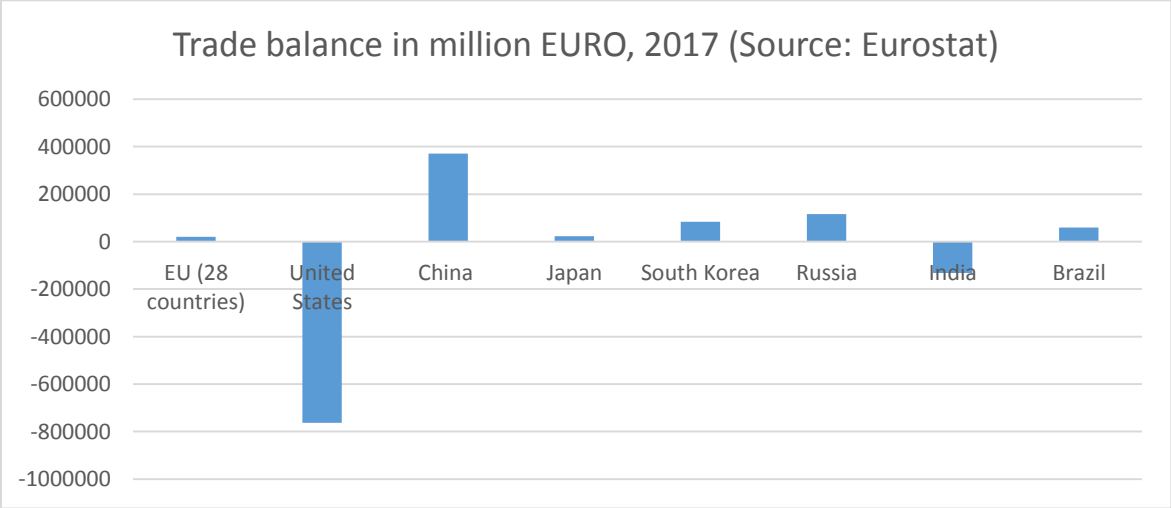


Trade integration can be measured trough the percentage of foreign trade, which is done by other MSs. Intra-EU trade had 64% share among MSs in 2017 according to Eurostat data. Central-European and landlocked countries have the deepest integration by nearly 80% while maritime countries have less (~50%). Countries tend to focus more on foreign exchange stability when most of their trade is conducted "within club".



The EU28 is a major player in world trade: it was responsible for 16% and 15% of global export and import in 2017. Only China (17%, 13%), the US (11.5%, 17%) and Japan (5%,

5%) had a similar magnitude. Meanwhile, the EU28 had a modest trade surplus, similar to Japan's.



d) How did globalisation impact the eurozone?

Globalization or increased global trade and financial integration is characterized by significant changes in global trade patterns, with new players from low-cost countries. It created an international fragmentation of the production process and gave rise to a significant increase in the trading of intermediate products. The integration of capital markets has led to an unprecedented increase in cross-border holdings of asset and liabilities with international capital flows having increased even faster than product trade. The euro area economy has become increasingly interconnected with its external environment. (ECB 2008)

There are stronger trading ties with emerging market economies and an increased demand for euro area products from these countries as well as an additional source of imports and competition in third markets. The decline in world trade share has been broadly similar across major economies, the share of imports from low-cost countries in overall euro area imports has steadily increased in recent years as well as a more intense trade with the new EU member states. Meanwhile, the internationalisation of production means that large firms headquartered in the euro area are using production facilities located in the new member states. (ECB 2008)

2. The Monetary trilemma - impossible trinity

The trilemma is a constraint on monetary policy, meaning a country cannot simultaneously have free movement of capital (liberalized financial account), fixed exchange rate and

autonomous monetary policy at the same time. The value of the US dollar is market-determined but the United States has an independent monetary policy and a liberalized financial account. Countries in the eurozone preferred exchange rate stability by introducing the euro, and they enjoy the free movement of capital as a cornerstone of the EU – but the price for this is that individual nations no longer have an independent monetary policy as it is now determined by the European Central Bank. The stabilized Chinese exchange rate and the autonomous monetary policy requires restrictions on international capital flows for China.

However, market-determined exchange rate and free capital movements are not necessarily providing high autonomy for monetary policy – the degree of freedom, how the central bank can focus its economy can be limited by external factors, such as key central banks' decisions or global capital movements. But at least the monetary policy will be less mechanical (Davis 2015).

a) What is an autonomous monetary policy?

Monetary autonomy is about the degree of freedom, how the central bank can set prime rates according to macroeconomic conditions. It can be reduced by monetary policies in the key currency areas, by the degree of monetary interdependence which is based on trade relationships and cross-border production chains.

Global liquidity is able to limit this autonomy by increasing the vulnerabilities of a financial system through substantial mismatches across currencies, maturities and countries, while the supply of global liquidity stems from one or more "core countries". (BIS 2011, Plümper – Troeger 2008, Obstfeld et al. 2005)

3. *Exchange rate regimes*

There are different exchange rate regimes to choose when governments are defining the value of their currency. However, these regimes are representing different approaches in the public-private relations of the economy.

a) What is a fixed exchange rate regime and how is it related to the Euro?

Currencies in fixed exchange regimes are tied to another currency (like the US dollar or the euro),to a basket of currencies (like 45% USD, 45% EUR and 10% GBP) or to gold (like Gold Standard or Breton Woods systems in the past) with a narrow fluctuation band (usually

1-2%). Monetary policy focuses on the stability of the exchange rate with direct interventions from its currency reserves and trough indirect interventions by changing the interest rates (and the relative interest rate premium against the benchmark currency). The benefits of the fixed regimes are the stable exchange rate for foreign trade actors and the harmonized inflation levels. The problems are coming from the sustainability of the regime: the entire monetary policy will be in a mechanical relationship with another country determining all the interest rates and the benchmark-currency's appreciations and depreciations will have an impact on the foreign markets as well.

The eurozone can be interpreted as a fixed exchange rate regime on the inside: the member states have none of their former national currencies and the national central banks are the local executioners of the European Central Bank's monetary policy. However, the maintenance of this fixed regime required further fiscal and financial integration as well single bank supervision.

b) How can a country introduce the euro?

The euro can be introduced anywhere as an official currency ("eurolisation") as it happened in Montenegro or Kosovo by unilaterate decision, where the central bank in limited on the euro-liquidity management. First they have to accumulate euro reserves (for example by taking up a loan from other central banks), than they can lend it out to the domestic commercial banks or they can accept deposits from them. However, these countries can't join to the European Union until they are not introducing a national currency.

The official way to introduce the euro starts by joining the European Union as a member state. In this case the country accepts the four freedoms, the Union's commitments toward the civil rights and it will be obligatory to introduce the euro in the undefined future[2]. Than the country must meet the Maastricht-criteria (Treaty Article 109j (1)):

- high degree of price stability (rate of inflation is close to at most, the three best performing member states);

[2] Great-Britain and Denmark have opt-out right, but Denmark maintains a +/- 2.25% fixed exchange regime and their interest rate policy follows closely the steps of the ECB.

- sustainability of the government financial position (deficit is lower than 3% of GDP and public debt is lower than 60% of GDP or decreasing toward this direction);
- Normal fluctuation margins provided for by the Exchange Rate Mechanism II., for at least two years (staying inside a +/-15% fluctuation band);
- long-term interest rate levels are converging.

If a country can keep their currency inside this really broad +/-15% fluctuation band (actually it is more close to free floating than to a fixed regime) for two years and they have stable fiscal policy, than they can introduce the euro.

c) What are the consequences of the introduction the euro?

The eurozone is a whole much deeper level of the European integration: the monetary policy of determined by the European Central Bank (the governor of the local national bank is represented in the Governing Council and has voting power as well as they execute the monetary policy on local level) and they became the part of the Banking Union. It means that the systemically important commercial banks are supervised by the ECB as well as banking crises can be solved from the Single Resolution Fund (55 billion euros until 2023) and all bank deposits below €100 000 are insured by the European Deposit Insurance.

The European Commission (EC) becomes an integrated part of public budget planning and the fiscal and macroeconomic instabilities are subjects of constant monitoring. Countries who are close to public default (government bond yields increasing to unsustainable levels) can be supported from the European Stability Mechanism (€500 billion) loans.

d) Can we maintain floating exchange rate regime inside the EU?

Any Member State can delay the introduction of the euro and can initiate any exchange rate regime (except official eurolisation). However, when more than half of the foreign trade is done with other EU MSs, the volatile behaviour of the floating regime can have adverse side-effects. Non-eurozone MSs followed two different paths: they are fixing their currency to euro (like Denmark or Bulgaria) or their floating currencies tend to appreciate (like the Czech Koruna or the Swedish Koruna) or depreciate (like the Hungarian forint, the Romanian lei and sometimes the Polish zloty). Floating regimes are preferred because their shock-absorbent

capabilities: devaluations during recession periods can stimulate export and growth. On the other hand: ECB's interests rate decisions are respected and followed even in under floating regime – however, the relationship is less mechanical than under fixed regimes.

e) Europe's Snake Arrangement – Why can't we just fix the national currencies?

Fixing the European currencies against each other was a dead end when they tried it between 1972-1979. There were 9 countries and 36 possible combinations to stabilize with a +/- 2.25% band. Meanwhile, there were no common rules for either fiscal and monetary policies nor common funds for crisis resolution. By 1977 the system was restricted to the West-German, Belgian, Luxembourg, Dutch and Danish currencies while the others (Italy, France, Great-Britain) were not able to follow the constant appreciation of the Deutsche mark.

f) European Monetary System I. – Why can't we just introduce a basket currency to fix the national currencies?

The "currency snake" failed due to its difficulty and the lack of harmonised economic policies. The European Currency Unit (ECU) was introduced as an artificial basket currency in 1979 which never had any physical form. Its exchange rate was calculated as weighted averages: weights were determined by a member's relative gross national product and activity in intra-European trade (West-Germany ~30%, France ~20%, Italy, Great-Britain, Belgium, Netherlands ~10%). Member States had to fix their currencies to the ECU with a +/-2.25% (or sometimes 6%) band. This system started to follow the Deutsche mark as well due to the low inflation preference of the German Bundesbank, but the volatility of the European currencies decreased. The ECU was also used as an accounting unit to calculate the budget of the European Economic Community (predecessor of the EU). The ECU was officially replaced by the euro in 1998, however the so-called "ERM-crisis" in 1992 kicked Great-Britain and Italy out from the system due to their currencies' rapid devaluation. This incident led to the general adoption of inflation targeting monetary policies on the continent. Practically, interest rates cannot be the tools of currency stabilisation and a stimulant for economic growth at the same time – pursuing moderate inflation became a more realistic goal.

g) Why does the euro follow an independent floating regime?

Floating is inevitable because there is no other currency which is backed by a big-enough economy to fix the euro to it. The GDP of the euro area was 11.205 trillion euro in 2017 (Eurostat) while the United States was 19.39 trillion USD (~17.13 trillion euro). China and Japan were on the third and fourth places. This means that the euro could be fixed to the US dollar only (Chinese renminbi is already fixed to the USD). However, last time when European currencies were fixed to USD under the Breton-Woods agreement (1944-1971/73) did not end well. The US dollar was fixed to gold and all other currencies to the USD, which served well during the reconstruction years after the Second World War. However, this system was too rigid: the 1 ounce of gold to 35 USD ratio[3] did not consider the inflation which emerged after 1965 nor the Keynesian monetary policy which managed recession periods with reduced interests rates or budget expansion pushed by the cold war, increasing the public debt by nearly 60% between 1950 and 1971. The European countries reserved US dollars, so first it was welcomed as excessive dollars started to flow as a result of their balance of payments deficit. However, once the increasing inflation started to eat away the purchasing power of the US dollar, some European and raw material exporter countries became uneasy of the situation. The US dollar was devaluated in 1971 to 100 USD per ounce of gold according to the Smithsonian Agreement but in 1973 it was suspended and dollar started a floating regime. The result was a worldwide decade-long stagflation (inflation and economic stagnation), which was consolidated in the early 1980s only (then, this consolidation caused defaults in many developing countries, even in Hungary and Poland as side-effects).

h) Why not to fix the euro to gold?

Gold is considered as a commodity nowadays, same as oil, iron or grain. However, it was used as money since the beginning of time due to its unique physical properties. Firstly, it does not oxidize as most metals, secondly, it is rare. However, this scarcity is also a problem: in cases of rapid economic growth, the rate of mining (money-supply) can lag behind money-demand, causing decreasing prices. Price levels were biased by gold supply shocks since the medieval age in Europe, while the continent covered its trade deficit with China and India

[3] Only for the central banks, while half of the gold reserves were located in the US.

with gold and silver export. Once economies started to expand, commercial and debt-backed funding started to substitute gold-transactions. After the Napoleonic wars, the gold standard became dominant until the First World War. Central banks were known to accumulate gold reserves on the asset-side of their balance sheets and to issue paper money (bank notes) as their liabilities. In this 1820s-1914 period there were two industrial revolutions and exponential growth in production, productivity and population as well – so money had less and less gold-coverage. However, gold production swings maintained a short-term price instability and real-output and unemployment were uncontrollable for monetary policy[4]. Later, gold reserves were disrupted by the First World War and the deflation-combined recession in 1929-1933 ended this system.

On the other hand, gold did not disappear from monetary policy: 17% (33.7 thousand tons) of above ground stocks are still in the hands of central banks. Central banks in the eurozone (ECB included) have 32% of it (10.8 thousand tons) and gold reaches 54% of their foreign exchange reserves[5]. There is one problem: gold prices can fluctuate (like government bond prices as foreign exchange reserves are invested) but they do not pay any interests as it is happening in case of government bonds. So technically it is more risky and less profitable for central banks, but they are still keeping the gold as a last resort asset.

4. *The international role of the euro*

This section summarizes the main findings of the ECB (2018) report. The euro was the second most important currency in 2017 after the US dollar, by having 36% share as global payment currency (USD: 40%), 20% share from foreign exchange reserves (USD: 63%), 16% share from foreign exchange turnover (USD: 44%), and as denominator of debt: 23% both from international loans and bond (USD: 56%, 62%). The US and UK residents (mainly banks) still the main issuers of euro-denominated international debt, denominated in EUR. Government bonds, issued by eurozone-members are mainly purchased by domestic investors (banks, insurance companies, households, etc.) and other eurozone or EU holders, by 70-80%. The most important foreign bond holders are located in China, UK, Norway, Australia, Japan and the US, purchasing mainly German, French and Dutch papers. However, rising interest

[4] https://www.econlib.org/library/Enc/GoldStandard.html
[5] https://www.gold.org/goldhub/data/monthly-central-bank-statistics

rates and overvalued markets and the end of asset purchase programs are reducing demand and eurozone debt-securities became less and less popular among foreign investors since 2015. In 2017 neighbouring regions of the euro area were the main purchasers of euro banknotes.

II. The euro as an agent of monetary policy

This chapter summarizes the information about the ECB and its monetary policy objectives, instruments and crisis management. Then the concepts of the banking union werepresented after the definition of the macroprudential policy.

Key words: monetary policy, European Central Bank, price stability, Taylor-rule, independence, autonomy, cash, transmission channels, instruments, non-standard measures, quantitate easing, banking union, supervision.

1. *The European Central Bank (ECB)*

a) What is the primary objective for the monetary policy in the ECB?

"The primary objective of the European System of Central Banks (the ECB and the national central banks in the EU) shall be to *maintain price stability*. *Without prejudice* to the objective of price stability, the ESCB shall support the general economic policies in the Union with a view to contribute to the achievement of the objectives of the Union as *full employment* and *balanced economic growth*."[6] Practically, interest rate is managed by the ECB in order to meet an inflation target. The targeted inflation level is 2% for the ECB on the medium run (1-2 year horizon). The maintenance of the price stability is about safeguarding the value of the euro.

b) How does the Taylor-rule define monetary policy decisions?

This behaviour can be described through the Taylor-rule (Woodford, 2001), where key policy rates are mainly determined ($\beta > \alpha, \gamma, \delta$) by the deviations from the inflation target (π_t^*), and also by the deviations from the potential output and the exchange rate fluctuations (1):

$$r_t = \omega_t + \alpha r_{t-1} + \beta(\pi_t - \pi_t^*) + \gamma(y_t - y_t^*) + \delta \Delta e_t \qquad (1)$$

- r_t: short-term nominal interest rate (key policy rate of the central bank);

[6] Treaty on the Functioning of the European Union, Article 127 (1).

- π_t: inflation rate;
- $y_t - y_t^*$: output-gap, the difference between the potential output and the actual output;
- e_t: real exchange rate.

When inflation is higher than the target ($\pi_t > \pi_t^*$), the key interest rate shall be increased. When the economy is overheated, inflation and output are both higher than they should be ($\pi_t > \pi_t^*, y_t > y_t^*$), so a central bank must increase the interest rate to cool down the growth. A strong depreciation ($\Delta e_t < 0$) can create higher inflation through import prices, which can be also managed by increased interest rates. The rule guides the monetary policy under stagflation as well: inflation shall be reduced under economic stagflation and high inflation periods, causing higher interest rate-driven shock-therapy (like in 1979 followed by the US). Deflation and recession allows the central banks to cut interest rates nearly or even to zero (Zero-Lower Bound – ZLB) as it happened in 2008.

c) Why is price stability an adequate primary objective?

On the one hand, there is no real alternative objective: the eurozone is too big to fix the euro to another currency, while monetary aggregate targeting is outdated. The Keynesian full employment targeting after WWII led to stagflation in the 1970s. The practical benefit of inflation targeting is that it works: inflation dropped after it was implemented in most cases. (Fender 2012, Benati - Goodhart 2011, Frankel 2011)

On the other hand, price stability is good, because it allows the market to allocate resources more efficiently, creditors can be sure that prices will remain stable in the future and they don't demand an "inflation risk premium". It is against stockpiling of real goods. Tax and welfare systems can be biased by high inflation. Inflation acts as a tax on holdings of cash. Maintaining price stability prevents the redistribution of wealth and income in inflationary environments. Sudden revaluations of financial assets undermine the soundness of the banking sector's balance sheets and decrease households' and firms' wealth. (ECB 2011)

d) How are decisions made in the ECB?

The European Central Bank and the national central banks together constitute the Eurosystem, the central banking system of the euro area.

The monetary policy decisions[7] (for example: changes in the interest rates, modifications in lending and security purchase programs, banking supervision etc.) are made on the regular Governing Council bi-weekly meetings. The Governing Council consists of the six members of the Executive Board and the governors of the national central banks of the 19 euro area countries.

The decisions are prepared and implemented by Executive Board consists of the President, the Vice-President and four other members. Practically, they are responsible to manage the day-to-day business of the ECB. All members are appointed by the European Council for 8 years, acting by a qualified majority.

The General Council has a supportive advisory function and includes representatives of the 19 euro area countries and the 9 non euro area countries, Executive Board members and the President of the EU Council (no voting power) and one member of the European Commission (no voting power). The General Council will be dissolved once all EU Member States have introduced the single currency. Practically, this was created for consultations and has no impact on the monetary policy.

e) What is an independent monetary policy?

The independence of the monetary policy (as of the central banks) is necessary to maintaining price stability. The eurosystem is functionally independent: it has all the necessary instruments and competencies at its disposal to promote an efficient monetary policy and is authorised to decide autonomously how and when to use them.

Institutional independence: "Neither the ECB nor the national central banks (NCBs), nor any member of their decision-making bodies, are allowed to seek or take instructions from EU institutions or bodies, from any government of an EU Member State or from any other body." The primary objectives of the central banks in the EU are defined by the Treaty about the EU.

Operational independence: The ECB has its own budget. Its capital is subscribed and paid by the euro area NCBs. The eurosystem is prohibited from granting loans to EU bodies or national public sector entities.

[7] https://www.ecb.europa.eu/ecb/orga/decisions/govc/html/index.en.html

Personal independence: The long terms of office for the members of the Governing Council. Members of the Executive Board cannot be reappointed.

f) What are the duties of the national central banks inside the eurozone?

There is a division of labour among national central banks (NCBs) and the ECB: monetary policy operations are co-ordinated by the ECB and the transactions are carried out by the NCBs. It is necessary, because there are 4614[8] credit institutions operating in the eurozone (6,109 in the EU) the majority of which operate in one or two member states only. The decentralized operation means that local commercial banks can take up loans from the NCBs or they can put deposits there (or they can sell or repo their bonds), but the conditions (for example: interest rates, reserve ratios, haircuts, range of accepted bonds) are determined by the ECB.

g) How popular is cash in payments?

In terms of value of transactions, 54% of all point of sale transactions were conducted in cash, 39% using cards and 7% using other payment instruments in 2016. Cash was popular in Italy, Spain, Slovenia, Slovakia, Austria, Greece, Cyprus and Lithuania with ~70% share, while it is less popular (~30%) in France, BeNeLux countries, Estonia and Finland. Germany and Ireland was in the middle with ~50% share. Cash was popular in transactions under €50, mostly for day-to-day items, restaurants, bars or cafés. (ECB 2017)

h) The transmission mechanism – How can central banks influence the price level?

A transmission mechanism is the process through which monetary policy decisions affect the economy in general, and the price level in particular. The economic developments are continuously influenced by shocks from a wide variety of sources.

[8] https://www.ecb.europa.eu/stats/ecb_statistics/escb/html/table.en.html?id=JDF_MFI_MFI_LIST

The interest rate channel (main): a change in official interest rates → market interest rates → expectations → saving and investment decisions → a change in aggregate demand and prices → asset prices → the supply of credit → the overall risk-taking behaviour of the economy.

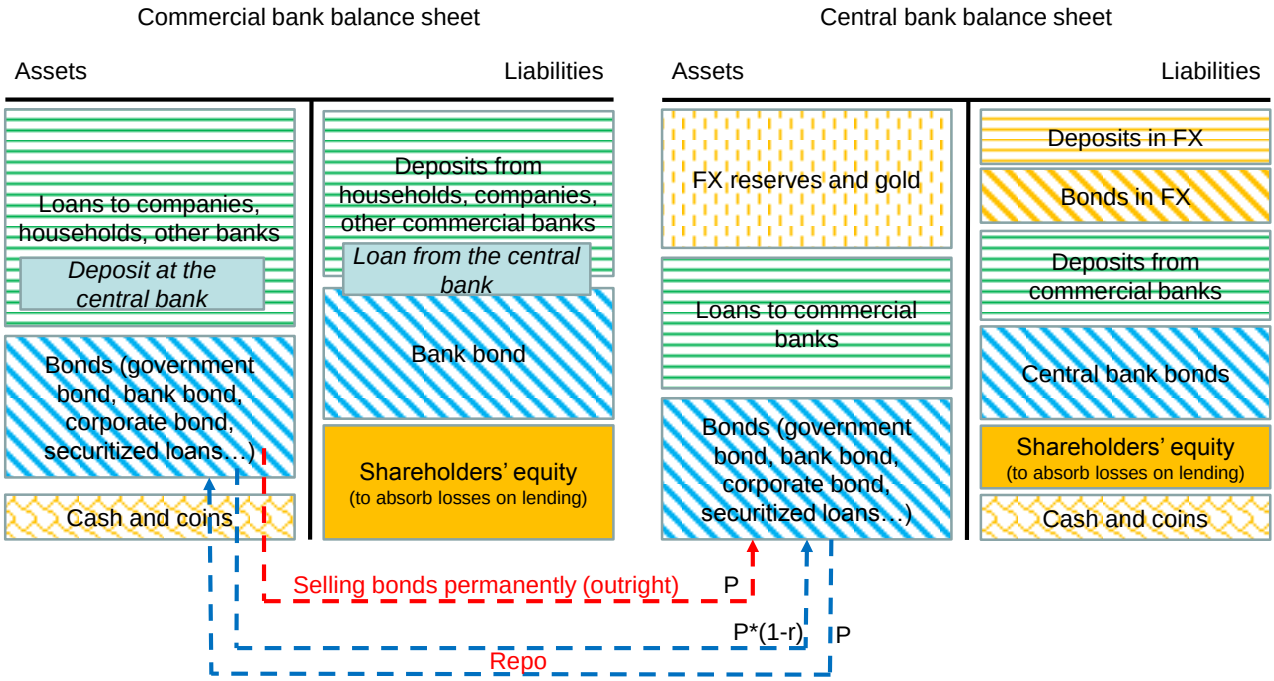
The exchange rate channel (the euro is floating, there is no mechanical relationship): exchange rate movements → domestic price of imported goods (are used as inputs into the production process, lower prices for inputs) → lower prices for final goods → impact on the competitiveness of domestically produced goods on international markets → strength of exchange rate effects depends on how open the economy is to international trade.

The expectations channel (credibility, guidance): influencing the private sector's longer-term expectations, while its effectiveness crucially depends on the credibility of central bank communication. It is able to guide economic agents' expectations of future inflation and thereby influence their wage and price-setting behaviour.

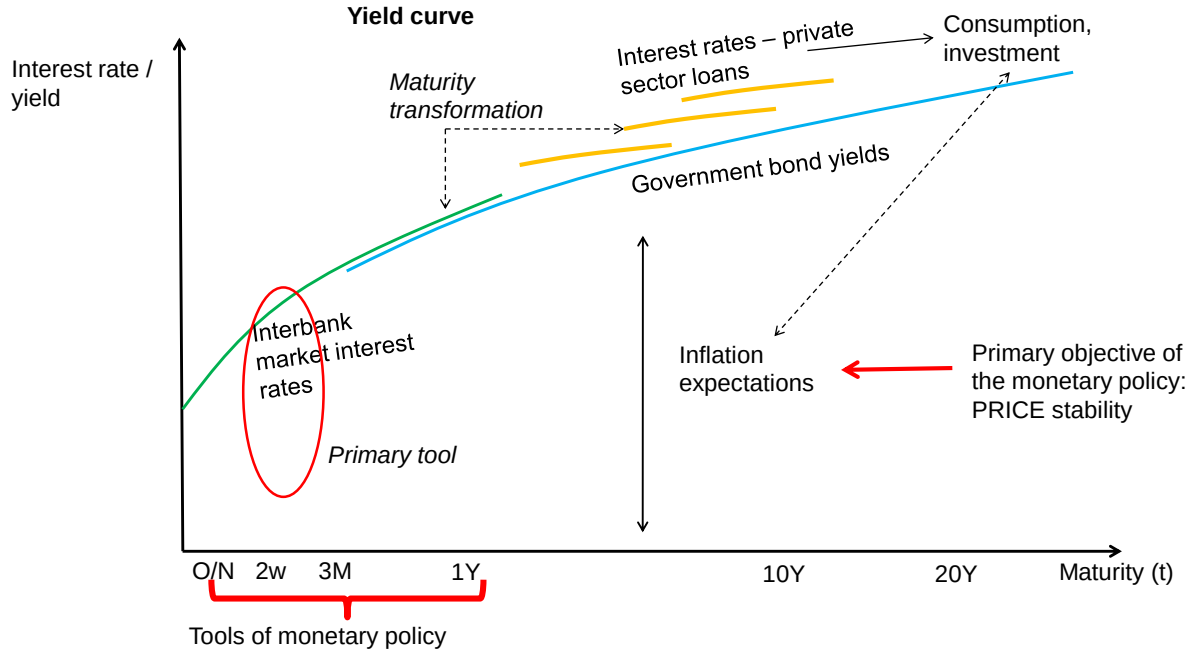
i) What are the instruments of the monetary policy?

The central bank has medium term objective as moderate (2% for the ECB) inflation on medium run (1-2 years), but its instruments are mainly interest rates. The interest channel of the transmission mechanism connects the instrument and the objective together. Central banks can lend money and accept deposits from commercial banks (standing facility), where the interest rate differential can influence interbank-lending and retail depository interest rates (and then lending interest rates). Commercial banks are keeping bonds in their asset portfolio as well, their benefit is the liquid secondary market, so if they need money they can sell it immediately. Government bonds are the most secure instruments from them, while corporate bonds are riskier. Commercial banks can take loans from the central bank with bond collaterals (Lombard lending). When a central bank realizes that consumption and investments are overheated (meaning increasing prices), they can increase the interest rates (lending become more expensive) and sells bonds to extract excess liquidity from the market. When consumption and investments are poor (during recessions, combined with low or negative inflation), central banks are decreasing interest rates to make lending cheaper as well as starts to purchase bonds to pump cash into the markets. Bond purchases can be permanent (when bonds are accumulated in the balance sheet until they expire or being sold again), called outright transactions, and it can be temporary, called repo. The repo transaction is the

sale of securities together with an agreement for the seller to buy back the securities at a later date. The repurchase price should be greater than the original sale price, the difference effectively representing interest, sometimes called the repo rate. Bonds are usually purchased under market price ("haircut") to protect the central bank from losses due to market price fluctuations and to motivate market participant to use private channels.



Commercial banks are special, because they are collecting short term deposits (as liabilities) and providing long term loans, creating maturity transformation. A bank is profitable until the asset-side interest revenues (and bond price changes) are bigger than the spending on deposit interests and bank bond interests – meaning a positive interest margin. If interest margins became negative or the ratio of non-performing loans are increasing, the bank covers its losses from the equity capital (bank deposits are secured until €100 000).



The positive interest margins and the inflation expectations are reflected on the yield curve. Once banks start not to lend to each other (they are afraid of defaults or there is no excess liquidity to lend out), the short interest rates are starting to increase, pushing long-term interest rates and bond yields even further. (ECB 2011, Menkhoff 1997)

j) What are the non-standard measures?

Non-standard measures are used when interest rates hit zero and traditional CB instrument lost much of its stimulating power so the environment can no longer be captured solely by the level of a very short-term interest rates. (Farmer 2013, Bagus – Schiml 2009)

After the sudden stop in funding liquidity in September 2008, central banks had to maintain external financing: in bank lending based economies it called for reactivation (long-term lending to the commercial banks), while in capital market-based environments by bond purchases to by-pass non-functioning counterparties. Or both. (Lenza et al. 2010)

Quantitative easing is a broader expansion of central bank balance sheet and monetary base without altered composition of conventional assets. Lending, FX reserve, securities have the same quality but they are increased as the interbank/security market-based lending decreases. It helps to reduce the risk premiums of high quality assets through their increased prices. (Ellison – Tischbirek 2014)

Qualitative easing means that balance sheet size remains untouched, but the composition of asset holdings changed – accumulating unconventional and lower quality assets to stabilize market or to bail out an insolvent and illiquid banking system. It aims for the re-establishment and enhancement of transmission channels, the money market spreads and risk premiums at longer maturities. It can exploit neglected transmission channels, like corporate papers and bonds, ETFs, Real Estate Investment Trust papers (as it happened in Japan). It supports the financial stability by liquidity and foreign exchange liquidity provision to funding and credit markets. Macroeconomic stability is served by bond purchases, large-scale foreign exchange interventions and credit provisions to the private sector. (Stone et al. 2011)

Qualitative and quantitative easing (QE) is combined usually, by focusing on lending and security market in domestic and foreign currencies. Lending is improved by maturity extension: central bank loans for commercial banks are available not only for 2 weeks but with 1-3-6 month or 1-3 year maturities. Meanwhile the list of acceptable collateral is widened by accepting riskier securities as well. Security markets are supported by government bond purchases (pushing investors toward riskier investments) on the secondary markets, while corporate bonds and securitized loans (asset backed securities, mortgage backed securities, covered bonds) are purchased on the primary and secondary markets (it suggests the bond holders that there is a secure buyer on the market and calms them down). Overnight (O/N), 1-2 week, 1 month FX lending required FX liquidity acquisition at first, trough global swap lines with the FED, and local swap agreements for EUR, GBP, CHF.

k) How did the QE appear in the ECB's monetary policy?

Key policy interest rates hit zero right after the fall of Lehman Brothers at the end of 2008. The ECB focused on the banking sector: longer-term repo operations and reactivated (expanded its list of eligible collateral for BBB and better rated papers) the covered bond market was in the focus of the 'enhanced credit support' in 2008-2009. ECB initiated its first securities markets programme[9] in 2010, when the euro area NCBs[10] and the ECB, started to conduct outright interventions in the euro area public and private debt securities markets. It addressed the malfunctioning of securities markets and to restore an appropriate monetary

[9] http://www.ecb.europa.eu/ecb/legal/pdf/l_12420100520en00080009.pdf
[10] according to their percentage shares in the key for subscription of the ECB's capital

policy transmission mechanism. Additional temporary measures[11] relating to eurosystem refinancing operations and eligibility were introduced in 2014 to accept asset-backed securities[12] (ABS) with a haircut of 10% (for ratings of at least single A) and 22% lower rated papers. Euro-denominated short-term debt instruments, issued by non-financial corporations that are established in the euro area were also accepted as collateral as well as government-guaranteed bank bonds with lower credit standards. Even marketable debt instruments issued or fully guaranteed by the central governments of euro area Member States under a European Union or International Monetary Fund programme were accepted. Later, it was followed by the Asset-Backed Securities Purchase Programme[13] (ABSPP) to accumulate ABSs which are backed by residential mortgage-backed securities (RMBS) or commercial mortgage-backed securities (CMBS) those are located in the euro area. The third Covered Bond Purchase Programme[14] (CBPP3) was initiated also in late 2014, focusing on covered bonds backed by assets such as mortgage loans (covered mortgage bond) rating of 'BBB-' or equivalent, denominated in euro, held and settled in the euro area. The Asset Purchase Programme was expanded[15] further in 2015, to include bonds issued by euro area central governments, agencies and European institutions, providing combined monthly asset purchases to amount to €60 billion (ABSPP, CBPP3). The Secondary Markets Public Sector Asset Purchase Programme[16] (PSPP) was initiated later in 2015 to buy any marketable government bonds with 2-30 year maturities, where NCB purchases had 92% as ECB purchases had 8% shares.

[11] http://www.ecb.europa.eu/ecb/legal/pdf/oj_jol_2014_240_r_0012_en_txt.pdf
[12] (i) residential mortgages; (ii) loans to small and medium-sized enterprises (SMEs); (iii) commercial real estate mortgages; (iv) auto loans; (v) leasing receivables; (vi) consumer finance loans; (vii) credit card receivables.
[13] http://www.ecb.europa.eu/ecb/legal/pdf/oj_jol_2015_001_r_0002_en_txt.pdf
[14] http://www.ecb.europa.eu/ecb/legal/pdf/oj-jol_2014_335_r_0010-en-txt.pdf
[15] http://www.ecb.europa.eu/press/pr/date/2015/html/pr150122_1.en.html
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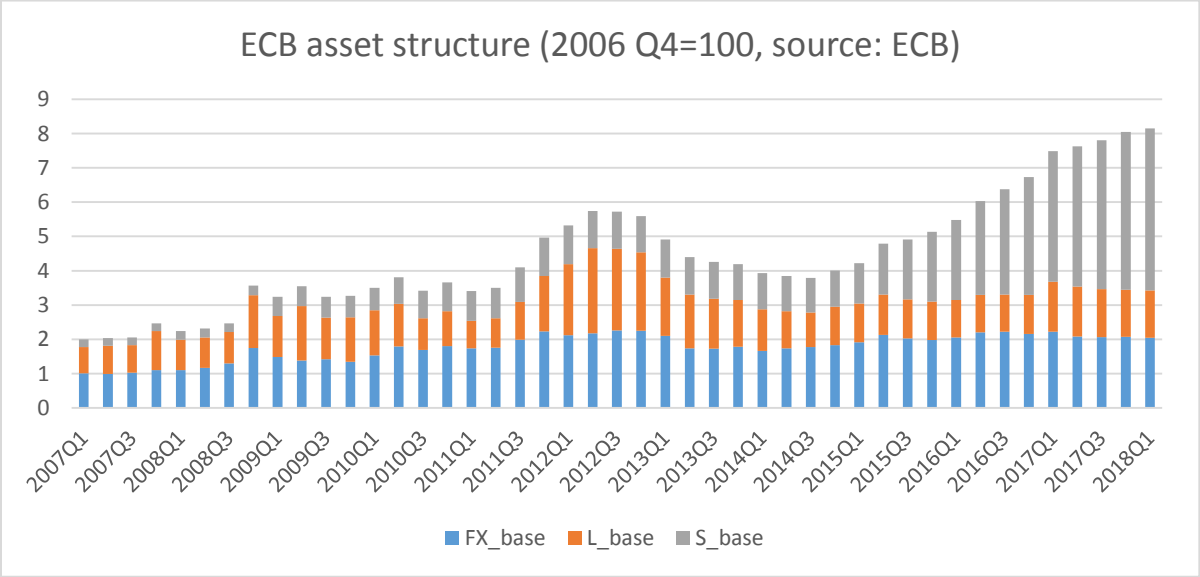


The QE had fundamental impacts on the ECB's balance sheet: while lending was more dominant in the first, 2008-2013 phase of the crisis, later they turned towards security accumulation after 2014.

2. *The Banking Union*

„Financial stability: a condition in which the financial system financial intermediaries, markets and market infrastructures capable of withstanding shocks and the unravelling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities" (ECB 2011).

Macroprudential policy[17] focuses on the excessive systemic financial risks by preventing severe financial crises and minimising their effects on the real economy. The aim is to prevent excessive credit growth, to manage liquidity risks, to limit excessive concentration, to limit the misaligned incentives that strengthen systemic risks and to strengthen the resilience of financial infrastructures.

The banking union stands from the Single Supervisory Mechanism (SSM), the Single Resolution Mechanism (SRM) and the European deposit insurance scheme (EDIS). Mainly it is focusing on the eurozone, but it is open for other member states as well.

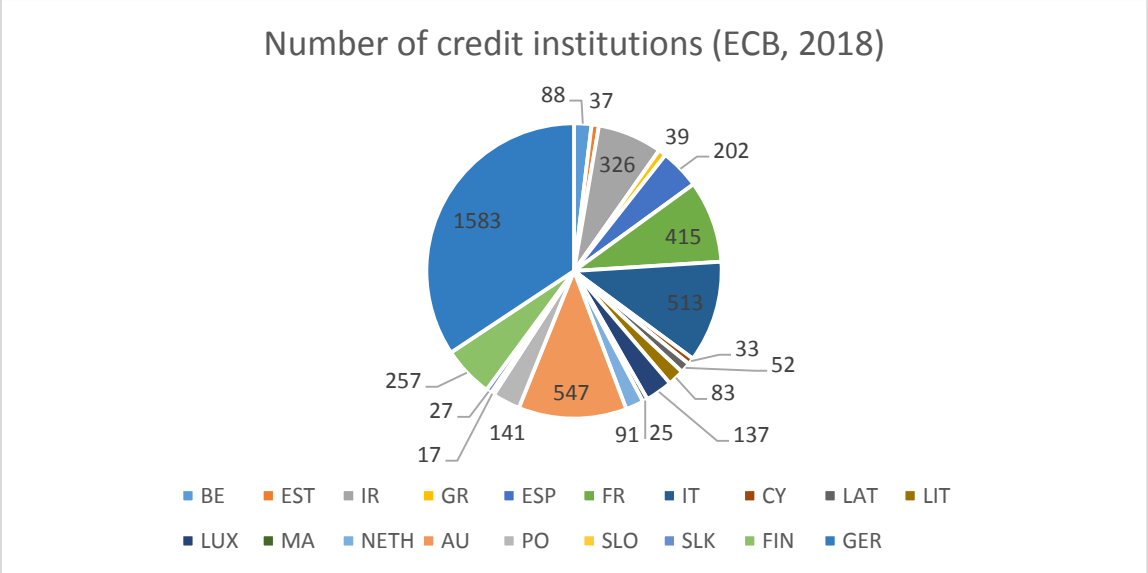
[17] http://www.mnb.hu/en/financial-stability/macroprudential-policy/a-brief-review-of-macroprudential-policy

a) Why do we need the Banking Union?

The creation of the bank union was motivated by the cross-border operations of the main banking networks which enjoyed the free movement of capital, but grown too complex for national supervision authorities. Nearly 2,000 credit institutions have the facility to bid at the weekly ECB operations, of which around 300 regularly does so.

b) How is supervision centralized under the ECB?

The European Central Bank is responsible for the prudential supervision of commercial banks located in the euro-area, under the Single Supervisory Mechanism. The ECB directly supervises the largest significant banks (N=118 in 2018), while the national supervisors continue to monitor the remaining banks. A bank became significant[18] when the total value of its assets exceeds €30 billion, the total value of its cross-border assets exceeds €5 billion (and above 20% of total assets) or it has requested or received funding from the European Stability Mechanism. Actually, ECB supervision seems marginal if we are looking at the number of credit institutions operating in the euro-zone.



[18] https://www.bankingsupervision.europa.eu/banking/list/criteria/html/index.en.html

c) How will bank defaults be assessed?

In many cases, a bank's balance sheet has similar size as the country's GDP. The Single Resolution Mechanism (SRM) prevents the bail-out driven booms in public debt as it happened in Spain around 2010. The Single Resolution Fund collects 1% of the amount of covered deposits of all credit institutions reaching 55 billion euros in 2023. The idea of risk sharing is behind the initiative: losses like 0-8% of balance sheet are absorbed by shareholders, then the next 9-13% will be absorbed by the SRM.

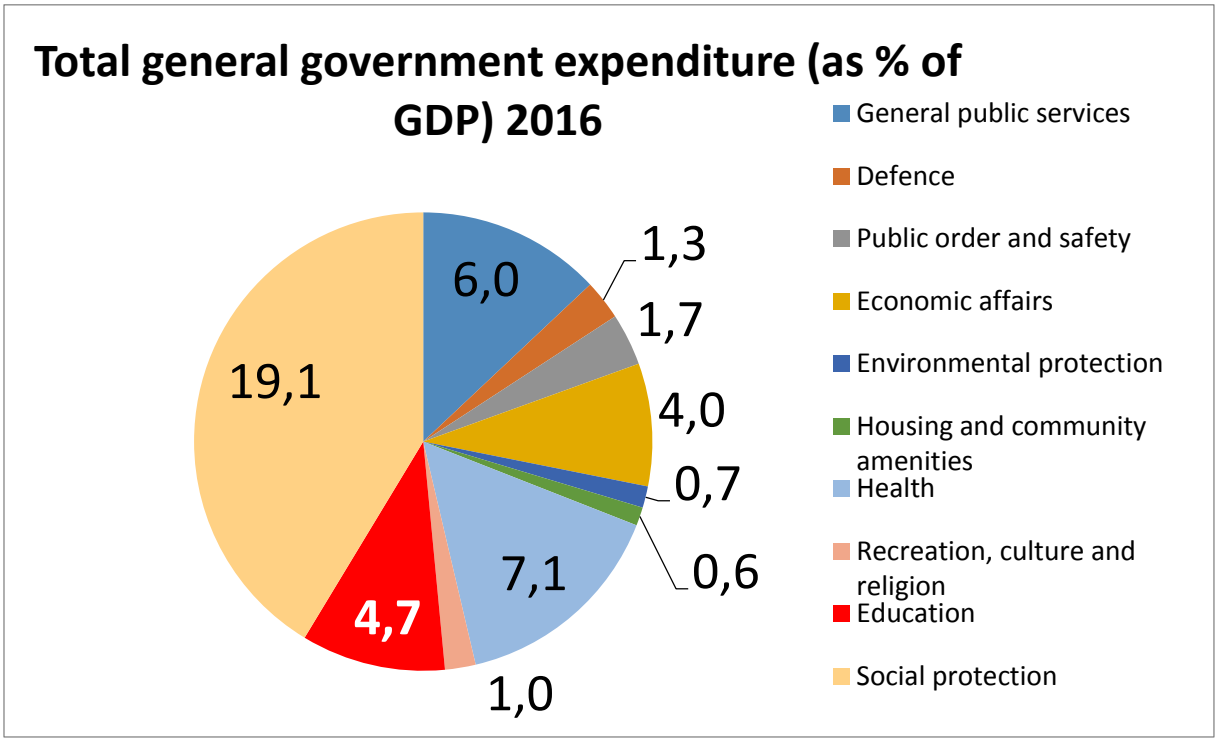
III. The euro as an agent of fiscal policy

This chapter summarizes the developments of fiscal policy regulations and all the crisis resolution mechanisms which were created to stabilize public debt funding.

Key words: public budget, tax incomes, expenditures, deficit, public debt, fiscal regulation, bail-out, ESM, IMF.

a) What are the main expenditures of an average MS budget?

The MSs are spending most of their incomes on social protection (19%), health (7%), administration (6%), education (5%) and economic affairs (4%) according to the Eurostat.



b) What are the requirements of the Stability and Growth Pact?

The Maastrict Treaty in 1992 defined the following rules for fiscal policy: deficit shall be under 3% of the GDP, public debt should remain under 60% of the GDP. The desired public debt-to-GDP ratio was the EU average at that time and it seemed to be stable under low inflation and less than 3% deficit. The GDP denomination was motivated to compare the different countries. However, a deep recession can increase higher deficit-to-GDP ratios with nominally similar deficits.

Stability and Growth Pact (1998) defined the sanctions for those countries who are not able to meet the deficit requirements: the Excessive deficit procedure (EDP) sanctions with 0.2-0.5% GDP deposit making and Cohesion fund payments can be suspended. Except when the GDP is decreasing by more than 2%.

However, EU finance ministers (ECOFIN) rejected the European Commission's recommendation to initiate sanctions proceedings against France and Germany in 2004 which ended with the consideration of individual national circumstances in 2007.

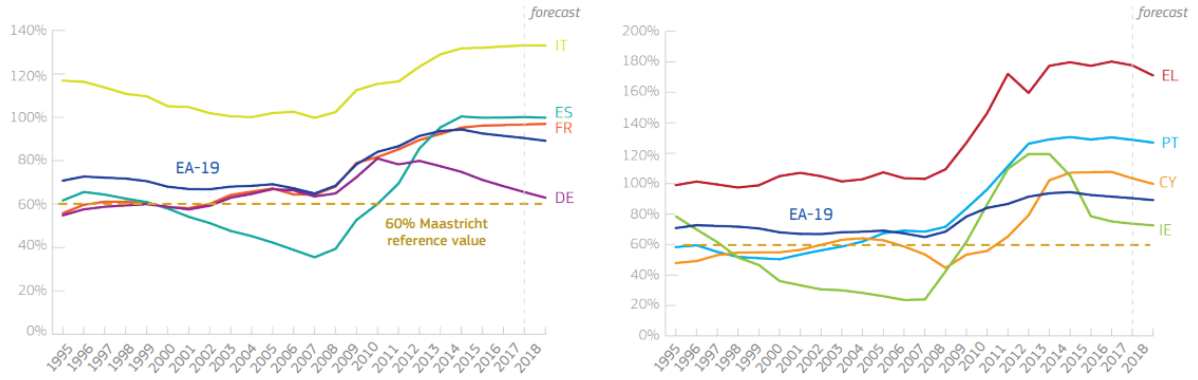
The Treaty of Lisbon (2009) assumed that markets will punish non-performing MSs and a no-bail out clause was introduced. Meanwhile, the Commission initiated a monitoring procedure to provide broad economic policy guidelines for the MSs.

c) What were the major reasons for the euro—crisis in 2010-2013?

The rules-based Stability and Growth Pact failed and high public debts were already in Greece and Italy at the outbreak of the crisis. There was a sole focus on fiscal issues, while unsustainable credit and housing bubbles led to expensive bail-outs (e.g. Ireland and Spain) as well as structural imbalances (e.g. current account, wage) developed. There were no proper mechanisms to foster structural adjustment, economic stagnation was present in some MSs even before the crisis (e.g. Italy, Portugal). The lack of crisis resolution mechanism: sovereign debt and banking crises came as a surprise. Interdependence across countries means that the fall of a 'small' country can create contagion, while the fall of a 'large' country may initiate a continent-wide meltdown. A negative feedback loop between the crisis and growth appeared due to the lack of a euro-area level macro policy.

Trends in public debt

General government gross debt, as % of GDP



Source: European Commission

d) How are fiscal regulations defined today?

Public budget expenditure growth should not exceed a reference rate of potential GDP growth. Legally binding balanced budget rule (preferably in the national constitution, or on an equivalent level): structural deficit must be below 0.5% of the GDP. If significant deviations from the rule is bigger than 0.5% of the GDP in one or 0.25% of the GDP in two consecutive years, MSs shall follow the recommendations of the Council and an interest-bearing deposit must be created (used to provide financial assistance). Public debt above 60% of the GDP must be decreased by one-twentieth per year. Euro area Member States will be required to submit their draft budgetary plans (before they become law) for the following year to the Commission and the Council in the Autumn (European Semester).

The Commission's proposal for sanctions is adopted unless the Council rejects it with a qualified majority.

National fiscal frameworks are used in budget-planning. Macroeconomic surveillance: prevention and correction of macroeconomic imbalances – Excessive Imbalances Procedure (EIP) and Alert Mechanism Report (scoreboard).

Most of these regulations were summarized in the Fiscal Compact[19] in 2012.

[19] Treaty on Stability, Coordination and Governance in EMU (TSCG)

e) How are the liabilities of the ESM collected?

The objective of the European Stability Mechanism (ESM) is to provide financial assistance to euro area Member States experiencing or threatened by financing difficulties. It has a lending capacity (Forward Commitment Capacity) of €500 billion (maximum, current: €369.31 billion). To collect this €500 billion, ESM issues 3- and 6-month bills as well as medium and long-term debt with maturities of up to 45 years (following a diversified funding strategy), while losses are absorbed by a paid-in capital of €80 billion (ESM Treaty). The Basel Committee on Banking Supervision has designated ESM securities as Level 1 High Quality Liquid Assets so banks don't have to increase their capital when they buy these bonds (0% risk weight under Basel III). The long term credit rating is excellent: Moody's Aa1, Fitch Ratings AAA.

f) How is the capital of the ESM allocated (lending)?

The objective of the European Stability Mechanism[20] (ESM) is to provide financial assistance to euro area Member States experiencing or threatened by financing difficulties. It has a lending capacity (Forward Commitment Capacity) of €500 billion (maximum, current: €369.31 billion). Any financial assistance under the ESM is subject to strict conditionality and MSs must follow European Commission's requirements to participate.

Loans have extra-long term maturities: amortisation can start 19 years later and can remain for 23 years. It allows the distribution of large public debt expirations in time: governments will face with a small amount of expired debt on yearly basis.

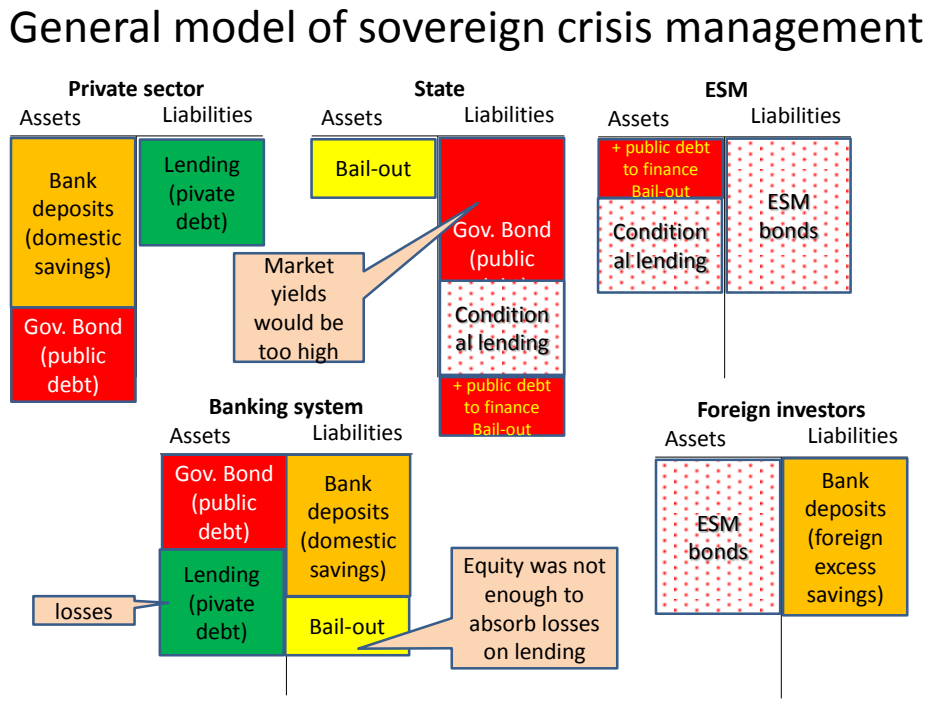
The requirements are usually focusing on the downsizing of the country's financial sector, fiscal consolidation (redemption of medium and long-term debt), structural reforms and privatisation.

g) What are the differences between the IMF and the ESM lending?

When countries are not able to renew their debt at reasonable bond prices (yields), they need financial support to avoid default. The IMF collects deposits from its member countries (so these countries will issue more government bonds to collect the capital) and lend it out for 5-10 years maturities. Meanwhile the ESM issues bonds directly on the market and the MSs are

[20] http://www.esm.europa.eu/

only absorbing the possible losses of the lending. The ESM provided loans for 2-5 decades ahead. The IMF is a non-profit bank of the United Nations with ~30% voting power from EU MSs and led by a European director. The ESM is only a fund, all the decisions about the lending requirements are the European Commission's privilege. Practically, ESM bonds are the homogenous bonds for the non-performing part of the euro-zone.



IV. The New Member States (NMS) in the EU

This chapter summarizes the trade relations, convergence and banking developments of the New Member States. Namely: Czech Republic, Slovakia, Poland, Hungary (often referred to as the Visegrad-4 countries) and Estonia, Latvia and Lithuania (Baltic countries) who joined in 2004; Romania and Bulgaria who joined in 2007 and Croatia who joined in 2013.

Key words: trade integration, convergence, banking integration, euro-adoption.

a) Why are the Visegrad-4 countries more integrated into the intra-EU trade?

The share of the EU in the V-4 export and import is around 60-80% (Eurostat), while multinational companies included them in their production chains after 1990 and a "German-Central European manufacturing core" was created (Éltető 2018). The affiliates of

multinational companies are mainly responsible for the export of automotive, telecommunication and electrical goods production in Hungary, the Czech Republic and Slovakia (Éltető 2014). Medium- and high-tech products were the majority of the export since the late 1990s (Munkácsi 2009, di Mauro 2008), while foreign multinational companies on export have a share between 40-50% (Éltető 2014). There is a long-term but sector-related and sometimes unclear relationship between the exchange rate and foreign trade of V4 countries at a bilateral level (Šimáková 2016).

b) Was there a balanced convergence between core and periphery?

NMSs are lagging behind in their economic development, while the regional differences are more significant as their capital regions reach the median GDP/capita levels. Rural cities were able to present higher outputs in Poland (Wroclaw, Katowice, Poznan) and Czechia (Brno, Ostrava) only.

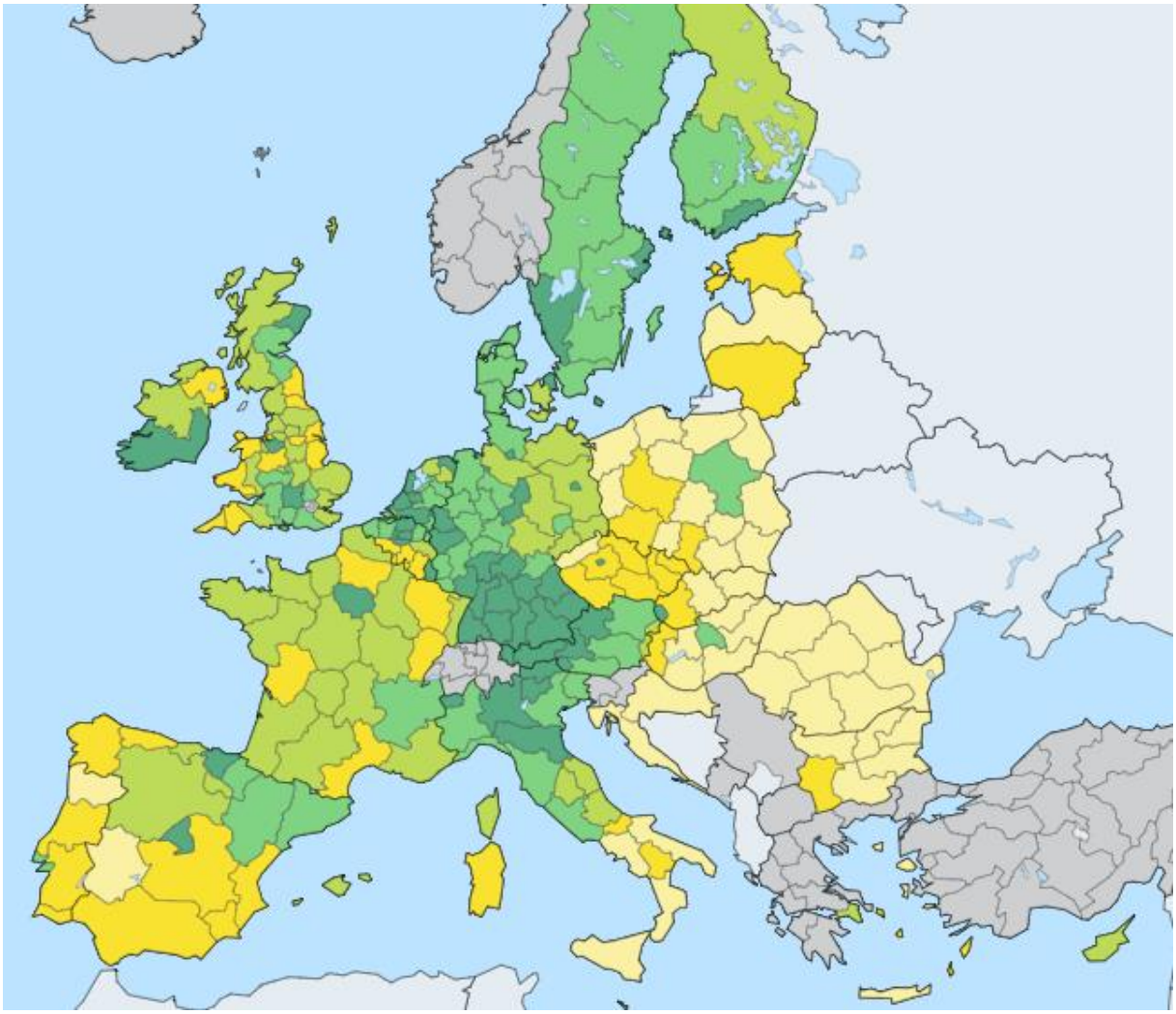
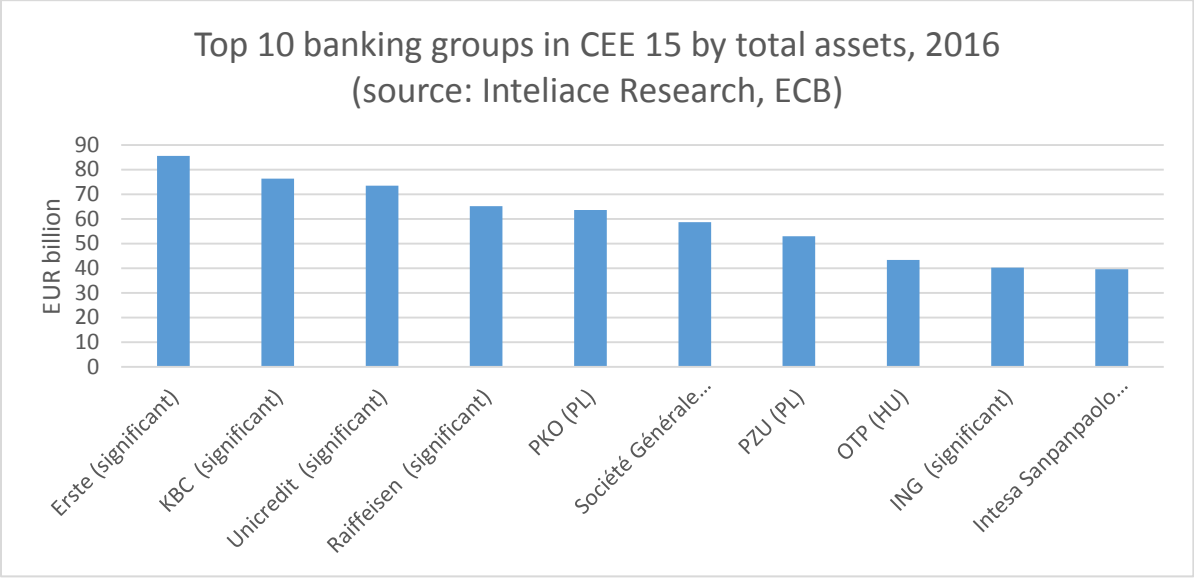


Figure: Regional GDP (PPS per inhabitant) by NUTS 2 regions, 2016 (Eurostat)

Legend		Cases
	8,600 to 19,500	55
	19,500 to 23,900	55
	23,900 to 28,100	55
	28,100 to 34,400	55
	34,400 to 178,200	56
	Data not available	26

c) How is the banking system internationalized?

Former state-owned V-4 banks were mainly privatized to Austrian, German, Belgian, French and Italian banks during the 1990s after their consolidation (Árvai et al. 2009). It was motivated by the potential parent banks' higher resilience and by the need for know-how as well as capital import. The expansion was driven also by the limited growth potential and profit margins in the home country, the higher growth potential and profit margins in the host countries, the internationalisation strategies of the bank's customers, the diversification of business lines and the similar strategies of their peers (ECB 2008). As a result, the region is dominated by significant banking groups, supervised by the ECB. The potential contagion effects rest on the dependence of the host country on funds from the home country, however the parent banks supported their subsidiaries with liquidity during the deepest periods of the crisis (Antal – Gereben 2011, Árvai et al. 2009). This foreign liquidity dependence could be captured in the Loan-to-Deposit ratio which exceeded 100% in Hungary and Poland between 2007 and 2012 (EBF 2012). Foreign currency loans[21] were popular before the crisis, most of them were denominated in euro and Swiss franc – Hungary (65%) and Poland (30%) were the most affected (Yesin 2013). Partially they were responsible for the increase of non-performing loan ratios[22] (HU: 15%, PL: 10%) in the worst years (HU: 2014, PL: 2011) after the large exchange rate swings and CHF appreciations.



[21] Foreign currency loan: denominated in a currency other than that in which the consumer receives the income or holds the assets from which the credit is to be repaid.

[22] https://www.ebrd.com/documents/oce/regional-economic-prospects-2018.pdf

d) Which exchange rate regimes are preferred in the region?

V-4 countries introduced floating regimes around 2000, after the consolidation-motivated crawling-pegs in the second half of the 1990s[23]. The main benchmark currency was the German Mark or later the ECU and the EUR, while USD lost its initial importance. Czech Koruna presented appreciation since the introduction of managed floating – it was limited between 2013 and 2017 at 27 CZK/EUR rate. Slovakian Central Bank introduced euro in 2008 after sharp appreciation. Hungary had an ERM II-like +/- 15% fluctuation band, until it was abandoned right before 2008. The Hungarian forint has been depreciating since then. The Polish zloty presented huge swings since the introduction of the independent floating. However, V-4 currencies present strong common movement with each other and the euro during their daily changes.

V. The 5 targets for the EU in 2020

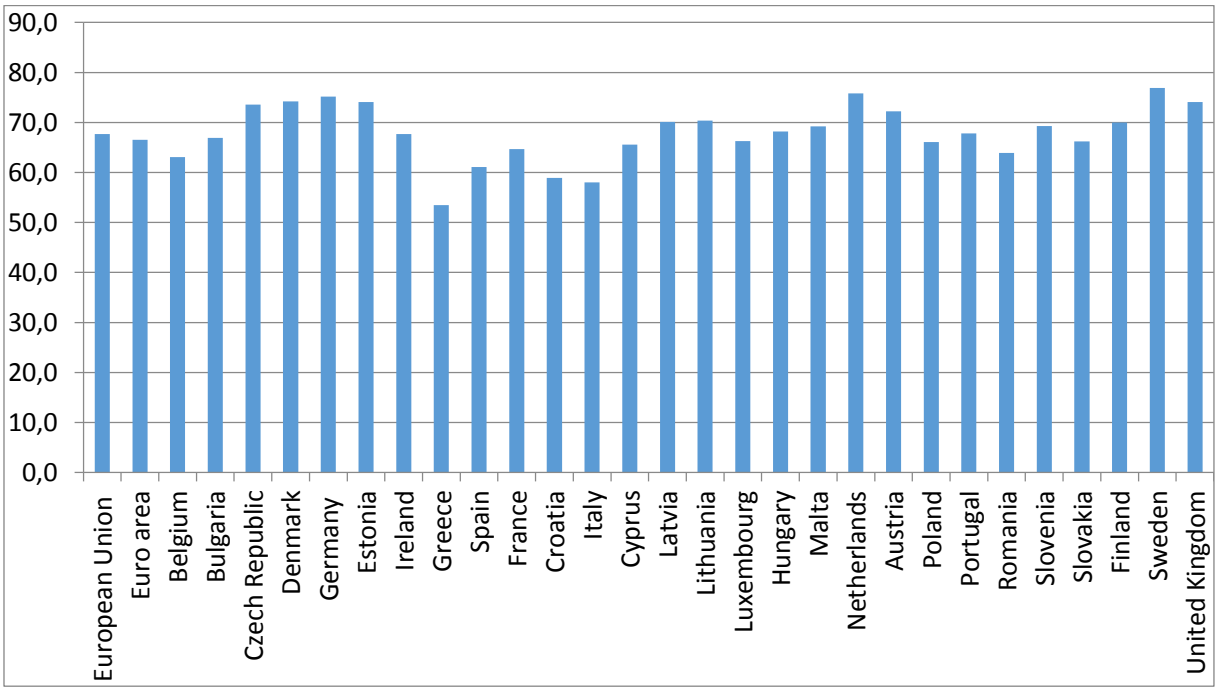
The European Union determined the following strategic objectives until 2020 to guide their policies.

Key words: employment, research and development, climate change, energetics, education, poverty.

1. Employment: 75% of the 20-64 year-olds to be employed

High employment provides high consumption and tax base which is crucial to maintain a stable fiscal policy. Even if we are looking on the broader total employment (From 15 to 64 years in 2017) data, we can see how far is this objective in may cases.

23 https://www.researchgate.net/publication/227379356_Whither_growth_in_central_and_eastern_Europe_Policy_lessons_for_an_integrated_Europe



2. R&D / innovation: 3% of the EU's GDP (public and private combined) to be invested in R&D/innovation

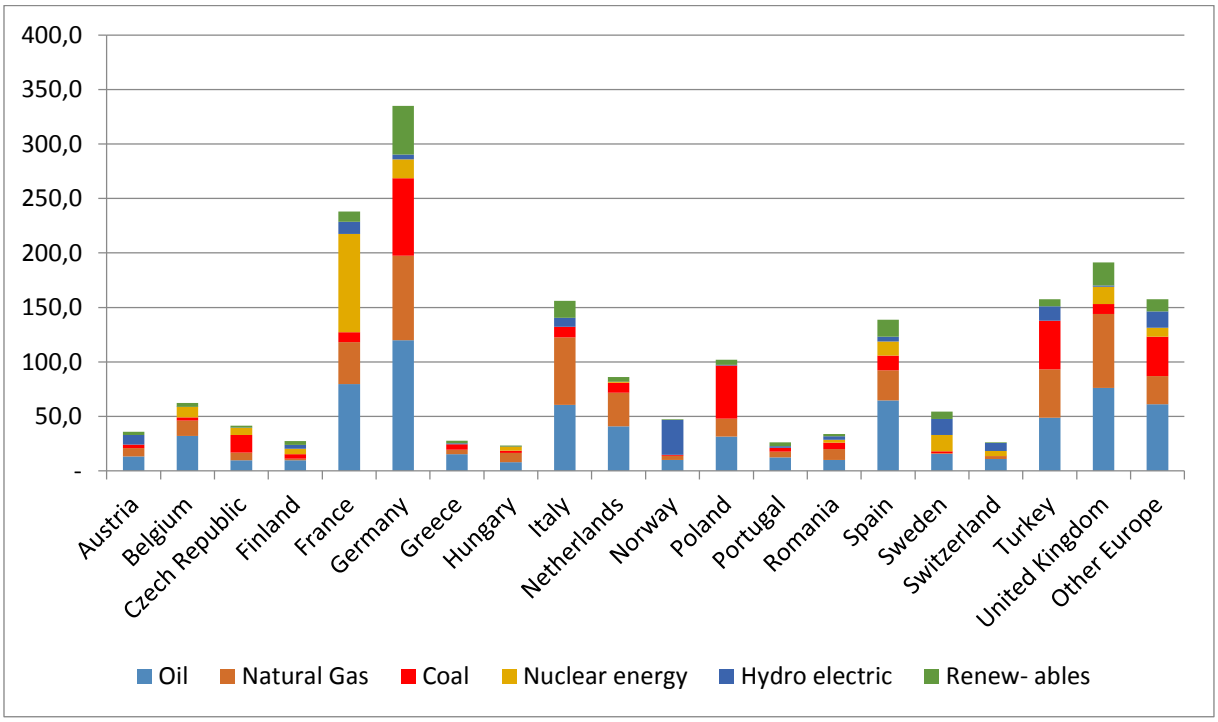
3. Climate change / energy:

- greenhouse gas emissions 20% (or even 30%, if a satisfactory international agreement can be achieved to follow Kyoto) lower than in 1990
- 20% of energy from renewables
- 20% increase in energy efficiency

The majority of the European fuel consumption (for transportation, heating and electricity generation) was oil (37%), then natural gas (23%), coal (15%), nuclear energy (10%), hydro-electric (7%) and renewables (8%). It means that the continent is completely carbon-dependent and renewables have a small but highly volatile share due to their poor load-factors.

Primary Energy: Consumption by fuel, 2017[24]

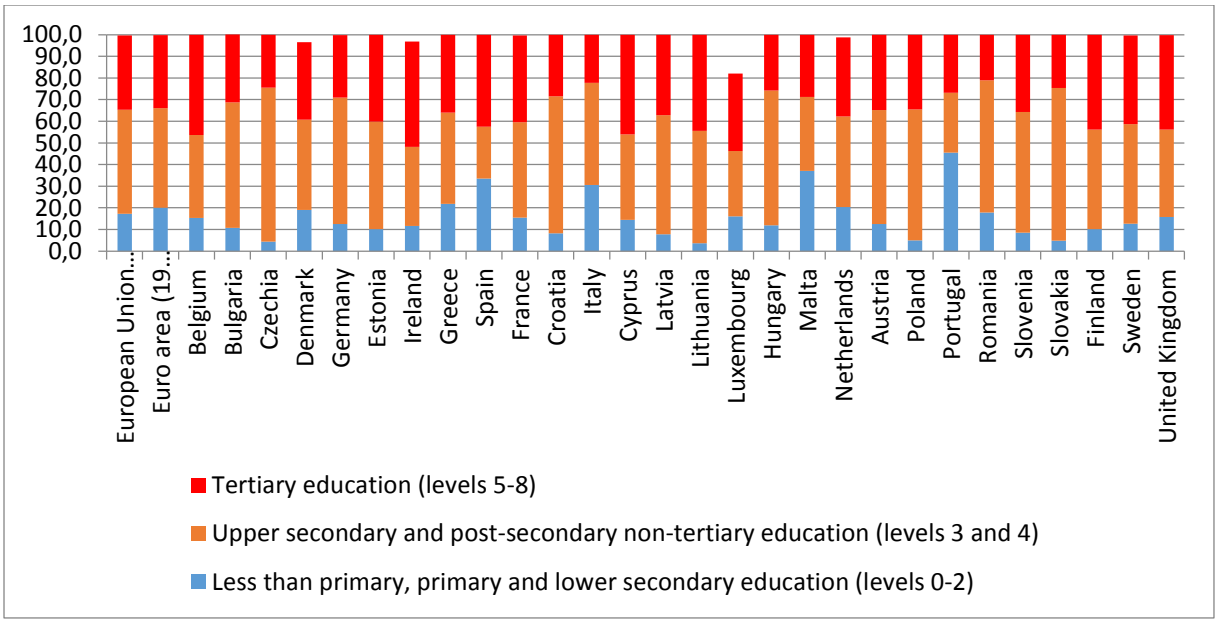
[24] https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html



4. Education:

- Reducing school drop-out rates below 10%
- at least 40% of 30-34–year-olds completing third level education (or equivalent)

The percentage of total employment points on the main differences among the different MSs.



5. Poverty / social exclusion:

- to reduce the number of people with 20 million who are in or at risk of poverty and social exclusion.

References

Árvai, Zs. – Driessen, K. – Ötker-Robe I. (2009): *Regional Financial Interlinkages and Financial Contagion Within Europe*. IMF Working Paper, January 2009, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1356462

Antal, J. – Gereben, Á. (2011): Feltörekvő országok devizatartalék-stratégiái − a válságon innen és túl. *MNB-szemle*, 2011. április

Bagus, P., Schiml, M. H. (2009): New Models of Monetary Policy: Qualitative Easing by the FED. *Economic Affairs*. Jun2009, Vol. 29 Issue 2, p46-49

Benati, L. – Goodhart, C. (2011): Monetary Policy Regimes and Economic Performance: The Historical Record, 1979-2008. In Friedman, B., Woodford, M., (eds.): *Handbook of Monetary Economics*. North Holland: Elsevier

BIS (2011): *Global liquidity - concept, measurement and policy implications*. BIS CGFS Publications No 45, November 2011

Davis, J. S. (2015): *The Trilemma in Practice: Monetary Policy Autonomy in an Economy with a Floating Exchange Rate*. FEDERAL RESERVE BANK OF DALLAS, Globalization and Monetary Policy Institute 2015 Annual Report

di Mauro, F. – Rüffer, R. – Bunda, I. (2008): *The Changing Role of the Exchange Rate in a Globalised Economy*. ECB OP 94 https://www.ecb.europa.eu/pub/pdf/scpops/ecbocp94.pdf

EBF (2012). *The new EBF Banking Sector Statistics Database 2012*. European Banking Federation

ECB (2008): EU Banking Structures. European Central Bank, http://www.ecb.eu/pub/pdf/other/eubankingstructures2008en.pdf

ECB (2008): The Changing role of the Exchange rate in a Globalised Economy. ECB Occasional Paper Series, No 94 https://www.ecb.europa.eu/pub/pdf/scpops/ecbocp94.pdf

ECB (2011): *The Monetary Policy of the ECB*. The European Central Bank, https://www.ecb.europa.eu/pub/pdf/other/monetarypolicy2011en.pdf

ECB (2017): ECB's Annual Report 2017. The European Central Bank https://www.ecb.europa.eu/pub/annual/html/ar2017.en.html

ECB (2018): The international role of the euro. European Central Bank, June 2018, https://www.ecb.europa.eu/pub/pdf/ire/ecb.ire201806.en.pdf

Ellison, M. – Tischbirek, A. (2014): Unconventional government debt purchases as a supplement to conventional monetary policy. *Journal of Economic Dynamics & Control*, Vol. 43, p199–217

Éltető, A. (2014): Foreign trade trends in the EU10 countries. In: Éltető A. (ed.): *Mind the Gap: Integration Experiences of the Ten Central and Eastern European Countries*. Centre for Economic and Regional Studies of the Hungarian Academy of Sciences, Institute of World Economics, Budapest https://core.ac.uk/download/pdf/42929998.pdf

Éltető, A. (2018): *Export influencing factors in the Iberian, Baltic and Visegrád regions*. Institute of World Economics, Hungarian Academy of Sciences

Farmer, R. E. A. (2013): Qualitative easing: a new tool for the stabilisation of financial markets. *Bank of England Quarterly Bulletin*. 2013 4th Quarter, Vol. 53 Issue 4, p405-413

Fender, J. (2012): Monetary Policy. Wiley, Chichester

Frankel, J. A. (2011): Monetary Policy in Emerging Markets. In Friedman, B., Woodford, M., (eds.): *Handbook of Monetary Economics*. North Holland. Elsevier

Hamori, S. – Hamori N. (2010): *Introduction of the Euro and the Monetary Policy of the European Central Bank*. World Scientific

Lenza, M., Pill, H., Reichlin, L. (2010): Monetary policy in exceptional times. *Economic Policy*. Apr2010, Vol. 25 Issue 62, p295-339

Madura, J. (2008): *International Financial Management*. Thomson

Menkhoff, L. (1997): *Instruments for European Monetary Union*. Springer

Mundell, R. (1961): A Theory of Optimum Currency Areas. *The American Economic Review*, Vol. 51, No. 4, pp. 657-65.

Munkácsi, Zs. (2009): *Export structure and export specialisation in Central and Eastern European countries*. MNB OP 81 https://www.mnb.hu/letoltes/op-81.pdf

Obstfeld, M. – Shambaugh, J. C. – Taylor, A. M. (2005): The Trilemma in History: Tradeoffs Among Exchange Rates, Monetary Policies, and Capital Mobility. *The Review of Economics and Statistics*, vol. 87, no. 3, pp. 423-438

Plümper T. – Troeger V. E. (2008): Fear of Floating and the External Effects of Currency Unions. *American Journal of Political Science*, vol. 32, no. 3, pp. 656-676

Šimáková, J. (2016): Cointegration Approach to the Estimation of the Long-Run Relations between Exchange Rates and Trade Balances in Visegrad Countries. *Financial Assets and Investing*, 7:3 pp. 37-57. DOI: 10.5817/FAI2016-3-3

Stone, M. - Fujita, K. – Ishi, K. (2011): *Should Unconventional Balance Sheet Policies be Added to the Central Bank Toolkit? A Review of the Experience So Far*. IMF Working Paper, WP/11/145

Treaty on European Union. *Official Journal*, C 191 , 29/07/1992 P. 0001 – 0110

Treaty on the Functioning of the European Union, Article 127 (1).

Vargas-Silva, C. (2010): Exchange rates. In: Free, R. C. (ed.): *21st Century Economics – a Reference Handbook*. Sage

Woodford, M. (2001): The Taylor Rule and Optimal Monetary Policy. *American Economic Review*, 91 (2): 232-237.

Yesin, P. (2013): *Foreign Currency Loans and Systemic Risk in Europe*. Federal Reserve Bank of St. Louis Review, vol. 95, no. 3, pp. 219–35.