Fighting Inflation More Effectively without Transferring Central Banks' Profits to Banks

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Introduction

- To fight inflation, central banks started raising interest rates since early 2022

- Their operating procedure: raising interest rate by increasing rate of remuneration on bank reserves

- Bank reserves are now massive due to past QE

- Massive transfers of central banks' profits to commercial banks

| Bank reserves and interest payments to banks (Aug 2023), billions				
	Bank reserves	Interest rate	Interest payments	percent GDP
ECB	€ 3.650	4,00%	€ 146	1.10%
Fed	$3.136	5,15%	$162	0.64%
BoE	£909	4,25%	£39	1.75%

Sources: Bank of England, Board of Governors Federal Reserve and European Central Bank

- These are substantial numbers.
- To give some perspective:
  - Total yearly spending of EU is 165 billion; banks obtain almost as much without any condition
- As a result of their anti-inflationary policies, central banks transfer more than the total seigniorage gains to private banks, and now make significant losses.
- An extraordinary outcome of the fight against inflation.
- This was not the case during 1970s and 1980s when central banks fought inflation:
  - They made profits
  - they did not remunerate bank reserves.

Origin of this problem: reserve abundance

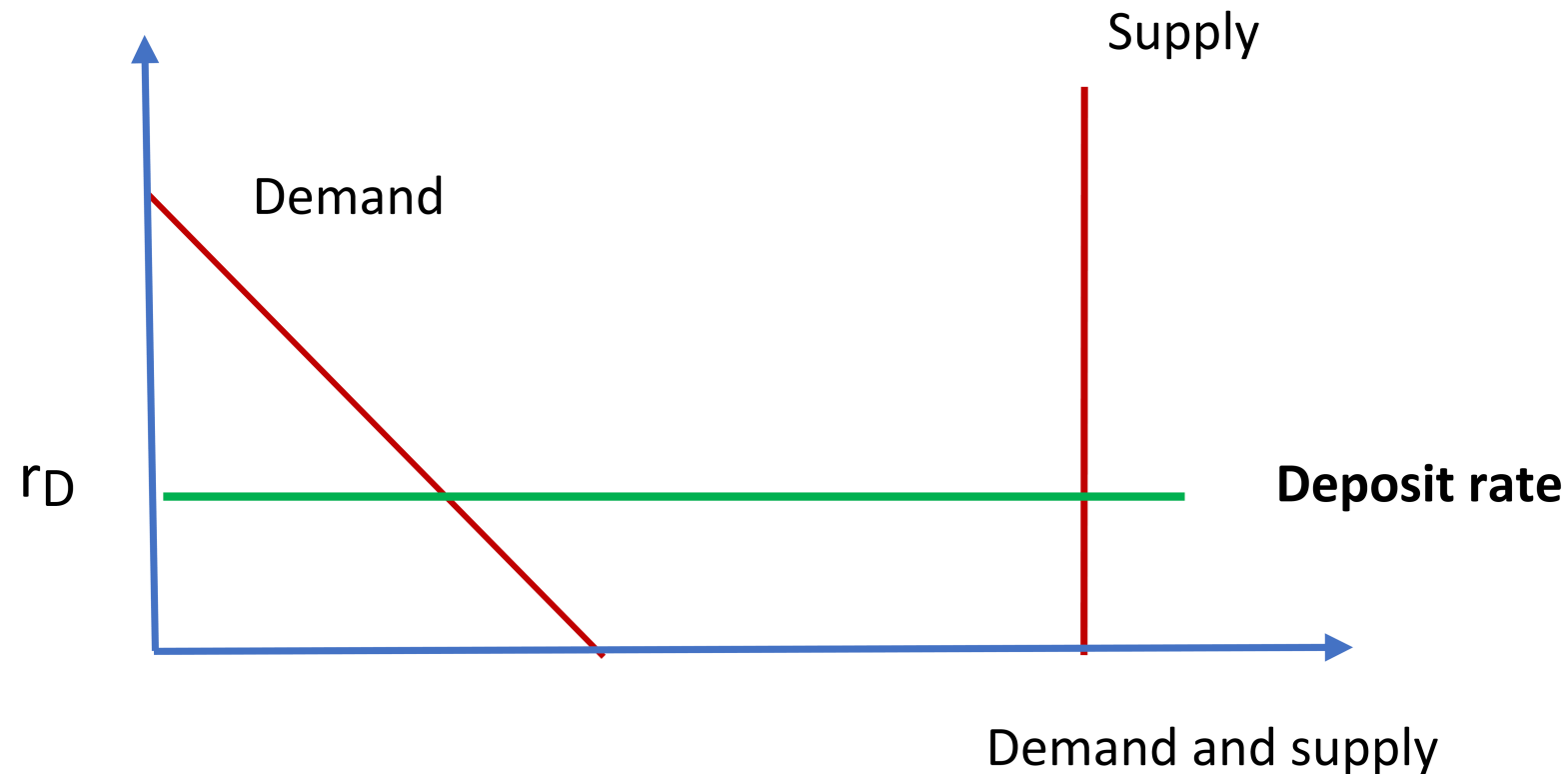**Figure 1: Demand and supply of reserves in reserve abundance regime**
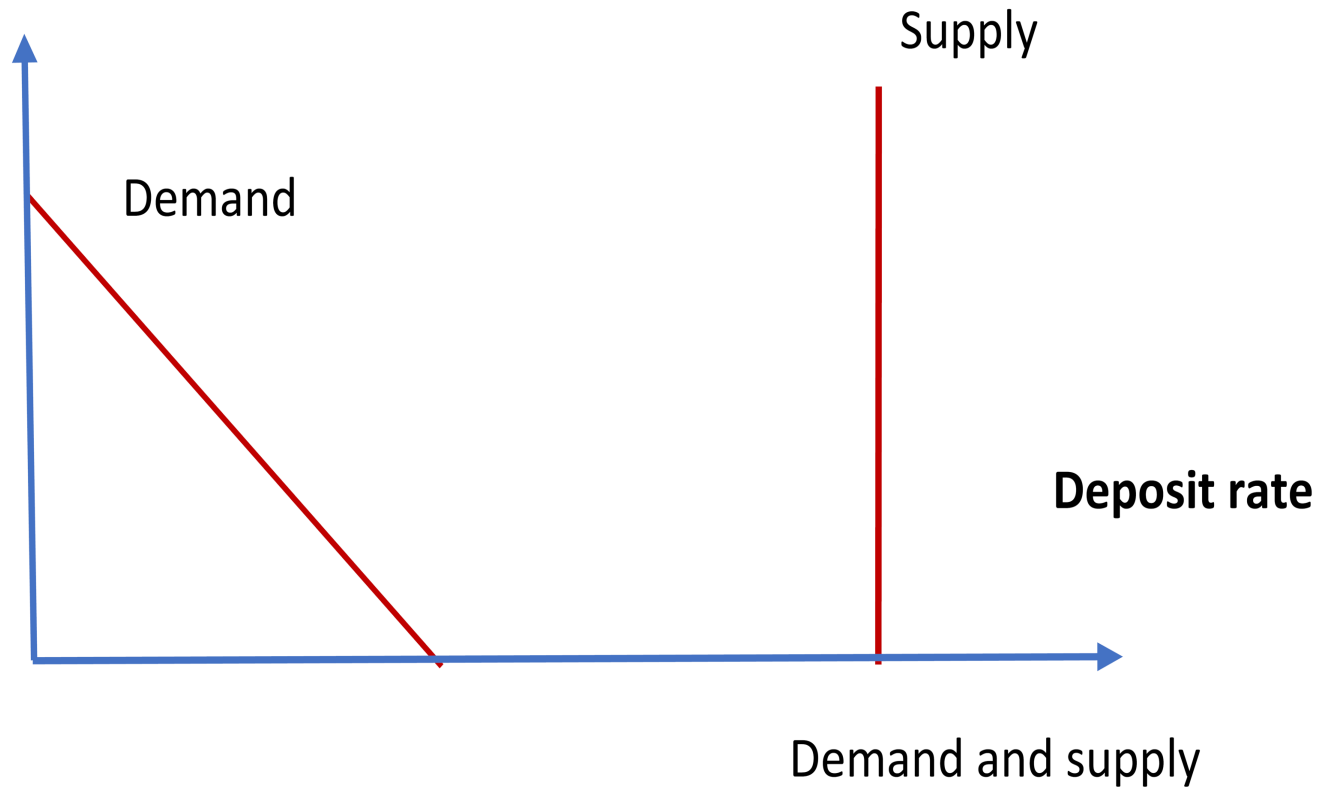
Excess supply in market for bank reservess
Interest rate is stuck at ZLB

Origin of this problem: reserve abundance

Figure 1: Demand and supply of reserves in reserve abundance regime

- By remunerating bank reserves, the lower bound is raised
- This is only way to raise interest rate in regime of reserve abundance

Note: this is a stylised representation of the market for bank reserves. It does not show the marginal lending rate which acts as a celling and is raised together with the deposit rate.

- Issues that we want to analyze
  - Problems with remuneration of bank reserves
  - Alternative operating procedures that do not transfer large amounts of money to banks
    - Our proposal: Two-tier MRR
  - The transmission of monetary policy in the current remuneration regime: is it effective?

Political economy problems with these transfers

- Seigniorage gains of central banks find origin in monopoly power granted by governments to central bankers to create money base.
- One would expect that these monopoly profits would then be returned to the government.
- Instead, they are returned more than fully to private agents,
- And lead to large losses of central banks

large losses of central banks
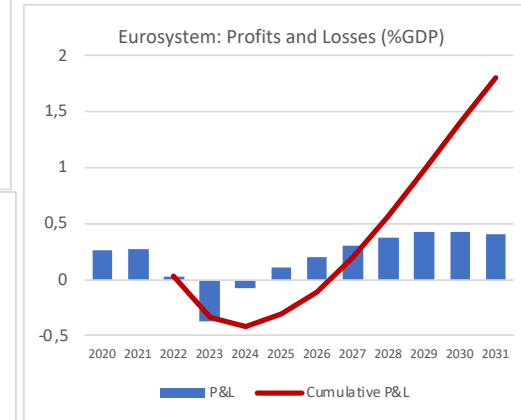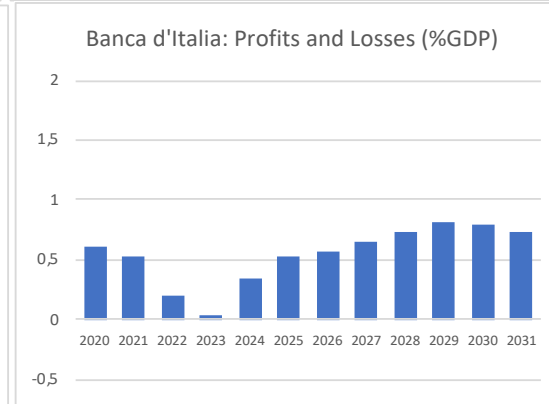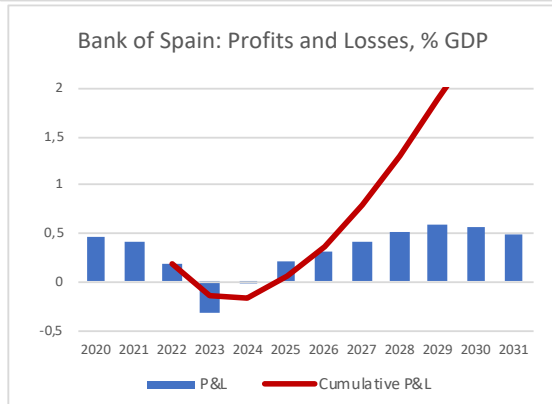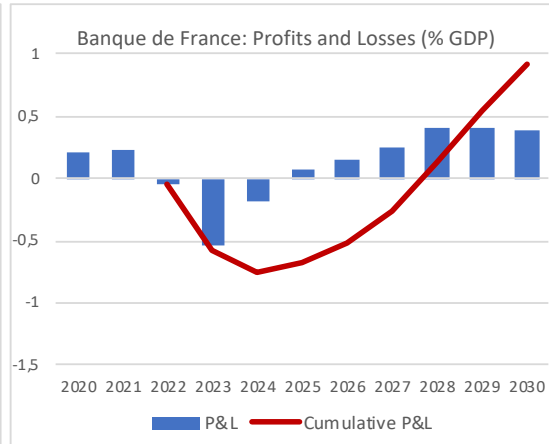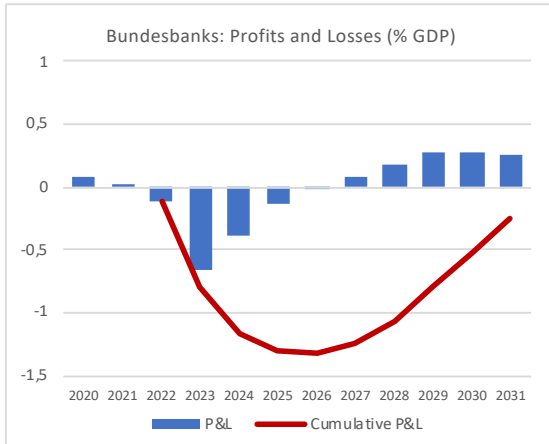
Source: Belhocine, et al. (2023), IMF

Underlying assumptions:
- DR will peak in 2024 and then decline to 2.3%
- Yields on QE-portfolios will increase until 2024-25 and then gradually decline to 2%
- APP is brought down gradually
- PEPP is maintained at same level

Fiscal implications

- The paying of interest on banks' reserve accounts transforms long-term government debt into a short-term debt.
- Most government bonds held by the central banks were issued at very low interest rates
- This implies that governments are immune for some time from the interest rate rises.
- By paying an interest rate of 4% (Eurozone) to 4.9% (US) on bank reserves the central banks transform this long-term debt into highly liquid debt
- forcing an immediate increase in interest payments on the consolidated debt of the government and the central bank.
- **This contributes to higher budget deficit and increasing government debt.**
- It is paradoxical that central banks contribute to a worsening fiscal outlook for the government.

Central banks have removed the biggest risk of banks

- The profit and loss profile of the central banks mimicks the profit and loss profile of commercial banks during periods of interest increases.
  - the latter "borrow short and lend long", banks tend to make losses during periods of interest rate increases.
  - Banks are escaping this burdensome loss profile as they are making large profits during the current spell of interest rate increases.
- Need to hedge interest risk is reduced: **moral hazard**
- This appears to be possible because central banks have taken over interest rate risk from the commercial banks.

Alternative operating procedures: a return to scarce reserve regime

- Central banks can sell the government bonds again (QT)

- A return to scarce reserve regime will take a long time

- Central banks like the Fed and BoE have announced they want to remain in the reserve abundance regime for the indefinite future
  - they will not sell all the government bonds so as to maintain excess supply in market of bank reserves

- Transfers of profits to commercial banks will continue for quite some time

- There must better way to conduct monetary policies

- The

Special problem in eurozone

- Quick sale of government bonds not only leads to increase in yields that can destabilize bond markets
- In the Eurozone it can also lead to increase in spreads,
  - e.g. the yields on Italian government bonds are likely to increase more than yields on German government bonds.
  - This happened during pandemic and when inflation surged.
  - And let ECB to launch PEPP and later TIP

Spreads 10-year government bonds in eurozone after pandemic

Legend:
- Belgium
- Ireland
- Greece
- Spain
- France
- Italy
- Netherlands
- Austria
- Portugal
- Finland
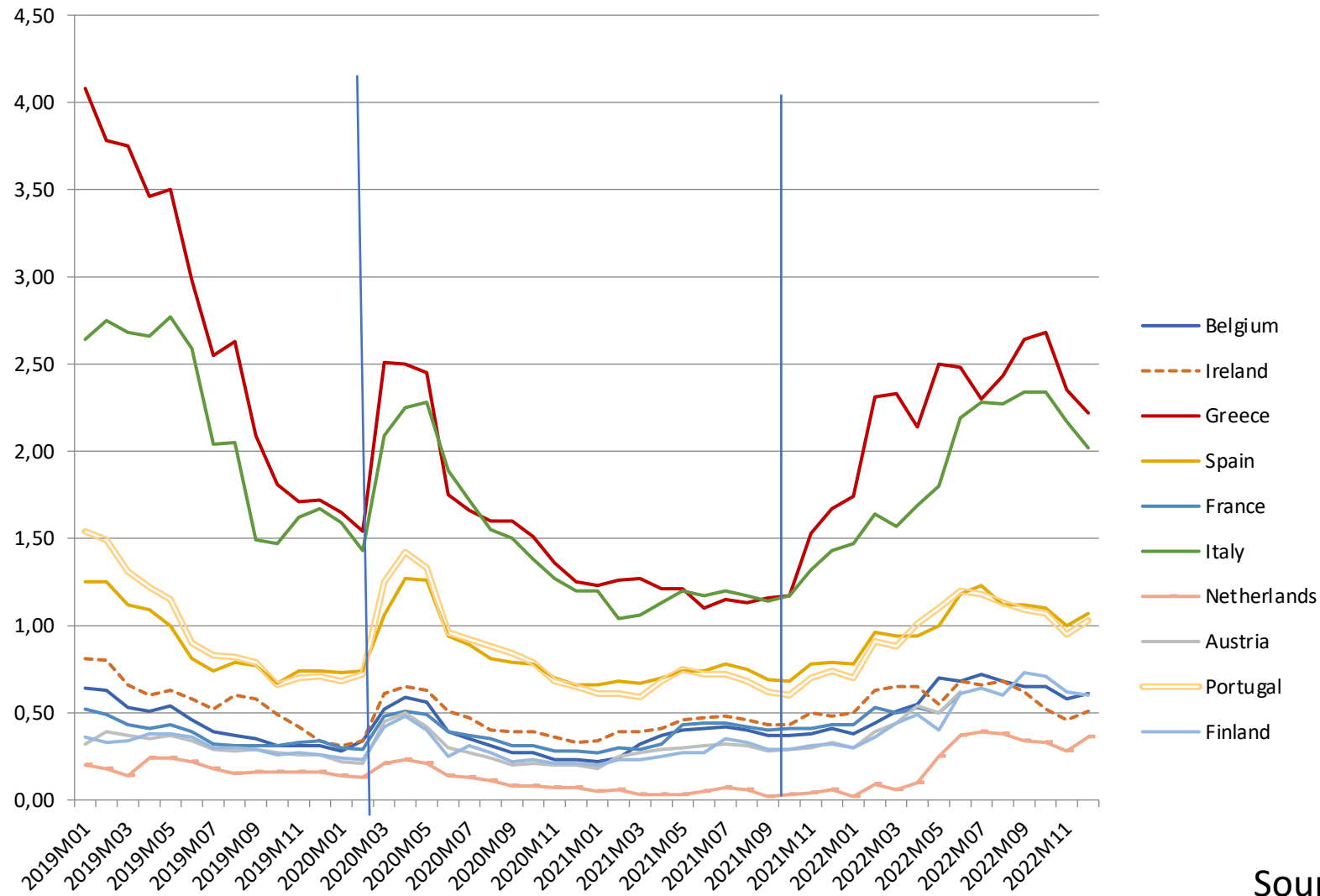
Source: Eurostat

Alternative operating procedures: a two-tier system

- Required minimum reserves are not remunerated
- Excess reserves are remunerated
- Demand curve shifts to the right

Figure 6. Demand and supply of reserves: two-tier system
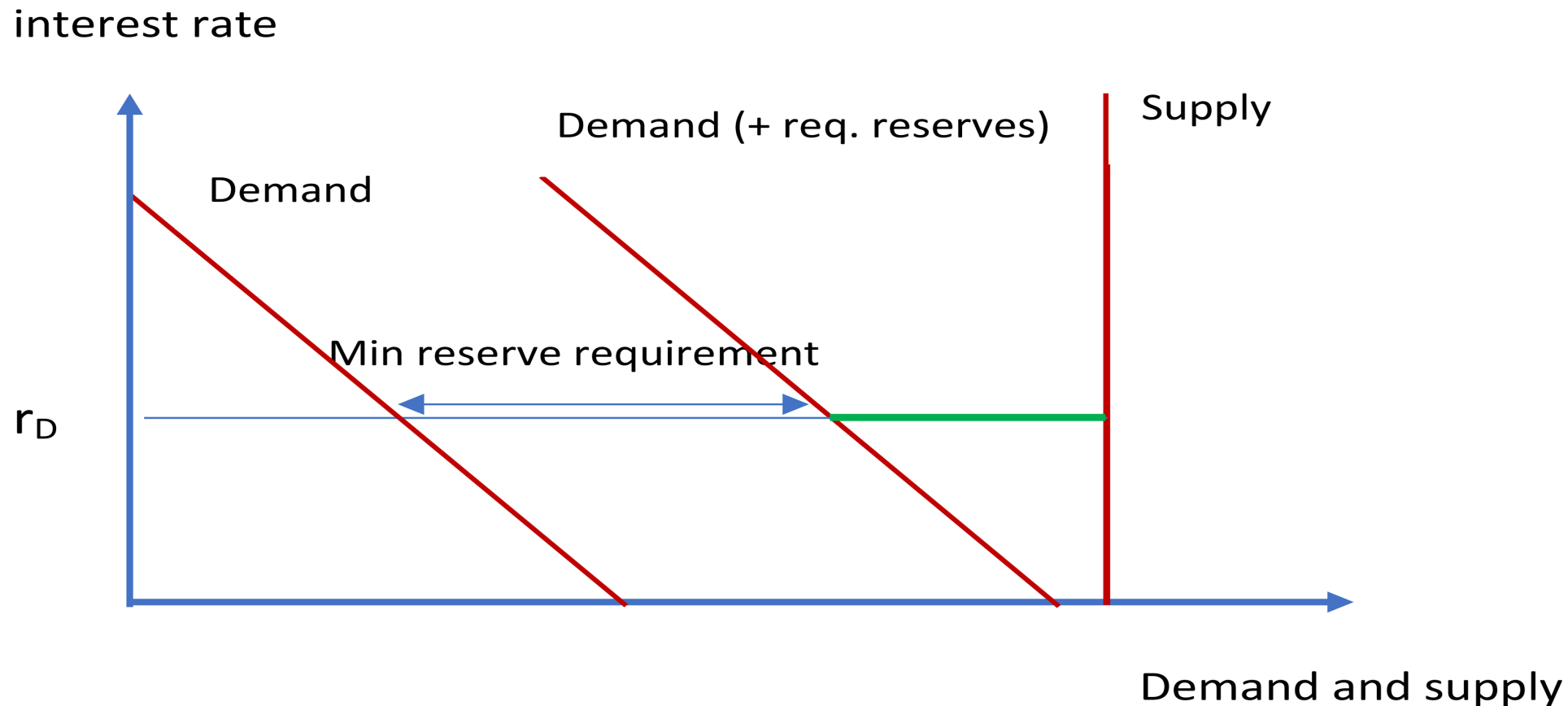
Advantages of two-tier system

Table: Total reserves (Aug 23), minimum reserves and transfers (billion euros)				
total reserves	percent min res	min reserves	reduction transfer	excess reserves
€ 3.818	1%	€ 168	€ 7	€ 3.650
€ 3.818	5%	€ 840	€ 34	€ 2.978
€ 3.818	10%	€ 1.680	€ 67	€ 2.138
€ 3.818	15%	€ 2.520	€ 101	€ 1.298
Note: total reserves = deposit facility + current accounts (min reserves)				

- ECB could reduce transfers profits to banks applying reasonable minimum reserve requirements
- Thereby reducing transfers significantly
- Maintaining operating procedure

Transmission of monetary policy in the current remuneration regime: is it effective?

- First the theory: **Equity channel of bank lending**
- When the bank's capital (equity) increases banks will have an incentive to increase lending.
- There are essentially two reasons for this.
    - A higher equity means that the bank may exceed *the minimum capital requirements* imposed by regulators. Banks will have incentives to increase the supply of loans.
    - With higher equity, the cost of funding bank loans tends to decline, thereby leading to more bank lending.
- Massive remuneration on bank reserves improves banks' equity position
- Thus, the effect of interest rate increase on real economy is weakened
- Transmission of monetary policy of ECB is less effective

- We test this hypothesis by estimating the following econometric equation, using monthly country-level data of the 20 Eurozone countries from September 2022 to August 2023:

$$y_{it} = \alpha + b1 * Reserve_{it-1} + b2 * r_t + b3 * \Delta Rm_{it} + b4 * Con_{it} + \alpha_i + \varepsilon_{it}$$

  - y_{it}: percentage change in the aggregate loans to non-financial corporations/households in country *i* in month *t*
  - $Reserve_{it-1}$: aggregate level of reserves in country i in previous month as a percent of GDP of country i.
  - r_t: policy rate in month t.
  - ΔRm_{it}: change in the remuneration of bank reserves in month t as a percent of GDP of country i.
  - Con_{it}, α_i, ε_{it}: control variables, countries' fixed effects and error term, respectively.

- This hypothesis has been tested by Fricke, Greppmair and Paludkiewicz (2023) using bank-level data.

The transmission of monetary policies:
Loans to non-financial corporations (growth rate, in yearly percent changes)

	(1)	(2)	(3)	(4)	(5)
	All sample	Top 50%	Top 50% exclude	Top 50% exclude	Bottom 50%
Lag reserve	7.05***	12.42***	16.29***	13.92***	-7.23
	[2.43]	[1.58]	[4.28]	[3.57]	[20.24]
Policy rate	-3.00***	-1.46**	-1.64**	-1.42***	-3.75***
	[0.54]	[0.54]	[0.59]	[0.18]	[0.65]
Ln (oil price)	-8.11***	-1.59	-3.57*	1.13	-10.26**
	[2.03]	[2.13]	[1.80]	[1.71]	[3.42]
Change in remuneration	2.13***	1.98***	2.71***	1.16**	7.84
	[0.24]	[0.09]	[0.37]	[0.51]	[4.66]
Business confidence				1.32***	0.35
				[0.41]	[0.59]
Constant term	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	216	106	84	72	97
R^2	0.627	0.711	0.583	0.882	0.746

Clustered at the country level, the results display robust standard errors in brackets. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Note: we use adjusted loans to non-financial corporations which measures lending to the real economy (non-financial corporations). "Exclude" means that Cyprus and Luxembourg are excluded from the sample

Quantitative effects depend on size of bank reserves

Total effect of a one percent rate hike on % change loans to non-financial corporations (Top 50% sample)
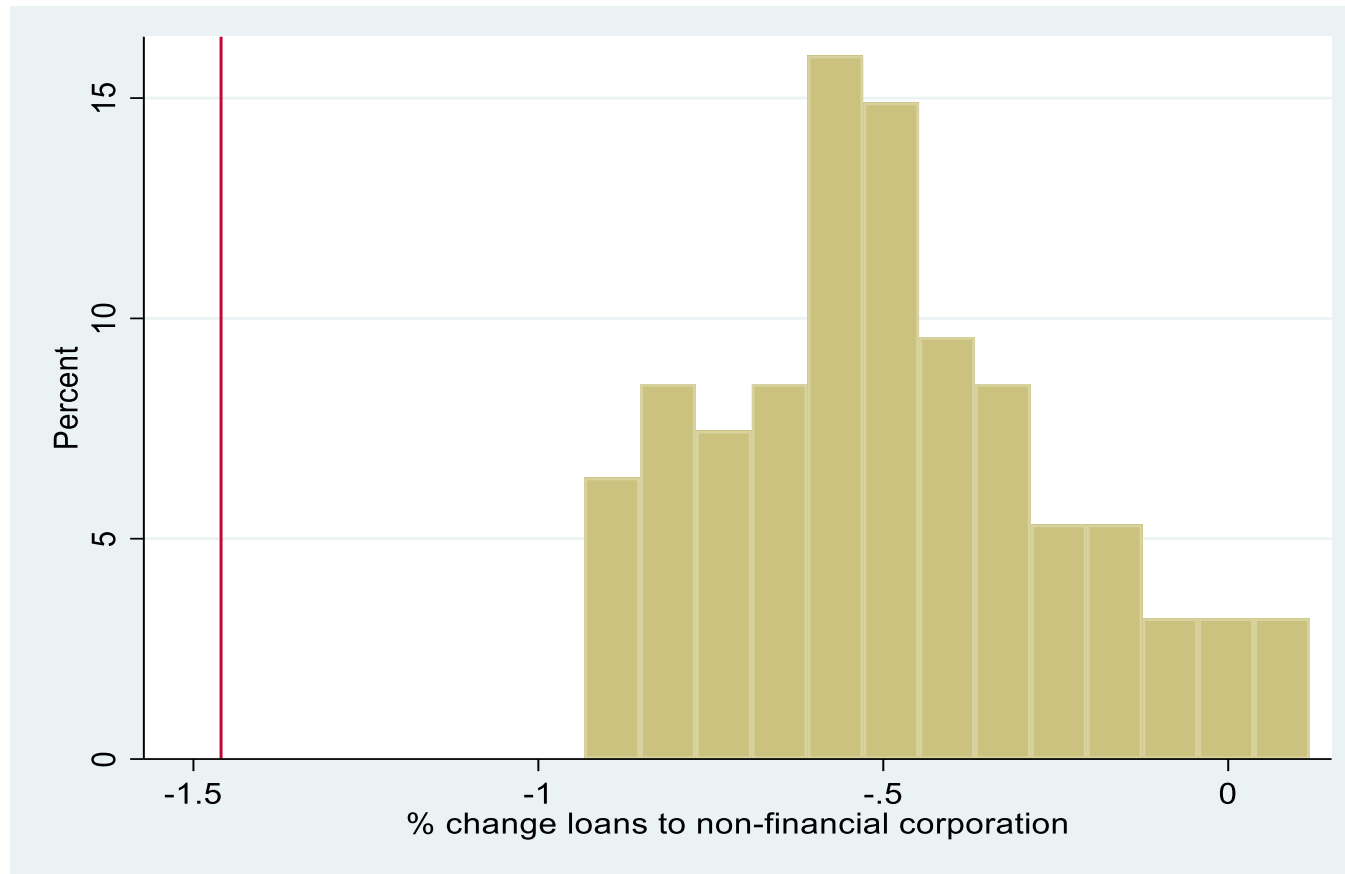
- Total effect is sum of direct effect and equity effect
- Since equity effect depends on size of bankreserves, the total also depends on size bank reserves

Conclusion

- The large transfers of central banks' profits are without economic foundations
- They also appear extremely unfair
- They reduce the effectiveness of monetary policy to fight inflation
- These transfers can be reduced significantly without affecting the central banks' operating procedures
    - by using a two-tier system of reserve requirements
- This will also lead to a significant decline in the losses of the central banks and increase effectiveness of monetary policy.
- There is a window of opportunities to introduce such a system today

Problems of MRR in Eurozone: heterogeneity

- The distribution on bank reserves is uneven in Eurozone
- And so is the share of minimum reserves in total reserves

Minimum reserves as percent of total reserves

Austria	5,6%
Belgium	3,3%
Cyprus	2,9%
Germany	5,6%
Estonia	6,6%
Spain	7,5%
Finland	3,4%
France	4,7%
Greece	5,7%
Ireland	5,5%
Italy	9,2%
Lithuania	8,8%
Luxembourg	6,1%
Latvia	6,6%
Malta	14,9%
Netherlands	5,0%
Portugal	7,4%
Slovenia	5,3%
Slovakia	4,8%

Heterogeity of distribution of reserves
Example Italy:

- Has a high proportion of minimum reserves in total reserves
- A minimum reserve ratio of more than 10% would lead Italian banks into scarcity of excess reserves to satisfy MRR
- They would have to borrow reserves in interbank market
- Thus, MRR should not exceed 10%
- As long as MRR < 10% no significant problem with heterogeneity

Source: ECB, Disaggregated financial statement of the Eurosystem

The transmission of monetary policies:
Loans to households (growth rate, in yearly percent changes)

	(1)	(2)	(3)	(4)	(5)
	All sample	Top 50%	Top 50% exclude	Top 50% exclude	Bottom 50%
Lag reserve	6.11***	7.45***	2.92	1.79	-0.82
	[1.51]	[0.81]	[2.32]	[1.97]	[4.66]
Policy rate	-1.05***	-0.98***	-1.10***	-1.30***	-1.90***
	[0.21]	[0.22]	[0.22]	[0.39]	[0.12]
Ln (oil price)	-2.44***	-3.04***	-3.19***	-3.67***	-3.02**
	[0.84]	[0.76]	[0.68]	[0.44]	[1.06]
Change in remuneration					
	1.08***	1.00***	1.38***	1.44***	2.76**
	[0.24]	[0.22]	[0.24]	[0.31]	[0.88]
Consumer confidence				0.04	0.29**
				[0.32]	[0.11]
Constant term	Yes	Yes	Yes	Yes	Yes
Fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	216	106	84	72	97
R^2	0.658	0.778	0.749	0.828	0.866