

THE ISSUANCE OF BANKNOTES, ACCOUNTING REFLECTION AND SIGNIFICANCE

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XVII MEETING ON ACCOUNTING AND BUDGETARY ASPECTS OF
CENTRAL BANKING

May 6th and 7th, 2021

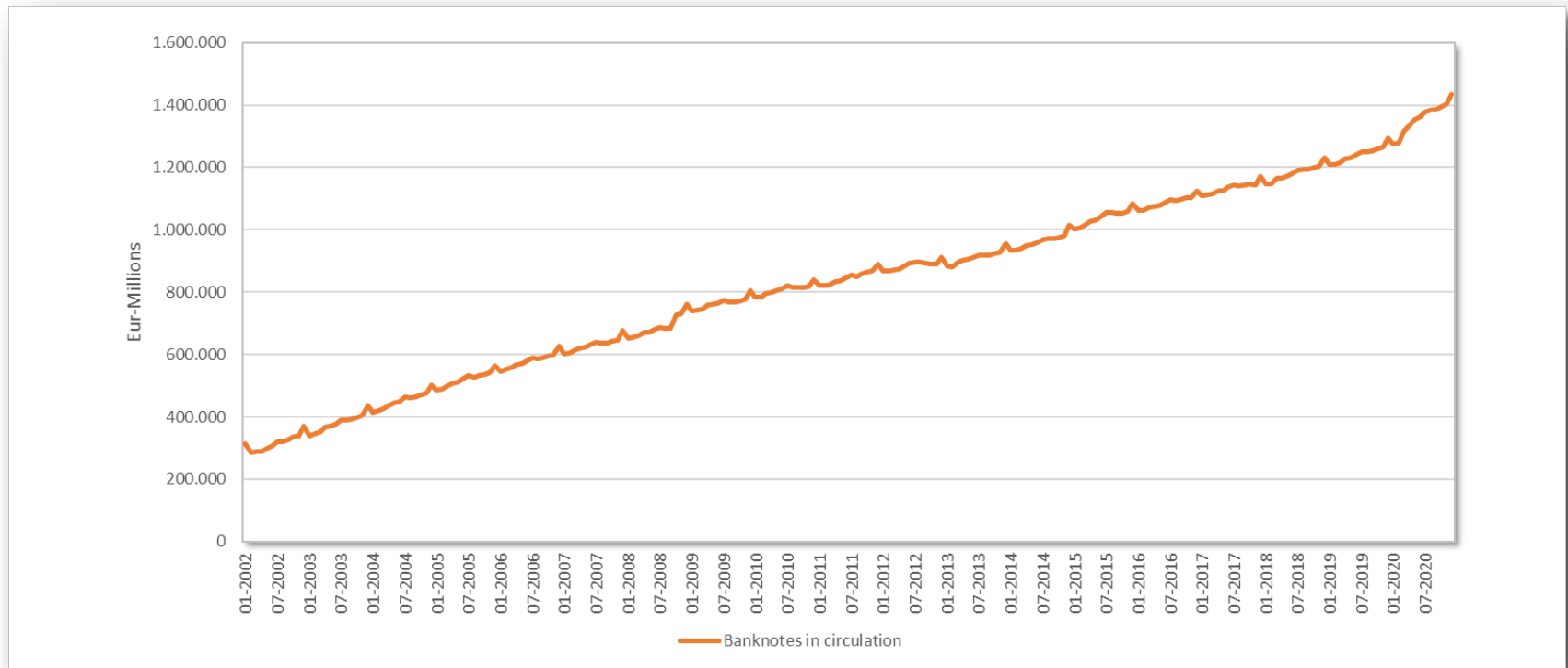


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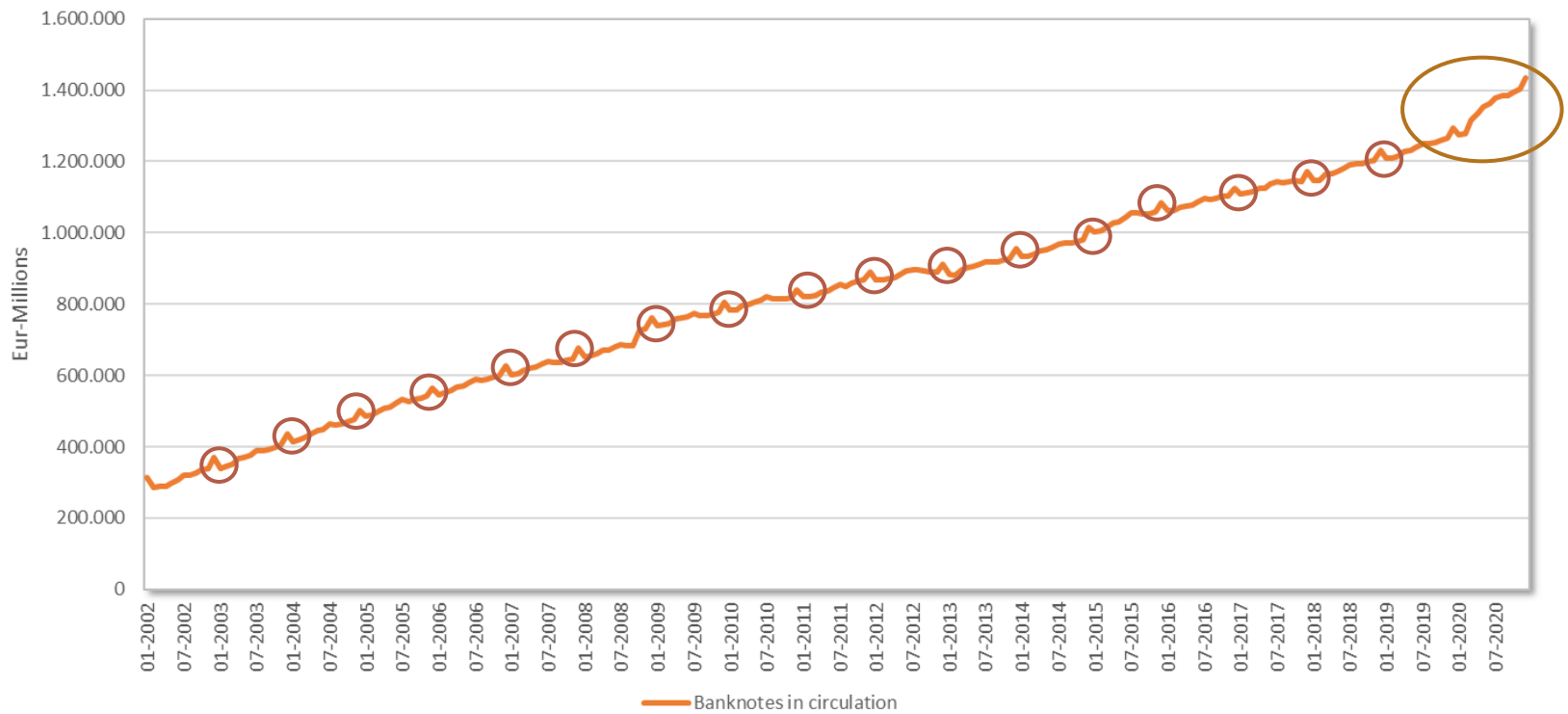
- **Volume of banknotes in circulation**
- **The reflection of banknotes in the balance sheet and its significance for a central bank**
- **Cost of liability “Banknotes in circulation”**
- **Seigniorage income**
- **Treatment of banknotes in circulation in the Eurosystem**
- **Why banknotes are accepted in payment for goods and services**

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Eurosistema

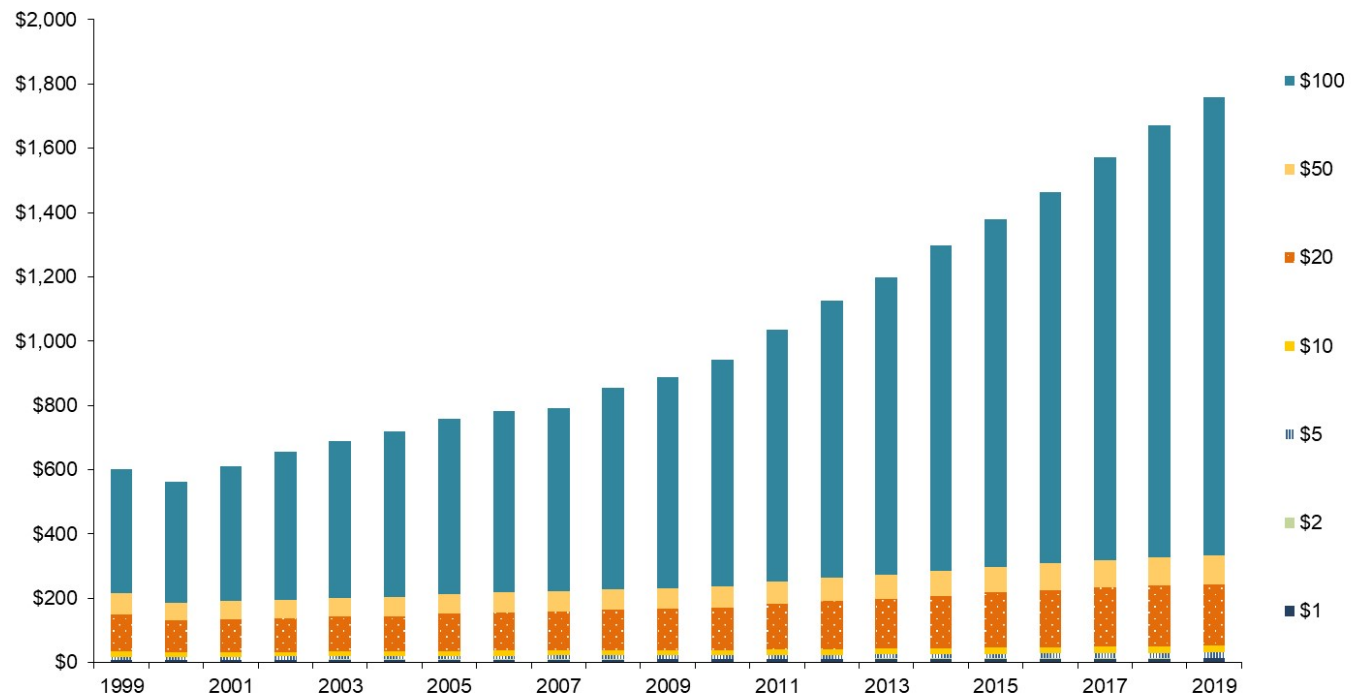


Eurosistema



United States

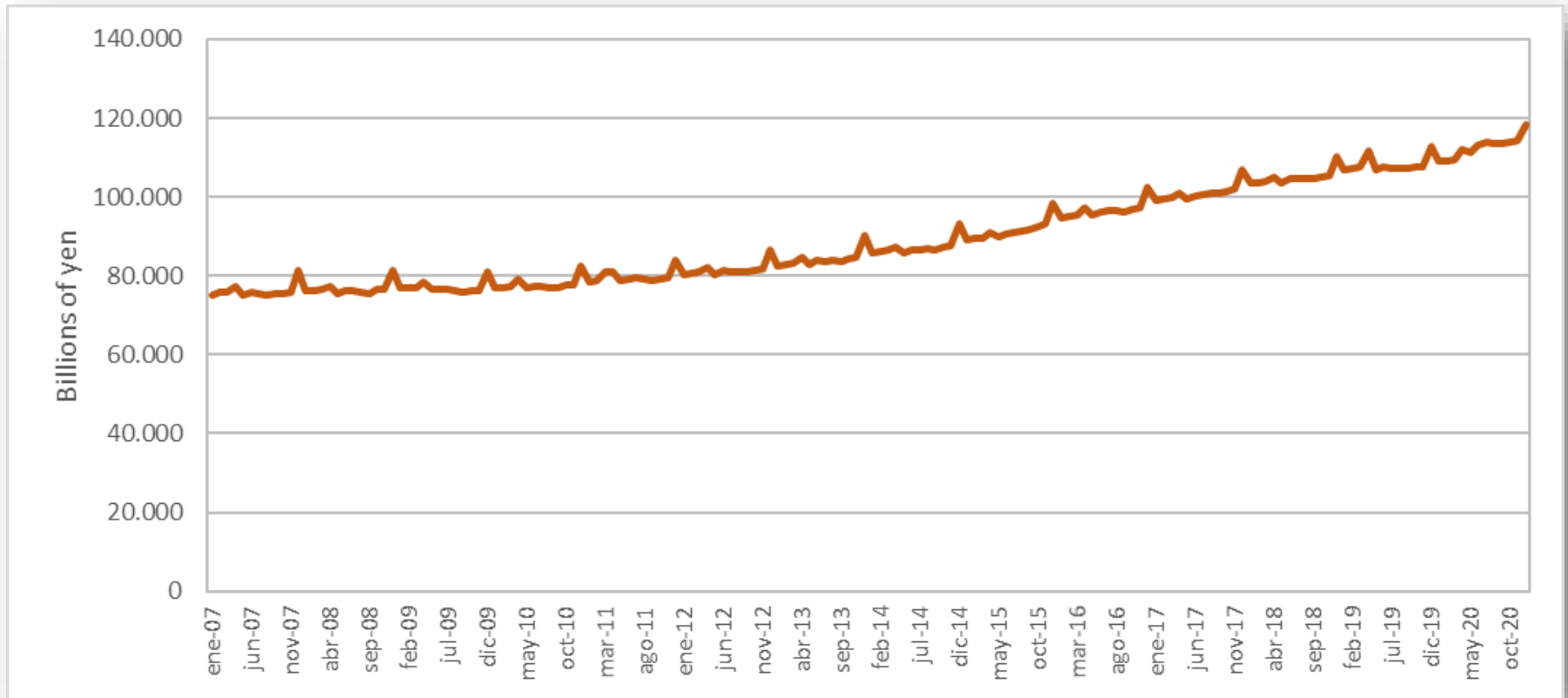
Value of Currency in Circulation*
(Billions of dollars, as of December 31 of each year)



*Includes Federal Reserve notes, U.S. notes, and currency no longer issued, but does not include denominations larger than the \$100 denomination.

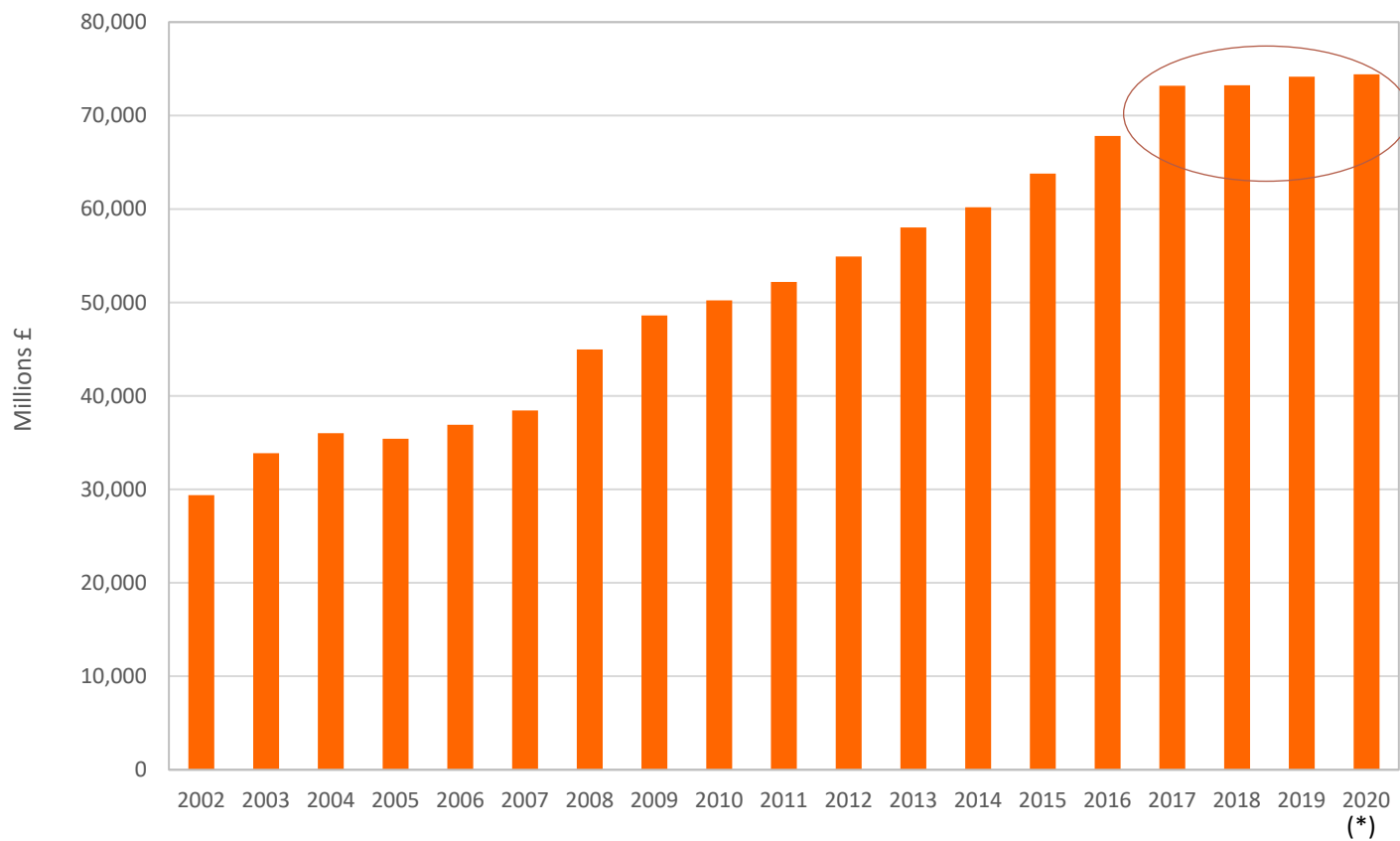
Source: Federal Reserve USA

Japan



Source: Bank of Japan

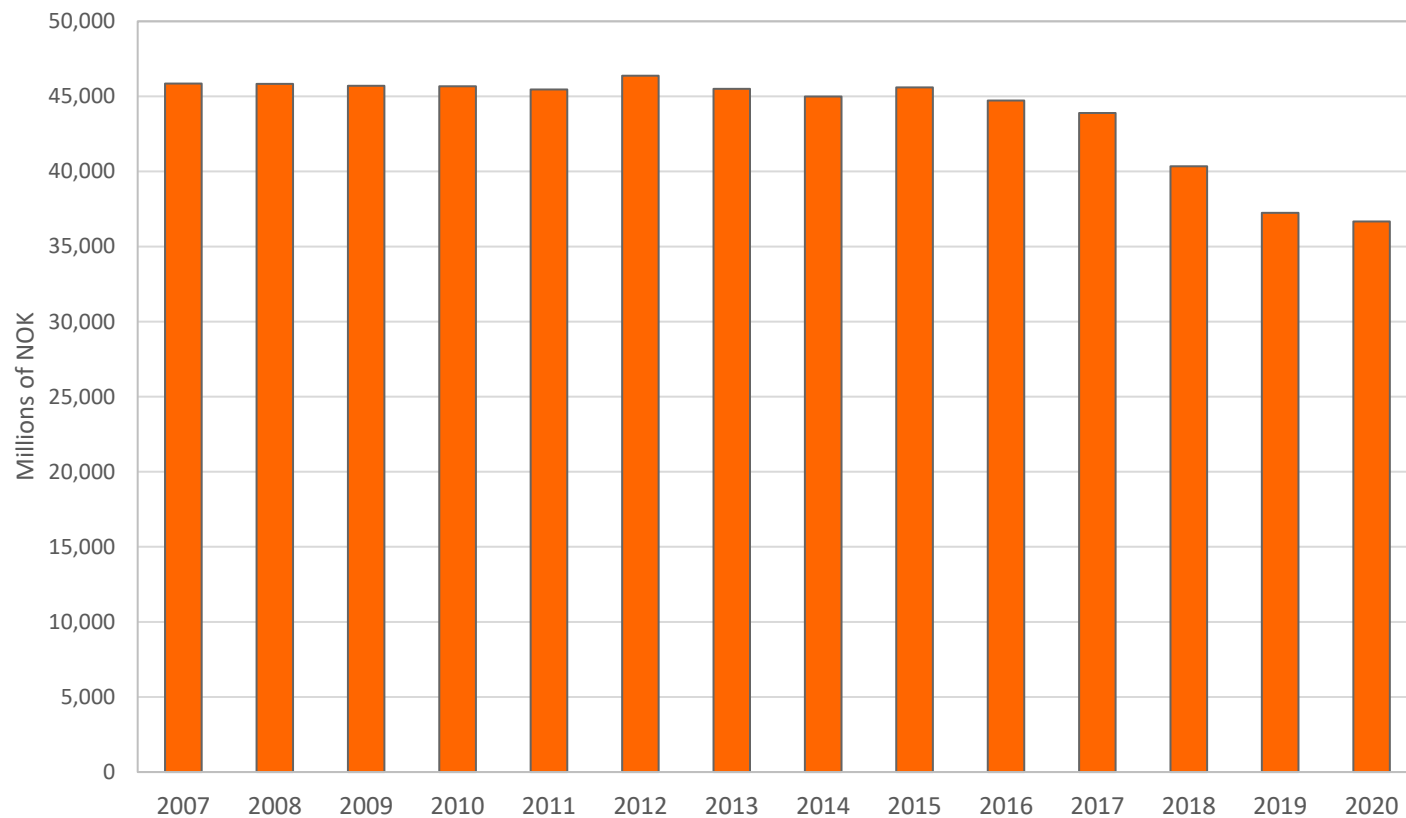
England



(*) Closing date: 28.02.2020

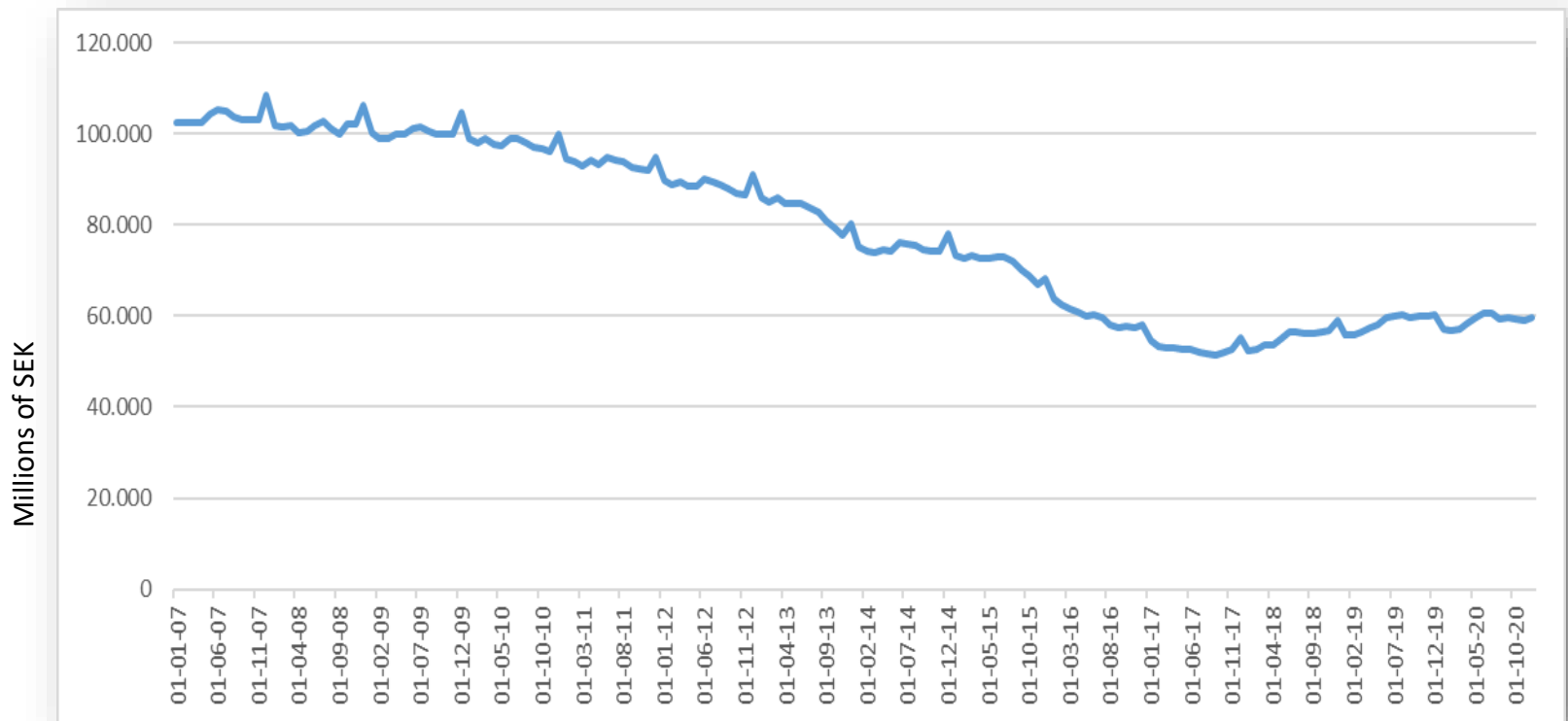
Source: Bank of England

Norway



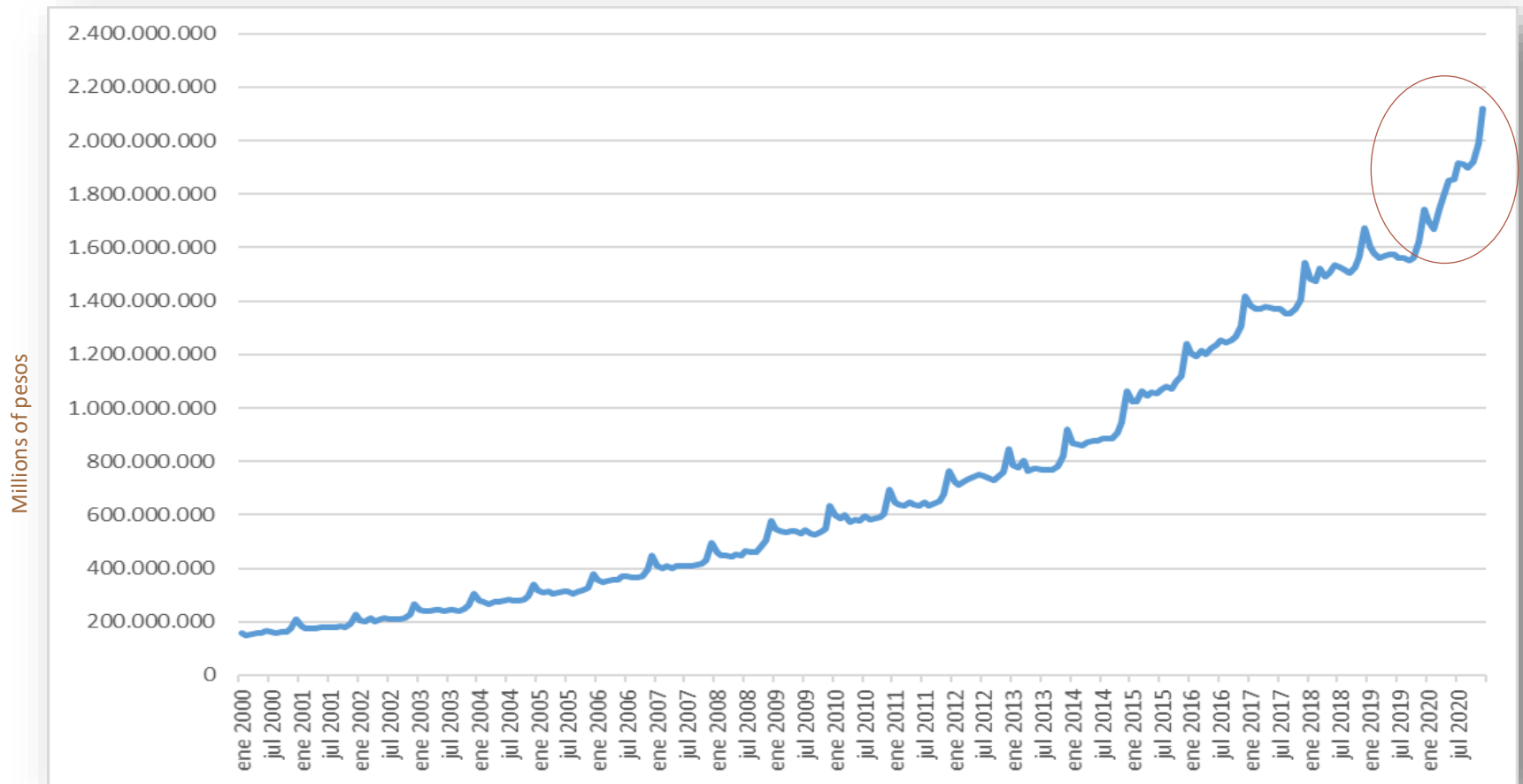
Source: National Bank of Norway

Sweden



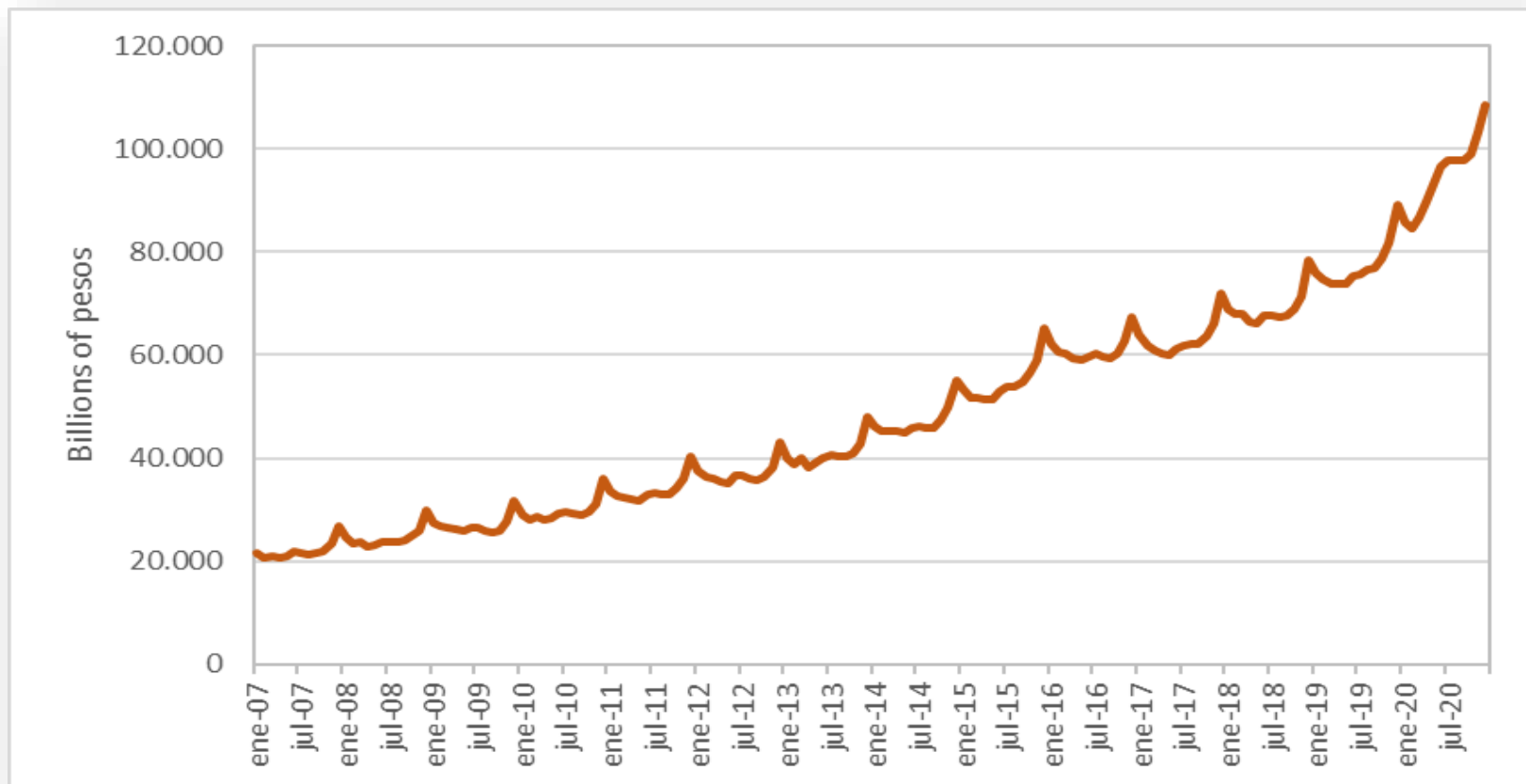
Resource: Sweden's Central Bank

Mexico



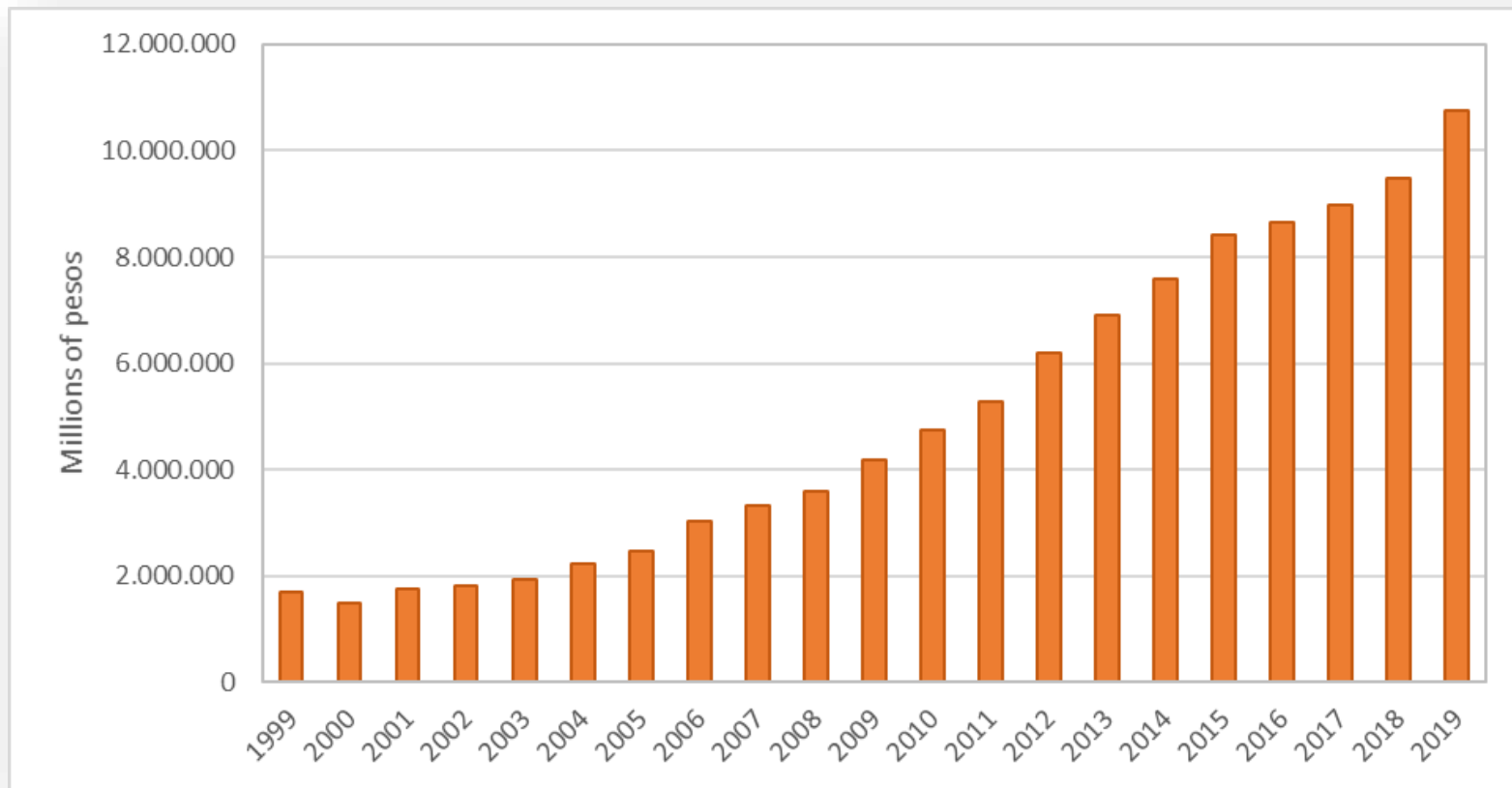
Resource: Bank of Mexico

Colombia



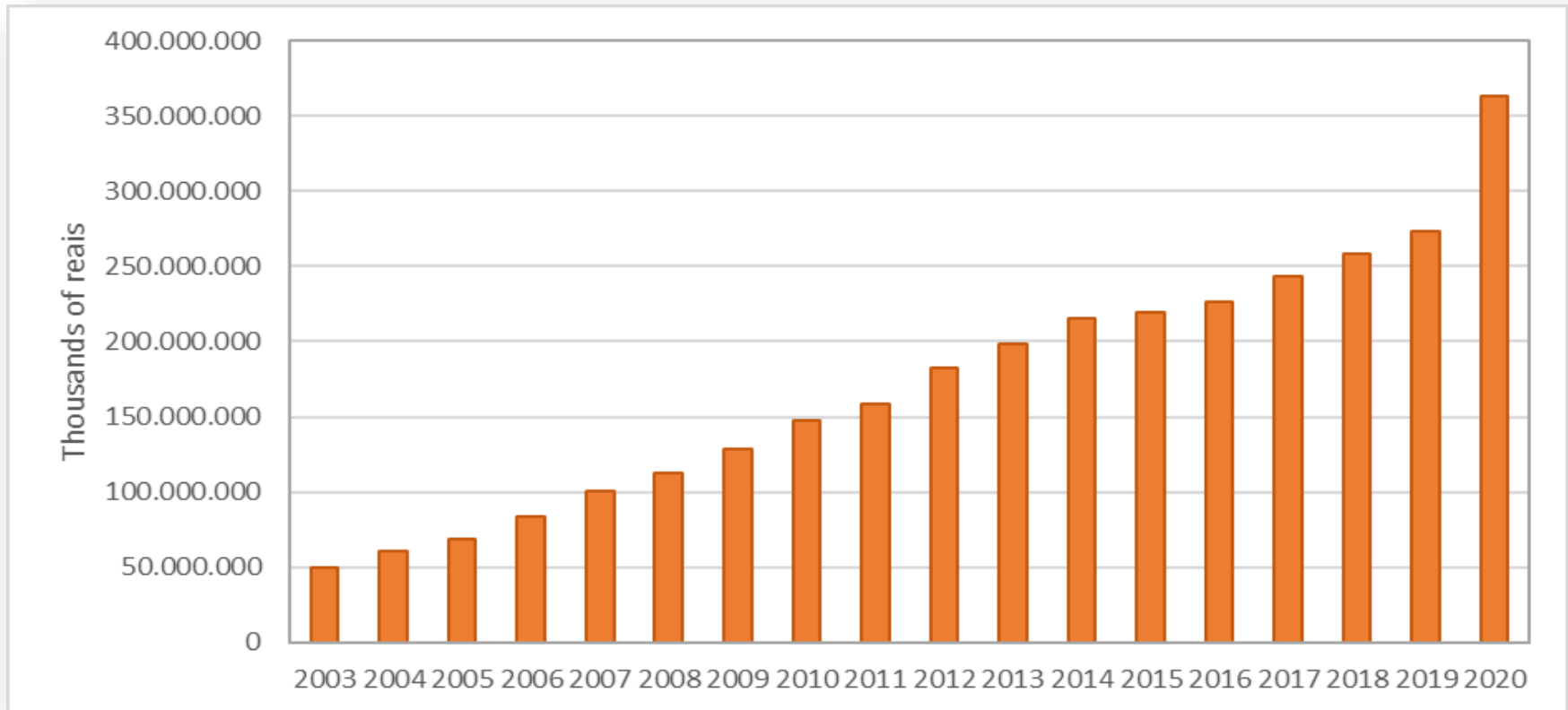
Resource: Central Bank of Colombia

Chile



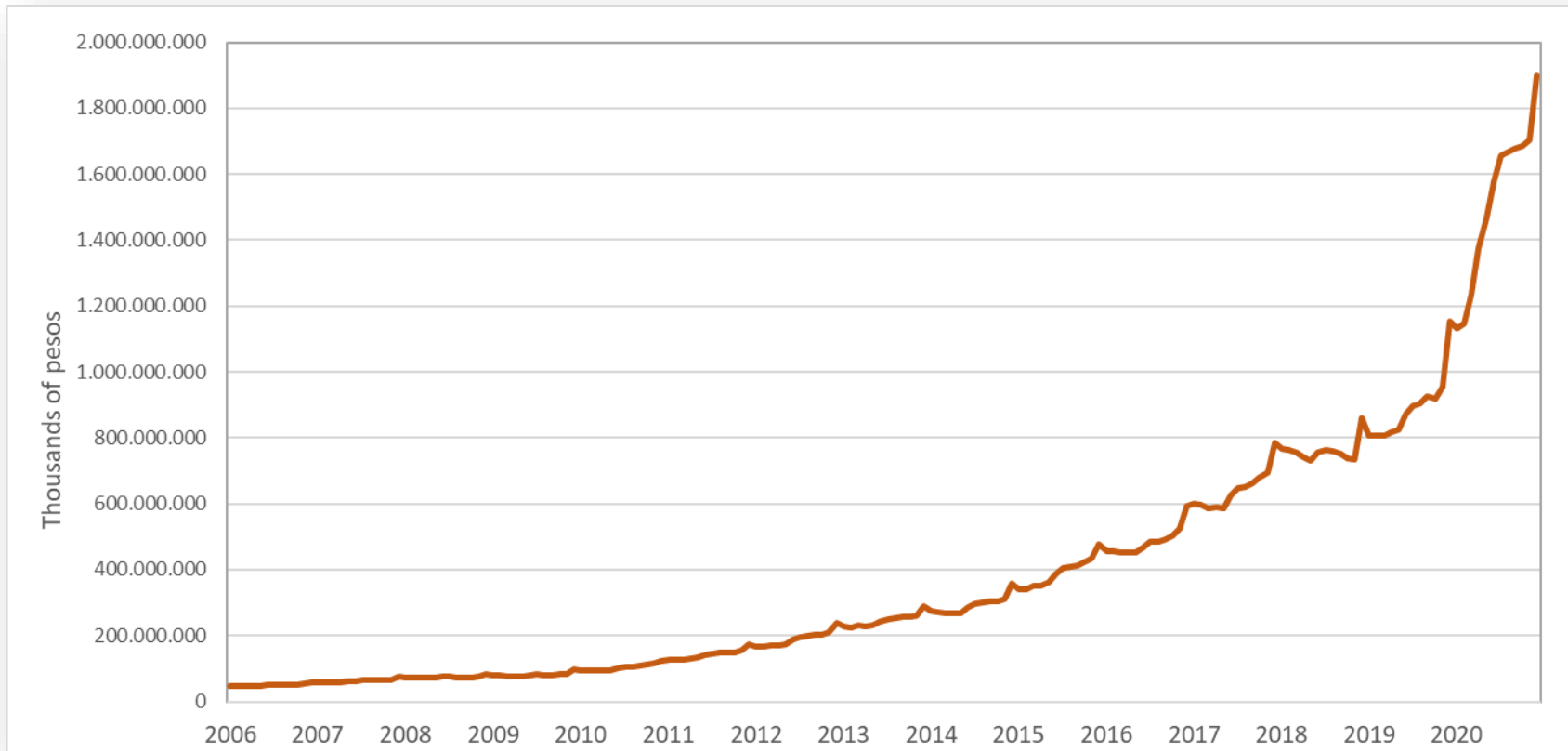
Resource: Central Bank of Chile

Brasil

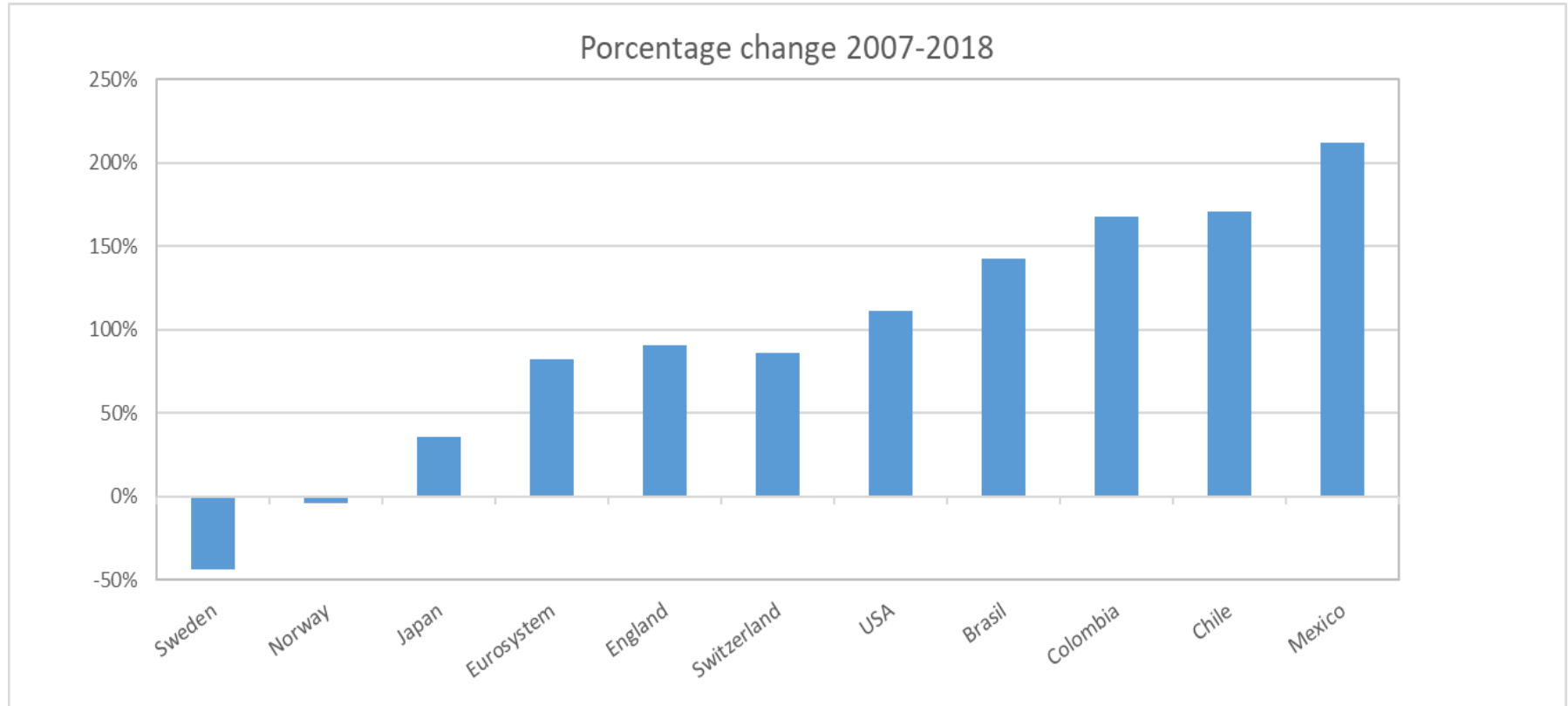


Resource: Central Bank of Brasil

Argentina



Resource: Central Bank of the Republic of Argentina



- In general, the volume of banknotes in circulation will depend on the public's demand for cash.
- The demand for cash will basically depend on:
 - ✓ The economic activity
 - ✓ The degree of use of banknotes as a means of payment by economic agents (compared to checks, credit cards, etc.)
 - ✓ Acceptance of our banknotes in other countries as a form of savings
 - ✓ Other factors, such as a high inflation rate, may affect the demand for banknotes.
- Non-demand factors also influence the volume of banknotes in circulation (e.g., the issuance of banknotes to monetize public debt).

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Banknotes in circulation represent a liability for the central banks that have the power to issue them.

This is a liability with no financial cost and no maturity date:



Perpetual debt with zero coupon

- What is the economic nature of a no-cost liability that does not have to be repaid?

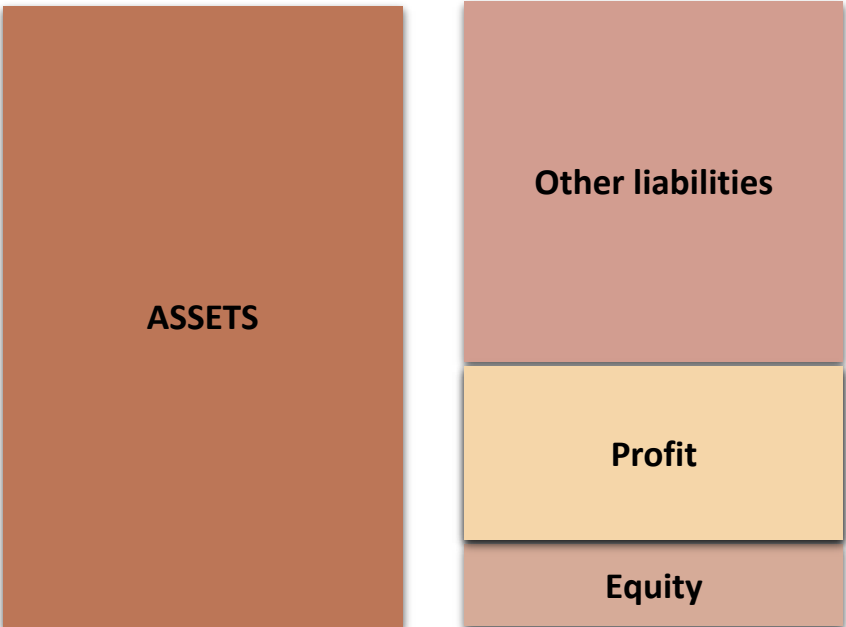


≈ Equity

- What do we do when a series of banknotes loses its legal tender (become invalid) or we introduce a new currency?



Non-returned bills are recorded as Profits



Non-returned banknotes are recorded as Profits

Banknotes held in the vaults are not reflected in the balance sheet of central banks.

Some central banks reflect them on the asset side at cost, as inventories.

In general, banknotes held in the vaults are recorded in the accounts for the purpose of controlling stocks and receipts and issues.

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COST OF LIABILITY “BANKNOTES IN CIRCULATION”

- Liability with no financial cost
- Total cost = production cost + handling cost

Annual production cost

$$\frac{365}{\text{average life}} \times \text{unit production cost} \times \text{average number of banknotes in circulation}$$

EXAMPLE

Average life of 1 banknote of 100 c.u. = 2 years (730 days)

Production cost of 1.000 banknotes = 10 c.u.

Assuming average number banknotes in circulation = 10.000

$$\text{Annual production cost} = 365/730 \times 10/1.000 \times 10.000 = 0,5 \times 0,01 \times 10.000 = \mathbf{50 \text{ um}}$$

Handling cost

Unit handling cost x number of returns in a year x average number of banknotes in circulation

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SEIGNIORAGE INCOME

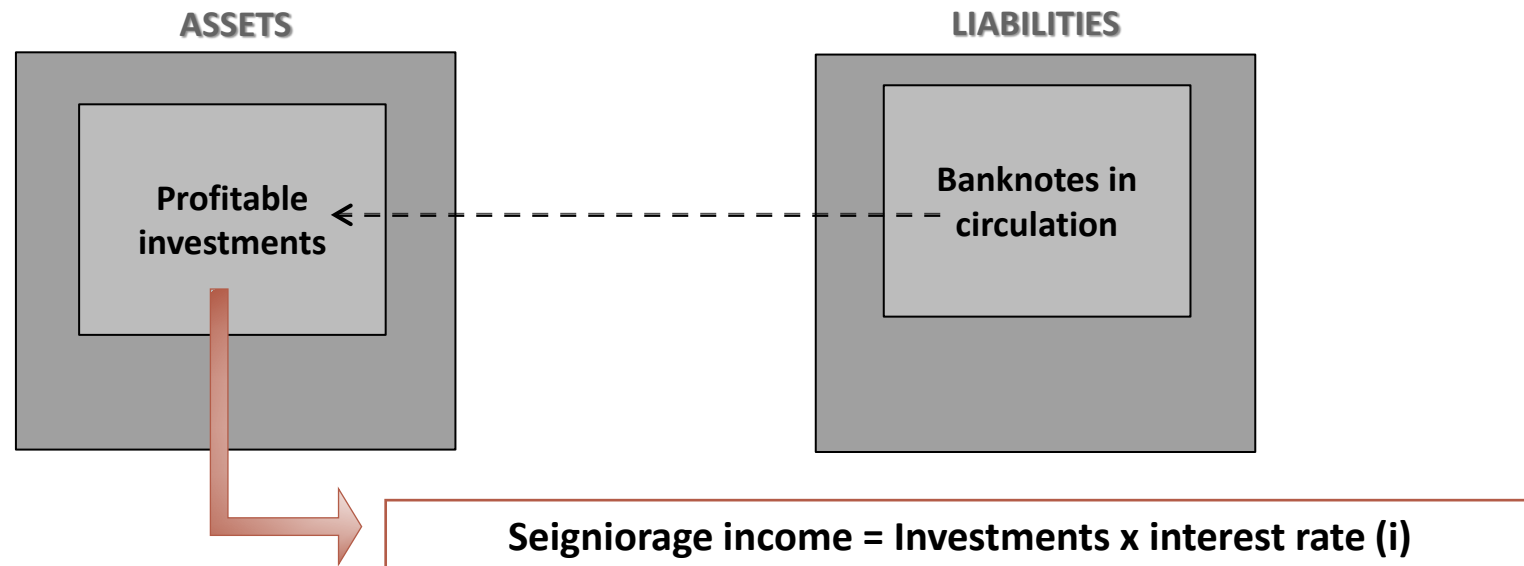
Banknotes in circulation (on the liability side) finance earning assets that typically generate interest income.

Income earned on assets financed by the liability "Banknotes in circulation" is called seigniorage income.

Net seigniorage income is calculated by deducting manufacturing and handling costs.

They are not specifically accounted for, nor is it usually possible to make a precise calculation of their amount, since the assets financed are not known exactly (except for the Bank of England or the European Central Bank).

SEIGNIORAGE INCOME



Normally, the counterpart assets of the banknotes in circulation are not identified, so the calculation of seigniorage income cannot be done accurately.

Seigniorage income usually represents an important part of the profit of issuing central banks (guarantee of future profits).

SEIGNIORAGE INCOME

Seigniorage income - Manufacturing and handling costs <hr/> NET PROFIT EARNED
--

- Profit according to nominal

	500	100	20	5
a) Annual seigniorage income (3%) (for 1.000 banknotes)	15.000	3.000	600	150
b) Average life (years)	12	5,5	1,5	1,3
c) Unit manufacturing cost (estimated)	70	70	65	60
d) Annual cost (c / b)	5,8	12,7	43,3	46,2
e) Annual profit for 1.000 banknotes in circulation ⁽¹⁾ ($a - d$)	14.994,2	2.987,3 (x 5 = 14.936,5)	556,7 (x 25 = 13.917,5)	103,8 (x 100 = 10.380)

(1) It does not include handling costs, which are also higher for lower denomination banknotes, since they have a greater number of returns.

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The € banknotes are not distinguished according to the Eurosystem National Central Bank (NCB) that issued them (basic principle of € issuance).

A € banknote issued by an NCB can be exchanged (redeemed) by any other NCB in the Eurosystem.

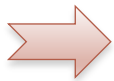
It is therefore a shared liability among all Eurosystem NCBs.



What can happen if we share a liability among several issuers?

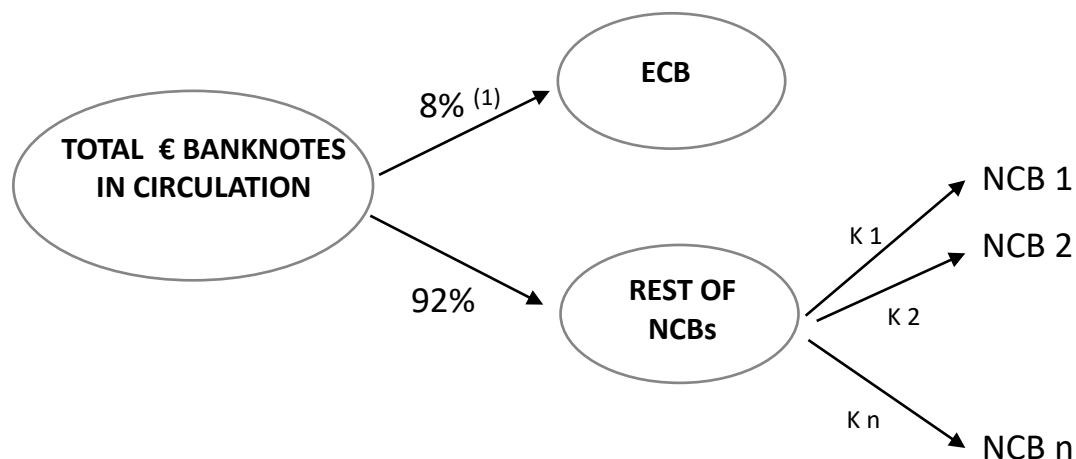
Some NCBs may end up "paying" the debt of other NCBs.

(e.g., due to the migration of banknotes for tourism)



Adjustment of banknotes according to the participation key of each NCB in the Eurosystem

TREATMENT OF BANKNOTES IN CIRCULATION IN THE EUROSISTEMA



(1) Result of distributing the total issuance among the 13 central banks initially belonging to the Eurosystem, including the ECB.

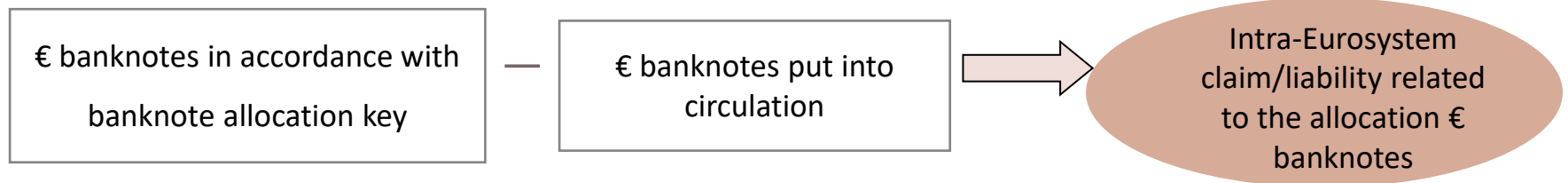
*Capital key = 50% country's population/Eurosystem population +
50% country's GDP/Eurosystem GDP*

Banknote allocation key = 92% x Eurosystem key

Keys as at 1 January 2021:

	Eurosystem key (%)	Banknote allocation key (%)
Belgium	3,64324	3,3520
Germany	26,36145	24,2525
Estonia	0,28170	0,2590
Ireland	1,69338	1,5580
Greece	2,47355	2,2755
Spain	11,92459	10,9705
France	20,42430	18,7905
Italy	16,98849	15,6295
Cyprus	0,21518	0,1980
Latvia	0,38965	0,3585
Lithuania	0,57876	0,5325
Luxembourg	0,32940	0,3030
Malta	0,10488	0,0965
Netherlands	5,86042	5,3915
Austria	2,92689	2,6925
Portugal	2,34051	2,1535
Slovenia	0,48150	0,4430
Slovak Republic	1,14523	1,05350
Finland	1,83687	1,69000
ECB		8,00000
Eurosystem	100,00000	100,00000

The difference between:

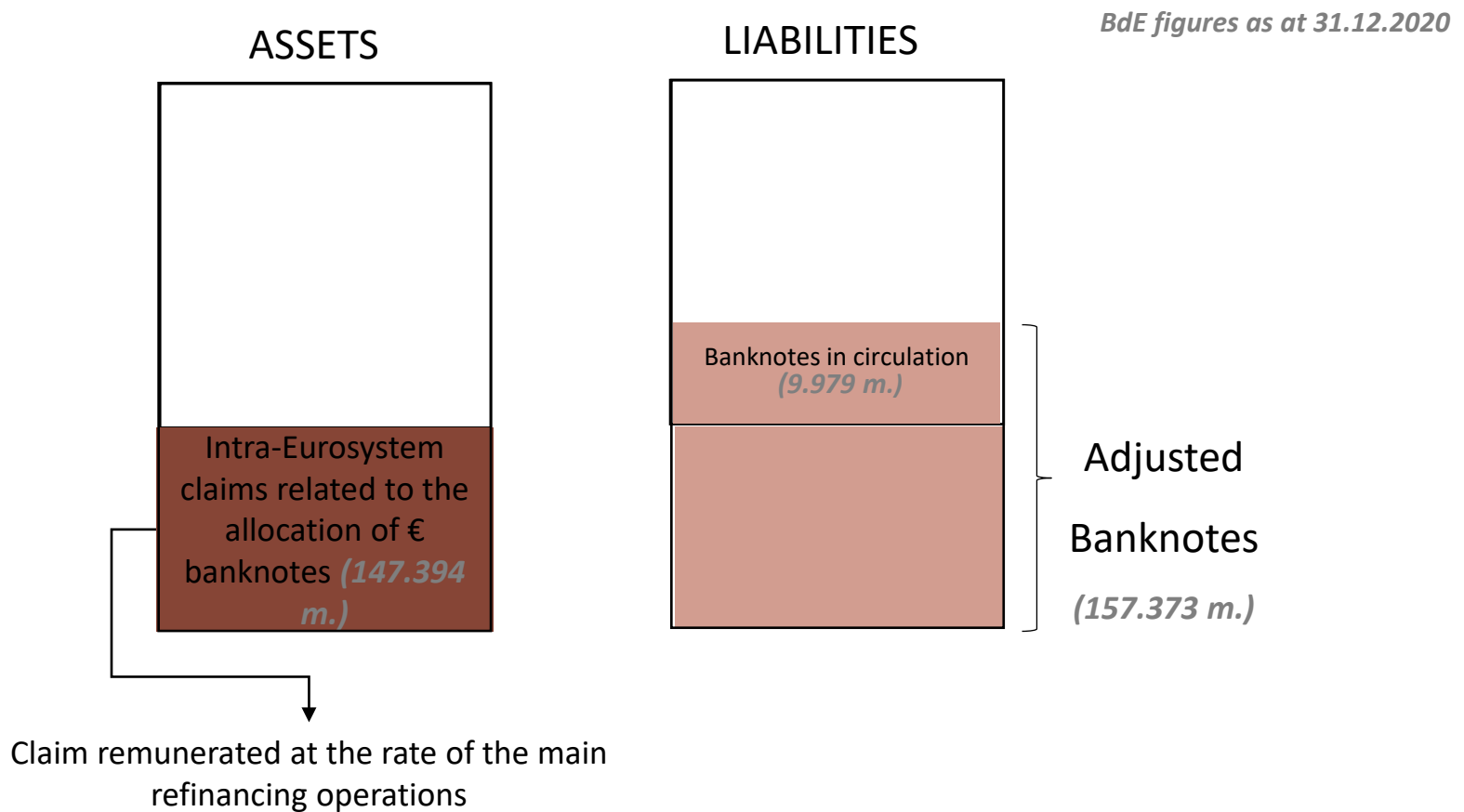


Intra-Eurosystem claims/liabilities related to the allocation € banknotes

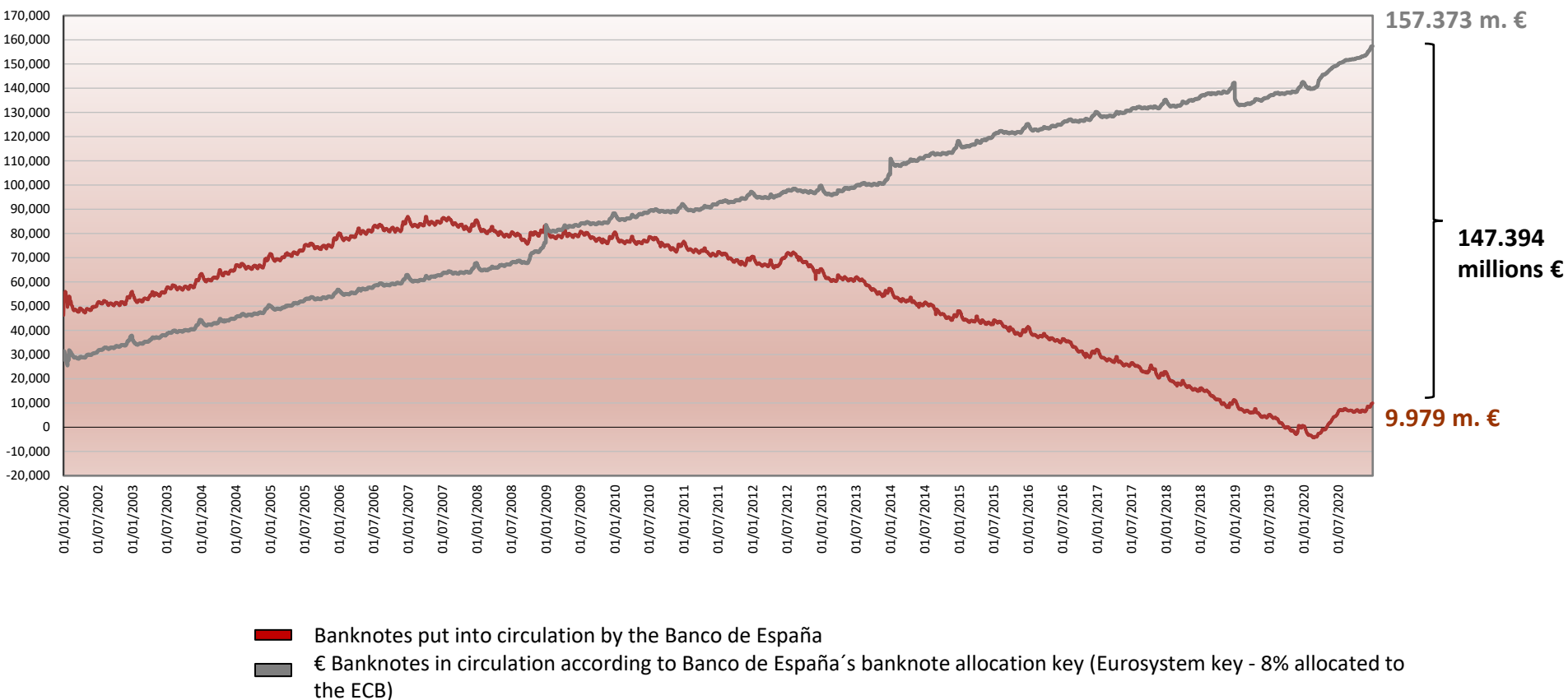
- They are the counterpart of the changes in the banknote figures.
- They are remunerated at the interest rate on Eurosystem credit operations with financial institutions.

Important consequences for both the **balance sheet** and the **profit and loss account**

Banknotes in circulation < Banknotes according to banknote allocation key (adjusted banknotes)

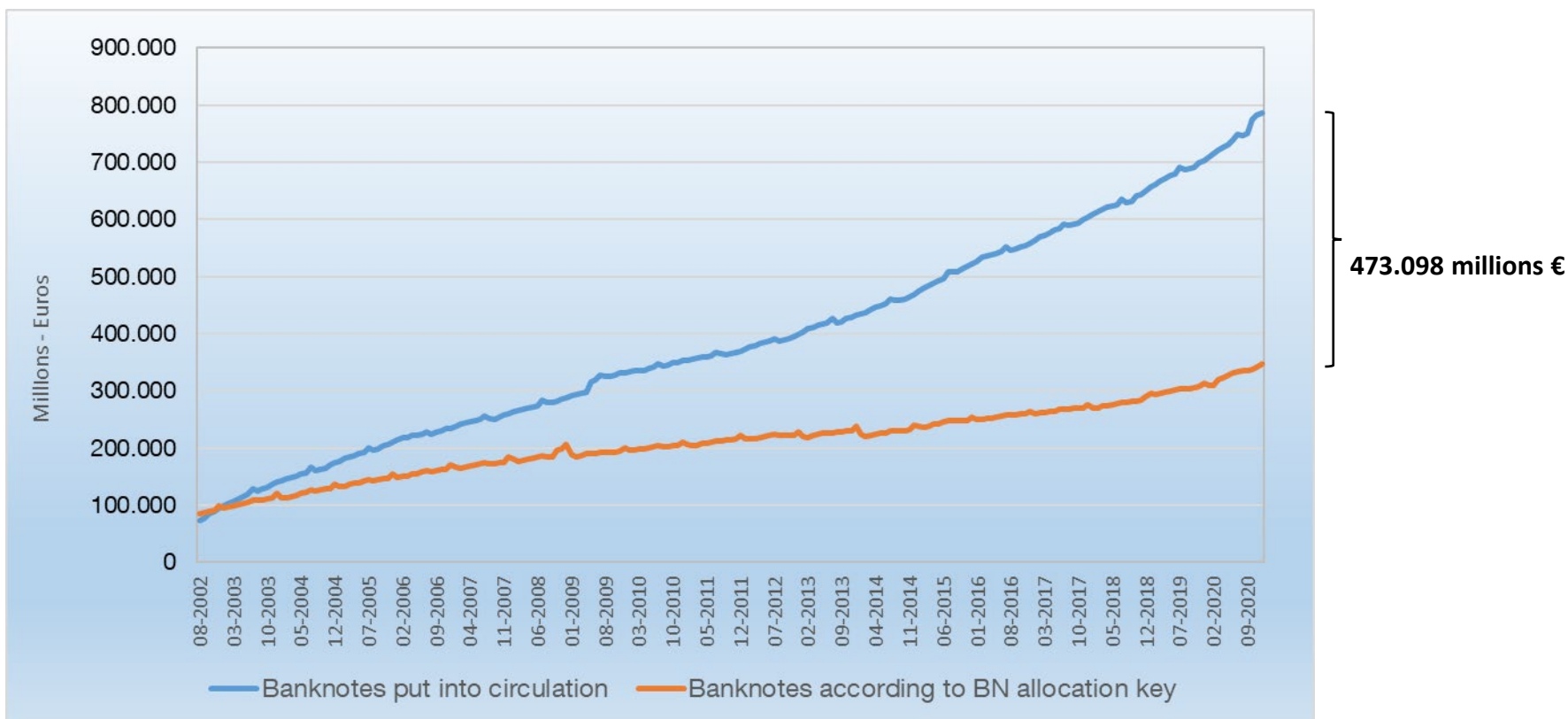


Evolution of banknotes put into circulation by the **Banco de España** and banknotes according to the banknotes allocation key



TREATMENT OF BANKNOTES IN CIRCULATION IN THE EUROSISTEMA

Evolution of banknotes put into circulation by the **Deutsche Bundesbank** and banknotes according to the banknotes allocation key.



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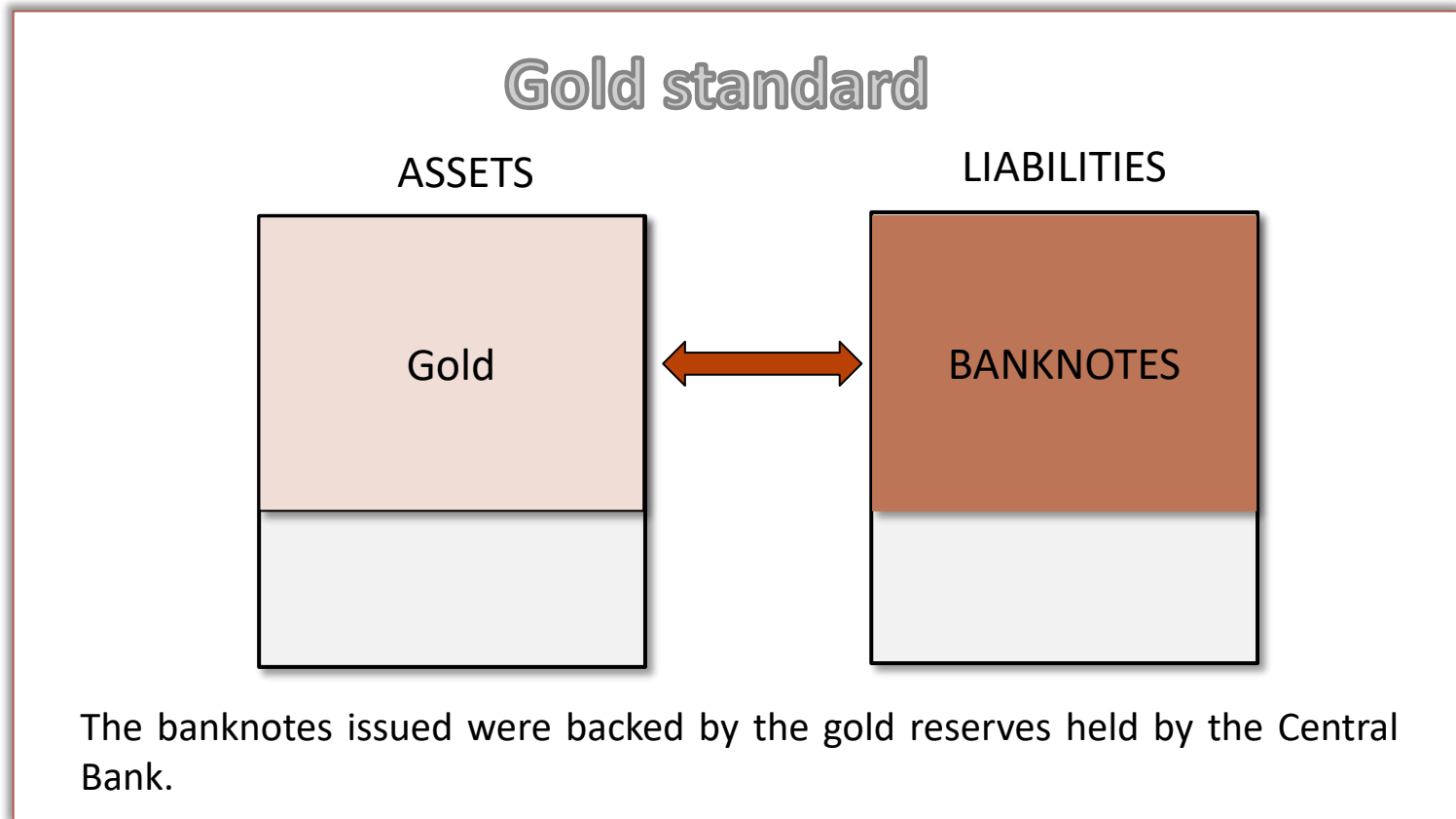
Functions money should fulfill:

- Medium of exchange in transactions
- Unit of value of goods and services
- Form of saving

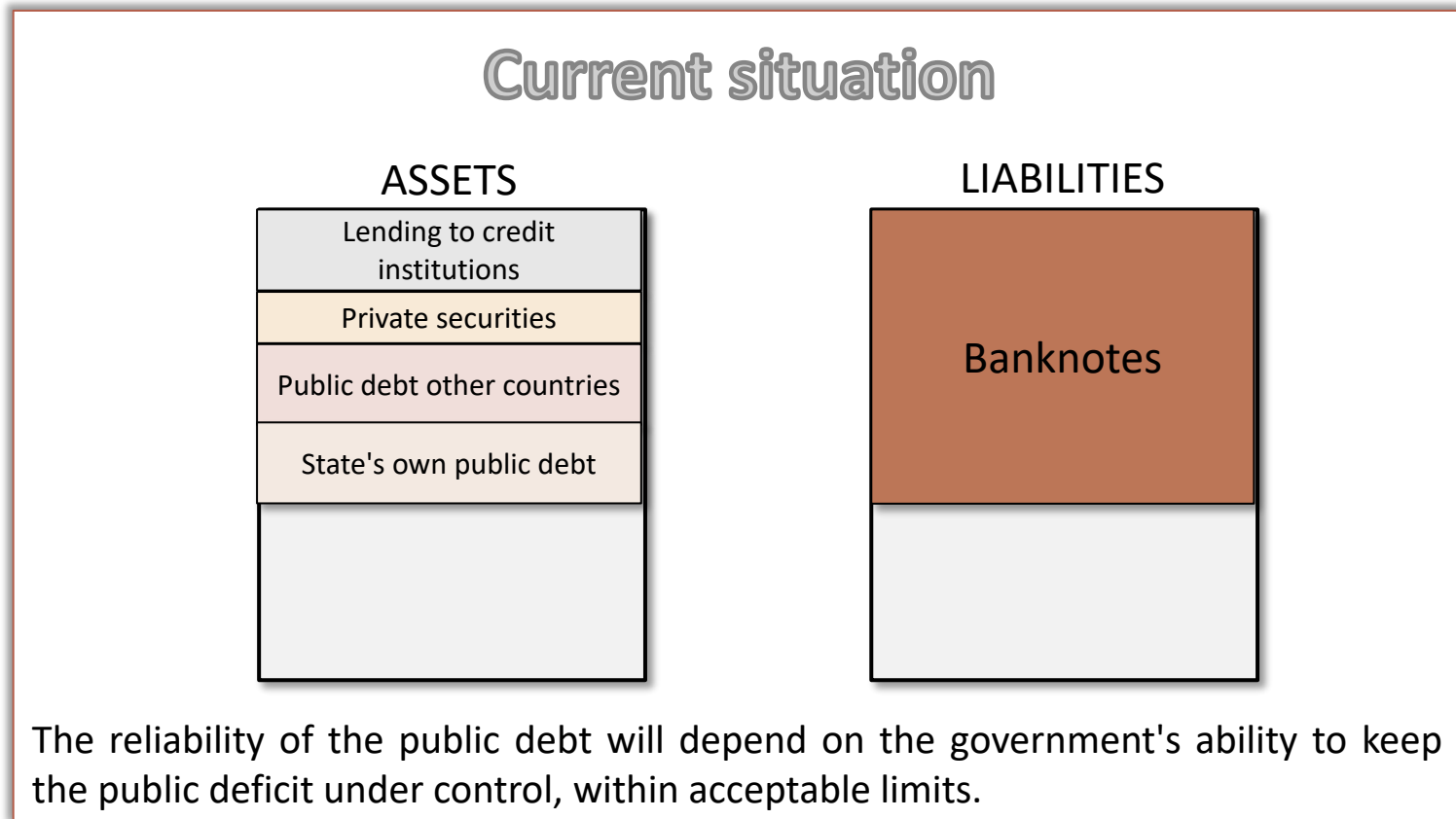
Characteristic:

- It must be commonly accepted and build trust
- Easily transportable
- Divisible
- Non-perishable and unalterable in time
- Difficult to counterfeit

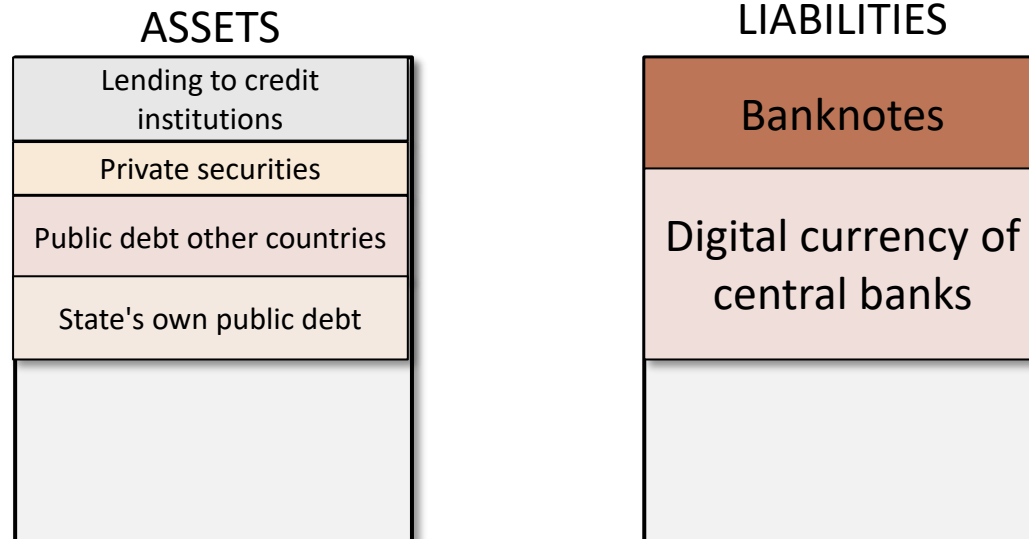
What does the credibility of money (banknotes in particular) depend on?



What does the credibility of money (banknotes in particular) depend on?



Future situation



Replacing physical money with book-entry accounts

The **credibility of money** depends on that the person who receives it as a means of payment thinks:

- That it will also be accepted by others in the future
- That its value will be maintained over time

Requirements:

- Amount of money in circulation is controlled
- Reliable registration system

The credibility of the money in circulation does not depend on what its counterpart is on the central bank's balance sheet, but on the public's confidence that the issuer will keep the quantity of money in circulation under control.

❖ Yap Islands Stone Money

- Carved limestones
- Very scarce commodity
- No physical transfer necessary
- Registration system ("book entries")



❖ Bitcoins

- Virtual currency
- Not backed by any government or central bank
- Not shown on the liabilities side of the balance sheet of any entity
- Transactions recorded on blockchains, on a large number of computers across the network



In principle, bitcoins meet the requirements of a reliable currency :

- ✓ Number of bitcoins limited and controlled by the system
- ✓ Reliable registration system that guarantees the veracity of the transactions registered.

THANK YOU FOR YOUR ATTENTION

Javier Pacios Rodríguez

