

# Central Bank Potpourri

## ECON 40364: Monetary Theory & Policy

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# Readings

- ▶ Mishkin Ch. 13
- ▶ Crowe and Meade (2007)
- ▶ Haedtler, Levin, and Wilson (2016)
- ▶ Mankiw (2019)

# Central Bank

- ▶ In modern economies, central banks manage the currency, money supply, and target short-term interest rates in an economy
- ▶ They have monopoly power over the monetary base
  - ▶ Unlike a regular bank, can increase size of balance sheet via issuing liabilities as it pleases
- ▶ Central banks perform the following key functions:
  1. Check-clearing
  2. Lender of last resort
  3. Supervision and regulation
  4. Macroeconomic stabilization

## History of Central Banks

- ▶ Banking as we know it developed in Europe in the Middle Ages
- ▶ Basic structure of financial intermediation – borrow short-term (e.g. deposits) and lend longer-term (e.g. loans), earn spread
- ▶ This allows for check-writing which makes exchange more efficient
- ▶ But check-clearing is potentially costly and the liquidity mismatch on bank balance sheets exposes them to “runs” (much more on this later)

## Check-Clearing

- ▶ When a depositor writes a check on her account from Bank A to Bank B, A must transfer money to Bank B
- ▶ Informal “clearinghouses” developed early on
  - ▶ “Runners” from different banks would carry currency around to different banks, balancing the books each day
  - ▶ Eventually they started meeting in public houses (i.e. bars) and doing it all at once
  - ▶ This led to the establishment of private clearinghouses – consortiums of banks that would coordinate on check-clearing and inter-bank transfers to cut down on costs of sending out runners carrying large quantities of cash
- ▶ Clearinghouses were essentially banks for banks – banks would hold account balances (i.e. reserves) at the clearinghouse, and credits and debits would just be applied to balances to cut down on clearing costs

## Liquidity Mismatch

- ▶ Bank liabilities are more liquid than assets
  - ▶ Deposits payable on demand, but the cash has been lent out and is not easy to come up with on demand
- ▶ This exposes banks to **runs** – more demand for currency than they have on hand
- ▶ Clearinghouses, in serving as banks for banks, could make emergency loans to particular banks facing liquidity pressure – lender of last resort

# Supervision

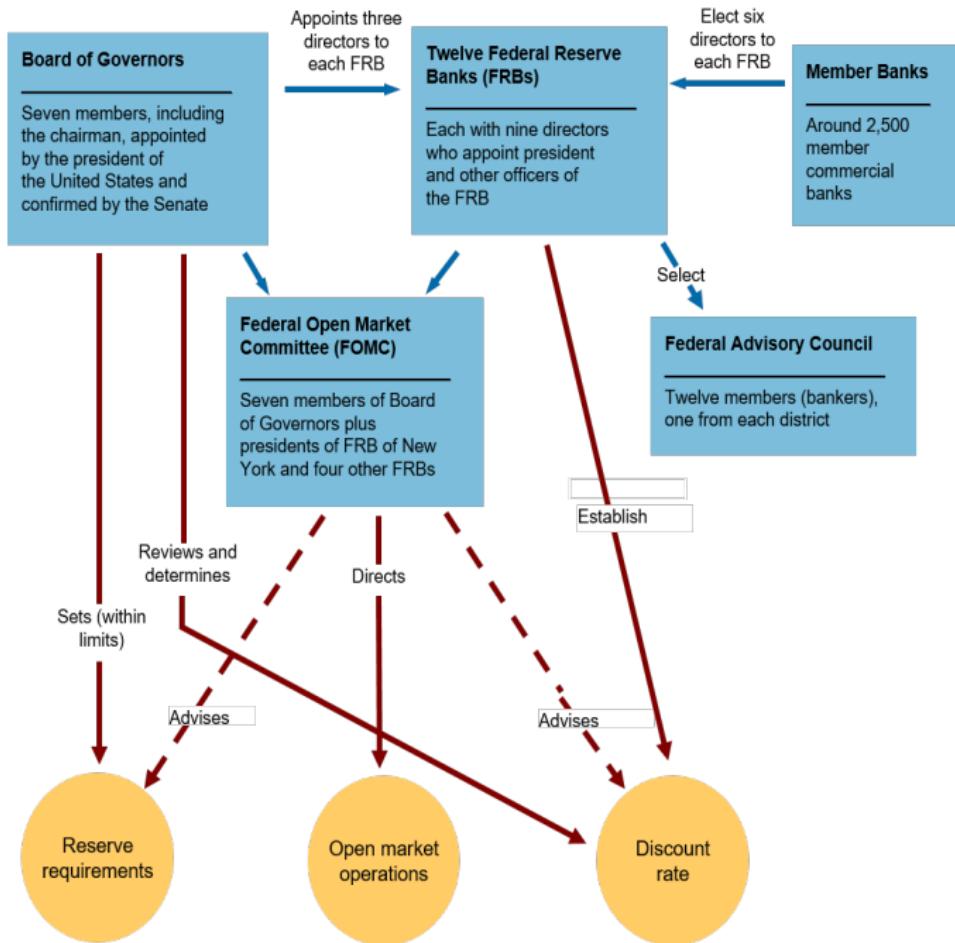
- ▶ Because of problems of runs (i.e. liquidity mismatch) and moral hazard (more on this later), it is important to regulate and supervise financial intermediaries for banking to work well
- ▶ Private clearinghouses originally performed these functions
  1. Set reserve requirements (liquidity mismatch) and capital requirements (moral hazard) to ensure safety and soundness
  2. More generally monitored the behavior of member institutions
  3. This monitoring was meant to give the public confidence
  4. Confidence is key to avoiding financial crises

# Central Banks

- ▶ To some degree, private clearinghouses worked well
  - ▶ See the US experience during the Free Banking era in the second half of the 19th century (see, e.g., [Gorton and Tallman 2018](#))
- ▶ But obvious problems:
  - ▶ No monopoly power on base money – limited lender of last resort capabilities
  - ▶ As financial system developed, grew, and became more complex and less localized, local clearinghouses (such as in New York) couldn't handle the job
- ▶ Central banks, in particular the Federal Reserve, were created to better perform the functions private clearinghouses were tasked with
- ▶ In history of central banking, monetary policy as macroeconomic stabilization comes in much later
  - ▶ Primary motivations for establishment of central banks were the lender of last resort, check-clearing, and supervisory functions

# History of Central Banks

- ▶ Oldest are the Riksbank (Sweden, 1668) and the Bank of England (1694), though their functions and powers have evolved over time
- ▶ Federal Reserve System in US established in 1913
- ▶ Peculiar structure:
  - ▶ Board of Governors (federal)
  - ▶ 12 Reserve Banks (quasi-private)
  - ▶ Member banks
  - ▶ Federal Open Market Committee (FOMC) hybrid between Board and regional reserve banks, directs open market operations



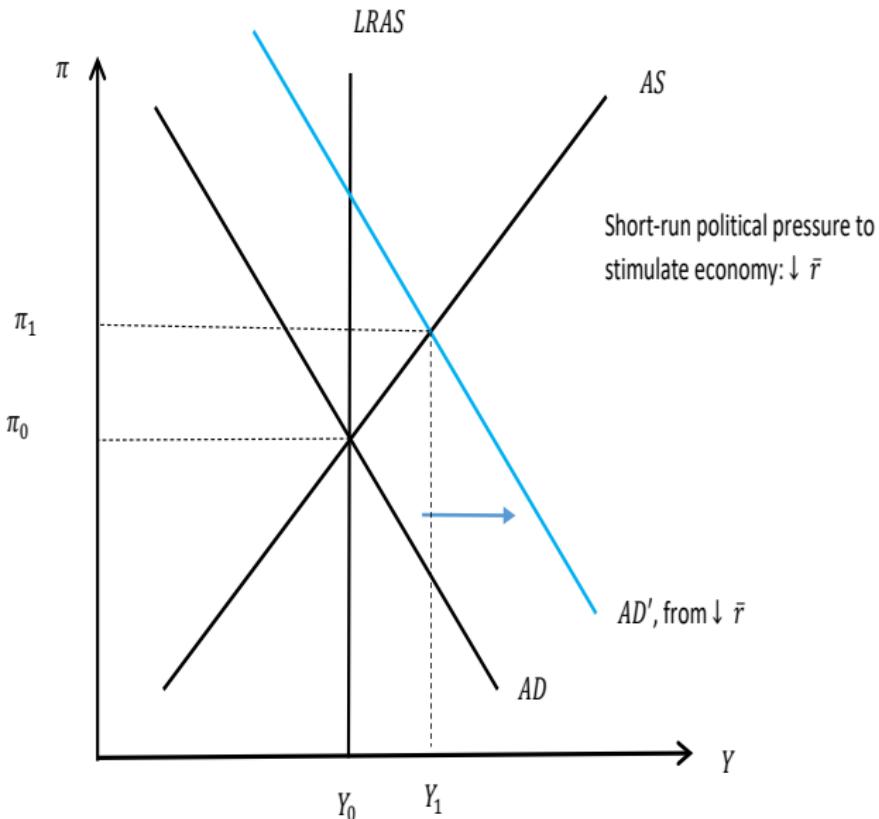
# Federal Reserve Powers and Functions

1. Open market operations, FFR (FOMC)
2. Check-clearing (reserve banks)
3. Supervision (reserve banks, Board)
4. Reserve requirements, discount rate (Board)

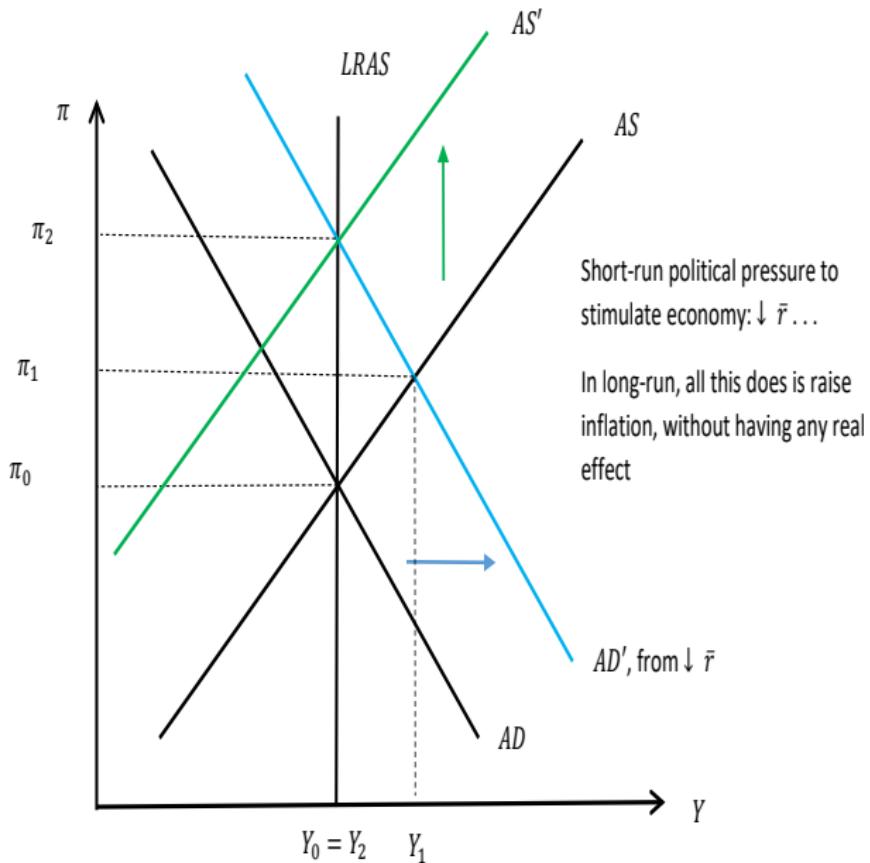
## Central Bank Independence

- ▶ By design, most of the world's central banks are structured as at least partially independent from the political system
- ▶ Why?
- ▶ Insulation from political pressures to pursue short-run objectives
- ▶ In terms of AD-AS model:
  - ▶ Short-run pressure to lower  $\bar{r}$  to stimulate demand and raise output / lower unemployment
  - ▶ But in long-run, all this accomplishes is higher inflation
- ▶ Time consistency problem (**Chari and Kehoe, 2006**)
- ▶ Over long run, independence should correlate with lower average inflation and no loss in output/unemployment

## Short-Run Political Pressure . . .



## Leads to High Inflation in Long-Run . . .



# Independence and Avg. Inflation

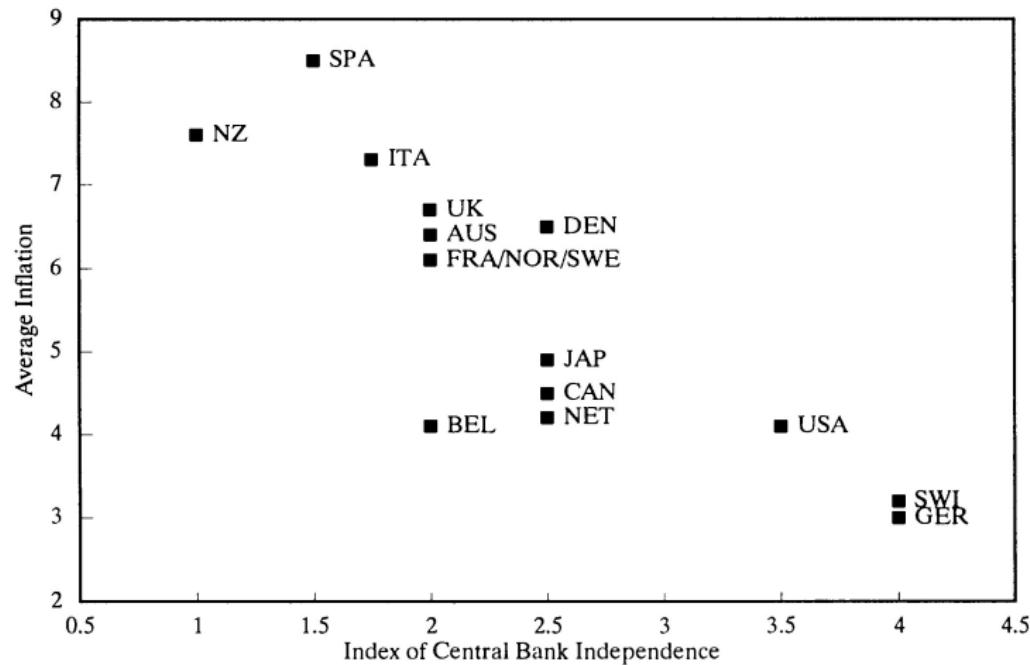


FIG. 1a. Average Inflation

Source: Alessina and Summers (1983)

# Independence and Avg. Unemployment

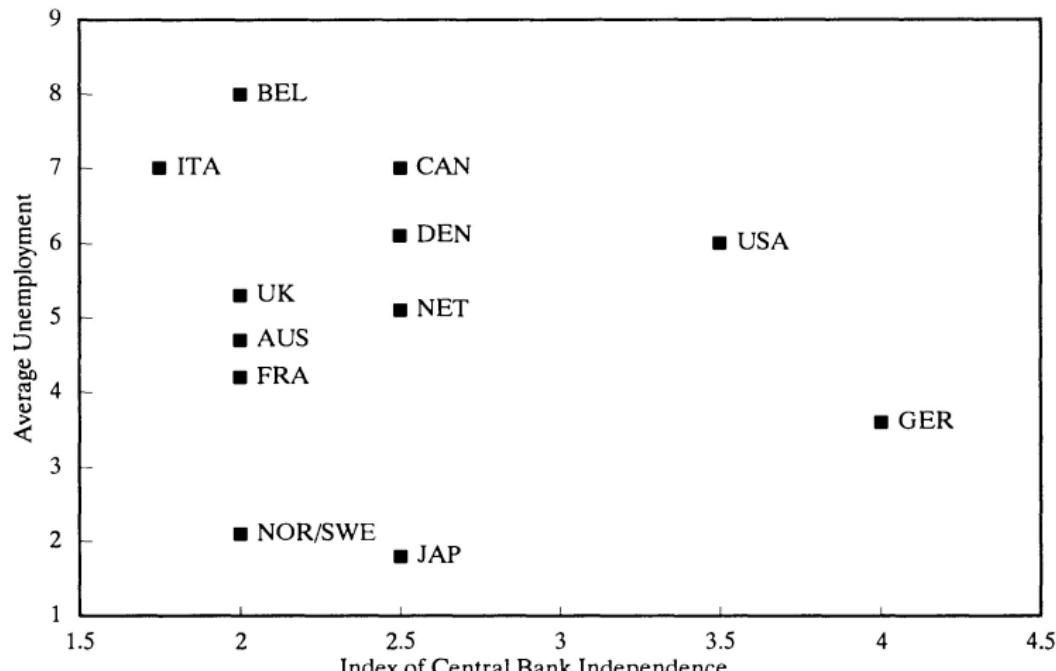


FIG. 4a. Average Unemployment

Source: Alessina and Summers (1983)

## Measuring Independence

- ▶ Crowe and Meade (2007) discuss measurement of central bank independence
- ▶ Based on things like:
  1. Appointment/dismissal/term of office
  2. Influence of fiscal authority on policy formulation
  3. Depth of mandate (i.e. single or dual)
  4. Limitations on ability of central bank to lend to the government

# Measures of Independence

Table 2  
Frequency Distribution of Central Bank Independence

	<i>All countries</i>		<i>Advanced countries</i>		<i>Emerging market and developing countries</i>	
	1980–89	2003	1980–89	2003	1980–89	2003
$x \leq 0.2$	6	1	2	1	4	0
$0.2 < x \leq 0.4$	39	13	11	7	28	6
$0.4 < x \leq 0.6$	24	34	5	3	19	31
$0.6 < x \leq 0.8$	3	20	3	2	0	18
$x > 0.8$	0	28	0	13	0	15
Total	<b>72</b>	<b>96</b>	<b>21</b>	<b>26</b>	<b>51</b>	<b>70</b>

Source: Crowe and Meade (2007)

## Independence over Time

- ▶ Over time, there has been a big push towards more central bank independence across the globe
- ▶ In early sample, Federal Reserve was one of most independent. Now below mean!
- ▶ This move towards independence has coincided with decline in inflation rates across the globe
- ▶ Now, the cross-sectional relationship between independence and inflation highlighted by Alessina and Summers (1983) is much weaker / non-existent
  - ▶ Crowe and Meade (2007) discuss possible reasons why and different measures of independence that have stronger predictive power for inflation

# Transparency

- ▶ Crowe and Meade (2007) loosely define transparency as a central bank doing a good job communicating its policies and the reasons for those policies
- ▶ Transparency requires effective communication
- ▶ Central banks in the last several years have made many attempts to be more transparent
- ▶ For example, prior to 1994, the Fed did not publicly announce the FFR target!
  - ▶ Has really picked up steam since Bernanke became chair
  - ▶ Now we have an explicit inflation target, things like the “**dot plots**” showing individual FOMC participants’ projections, etc.

# Transparency at the Fed

Table 7

## Selected Changes in Fed Communication Practices, 1993–2004

November 1993	Decided to release lightly edited transcripts of FOMC meetings for all prior meetings for which a tape existed.
February 1994	For the first time, Chairman Greenspan announced a decision to raise federal funds rate at the conclusion of the policy meeting.
February 1995	Made official the informal policy of announcing decisions of change in policy stance immediately after a policy meeting. Agreed to continue to release lightly edited transcripts of meetings after a lag of five years.
August 1997	Included a numerical target for federal funds rate in the policy directive.
May 1999	Began issuing a statement at the conclusion of every meeting, not just after meetings at which policy was changed. Began announcing bias in the policy directive (an indicator of future policy) at the conclusion of meeting (accelerating the release of this information by about six weeks).
February 2000	Bias in the policy directive was replaced with a statement about the balance of risks with respect to long-run goals for price stability and economic growth in the foreseeable future.
May 2002	Began releasing roll call vote on the federal funds rate target and the preferred policy for dissenters at the conclusion of the meeting (accelerating the release of this information by about six weeks).
March 2003	Deliberately refrained from the “balance of risks” language. Instead, encouraged “heightened surveillance.”
May 2003	Modified language in balance-of-risks statement. Began issuing separate statements about upside and downside risks to inflation and growth. “Balance of risks” was replaced with “considerable period” language.
August 2003	Began publishing meeting minutes three weeks after each meeting (accelerating their release by about three weeks).
December 2004	

Source: Crowe and Meade (2007)

# Transparency Has Increased Over Time

Table 6  
Mean Transparency Scores

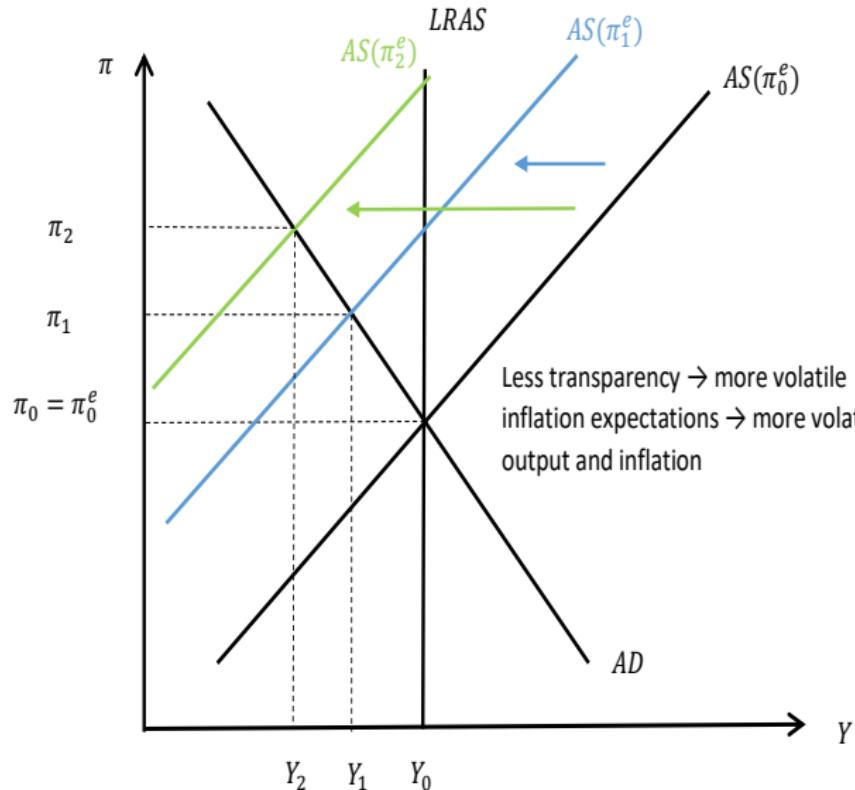
	Number of countries	1998	2006
All countries	37	0.56	0.61
By level of development			
Advanced	24	0.56	0.64**
Emerging market and developing	13	0.55	0.54
Inflation targeting			
Inflation targeting adopted by 1998	8	0.73	0.78
Inflation targeting adopted after 1998	8	0.56	0.71*
Euro members	12	0.45	0.60***
Others	9	0.54	0.38

Source: Crowe and Meade (2007)

## Transparency vs. Independence

- ▶ Transparency and independence don't mean the same thing; indeed, they may be in conflict with one another
- ▶ There is some overlap in how these are measured/defined in Crowe and Meade (2007) – e.g. a single price stability mandate makes both independence and transparency scores higher
- ▶ In terms of AD-AS model, think of these:
  - ▶ More independence: higher **average level** of  $\bar{r}$  (and hence lower average levels of  $\pi$  and  $\pi^e$ )
  - ▶ More transparency: lower **volatility** of  $\pi^e$  (Meade 2006)
- ▶ Lack of transparency: hard to forecast what central bank will do, results in unstable inflation expectations and hence short-run fluctuations in AS curve

# Less Transparency = More Volatility



# Downsides to Transparency and Independence

- ▶ Transparency:
  - ▶ Too much transparency could actually increase volatility instead of reducing it
  - ▶ Could result in less honest deliberations
  - ▶ Could make it more difficult to engage in data-driven changes in the policy stance
- ▶ Independence:
  - ▶ Is independence consistent with democratic society?
  - ▶ What kind of independence: **instrument** independence (set instruments, given a goal), or **goal** independence (choose objectives, within bounds), or both?
  - ▶ How to balance independence with **accountability**

## Haedtler, Levin, and Wilson (2016)

- ▶ HLW argue that there is not enough oversight over the Fed and that it needs to be more accountable to the public
- ▶ Argue further that the Fed's institutional structures are outdated
- ▶ Feel that the Fed is not diverse enough, too involved in “group think”
- ▶ They want to make the Fed fully public, while still preserving some level of operational independence

## Reserve Bank Presidents

- ▶ The twelve regional reserve banks are quasi-private, in effect owned by commercial banks in their districts
- ▶ Though in principle only five of 12 FOMC votes from the Reserve Banks (NY Fed plus rotation of other four banks), in practice Reserve Bank presidents have had majority much of the time and play an increasingly large role in public policy debates
- ▶ Reserve bank presidents are in large part chosen by the Boards of Directors, which are comprised of bankers whom the reserve banks regulate
  - ▶ Regulators are, in part, chosen by the regulated
- ▶ In practice, appointments to reserve bank presidencies have been “inside baseball” appointments

## Private to Public

- ▶ Right now, commercial banks own non-tradeable shares in the reserve banks
- ▶ They receive dividends: either the 10 year Treasury yield or fixed 6 percent depending on size
- ▶ Their proposal: cancel shares and remit to reserves. Just a change in composition of liabilities
- ▶ Argue this would save the US Taxpayer money (Federal Reserve profit remitted to US Treasury)

## Leadership Transparency

- ▶ The Fed is quite transparent in terms of what it is doing from a policy perspective
- ▶ But the selection of its leadership is not transparent at all
- ▶ HLW would like to open things up along this dimension, both the selection of directors and presidents
- ▶ They also want to (i) increase the term of the Chair of the Board of Governors (to give more independence) but (ii) reduce the terms of the other board members (to enhance accountability)
- ▶ They also want increased oversight by organizations such as the Government Accountability Office (GAO)

## Trump's Appointments

- ▶ Trump has recently appointed **Judy Shelton** and former ND econ professor **Chris Waller** to the Board of Governors
  - ▶ Waller is an inside baseball appointment: rose through academic ranks, has been vice president and research director at St. Louis Fed for over a decade
  - ▶ Shelton is an outsider: she holds very out-of-favor ideas, such as a return to the gold standard
  - ▶ Economists have lauded Waller's appointment and come out firing against Shelton's
- ▶ I think there is a limit to HLW's call for more "outsiders" and the Shelton appointment represents a cautionary tail
  - ▶ Central bankers **are** technocrats – you need some level of technical expertise

## Modern Monetary Theory (MMT)

- ▶ It's not always 100 percent clear to me what Modern Monetary Theory (**MMT**) is all about
- ▶ It's favored by progressive politicians (e.g. Bernie Sanders and Alexandria Ocasio-Cortez)
- ▶ The central tenet seems to be, roughly, that **governments are not financially constrained** because they can print money
- ▶ So this implies:
  1. Don't worry about government debt and deficits
  2. Promise lots of free stuff and don't worry about how to pay for it

## Mankiw (2019)

- ▶ Mankiw (2019) provides a nice, skeptical summary
- ▶ Government flow budget constraint:

$$P_t G_t + i_{t-1} B_{G,t-1} - P_t T_t = MB_t - MB_{t-1} + B_{G,t} - B_{G,t-1}$$

- ▶ Government can finance deficit either by issuing debt (like a household) or by printing money (unlike a household)
- ▶ For a household, there is a limit to how much debt it can issue – essentially a terminal condition that maximum debt issuance is the maximum amount it can pay back
- ▶ That basic logic holds for a government, too
- ▶ But the government has another source of finance – issuing base money

# Does the “Printing Press” Free Government of Budget Constraint?

- ▶ Not really:
  1. If interest is paid on reserves (i.e. base money), then issue more base money is functionally like issuing more debt
  2. If interest is not paid on reserves, then it is likely that expansion of base money will result in increase in the money supply (which would be inflationary)
  3. If inflation gets high, demand for real balances potentially depressed, and in real terms government could be on the wrong side of the seigniorage Laffer curve

## Heterodox Theory of Inflation

- ▶ MMT proponents would argue that massive expansions in the monetary base have not led to more inflation
  - ▶ This is true, but we now pay interest on reserves
- ▶ They argue that there is no relationship between money growth and inflation
  - ▶ This isn't true – quantity theory works quite well in long-run and in low-frequency cross-country comparisons
- ▶ They have an odd theory of inflation
  - ▶ Mankiw emphasizes potentially important difference between potential output,  $Y^P$ , and efficient output,  $Y^e$ . Could well have  $Y^P < Y^e$ , but it's  $Y - Y^P$  that matters for inflation, not  $Y^e$
- ▶ History suggests, time and again, that fiscal profligacy leads to massive inflation

10000000000000 RESERVE BANK OF ZIMBABWE

*I promise to pay  
the bearer on demand*

ONE HUNDRED  
TRILLION  
DOLLARS

AA2802803

for the Reserve Bank of Zimbabwe

M  
Dr G. Gona  
Governor

HARARE 2008



# Cryptocurrency

- ▶ Cryptocurrencies are a digital asset meant to function as a medium of exchange
  - ▶ Bitcoin is the oldest and most popular, but there are now 7,000 different kinds
  - ▶ Decentralized control with a ledger (blockchain) to record and verify transactions
  - ▶ Limits on creation of future units of the currency (i.e. "mining") to control the supply
  - ▶ Offers users anonymity – useful for illicit as well as licit transactions
  - ▶ Like major currencies, not backed by anything. Unlike major currencies, does not have government backing as legal tender
- ▶ Central banks don't like crypto – China has banned it. Seen as a threat to control of the money supply and setting of monetary policy
  - ▶ But existence of crypto could provide a useful check and balance on monetary authorities and governments

# Is Crypto Good Money?

- ▶ Not really
  - ▶ Not as widely accepted as major currencies
  - ▶ There are lots of digital payment schemes using major currencies already available (e.g. Venmo)
- ▶ Big problem:
  - ▶ Value of crypto (relative to US dollars) fluctuates **widely**
  - ▶ Basically, a medium for speculative investment
  - ▶ An asset is not good as a medium of exchange if its value fluctuates that much – people value predictability



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