

# ONLINE LECTURES

## Monetary Theory and Policy: Recent History and Contemporary Issues



CENTRE FOR THE HISTORY  
AND METHODOLOGY OF  
ECONOMIC SCIENCE



HIGHER SCHOOL OF ECONOMICS  
NATIONAL RESEARCH  
UNIVERSITY

### Monetary Theory and Policy: Recent History and Contemporary Issues

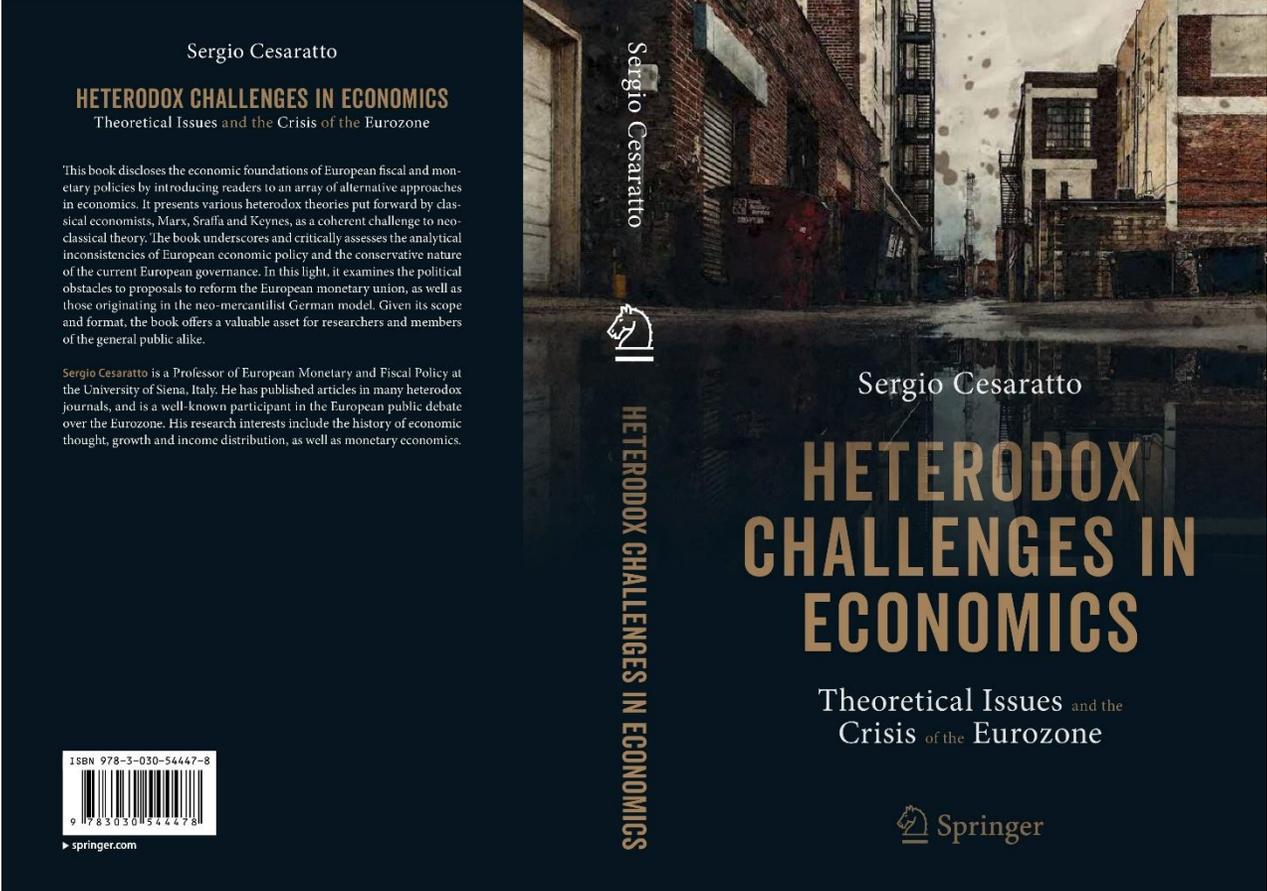
Online course

8<sup>th</sup> – 18<sup>th</sup> November 2021

Speakers:

- Riccardo Bellofiore (University of Bergamo)
- Sergio Cesaratto (University of Siena)
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Sergio Cesaratto

### HETERODOX CHALLENGES IN ECONOMICS

Theoretical Issues and the Crisis of the Eurozone

This book discloses the economic foundations of European fiscal and monetary policies by introducing readers to an array of alternative approaches in economics. It presents various heterodox theories put forward by classical economists, Marx, Sraffa and Keynes, as a coherent challenge to neo-classical theory. The book underscores and critically assesses the analytical inconsistencies of European economic policy and the conservative nature of the current European governance. In this light, it examines the political obstacles to proposals to reform the European monetary union, as well as those originating in the neo-mercantilist German model. Given its scope and format, the book offers a valuable asset for researchers and members of the general public alike.

Sergio Cesaratto is a Professor of European Monetary and Fiscal Policy at the University of Siena, Italy. He has published articles in many heterodox journals, and is a well-known participant in the European public debate over the Eurozone. His research interests include the history of economic thought, growth and income distribution, as well as monetary economics.

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### HETERODOX CHALLENGES IN ECONOMICS

Theoretical Issues and the  
Crisis of the Eurozone



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*8<sup>th</sup> November 2021 (Monday)*

18:00 – 19:20: **Sergio Cesaratto** — The notions of endogenous and exogenous money

19:30 – 21:00: **Sergio Cesaratto** — Systems of payments

*9<sup>th</sup> November 2021 (Tuesday)*

18:00 – 19:20: **Sergio Cesaratto** — Conventional and non-conventional monetary policies

# Lecture 1: Endogenous and exogenous money. Systems of payments

- I will not engage in philosophical disquisitions on the nature or history of money, I prefer to move operationally to how money is created, lives and eventually dies.
- **Hierarchy of currencies.**
- Typically in an economic transaction the two parties use a currency issued by a superior body that both trust.
- In principle, currency issued by one of the two parties in the form of a promise of payment (an I owe you) could be used in the exchange. This is sometimes the case between acquaintances or businesses between which there is trust.
- However, it is difficult for an IOU to be used by the recipient for further payments, although sometimes such an IOU, if particularly high quality, can be taken to a bank which 'discounts' it, i.e. advances its value.

# Hierarchy of currencies

- For these reasons, **private individuals** use banknotes (issued by the central bank) or bank money (deposits issued by commercial banks) in their transactions.
- The commercial banks in turn use for transactions among themselves a particular currency issued by the central banks: **bank reserves**.
- **Central banks** trade with each other using gold or international currencies, also called reserve currencies because they are a safe asset to hold in official reserves.
- While it is straightforward to understand how payments by banknotes work, it is less clear how bank deposits are created and circulated.
- To this end, let us first briefly introduce a small balance sheet of a commercial bank.

We note that **deposits** are a liability for the bank; **loans** are an asset; **reserves** are also an asset held in a current account at the central bank (they are not cash, but are convertible in cash).

### Simplified Balance Sheet of a Typical Bank

<i>Assets</i>		<i>Liabilities and Capital</i>	
Reserves (cash)	50	Deposits	700
Loans	600	Borrowing	200
Securities	350	Capital	100
<i>Total</i>	<i>1000</i>	<i>Total</i>	<i>1000</i>

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## Interbank payments: Paolo makes a payment to Francesca

MPS		Banca d'Italia		UNICREDIT	
			-100 R (MPS)		
			+100 R		
			(Unicredit)		
-100 R	-100 D			+100 R	+100 D
	(Paolo)				(Francesca)

*legenda: R riserves; D deposits*

The diagram illustrates the flow of funds during an interbank payment. A green arrow shows 100 units of reserves (R) moving from Banca d'Italia to MPS. Another green arrow shows 100 units of reserves (R) moving from Banca d'Italia to UNICREDIT. A third green arrow shows 100 units of deposits (D) moving from MPS to UNICREDIT. The Banca d'Italia ledger shows a decrease of 100 R (MPS) and an increase of 100 R (Unicredit). The MPS ledger shows a decrease of 100 R and a decrease of 100 D (Paolo). The UNICREDIT ledger shows an increase of 100 R and an increase of 100 D (Francesca).

Banks need reserves to meet **reserve requirements** (1% of deposits in the EMU) and because they use them in payments. Thus, when banks trust each other, they exchange reserves in the **interbank market**: banks with excess reserves lend them overnight to banks short of reserves.

		Banca d'Italia			
				-100 R (MPS)	
	<i>step 1</i>			+100 R (UniCredit)	
				+99 R (MPS)	
	<i>step 2</i>			-99 R (UniCredit)	
		MPS		UniCredit	
		-100 R	-100 D (Paolo)	+100 R	+100 D (Francesca)
<i>step 1</i>					
	<i>step 2</i>	+99 R	+99 (loan from UniCredit)	-99 R	+99 (loan to MPS)
<i>legenda: R riserves; D deposits</i>					

# The (in)famous TARGET2: how payments work in the Eurosystem

				BCE				
				+ 100 T2	+ 100 T2			
		Banca d'Italia	(Bdl)	(Buba)	BUNDESBANK			
			-100 R		+100 T2	+100 R		
			+ 100 T2					
	MPS						Deutsche Bank	
-100 R	-100 D						+100 R	+100 D
	(Paolo)							(Katrin)
<i>legenda: R riserve bancarie; D depositi bancari; RU riserve ufficiali, tutto in €</i>								

How banks creates loans and deposits: loans generates deposits: The only proviso is that the client is reliable. This is the core of **endogenous money theory**

Commercial bank	
<i>A</i>	<i>L</i>
Loans	Deposits

Commercial bank	
<i>A</i>	<i>L</i>
New loan	New deposit

## Do banks need reserves to lend?

- Even in monetary regimes where banks are obliged to hold reserve requirements as a share of deposits, they are not obliged to comply with the reserve requirement moment by moment, but on average by reference to the amount of deposits held in the previous "maintenance period".
- In the Eurosystem the **maintenance period** consists of six weeks - the weeks between two meetings of the Governing Council of the ECB.
- A bank is required to hold an average of 1% in reserves during the current maintenance period related to the deposits held in the previous "maintenance period".
- Thus banks have time to collect reserves through the weekly CB's main or longer term **refinancing operations** (or borrowing them from other banks with excess of reserves).
- We will also see that **the central bank will never fail to provide the banks with the necessary reserves.**
- Endogenous money theory (or fact): **credit → deposits → reserves**

# How banknotes are generated?

UniCredit	
-10 reserves +10 banconots	
-10 banconots	-10 deposit (Paolo)

# Endogenous money and mainstream economics

- An **exogenous money view** is instead held by traditional mainstream economics (although not by most of central bankers and also not by some mainstream scholars)
- In traditional neoclassical economics **banks intermediate savings**: they collect deposits (savings) and lend to firms (investment): **loanable funds theory**
- The equilibrium price between saving and investment is the **natural interest rate**.
- Natural interest rate: the rate at which full capacity savings are equal to investment (Say's Law). [recall that  $S(\bar{Y}, i) = I(\bar{Y}, i)$ , where  $\bar{Y}$  is full employment income].
- In traditional neoclassical economics the amount of deposits that banks can create depends on the amount of reserves created by the central bank (money supply)
- Exogenous money: **Reserves → Deposits → Credit**
- The relation between reserves and deposits is captured by the well-known **Monetary (or Deposit) multiplier**
- For memory: Endogenous money: **credit → deposits → reserves**

## The deposit multiplier

- As well known,  $\gamma$  is the reserve coefficient (mandatory reserves on deposits) and  $\alpha$  is the share of money that the public wants to hold in banknotes (as a share of deposits).  $BM$  is base money (reserves + banknotes)
- In this theory, when banks receive reserves, they lend them out, only retaining a share to meet reserve requirements.
- It is true that even in this theory banks generate credit by creating deposits, but...
- the process starts with the availability of reserves, and the demand for credit is a function of supply (a law of Say of credit: supply of credit creates its own demand).
- Moreover, in this theory banks collect savings to finance investments.
- It is also unsustainable to maintain that banks lend excess reserves. These circulate only in the current accounts bank hold at the central bank!

$$D = \frac{1}{\gamma + \alpha} BM$$

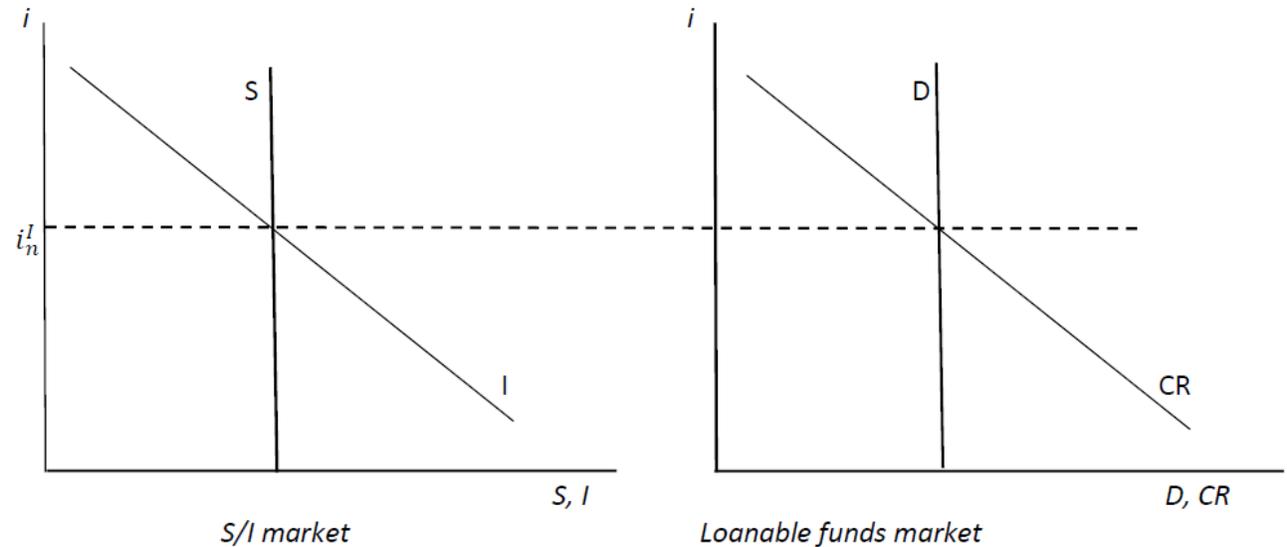
## Summing up the neoclassical exogenous money view:

$S \rightarrow I$ , banks intermediate savings (deposits), reserves  $\rightarrow$  deposits  $\rightarrow$  credit

- This view is associated to the standard macroeconomic textbooks presentation of monetary policy
- Central Banks control the interest rate by, at the same time, manoeuvring the quantity of money.
- E.g. they lower the interest rate by increasing the money supply. A lower interest rate stimulates demand for credit, the supply of which, on the other hand, increases because the central bank has increased the supply of reserves, and this activates the monetary multiplier...
- Note that monetary policy (the control of the interest rate) is based on changes in the money supply.

# Real and monetary equilibria in neoclassical theory

- The objective of monetary policy is that a "natural" interest rate prevails in the market. At this rate on the one hand the supply of capacity savings is equal to the demand for investment, and on the other hand the supply of loanable funds is equal to the demand (the S/I market is the real expression of the loanable funds market, the links being the natural rate of interest)



## Endogenous money theory more consistent with Keynesian relationship between savings and investment

- In Keynes (and Kalecki) it is **investment that determines saving** through the Keynesian income multiplier.
- But how are investment financed?
- Here the endogenous money view provide the answer: through money creation by commercial banks.
- Two examples

## Keynesian income multiplier and endogenous money

<i>Periods</i>	<i>I</i>	$\Delta Y$	$\Delta C$	$\Delta S$	$\Delta D^*$
	(1)	(2)	(3)	(4)	(5)
1	100	100			(100 = loan)
2		80	80	20.0	100
3		64	64	16.0	100
4		51,2	51,2	12.8	100
5		40,9	40,9	10.2	100
...		...	...	...	...
Final		500	400	100	100

We can also imagine that savers wish to hold part of their savings in securities (B), while in turn the investor issues securities to finance the investment on a longer term. In this way the investor returns at least part of the credit to the bank and the **money initially created is thus destroyed**.

<i>Periodi</i>	$\Delta I$	$\Delta Y$	$\Delta C$	$\Delta S$	$\Delta D$	$\Delta B$
	(1)	(2)	(3)	(4)	(5)	(6)
1	100	100				
2		80	80	20.0	2	18
3		64	64	16.0	2.0	18.0
4		51,2	51,2	12.8	1.6	14.4
5		40,9	40,9	10.2	1.3	11.5
...		...	...	...	...	...
Finale		500	400	100	10	90

## Keynes and endogenous money

- In the *General Theory* Keynes does not deal with the financing of investment and can be said to have an exogenous theory of money.
- In fact, it can be said that his theory of liquidity preference forms the basis of the analysis of monetary policy found in textbooks.
- In this theory the liquidity preference is the basis for the demand for money (inverse function of the interest rate); by controlling the money supply the central bank controls the interest rate.
- Only in some famous essays after the *GT* Keynes introduces the problem of the financing of investments.