Unit V 7: Theories of money

1. Summary

Money has a threefold function: it serves as a medium of exchange, a unit of account and a store of value. While gold performed all three of these functions for a long time, it lost its function as a medium of exchange with the abolition of the gold standard - and especially with the abolition of the gold backing of currencies. The monetary aggregates M1, M2 and M3 serve as measures of the existing money supply.

2. The Role of Money

Money facilitated many functions and also the development of the economy:

- People strived for income that is unlimited upward.
- Thanks in part to money, a highly differentiated division of labor developed in economic production. At the same time, self-sufficiency fell toward zero.
- Money helped to free people from their personal dependence and enabled them to pursue a wide variety of professions.
- Thanks to professional income, broader classes were able to accumulate wealth, which favored the emergence of money and capital markets.
- The money economy gave rise to new businesses, banks and service industries.

Money thus helped to dynamize the economy and culture (cf. Wielens 2004:36ff). Ultimately, it was only this economic development dynamic triggered by money and capital that was able to bring about the industrial development process through technical innovations and the use of fossil energy (coal, oil and natural gas). On the one hand, this led to enormous technical progress, on the other hand, enormous amounts of valuable raw materials were and are consumed every year, which have been formed over millions of years (cf. Wielens 2004:49).

Thus, money had and has an ambivalent function: On the one hand, money promoted and still promotes economic progress; on the other hand, it also has a destructive effect in many

areas: in relation to the environment, in social coexistence and in people's personal development.

2.1 What is money?

Classical economics attributes three main functions to money:

- Money has a barter function and is accepted in exchange for goods, services and assets.
- Money is a unit of account and denotes the value or price of goods, services and assets.
- Money has a storage function and represents a means for the purchase of power and wealth (cf. Cohn 2010:138).

As we all know, a modern economy is unthinkable without money. Without entering here into the discussion about the meaning and character of money, we can state that a central function of money is to buy and sell goods and services: Money is a crucial means of getting goods and services from producer to consumer in (almost) any dosage. Money thus has an important role in the distribution process of goods and services.

The problem, however, is that money has increasingly lost this exchange and distribution character and has become a value in itself. Money is regarded as a measure of wealth and has therefore become an end in itself (see also ► Unit V 3: "Blind spots in cconomics").

Helmut Creutz (in Humane Wirtschaft July/August 2014:8) has argued that the third money function (store-of-value function) contradicts the first two money functions (exchange function and calculation function), indeed that the store-of-value function overrides the first two functions: With the store-of-value function, "there is not only an interruption of the circulation, but in addition there is also a shift in value, because the quantity of money remaining in circulation is now in a different relationship to the quantity of goods offered" (Creutz in Humane Wirtschaft July/August 2014:8). The question arises, however, whether the three money functions are really as closely related as Creutz thinks. It is undoubtedly true that the importance of money as a store of value has increased, but this has more to do

with the disproportionate growth of the financial sector and the services it offers than with the store-of-value function of money itself.

Roland Baader (2005:21) rightly pointed out that usually economists answer the question of what money is by referring to the three functions of money, i.e. its role as a store of value, as a unit of account and as a medium of exchange. This answer is unsatisfactory, however, not least because a function is not identical with the essence of an object. The essence of a thing can be explained only in part from its function. This is certainly one reason why the various theories of money are so controversial.

Many economists unquestioningly assume that money comes to its value (to its purchasing power) either because an institution - e.g. the state or the national bank - has determined this or because people are willing to accept money as a means of payment (trust in money). Baader (2005:23) somewhat polemically calls the first explanation "enthronement theory" and the second explanation "convention theory."

Value of money
"So our modern money is not based on gold or commodities, but on promises to pay. Every euro of central bank money that circulates through our economy is backed by a loan, a security, which is stored at the central bank. Behind each of these securities is the promise to create value - it is this promise that gives our money its value.
These values are also actually created day after day, month after month, year after year; they are the results of the investments for which the companies borrowed the money. Professionals then call this 'economic value added'. The Federal Statistical Office in Wiesbaden records and measures this value added as gross domestic product in the so-called national accounts. This tells us what determines the value of our money: our gross domestic product, also known as 'social product' in common parlance, the sum of all the values of all the goods and services produced in our economy in a year. Our money is not backed by gold, but by the promise that it will be matched in the long run by a corresponding mountain of goods and services, the social product. Thus, it is clear who determines the value of our money: All those who produce this social product. That is, us."
Source: Beck/Prinz 2014:27.

It is undoubtedly true that money is often defined in terms of the theory of convention in the form of circular reasoning: "Money has value (purchasing power) because it is generally accepted, and generally accepted it is because it has value" (Baader 2005:23). Yes, Baader even questions whether what we accept as money is actually money: "The fact that the

paper bills, covered by nothing, that we carry around in our pockets today (and have been carrying around for a long time) have been declared 'money' by state order does not necessarily mean that they are actually money. And indeed they are not. What we call money is not money. The Anglo-Saxon economists have coined for this sham money ("sham money" in the double sense of the word: paper bills and money 'only for sham') the apt expression fiat money" (Baader 2005:23) - just as in the Bible on the divine command "fiat lux" - let there be light - brightness arose, on the state command "fiat money" money is to be created out of nothing.

Helmut Creutz (1994:29/30) answered the question of what is actually to be called money as follows: "Checks, transfers, standing orders and debit orders can be used to transfer credit balances from one account to another. A cashier's check provides a means of withdrawing money from the account. Therefore, a check cannot be called money. Rather, it is a paper with which one can pass on a claim for money to a third party or present it to the bank oneself. Credit or check cards have even less to do with money. They merely guarantee the recipient that his or her claim will be settled with a credit transfer, albeit with a time delay. Magnetized plastic cards, which are either 'loaded' with an amount or are suitable for direct debits, are also not money. All these devices are always only technical aids to the transfer of credit" (Creutz 1994:29/30). In contrast, according to Creutz, only banknotes and coins issued by central banks are money, "with which one can settle claims without accounting procedures, from hand to hand, and which one can pass on to a third party immediately after receipt" (Creutz 1994:30). Although transferable demand deposits are very similar to money in the form of notes and coins, Creutz (1994:30) warns against calling them "money." This is because demand deposits have a dual function: They are both a means of transfer and a means of credit. Creutz (1994:49) has distinguished cash from demand deposits as follows:

	(Cash) Money	**Sight deposits**
Functions	Means of payment	Means of transfer
Tools	coins, banknotes	checks, transfers
Specific differences	issued by the state immediate settlement Third party assistance not required transaction is not documented can only be increased by the state	privately saved delayed settlement third party and technical assistance required process is documented Can be increased by anyone

Source: Creutz 1994:49.

Creutz (1994:30/31) argues as follows: Suppose a plumber has made a repair to a baker in the amount of 100 euros. The baker can pay the plumber in three ways:

- with a 100-euro bill,
- with a cash or crossed check for 100 euros, or
- with a consideration in bread worth 100 euros.

While the check must be covered by a cash balance of the drawer and the bread represents a direct counterpart, the euro bill can be circulated by the payer without additional cover. However, the quantity of banknotes in circulation can be increased or decreased by the central bank. According to Creutz (1994:31), the difference between the three payment methods is also evident in the case of a loss: If the installer loses the bread he received, his claim is still balanced. If he loses the check, then his claim remains open and he can demand compensation from the baker if necessary - at least as long as the amount has not been debited from the baker's account. If, however, the bill is lost, all his claims are extinguished, even if witnesses confirm that he possessed the money. According to Creutz, in the first case the installer harms only himself, in the second case there is no injured party, and in the third case he harms the money cycle and thus the public, because 100 euros less are available. There are two things to say about this: It is true that bread and banknotes in this case represent means of payment in the form of money, although bread, unlike money, has no generally recognized payment value and is perishable. Therefore - one could say - the money character of the note is more pronounced than that of bread. In principle, however, any

commodity can take on a monetary character - cigarettes, for example, were a popular means of payment in Germany after the Second World War.

However, the question arises as to whether it is true that the loss of the banknote actually caused damage to the general public: True, there are 100 euros less that can be used to buy goods. But this does not affect the existing value of consumer goods - only their price. Let us assume that all the people of Germany lose 100 euros on the same day. This reduces the amount of banknotes in circulation and thus the money supply by - let's say - 8 billion euros (80 million times 100 euros). Nevertheless, the economy produces exactly the same amount as before - what changes is only the ratio of circulating banknotes or circulating amount of money and produced goods: The price of the goods will decrease - but only in euros, not in other values, in gold or US dollars. Likewise, the exchange ratio between the different goods will remain the same, e.g.: between an hour's work of a plumber and the equivalent value in the form of bread. Thus, we have a change in the prices of goods in euros, otherwise nothing happens (cf. also Jäggi 2016:12ff.; 77ff. and 97ff.). Instead of arguing about whether credit balances in the form of checks or loans are money or not, it would be wiser to talk about "money function." This can come to any good, but also to fictitious goods or units of account, namely whenever they are used in the exchange of goods (exchange function), as store of value and as unit of account.

It is precisely on the question of who is responsible for money creation - or more precisely: who is allowed to create money - that the so-called "Vollgeldinitiative" (full money initiative) in Switzerland has taken its starting point: Because further money is created by passing on and lending out deposits - e.g. savings deposits - the private banks today have the de facto authority to create money. This competence, however, belongs exclusively to the central bank, which is why the full money initiative demanded that every loan granted by banks be backed by 100% central bank money. The main advantage of this would be that in the event of a bank crash, customer deposits would be treated as debt capital and not as equity capital of the banks, which would make a costly bank bailout to save customer deposits unnecessary (cf. Mayer 2017:12). Because the money created exclusively by the SNB would be covered by the economic output, it would even be possible to use the surplus money created by the loss of interest on the "debt money" generated by commercial banks for

lower taxes or even to distribute it to citizens (so-called "helicopter money"). The initiators calculate that money freed up in this way would amount to 3.4 - at 1% interest - to 15 billion francs per year (cf. Mayer 2017:14 as well as 44). The 100% coverage of money loans by national bank money is currently already the case with PostFinance because it does not have a banking license. The Vollgeld initiators also argue that the Vollgeld initiative could prevent speculative bubbles caused by excessive money creation (cf. Mayer 2017:13).

The problem, however, is that the cause of the large monetary assets is not so much the money creation by commercial banks, but the unequal distribution of wealth and the excessive monetary liquidity ("quantitative esasing"), which nota bene was created precisely by these national banks. Another argument against the full money initiative is that a flexible and thus also efficient economy depends on credit, the volume of which fluctuates strongly. This can only be ensured by the current monetary system - a possible 100 percent coverage of corporate and consumer loans by the National Bank would lead to unforeseeable credit bottlenecks and possibly to a major economic collapse. The initiators deny this (cf. Mayer 2017:16) with the argument that the money supply would remain the same. While this is probably true in the longer term, there are large fluctuations in demand on the market in the short term, to which the banks can react more flexibly today. For this reason, the argument of the full money initiators that the banks would not earn less as a result of the introduction of full money is not correct (cf. Mayer 2017:16): The credit volume would clearly decrease and with it the turnover and ultimately the profit of the banks. On June 10, 2018, the initiative was rejected at the ballot box by a good 75% of the electorate and all cantons. The risk of a system change was too unpredictable in the eyes of many citizens; moreover, the Swiss National Bank itself had rejected the initiative, even though the new system would have significantly expanded its competencies (cf. Schöchli in Neue Zürcher Zeitung, 11.6.2018:12).

According to Creutz (in Humane Wirtschaft Sept./Oct. 2012:31), cash holdings in Germany have developed pretty much in step with GDP. According to the same author, both GDP and the money supply in circulation increased forty-six-fold (i.e. by a factor of 46) between 1950 and 2010. Money deposits and loans, on the other hand, have increased massively.

Values in billion euros	**1950**	**2010**	**Increase by**
Gross domestic product	53,4	2477	46 times
Money supply M1*: of which	9,1	1290	142 times
Currency in circulation	4,3	200	46 times
Sight deposits	4,8	1090	227 times
Money supply M3*	20,7	2083	101 times
Total deposits	13,9	6809	490 times
Total loans	16,6	5943	358 times
Net wages	17,9	689	39 times

Source: Creutz in Humane Wirtschaft Sept./Oct. 2012:31; lightly edited by CJ.
* For more detail on the definition of money, see below.

However, if these figures are compared with the inflation measured over the same period, it is clear that the Creutzian understanding of money exclusively as cash cannot be correct, because inflation always occurs when the quantity of money increases in relation to the quantity of goods and services produced. If money were only cash, inflation would have to be more or less zero, which, as we know, is not the case.

Which goods have a monetary function and which do not can change, for example through technical progress or through legal regulations. For centuries, gold had the function of money.

In 1933, U.S. President Roosevelt declared the possession of gold illegal and ordered - under threat of severe penalties - the compulsory delivery of privately owned gold stocks (Baader 2005:43). Later, Roosevelt also had the redeemability of the dollar for gold abolished. With this, Roosevelt tried to take away the money character of gold: Gold was to lose its three money functions, namely the exchange function, the store of value function and also the accounting function.

Baader (2005:44) called this procedure the "greatest theft in the history of the world": "Until 1933, the Americans had been certain that the gold treasury of the U.S. Treasury belonged to them, to the U.S. citizens, in exactly the same proportion as each individual American had

gold depository receipts - called: Dollars. By ordering them not to be redeemed, Roosevelt robbed all American citizens of their proportionate share of gold treasure. If someone stores something in a warehouse and receives a receipt for it, which guarantees him that he can pick up his property again at any time - and if this person is then told: 'Tough luck, you won't get your goods anymore, but instead you can go shopping with your storage receipt', then this is only different from robbery and theft in form, but not in substance" (Baader 2005:44). Baader concludes that the gold reserves of states and central banks are stolen goods.

However, the situation is not quite that simple: For the value, which used to be defined and secured by the value of gold, has now been defined in paper form - and kept somewhat stable. While gold was an exchange equivalent and store of value with an intrinsic value (gold), the paper dollar continued to be an exchange equivalent, but without its own "intrinsic" value. The value of paper money was guaranteed by government institutions, such as the central bank. And in practice, this worked quite well: After all, you could buy everything with the paper dollar that you had previously been able to buy with gold. The problem, however, was that governments could put more or less money into circulation - or print it - which is why the value of paper money was less stable than its equivalent in gold. One reason for this is that the amount of gold in existence has been slowly but steadily increasing. By 2014, a total of 172,300 tons of gold had been mined, and the annual amount mined in 2014 was 2860 tons (see Aeberli in Schweizerische Handelszeitung, Jan. 30, 2014:7). The value of gold available worldwide at the beginning of 2014 was around 6200 billion Swiss francs or € 5170 billion (cf. Aeberli in Schweizerische Handelszeitung of 30.1.2014:7). This amount corresponded to approximately 10 to 11 times the Swiss gross domestic product (as of the end of 2013).

However, the gold price can also fluctuate strongly. While, for example, between mid-2008 and mid-2011 the gold price rose from US $ 700 to around US $ 1900 per ounce, between 2012 and mid-2013 the gold price fell again to around US $ 1250 per ounce (cf. Hagl in Schweizerische Handelszeitung of 27.6.2013).

By the end of 2015, the gold price had fallen again successively. After a low in December 2015 at just over US $ 1050 per ounce, the gold price rose again significantly by mid-2016.

This is all the more weighty because during the same period the yield of government bonds - such as 10-year bonds in the U.S. - declined constantly (see Neue Zürcher Zeitung, June 30, 2016:33).

If one assumes that in the last 100 years the amount of gold increased by only about 1.5% annually, and if one considers that the industrial demand for gold is very low (cf. Stöferle in Neue Zürcher Zeitung of 4.1.2016b:10), gold can be seen as a good money substitute - or as Stöferle (in Neue Zürcher Zeitung of 4.1.2016b:10) calls it - "as a monetary good that is in exchange rate relation to currencies". This is matched by the fact that gold moves fairly analogously to the development of real interest rates, albeit in inverse proportion: rising gold prices tend to correspond to falling or stable interest rates in the minus range, falling gold prices go hand in hand with rising real interest rates (cf. Stöferle in Neue Zürcher Zeitung of 4.1.2016b:10).

Today (2015/2016), falling real interest rates go hand in hand with falling or negative interest rates and negative inflation - this means that gold is quite stable not only in inflationary but also in deflationary times. The question is, however, how the gold price will react if the policy of "quantitative easing", i.e. flooding the money markets with liquidity, is abandoned - presumably the gold price will then rise again, just as the value of currencies will grow (decreasing money supply = increase in value per monetary unit).

All in all: gold is quite stable in value over time.

Of course, it is true that cash still plays a central role in direct trade. For example, Helmut Creutz (in Humane Wirtschaft of March/April 2010:3) estimated that in the German retail sector, the ratio of people paying in cash to people paying by EC card, credit card, check or against invoice is still 9:1. But these figures are misleading. After all, larger, regular amounts such as apartment rents, health insurance premiums, insurance policies, etc. are now largely paid via e-banking.

Yes, in recent years, the importance of cash has even increased in view of the huge amounts of liquidity created by the national banks. This is surprising because, on the one hand, the

inflation of the money supply was feared to increase and, on the other hand, cash is the least resistant to inflation (no interest!). According to Robert S. Kapito, the president and director of the world's largest asset manager Blackrock, average households in many countries hold more than 60% of their assets in cash, and in Switzerland as much as 34% of assets are said to be held as cash (see Neue Zürcher Zeitung of 22.6.2015:25). In September 2016, Kapito even estimated the cash holdings worldwide at 70 trillion US dollars - i.e. at 7000 billion dollars (cf. Neue Zürcher Zeitung of 14.9.2016:31). That this is not a healthy development should be obvious.

According to the German Bundesbank, in 2012 the cash issued by the European Central Bank was used as follows:
- 10 - 15% is used for transactions;
- 10 - 30% is hoarded;
- Around 70% is "with unknown use" abroad, and almost exclusively in countries outside the Eurozone (see Bangemann in Humane Wirtschaft March/April 2016:5).

However, more and more companies have also moved to hold large amounts of cash over the past 15 years. In 2015, for example, Apple held nearly 200 billion francs in cash or as short-term callable investments, and Apple, Microsoft and Boogle together held as much as 350 billion francs in cash (cf. Wittrock in Schweizerische Handelszeitung, July 23, 2015:25).

Some EU countries have moved to introduce cash caps since 2011:

Cash Ceiling in Selected EU Countries		
	Ceiling in euros	In force since
Belgium	3000	2014
Bulgaria	14999 BGN (about 7670 euro)	2011
France	3000 (residents and business non-residents) 15000 (non-resident consumers)	2011
Greece	1500	2011
Italy	999,99	2012
Portugal	5000 (transactions between consumers and professionals)	2012
Slovakia	5000 (business-to-business, consumers-to-business, business-to-consumers); 15000 (natural persons acting outside their normal business)	2013
Spain	2500 (residents); 15000 (non-residents)	2012
Czech Republic	350 000 CZK (about 14000 euro) per day	2013

Quelle: Beretta in Die Volkswirtschaft 8/9-2015:44.

At the beginning of 2017, 12 EU countries already knew cash ceilings (cf. Ferber in Neue Zürcher Zeitung of 2.2.2017:12). In November, the Indian government devalued in one fell swoop the 500 and 1000 rupee notes with an equivalent value of Fr. 7.50 and 15 (cf. Keve in WochenZeitung of 9.2.2017:11), i.e. 86% of the cash in circulation (cf. Ferber in Neue Zürcher Zeitung of 2.2.2017:12). Because about 94% of the notes were exchanged, much less black money was eliminated than targeted. At the same time, quite a few poor Indians lost their hard-earned cash because they could not exchange the notes within 50 days against presentation of an identity card (cf. Keve in WochenZeitung of 9.2.2017:11).

In individual countries, such as Sweden, cash has effectively been abolished, with many Swedish stores no longer accepting cash at all.

The limits on cash transactions are intended to better control capital flows. However, Beretta (in Die Volkswirtschaft 8/9-2015:44) rightly criticizes that this may have a negative impact on the economy and restrict economic freedom. Moreover, it should not be forgotten that in times of negative interest rates - and especially if these are passed on to all savers, which was not yet the case in Switzerland in 2017, for example - holding cash is one of the few ways for many to preserve their assets. But especially in developing countries, this

function of cash is substantial, as has just been shown again in the recent devaluation campaign in India.

In 2017, the Scientific Advisory Board of the German Federal Ministry for Economic Affairs and Energy discussed the arguments for and against the abolition of cash and published its report "Zur Diskussion um Bargeld und um die Null-Zins-Politik der Zentralbanken" on February 9, 2017. It recommended retaining cash because an exclusively cash-free economy would create new risks (see Gersbach/Hellwig in Die Volkswirtschaft, 8/9-2017a:6). For users, cash offers the following advantages: Cash offers anonymity and does not depend on third parties or on technical or electrical infrastructures. Anonymity provides constitutional protection of privacy. On the other hand, it is often argued against cash that it is used for criminal activities and in the shadow economy. The first argument in particular is only relevant to a limited extent because criminal actors can also use cryptocurrencies such as Bitcoin. However, in its study, the Scientific Advisory Board considered it legitimate to restrict the issuance of large notes because they are often used for criminal transactions (see Gersbach/Hellwig in Die Volkswirtschaft, 8/9-2017a:8).

The run on cash could also be a sign of the enormous loss of confidence in the monetary system. When some 1,800 unfinished 1,000-franc notes went missing in the fall of 2012 at Orell Füssli, the money printing plant of the Swiss National Bank (SNB), those responsible waited a full year before announcing it. Allegedly, there were 1800 "unfinished" thousand-franc notes on which the serial numbers were still missing - i.e., 1.8 million francs - although the Neue Zürcher Zeitung (of Oct. 2, 2013) could not resist asking how it was possible to be so precise about their number without serial numbers. Did they fear for the stability of the Swiss monetary system if a larger number of stolen banknotes were involved? But what was actually interesting was the fact that the stolen bills represented just 0.003% of the Swiss banknotes in circulation (Grundlehner in Neue Zürcher Zeitung, 2.10.2013). From the end of 1999 to the end of 2012, the volume of cash in circulation grew from CHF 37.185 billion to CHF 60.053 billion. This means that at the end of 2012, more than 10% of the value of Switzerland's gross domestic product was in circulation as cash!

Between 1990 and 2016, the **cash in circulation ratio** - i.e. the relative share of cash measured against nominal GDP - declined from 26% to 14% in Switzerland as a whole (see Trütsch in Die Volkswirtschaft 8/9-2017b:10). By contrast, the **cash ratio** - i.e. the share of cash, i.e. coins and banknotes in circulation, as a percentage of the money supply M1 - increased significantly since 2008. (cf. Zurbrügg in die Volkswirtschaft 8/9-2017c:19).

In Switzerland, until the end of 2008, the currency in circulation ratio had remained fairly stable and had grown in line with GDP. Moreover, since 2008, the share of 1000s of notes increased significantly and covered 62% of notes in circulation in 2017. This means that cash has gained in importance as a store of value (see Trütsch in Die Volkswirtschaft 8/9-2017b:10). Reasons are probably loss of confidence of the (financial) economy and banks, the negative interest rate policy and fear of loss of value. This thesis is confirmed by the fact that the banknote circulation rate slowed down significantly between 2008 and 2016 - because more people hoarded banknotes (see Trütsch in Die Volkswirtschaft 8/9-2017b:11).

Further interesting was the fact that thousands of notes now - i.e. in 2013 - accounted for 60.4% of notes in circulation. As is well known, it is not quite easy to pay for purchases with a thousand note, and the thesis that these large notes were used for criminal business (e.g. drug money) is at least only a partial explanation due to the stricter investigations of the banks. For try once to change 10 thousand notes at a Swiss bank, then one quickly sees - according to Grundlehner in Neue Zürcher Zeitung of 2.10.2013 - "that this was not the easiest form of money transfer after all". Obviously, many - Swiss and foreigners - hoard money in the form of cash again under the good old mattress or in the bank safe.

In the EU, too, there are efforts to reduce the amount of cash in circulation. At the beginning of May 2016, for example, the Council of the European Central Bank decided to stop production of the 500-euro bill at the end of 2018. This means that this largest euro bill will be abolished in the medium term - even though it will remain valid indefinitely, so to speak, as a token to those who wanted to withdraw the 500 euro bill from circulation altogether (see Rasch in Neue Zürcher Zeitung of 29.4.2016:25 as well as Rasch in Neue Zürcher Zeitung of 6.5.2016:25).

2.2 Money supply

But how much cash is there actually? For example, while in 1950 the amount of cash in circulation in the Federal Republic of Germany, excluding cash holdings of credit institutions, was DM 8 billion, at the end of 1990 - 40 years later - it was DM 159 billion (Creutz 1994:34). "That is, the amount of money in circulation was expanded 20-fold in the old FRG during the 40 years. In the same time the real gross national product, i.e. the total output of our national economy - increased 'only' to the 5.4-fold. The difference between the increase in output and the increase in money mainly reflects the loss of purchasing power of our money, partly also changed payment habits" (Creutz 1994:34).

In economics, different **monetary aggregates** are distinguished: The **M1**, the **M2** and the **M3**. What do these quantities mean?

Geldmengenaggregat	**Inhalt**
M1	Total banknotes, checks and demand deposits in circulation (account balances at banks + post office) and transaction accounts
M2	M1 + savings deposits and certain time deposits (excluding retirement savings)
M3	M2 + other time deposits and deposits in money market funds

In principle, one would have to add another monetary aggregate, M0: Namely, the money liquidity provided by central banks (see also chapter 2.3 of this text).

This has become massively more important in recent years. For example, central bank policy since 2007 has led to an extraordinary increase in the money supply M0, "such as has only been observed to this extent in history before high and hyperinflations" (Bernholz in Neue Zürcher Zeitung, Oct.1, 2016:4).

In Humane Wirtschaft (of Nov./Dec. 2011:41), Helmut Creutz made an interesting comparison between central bank money supply and books lent out by a central library. In this analogy, there would be the following analogies:
Book stock + short-term loans = "book quantity M1";
Book stock + short- and medium-term loans = "Book quantity M2";

Book stock + short-, medium- and long-term loans = "Book quantity M3".
Not entirely without reason, Creutz complains that no librarian would summarize this book stock and its loans in such "aggregates", but economists would summarize the money stock and the money loans.

The monetary base is understood to be the means of payment created by the national bank, i.e., banknotes in circulation as well as the sight deposits of commercial banks at the central bank (Eisenhut 2012:154).

In the U.S.A., the following amounts of money were in circulation at the end of 2004 (in trillions of dollars):

Money base	M1	M2	M3
800	1350	6340	9400

Source: www.federalreserve.gov, quoted after Otte 2006:142.

If one takes a dynamic look at the development of money supply, it quickly becomes clear that money supply has grown significantly since the financial crisis, as shown, for instance, by the example of Switzerland (see Willmeroth in Schweizerische Handelszeitung of 24.9.2015:28).

While M1 has remained practically constant since 1980 compared to price-adjusted gross national product - or later GDP - the value for M2 increased by 100% and for M3 even by 145%. According to Otte (2006:142), M3 in particular is highly susceptible to crises and thus dependent on the emotions of market participants. Therefore, M3 is the least controllable for central banks. M3 is also a good indicator of bank lending volumes.

However, Creutz (in Humane Wirtschaft, Sept./Oct. 2011a) has rightly pointed out that the delineation of the different monetary aggregates (M1, M2 and M3) is very difficult.

For more than two centuries, money supply growth in the U.S. seems to accelerate every third decade, only to fall off again thereafter.

In Germany, the money supply has grown continuously and at an increasing rate since World War II (see Creutz 1994:153). This also applies to developments in the money supply in the EU between 1979 and 2008 - e.g. for the M-2 money supply (cf. Leuschel/Vogt 2009:180).

On November 10, 2005, the Fed, i.e. the U.S. Federal Reserve, announced that it would no longer publish a measure of the money supply M3 as of March 23, 2006. Otte (2006:136) commented: "A recognized economic measure was simply discarded. At the same time, the statistics for larger time deposits, repurchase agreements and Eurodollars were also discarded. Generously, institutional money market funds continue to be listed as a footnote. This suggests that it is intended to make it at least somewhat more difficult for external observers to track how dangerously inflated the money in circulation has become in the meantime and how great the inflationary dangers are" (Otte 2006:136).

Recently, the so-called money creation multiplier, i.e. the ratio between M0 (central bank liquidity) and the broader money supply M2 or M3 (M2 + time deposits), has declined massively. It was even lower in 2016 than during the Great Depression in the 1930s - and in many countries in the West, such as the United States and Switzerland. A similar trend can be observed in the European Union (see Bernholz in Neue Zürcher Zeitung, Oct. 1, 2016:34). This development is worrying: After all, there is a risk that central banks may not react quickly enough and take action against the threat of inflation.

2.3 Central Banks and Money Supply Management

Especially at times when the room for maneuver in key interest rate policy is small - for example, the range of the key interest rate of the U.S. central bank, the Fed, was just between 0% and 0.25% between December 2008 and March 2013 (see Neue Zürcher Zeitung, March 21, 2013) - key interest rate policy largely fails as a steering instrument for money and financial markets.

Since the economic crisis of 2008, central banks have flooded the markets with liquidation. For example, the U.S. Federal Reserve (Fed) initiated three bond-buying programs between 2009 and 2013 (see Neue Zürcher Zeitung, March 21, 2013). In the spring of 2013, the U.S.

central bank purchased bonds - i.e. government securities and mortgage securities - worth $85 billion per month (cf. Neue Zürcher Zeitung of 3/21/2013). In this way, the U.S. Federal Reserve, like the central banks of other countries, pursued an aggressive easing policy with a corresponding inflation of the money volume and depression of longer-term interest rates.

The European Central Bank ECB provided unlimited credit in the amount of about €1000 billion in the context of the European debt crisis. This, too, was largely done by purchasing direct government bonds of EU member states that were no longer able to refinance themselves via the markets due to their indebtedness (cf. Rasch in Neue Zürcher Zeitung, June 21, 2012). Between 2004 and 2014, the balance sheet total of the European Central Bank rose from €833 billion to just under €3,000 billion - in other words, an increase of 360%. Thus, the money supply issued by the ECB more than tripled (cf. Beck/Prinz 2014:60).

The Bank of England also bought British government bonds and thus considerably expanded its balance sheet total. In Switzerland, the Swiss National Bank invested enormous sums in weakening the Swiss franc, which also greatly expanded its balance sheet. Michael Rasch (in Neue Zürcher Zeitung, June 21, 2012). Michael Rasch (in Neue Zürcher Zeitung, 6/21/2012) called these measures "all outrageous in their extent." This is not entirely unfounded: If one compares the development of the central banks' balance sheets with the gross domestic products of their home countries, the Swiss National Bank was in the lead with 70% of GDP, the ECB and the Bank of Japan with a good 30% of their gross domestic products, and the U.S. Federal Reserve and the Bank of England still with a good 20% of the domestic gross domestic product (Rasch in Neue Zürcher Zeitung, June 21, 2012). In absolute terms, this development is even more striking - at least in Switzerland: While in 2008 the balance sheet of the Swiss National Bank was still at 47 billion Swiss francs, in August the SNB's balance sheet was at 406 billion Swiss francs (see Moneta of 9/26/2012:6). However, while the Swiss National Bank's balance sheet expansion is covered by foreign currencies - which is also not without risk - the situation looks less good for the other central banks.

The inflation of central banks' balance sheets has been accompanied by an expansion of the M0 money supply: From 2008 to 2011, the money supply in Switzerland increased fivefold. In the same period, the money supply in the United Kingdom more than quadrupled. In the

euro area as a whole, the money supply M0 also grew by 150% between 2008 and 2011 (see Rasch in Neue Zürcher Zeitung, June 21, 2012). In the U.S.A., too, the money supply more than doubled during this period.

"Miraculous effects" of high money supply?
"After the recent crisis, there seemed to be nothing more obvious ... [than] to stimulate the economy through the investment and demand impulse emanating from easy access to cheap money. This concept, which seemed effortless to implement in the past, seems to be working only to a limited extent this time - and, moreover, only with enormous negative side effects. After the monetary easing exercises, for example, the 'monetary engines' have been running so hot to an extent never seen before that they urgently need to be cooled down. The financial sector, i.e. the gearbox of the economic machinery, is hardly in a position to transmit the unfolding power to the chassis, i.e. to the real economy. It threatens to run hollow, after probably a part of the abundant monetary lubricant got into the slipping clutch of the transmission mechanism."
Source: Leisinger in Neue Zürcher Zeitung, 14.9.2015:30.

The extent to which the money supply has been inflated in recent years, also in the U.S., can be seen indirectly in the development of the balance sheet of the U.S. central bank, the Fed. While the assets on the Fed's balance sheet were still around $800 billion before the financial crisis in 2007, they reached almost $4,500 billion in 2014 (cf. Lanz in Neue Zürcher Zeitung, 12.9.2015:31).

By 2014, the money supply issued by the U.S. Federal Reserve had increased by 312%, and in Japan the money supply still increased by 150% (cf. Beck/Prinz 2014:60).

Rasch (in Neue Zürcher Zeitung, 21.6.2012) has rightly pointed out that by mid-2012 this inflation of the M0 money supply had not yet filtered through to the M2 and M3 monetary aggregates, which are crucial for inflation risk. But this is only because the additional quantities of money have not yet flowed into the economic cycle. But that can change quickly.

Therefore, the so-called gold initiative, which was rejected in Switzerland on November 30, 2014, with 77% of the votes against (see Zeller in Neue Zürcher Zeitung of December 1, 2014:8), was not a solution - on the contrary, it would have made the situation even worse:

It demanded that the Swiss National Bank should hold at least 20% of the balance sheet total in gold and would no longer be allowed to sell gold acquired in the future. In addition, all gold - of which about 30% had been stored abroad until then - was to be repatriated to Switzerland. With this initiative, the Swiss National Bank's policy of supporting the Swiss franc would no longer have been possible to the same extent, because a corresponding expansion of the money supply would not have been possible at all with a corresponding expansion of the acquisition of gold. Moreover, the SNB's freedom of action would have been severely restricted, and the SNB would no longer have been able to fulfill its central task, namely price stability and money supply control.

It is true that the Federal Reserve has recently begun to successively reduce its money supply and to slowly raise interest rates in small steps. In contrast, the monetary policy of the European Central Bank and the Swiss National Bank has remained expansionary, with interest rates kept low and even negative in some cases, as in Switzerland (-0.75%). Accordingly, the banks find themselves in the so-called "liquidity trap". This means that the lower the yield differential between interest-bearing assets and central bank money, the greater the willingness of commercial banks to hold reserves in the form of sight deposits at the central bank and not to exchange them for other assets. As a result, the money multiplier automatically becomes low, leading to today's astonishingly low inflation rates, despite the inflation of the money supply (see Baltensperger and Kugler in Neue Zürcher Zeitung, Jan. 23, 2019:10).

Hanno Beck and Aloys Prinz (2014:25-27) put forward ten theses on why the massive expansion of the money supply by central banks must inevitably lead to the abyss. They argued as follows:

1) In recent years, the central banks of the major currency countries gained importance for world trade and they massively increased the amount of money in circulation.
2) All three major crises in recent years were caused by cheap money, because the national banks always fought the crisis with cheap money - i.e. an expansion of the money supply - and laid the foundation for the next crisis.
3) Politicians are responsible for this.

4) Central banks have increasingly lost the ability to stabilize the global economy with cheap money.
5) A risky nexus between politics, central banks and financial markets leads to growing government debt, the flooding of financial markets with cheap money and government bailouts of bankrupt banks - all of which ultimately jeopardizes the solvency of the state.
6) Today's form of inflation is asset price inflation, which leads to speculative bubbles, waste of resources and economic crises.
7) If the central banks' policy of cheap money fails, there is a threat of prolonged deflation, the collapse of the banking system and a massive loss of wealth for all.
8) The catastrophe can only be prevented if the central banks are no longer vicarious agents of the financial markets and politics - and the debt economy of the state must be ended.
9) There are only two alternatives for the European Union: Either a monetary union with a common revenue and expenditure policy or clearly individual responsibility of the individual Union states - which ultimately also includes their own currencies.
10) Taxpayers and savers are paying the bill for this failed policy - and this process is already underway: zero returns and negative interest rates as a form of expropriation of savers (cf. Beck/Prinz 2014:25-27).

That Beck and Prinz are not entirely wrong in this was shown by the fact that in May 2015, the question of whether cash should be subject to a fee of 3 - 5% in order to prevent the flight into cash was already being discussed (cf. Schöchli in Neue Zürcher Zeitung, 2.5.2015:25). In concrete terms, this would mean that with a negative interest rate of 5%, the saver would only be credited with just Fr. 9,500 when depositing Fr. 10,000. Considering that interest rates in Switzerland in 2018 are practically between zero and -0.75% and that inflation of 0.94% was measured in Switzerland in 2018 (Inflation Switzerland 2018), this means that savers' assets are devalued in real terms by between 1 and over 1.5% annually.

Another variant discussed was to give banknotes an expiration date - similar to the "shrinkage money" proposed by Silvio Gesell at the time. A third variant would be a dual exchange rate for cash and book money. An even more radical variant would be the

complete abolition of cash. According to Schöchli (in Neue Zürcher Zeitung, 2.5.2015:25), however, this would mean a major encroachment on economic freedom.

Cash has recently been criticized in three main ways: First, the use of cash is inefficient and more cost-intensive than electronic means of payment; second, cash promotes crime and money laundering; and third, cash deprives central banks of an important instrument for controlling interest rates in times of negative interest rates (see Schär in Neue Zürcher Zeitung, 4.1.2016a:4). The following can be said about this:

1) If holding cash were more expensive, it would no longer be practiced - unless the benefits were significantly higher than the costs, which is apparently still the case in times of monetary policy uncertainty. From this perspective, cash meets a security need of many people.
2) Money laundering could also be combated by other means, e.g. by proving the origin of money, making financial transactions more expensive (transaction tax) and controlling financial flows. Moreover, cash can be replaced at any time by other store of value instruments, such as gold, precious stones, real estate.
3) The danger of savers being deprived of their property or even expropriated as a result of a one-sided or incorrect monetary policy on the part of the central banks can no longer be ruled out, especially today - in this respect, cash also represents an effective barrier against inadequate monetary policy measures.

However, even without abolishing cash, the question arises as to which measures can slow down or even reverse the process of latent and successive expropriation of savers. One approach is undoubtedly the immediate reduction of the amount of money in circulation, the abolition of the negative interest rate and a gradual increase in interest rates by central banks - even if this leads to a recession in the short term. Otherwise, the political risks in particular are unmanageable.

Baltensperger and Kugler (in Neue Zürcher Zeitung, Jan. 23, 2018:10) have identified four possible exit strategies:

1) A reduction of the SNB's balance sheet to withdraw liquidity from the market. This would be associated with an increase in interest rates

2) Paying interest on banks' liquidity reserves, thereby providing an incentive for banks to continue to hold these reserves and not to introduce them into the monetary cycle.
3) Liquidity via the issuance by the SNB of its own interest-bearing debt instruments (SNB Bills) in order to take liquidity out of the market, but this would entail costs for the SNB (in the form of lower profits) and ultimately for the government.
4) Raising the minimum reserves of bank deposits with commercial banks, which would remove funds from circulation.

In any case, "the longer one waits to normalize monetary policy and the more central bank balance sheets are still expanded in the course of this policy, the more difficult it will ultimately be to say goodbye to it" (Baltensperger and Kugler in Neue Zürcher Zeitung, Jan. 23, 2019:10).

2.4 Abolition of money as a solution?

It has been suggested on various occasions - e.g. by Hörmann/Pregetter 2011, cf. Müller in Humane Wirtschaft Sept./Oct. 2011b - to abolish money in principle. Instead of paying wages for labor and buying goods for money, one could, for example, feed skills and needs into a global database and exchange them directly: "If all people feed their honest needs into a global information network, humanity cooperates openly and honestly, and each person makes his or her best skills available to the entire community again himself or herself ..., then at some point a civilization would indeed be conceivable on this planet in which barter transactions based on performance and comparable consideration would no longer be necessary at all" (Hörmann/Pregetter 2011:223). Thus, every human being would receive a blank account at birth, which he could use - and debit! - to train his abilities, but which would also be credited for his achievements. But the problem is that a clearing unit would also have to be used for this purpose. This account would have both clearing function, (technical) exchange function and a storage function - thus all three functions of the today's money. Thus, money would not be abolished, but would be designed in a different form (as a reciprocal account of accounting). None of the real problems, namely the question of fair valuation of skills (labor) and purchased services (price of goods and services), the

prevention of unequal accumulation of credit, the problem of mutual lending (credits, indebtedness) and the costs of this mutual lending (interest) are thus solved.

The problem of money has to be solved on a different level, for instance by closer links between production, consumption and the money economy, but also by preventing the accumulation of oversized monetary assets by individuals or institutions (cf. also ►Unit V 32: "Redistribution of assets above 5 million euros?" and ►Unit V33: "Limiting returns on capital to a maximum of 5%?").

Even the "denationalization" of money (Schwarz 2014:9) - meaning a loosening of money from national banks, but also the introduction of community currencies like the euro as a supranational currency - cannot be a solution there. However, a "currency pluralism", which allows alternative currencies in addition to transnational and national currencies, could be a first step towards a fairer monetary system.

3. Control Questions

1. What are the three main functions of money?
2. What circular argument does the definition of money in the convention theory involve?
3. Name five differences between cash and demand deposits (according to Creutz).
4. What did Roosevelt want to achieve in 1933 by banning the ownership of gold?
5. Which of the three monetary functions did gold lose when the gold standard was abolished, i.e. the right to exchange banknotes for gold at any time?
6. Explain and define the monetary aggregates M1, M2 and M3.
7. How did the money supply evolve in the U.S. since the 18th century?
8. How did the money supply develop in germany since the second world war?
9. What conclusions does Otte draw from the fact that the U.S. central bank, the Fed, has not published any figures for the money supply M3 since 2006?
10. What would have been the consequences for Switzerland if the gold initiative had been accepted?
11. Summarize the 10 theses of Beck/Prinz and consider whether you agree with them.

4. Links

Monetäre Aggregate (Geldmengenaggregate)
http://www.wirtschaftslexikon.co/d/monetaeres-aggregat/monetaeres-aggregat.htm

Schweizerische Nationalbank: Geld, Währung und Konjunktur
https://www.snb.ch/n/mmr/reference/qheft_1995_1/source/qheft_1995_1.n.pdf

Geldtheorien verschiedener Schulen (Vortrag)
https://www.youtube.com/watch?v=gezZOGuiZBM

Geldmengenaggregate der Europäischen Zentralbank
www.wiwi.uni-frankfurt.de/profs/czayka/**EZB**-Buba.rtf

EZB Geldmengenkonzept
http://www.grundmann-norderstedt.de/ezb2.htm

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