



Stability in an Uncertain World: The case for cash

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1. Introduction/Motivation

- Sufficient supply of **money** without any inflationary or deflationary pressure necessary well-functioning economy
- Essential question: is there a difference between **private** money (deposits) and **public** money (cash)?
- Focus here: **macroeconomic stabilization**

2. Consequences of a monetary contraction

2.1. Lessons from the Great Depression (1929 – 1933)

Index of All Common Stock Prices in the US



Stock market
crash in 1929

Passive monetary policy by the FED contributed heavily to the Great Depression (Friedman & Schwartz 1963):

Federal Reserve Discount Rates New York in %



Interest rate increase during the crisis!

Reserves of US commercial banks with the FED in USD bn

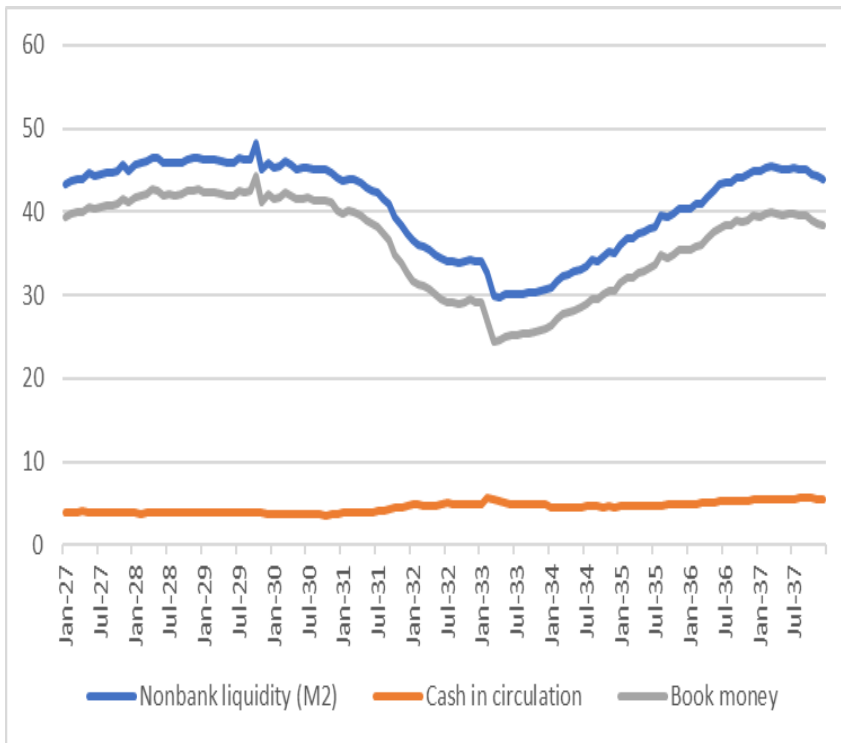


Liquidity provision for US banks:
Too little, too late



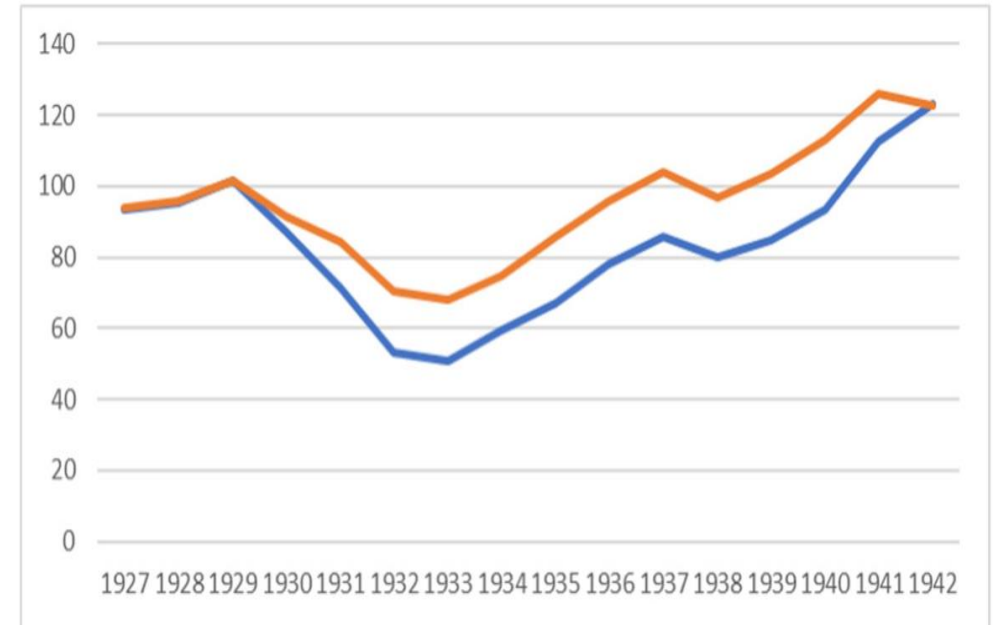
Devastating consequences for US money stock and real economy!

Nonbank liquidity (M2), book money and cash held by nonbanks in the US (USD bn)



US money stock declined by 33%

Nominal and real Gross National Product (GNP) in the US



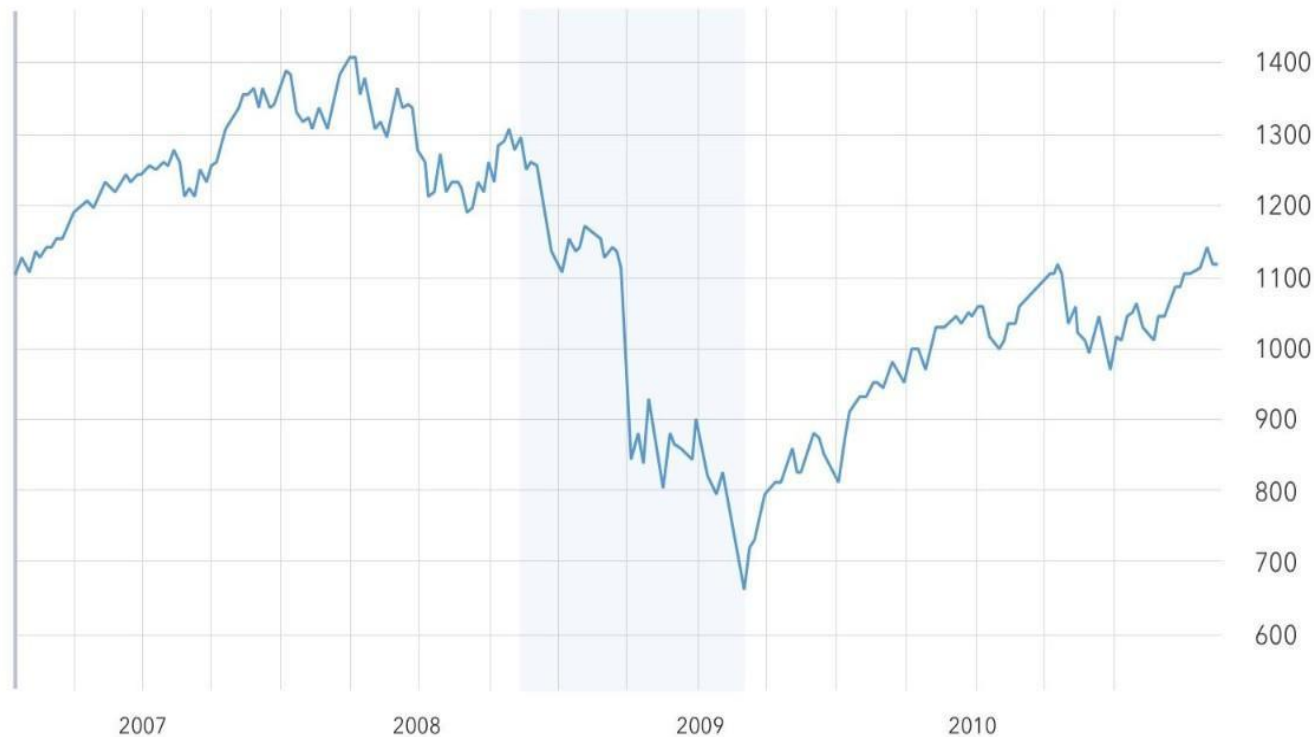
Real GNP declined by 33%



Great Recession 2008/9 – major mistakes not repeated



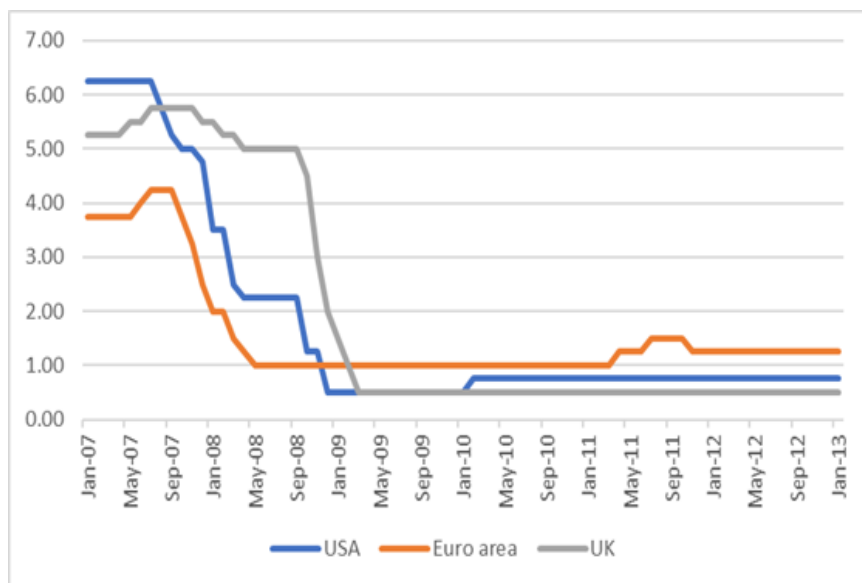
Dow Jones Industrial Average, 2008



Stock market
crash in 2008

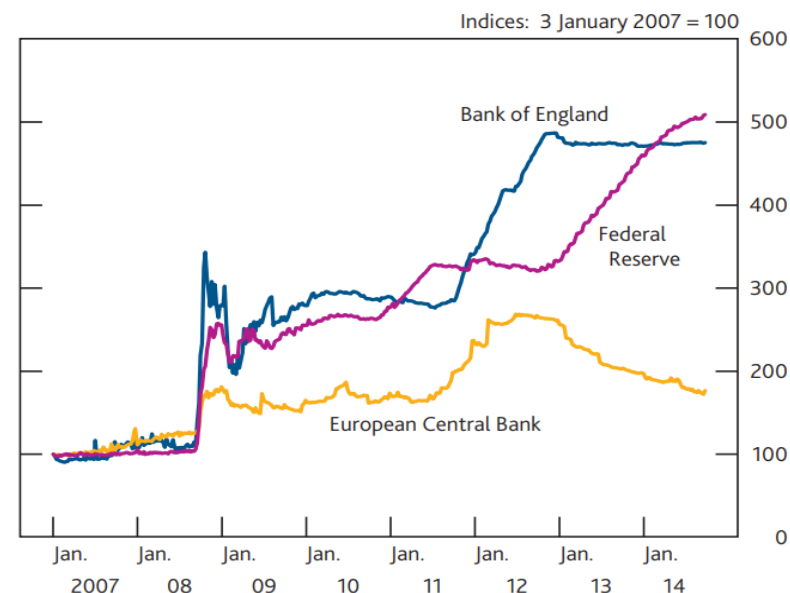
Active monetary policy worldwide contributed heavily to the quick economic recovery process

Central bank interest rates (%) in major currency areas



Deep and quick cuts in interest rates

Growth in central bank balance sheets in the US, Euro area and UK

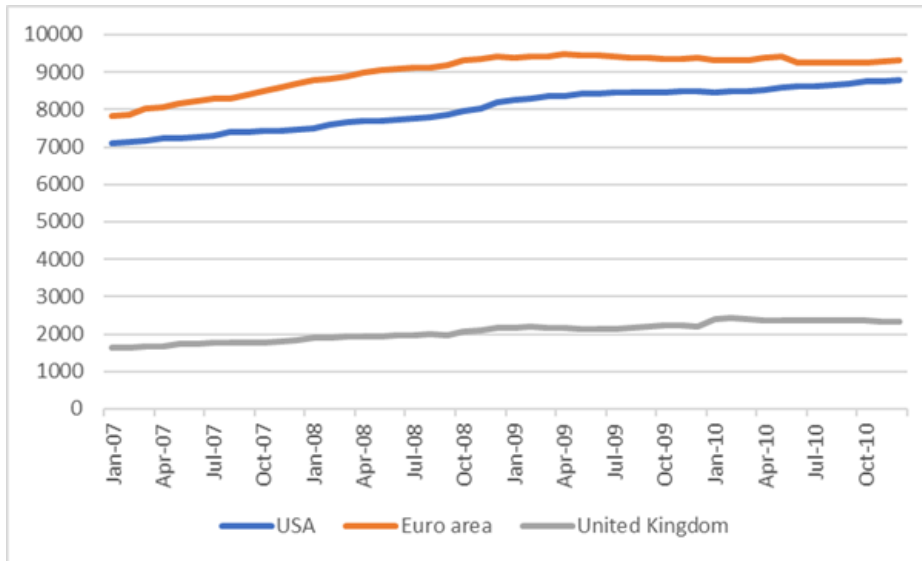


Sources: Bank of England, ECB and US Federal Reserve.

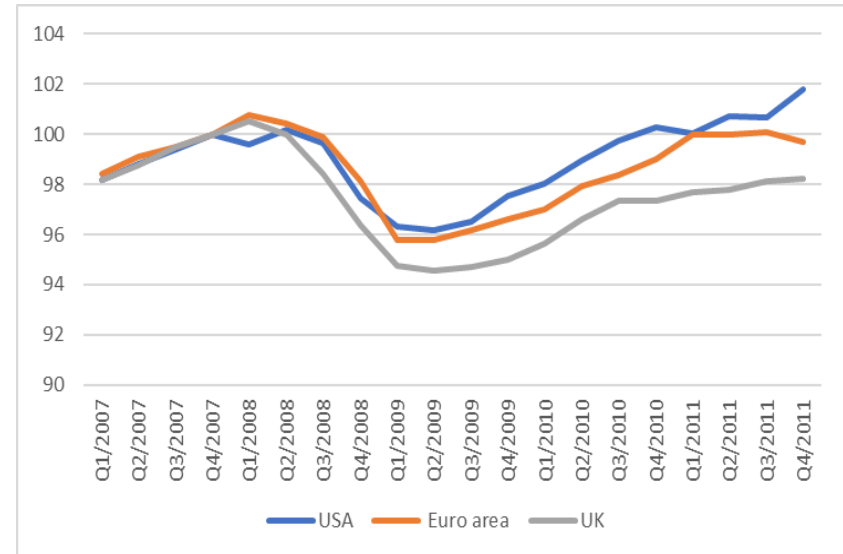
Ample liquidity provision for banks worldwide

Money stock continued to increase and accelerated the economic recovery

Nonbank liquidity for different currency areas in national currency bn



Real GDP in major currency areas



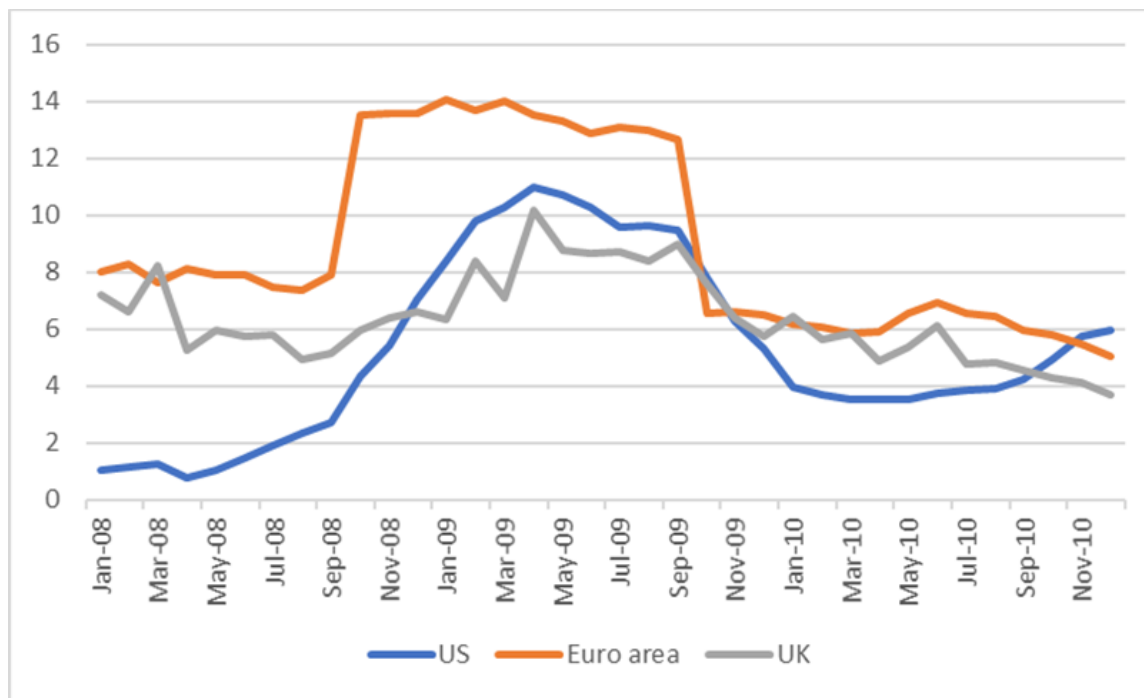
Money stock did not decrease in major currency areas

Real GDP declined only by roughly 5% in US, Euro area and UK

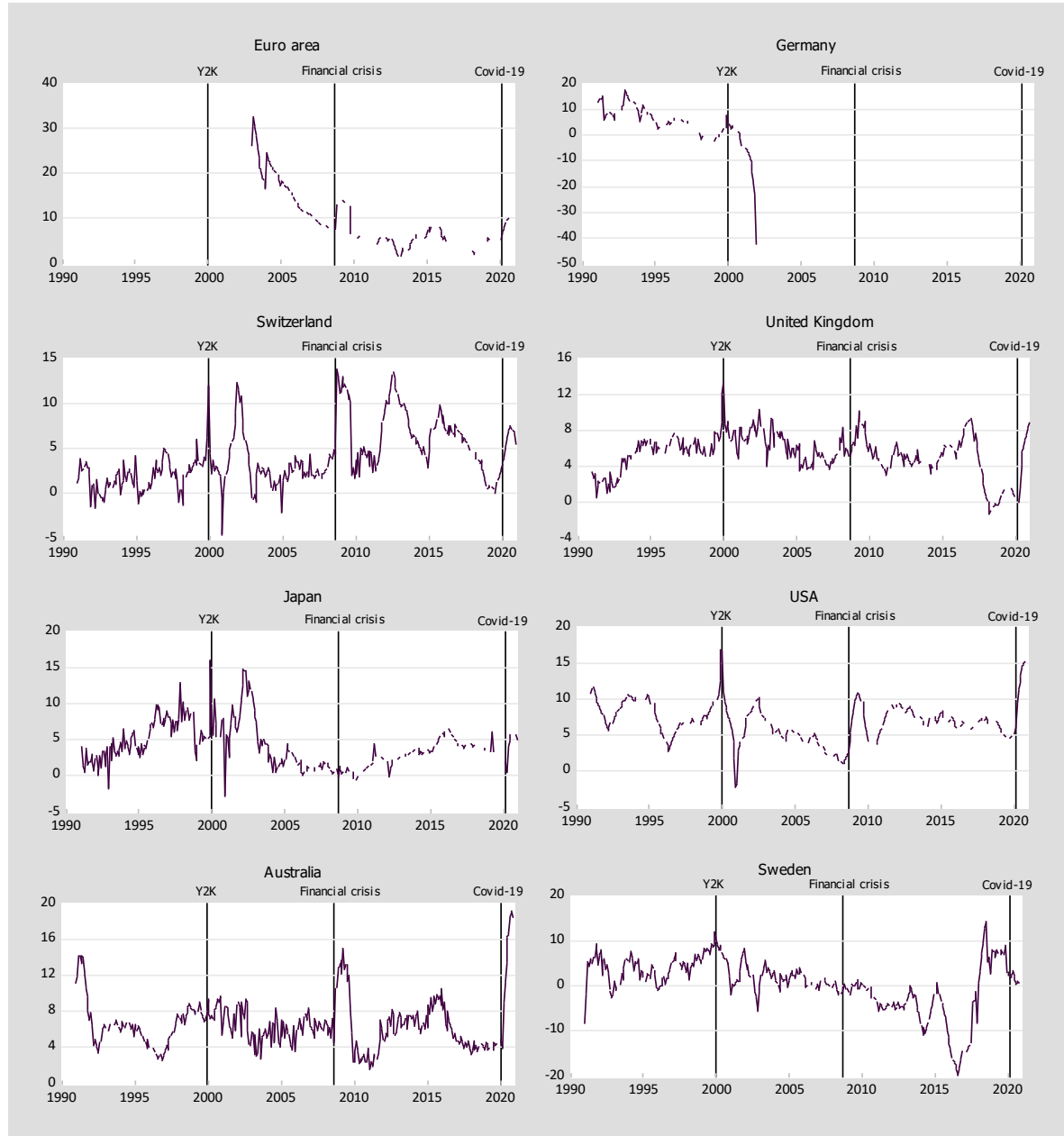
3. On the stabilizing role of cash

How did the central banks avoid a decrease in the money stock in the economy?

Annual growth rates of cash in circulation in major currency areas in %



Central banks provided cash in a perfectly elastic way!



A strategy that always works in times of crisis!

Cash demand in various times of crisis and in different currency areas



4. Two Case studies

4.1. Demonetization in India 2016

~ act of **stripping a currency unit of its legal tender status**

A fatal experiment

- On November 8, 2016, prime minister Modi, **surprisingly announced** at 8:15 pm that his **government** will **demonetize the two largest rupee denominations** (₹500 and ₹1,000) **effective** from **midnight** of the same day.
- It was also declared that the current **₹500 banknote** was to be **replaced** by a newly designed one. The **₹1000 banknote**, however, was not to be substituted by a note of equal value but a completely **new ₹2000 banknote** was to be issued.
- As the **two demonetized notes** constituted **86% of total currency in circulation** (equivalent to around 11% of GDP), many private households suffered immediately severe **liquidity constraints** and the **cash-to-GDP ratio dropped sharply** (India a largely **unbanked** country).

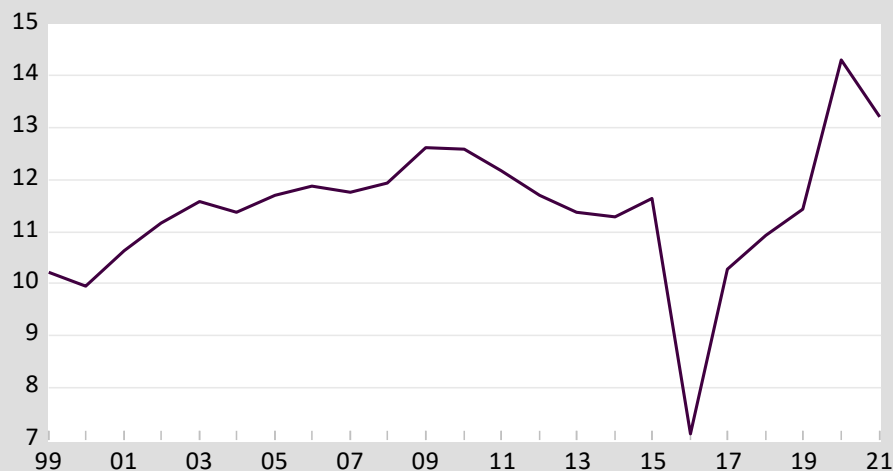


The motivations behind the demonetization

- **Receiving** additional undeclared income ("**black money**"),
- Making "**fake notes**" **worthless**,
- Pushing India towards a modern **digitized country**, **reduce** the size of the **informal economy**,
- **Increasing** the **tax base** and **tax income**,
- **Fighting terrorism** as criminals will be stripped of the purchasing power of their illegal cash balances,
- **Reducing prices of goods and services** which were believed to be "artificially" high due to the misuse of cash.

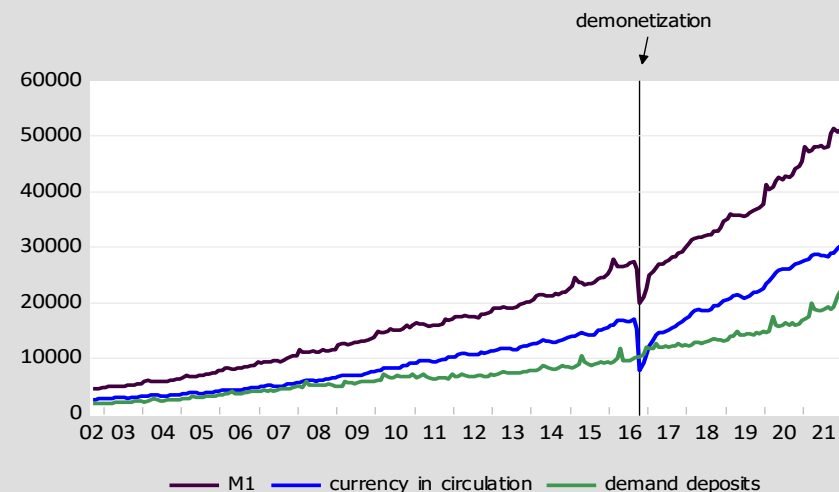
Enormous frictions in the exchange process

India: Cash-to-GDP ratio (%)



Cash-to-GDP ratio fell drastically

India: M1 and its components (Rupee bn)



Money stock decreased by 40%
 (higher than the rate observed during
 the Great Depression in the US (33%))



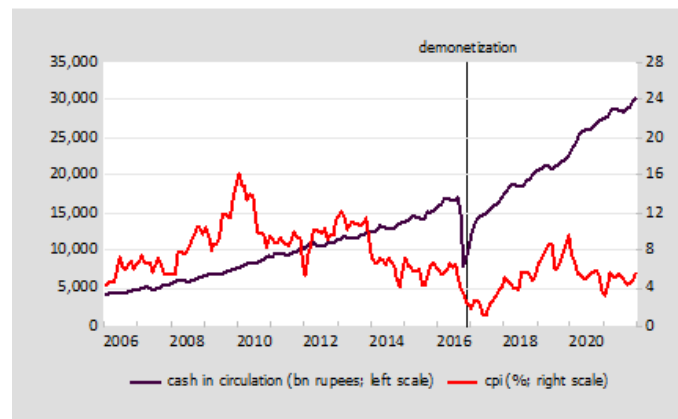
The true devastating picture

- ✓ "The ugly face of India's demonetization: Dozens of deaths. People are losing hope, lives."
(<https://mashable.com/article/india-people-dying-demonetization>)
- ✓ Chodorow-Reich et al. (2018): **demonetization induced at least a 2 pp decline in GDP** in the quarter of demonetization relative to the counterfactual of no demonetization
- ✓ Wadhwa (2019): **demonetization led to a decline in household consumption** shortly after its imposition although the effect was only there for a few months
- ✓ Karmakar & Narayanan (2019): **households without bank accounts** experienced a significant decline in income and expenditure in December 2016 compared to households with bank accounts
- ✓ Lahiri (2020): **decline of employment** by more than 3 million people and a **reduction of the labor force** (due to emigration) of around 15 million people from November 2016 to February 2017
- ✓ Drastic negative consequences especially for the **poor** who worked in the informal sector (Fouillet et al., 2021, Zhu et al., 2017)
- ✓ Nearly 100% of the demonetized cash flew back to the RBI indicating that seizing "**black money**" or **undeclared income was** indeed **negligible**

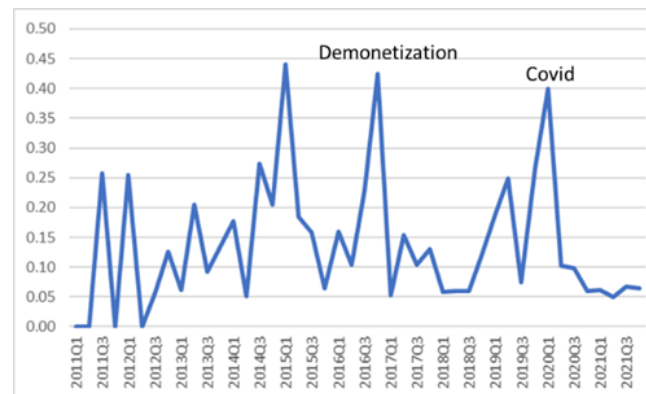


The true devastating picture cont'd

- ✓ **Only marginal increase in the tax base** after 2016 (Lahiri, 2020)
- ✓ In addition, the goal of making **counterfeit banknotes** worthless was quite moderate (Lahiri, 2020)
- ✓ Digitization increased since 2016. However, **demonetization did not change the trends that already prevailed before** (Lahiri, 2020)
- ✓ **Price decreases** did **not** happen



- ✓ **Uncertainty** in India increased considerably





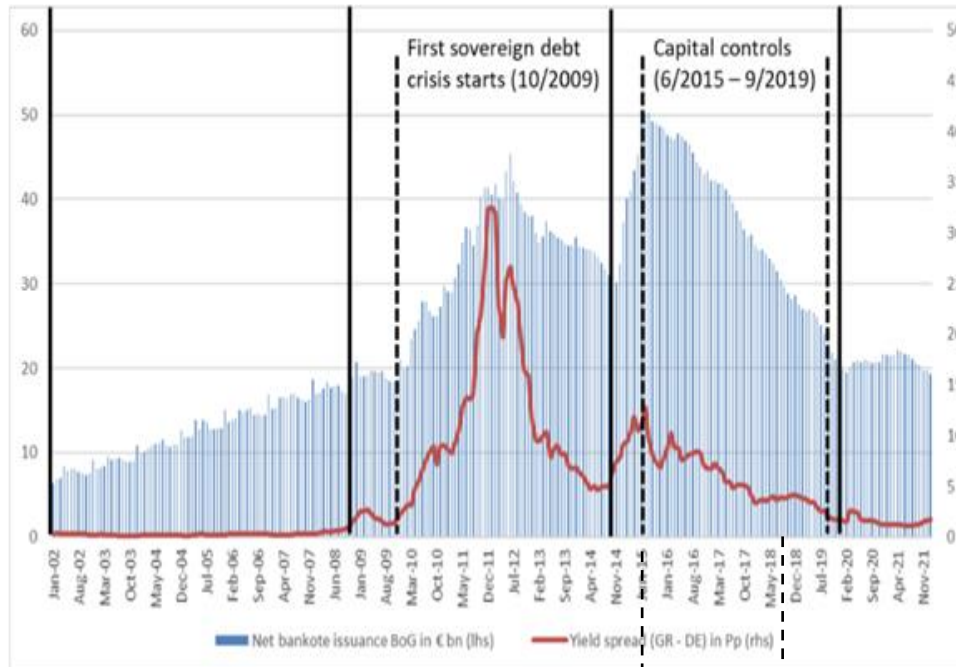
Results on demonetization in India

- ✓ **Demonetization** in general has to be **planned and communicated very well in advance** in order **to avoid dire consequences** for the society, especially in cash-intensive economies.
- ✓ **Demonetization in India** was **ill-prepared** and had indeed **devastating effects**, especially for the **poor**.
- ✓ These consequences were to be **expected** from the experience of the monetary contraction during the Great Recession (1929 – 1933) and were obviously feared by the **Reserve Bank of India** right from the beginning as it was supposedly against the demonetization set by the government
- ✓ In a nutshell: None of the desired goals of demonetization were achieved



4.2 Crises in Greece

Introduction of the euro in Greece (1/2002) Lehman Brothers bankruptcy (10/2008) Banking/sovereign debt crisis reignites (10/2014) Covid outbreak (12/2019)



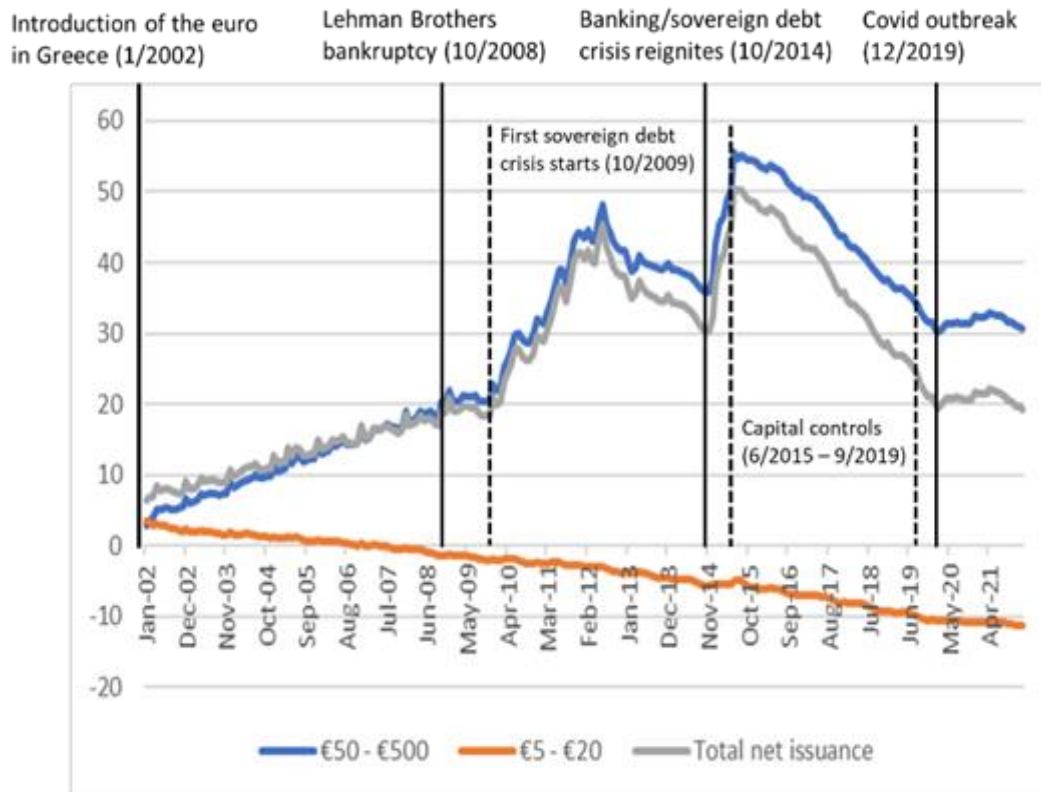
Fully elastic provision of cash (fepc)

(fepc)

Cash withdrawal restrictions

- Greece **euro area country**
- **Lehman Brothers** bankruptcy did **not** affect Greek cash demand
- **Sovereign debt crisis heavily influenced cash supply**, except at times with **cash withdrawal restrictions** (6/2015 – 7/2018)
- **In 6/2015** Greek government together with card industry declared **war on cash**, including:
 - **Cash withdrawals restrictions** (6/2015 -7/2018),
 - **Cash payment restriction** (currently €500 per transaction),
 - Greeks must spend a third of their income **electronically**, otherwise penalty,
 - **Incentives for cashless payments** such as tax deductions,
 - **Rewards** from bank loyalty programs,
 - **Popular lottery** for use of electronic payments at the POS.

Net issuance of euro banknotes by the Bank of Greece by denomination

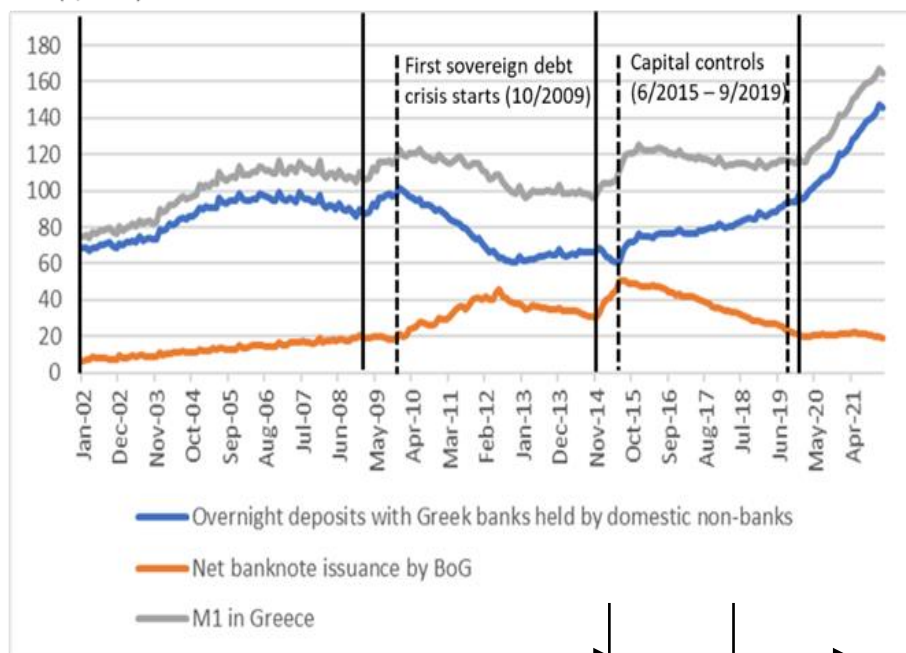


During sovereign debt crises and Covid exclusively **high denominations** were in demand (→ store-of-value motives)

On the stabilizing properties of cash supply in Greece

Monetary aggregate M1 and its components in Greece

Introduction of the euro in Greece (1/2002) Lehman Brothers bankruptcy (10/2008) Banking/sovereign debt crisis reignites (10/2014) Covid outbreak (12/2019)



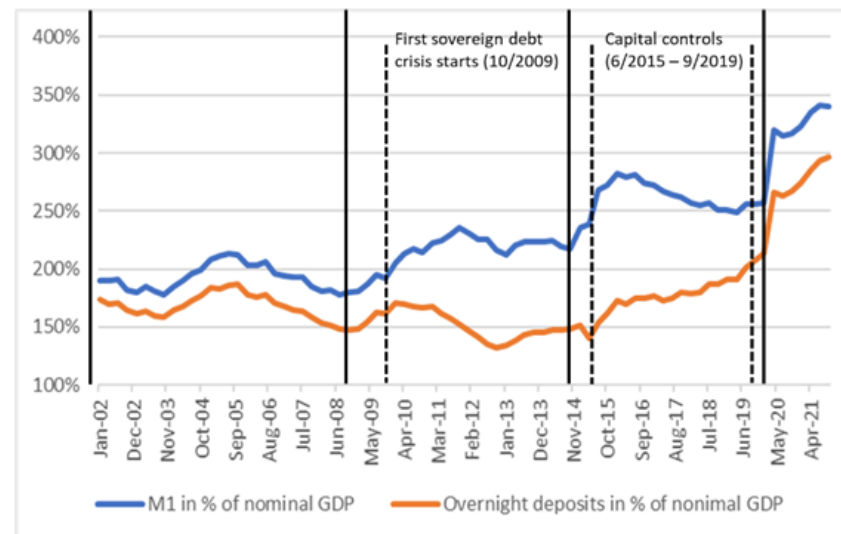
Fully elastic provision of cash (fepec)

(fepec)

Cash withdrawal restrictions

Monetary aggregate M1 and overnight deposits as percentage of nominal GDP in Greece

Introduction of the euro in Greece (1/2002) Lehman Brothers bankruptcy (10/2008) Banking/sovereign debt crisis reignites (10/2014) Covid outbreak (12/2019)



Fully elastic provision of cash (fepec)

(fepec)

Cash withdrawal restrictions



Cash in Greece during various crises

➤ **First sovereign debt crisis** (10/2009 – 9/2014)

- **Greek money stock declined** steadily due to capital flight
- Fully elastic provision of cash enabled **cash withdrawals** which **stabilized the domestic money stock** (at least in real terms). Cash gave Greek residents the possibility to safeguard part of their liquid assets without transferring it to other countries

➤ **Second sovereign debt crisis** (10/2014 – 11/2019)

- **First phase:** Immense capital flight, perfectly elastic cash supply stabilized real money
- **Second phase:** Capital controls including cash withdrawal restrictions; cash could not stabilize real money stock, probably prolonging the economic recovery process

➤ **Covid crisis** (12/2019 – 3/2022)

- Cash demand relatively subdued due to the ongoing war on cash
- Greek government does not realize that it was cash that stabilized the (real) domestic money stock during the second sovereign debt crises which in turn were caused by its own unsound financial behavior



Summary and conclusions

- A stable and sufficient **money supply is of utmost importance** for a well-functioning economy
- Cash has its own **unique characteristics** which gain importance especially during times of turmoil
- The analysis of **crisis periods** reveals unambiguously how a **perfectly elastic provision of cash** (in total and by denomination) can help to **stabilize total money supply** and therefore also assist to **contain a possible economic downward spiral**
- Cash acts as a **public insurance** the central banks pay out if the overall situation becomes dire
- Consequently, an **efficient payment mix necessarily includes cash**
- Undisputed task of central banks: ensure that cash remains in circulation and functions properly in **normal times**
- Supply-side driven problems for the cash cycle should be avoided



Summary and conclusions cont'd

- Cash is part of successful **crisis management** as it is the **physical** form of the **safest asset** in a currency area
- Analysis even more relevant for developing and unbanked countries in (political) crisis periods
- **CBDC**
 - ...should mirror the characteristics of cash as closely as possible
 - due to its digital form and the regulatory framework, **co-circulation** of cash and CBDC preferred solution
 - can a CBDC also stabilize in times of turmoil, or does it introduce new problems?
 - will there be demand for CBDC?



References

- Rösl, G. & F. Seitz (2022), On the Stabilizing Role of Cash for Societies, IMFS Working Papers, No. 167, June.
- Rösl, G. & F. Seitz (2022), Cash Demand in Times of Crisis, Journal of Payment Systems & Strategies, Vol. 16(2), 107-119.



Thank you very much for your attention!

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