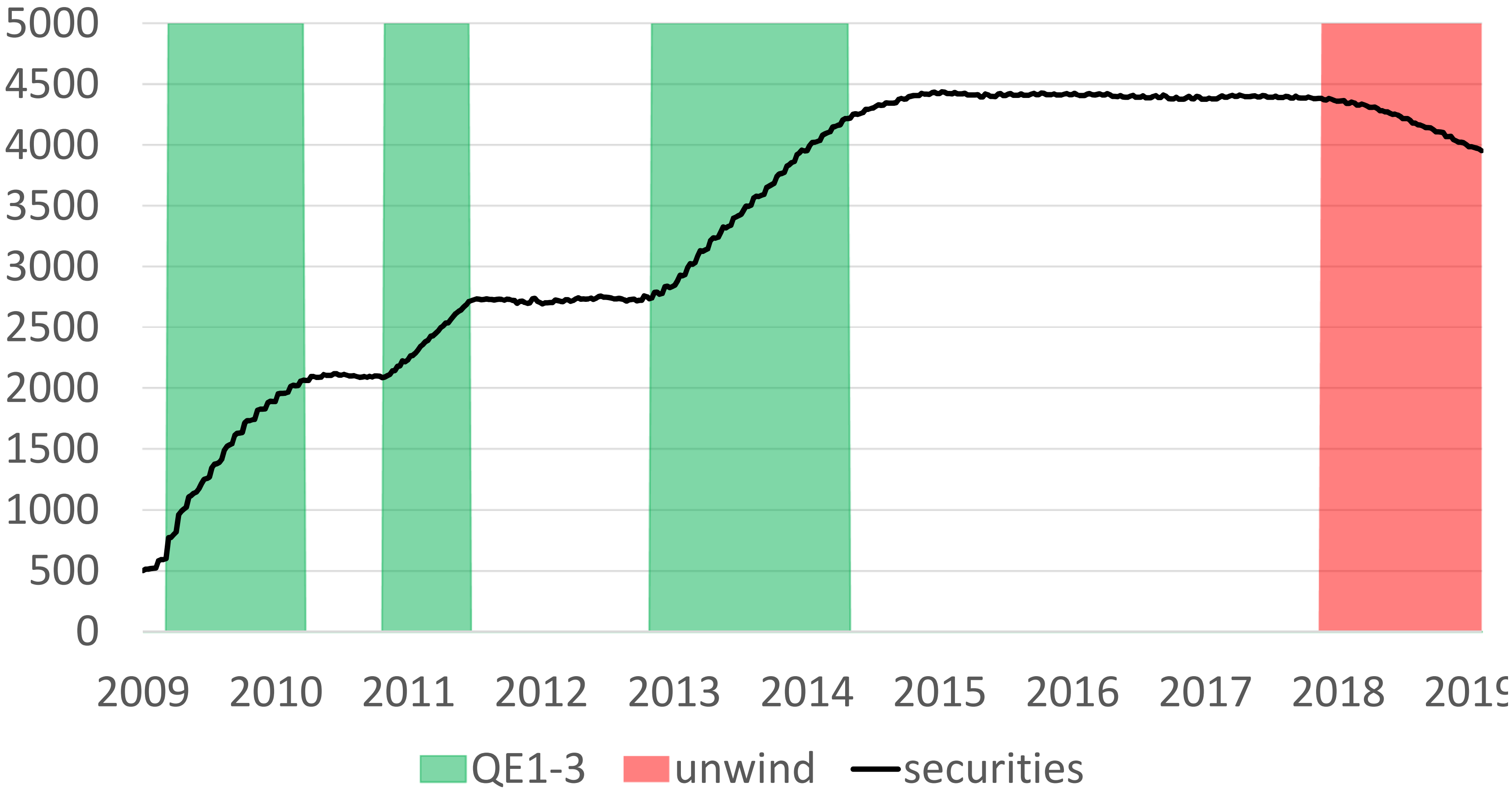
Perspectives on U.S. Monetary Policy Tools and Instruments

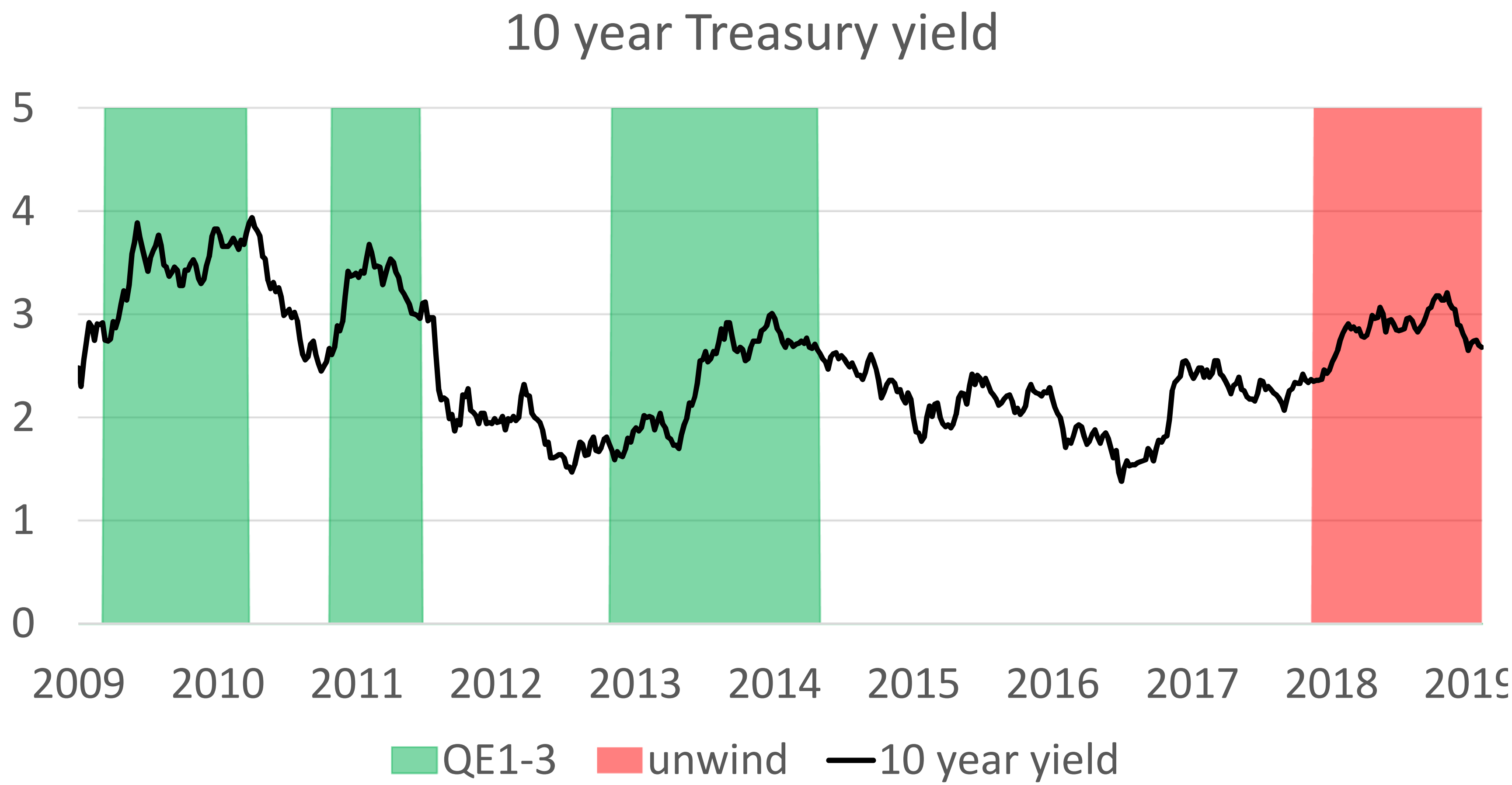
James D. Hamilton
University of California, San Diego

- Fed’s current primary policy tools and instruments:
  - Balance sheet
  - Fed funds rate
- My conclusions:
  - Balance sheet currently matters from liabilities side, not asset side
  - Fed funds rate control will become increasingly difficult as excess reserves shrink

Balance sheet: Fed holdings of securities (billions of $)

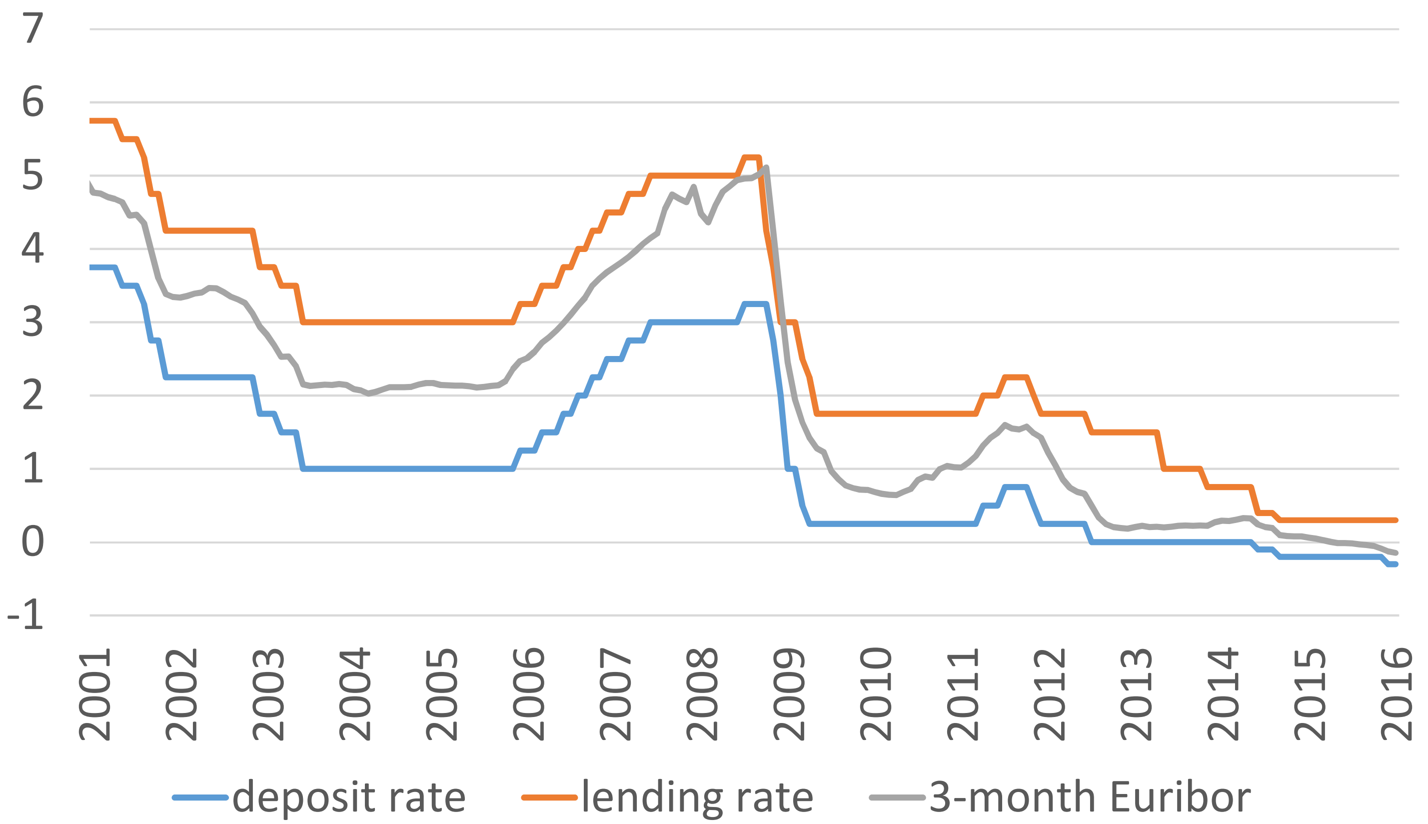


Interest rate on 10-year Treasury bonds



How do other central banks control short-term interest rate? Corridor system (ECB)

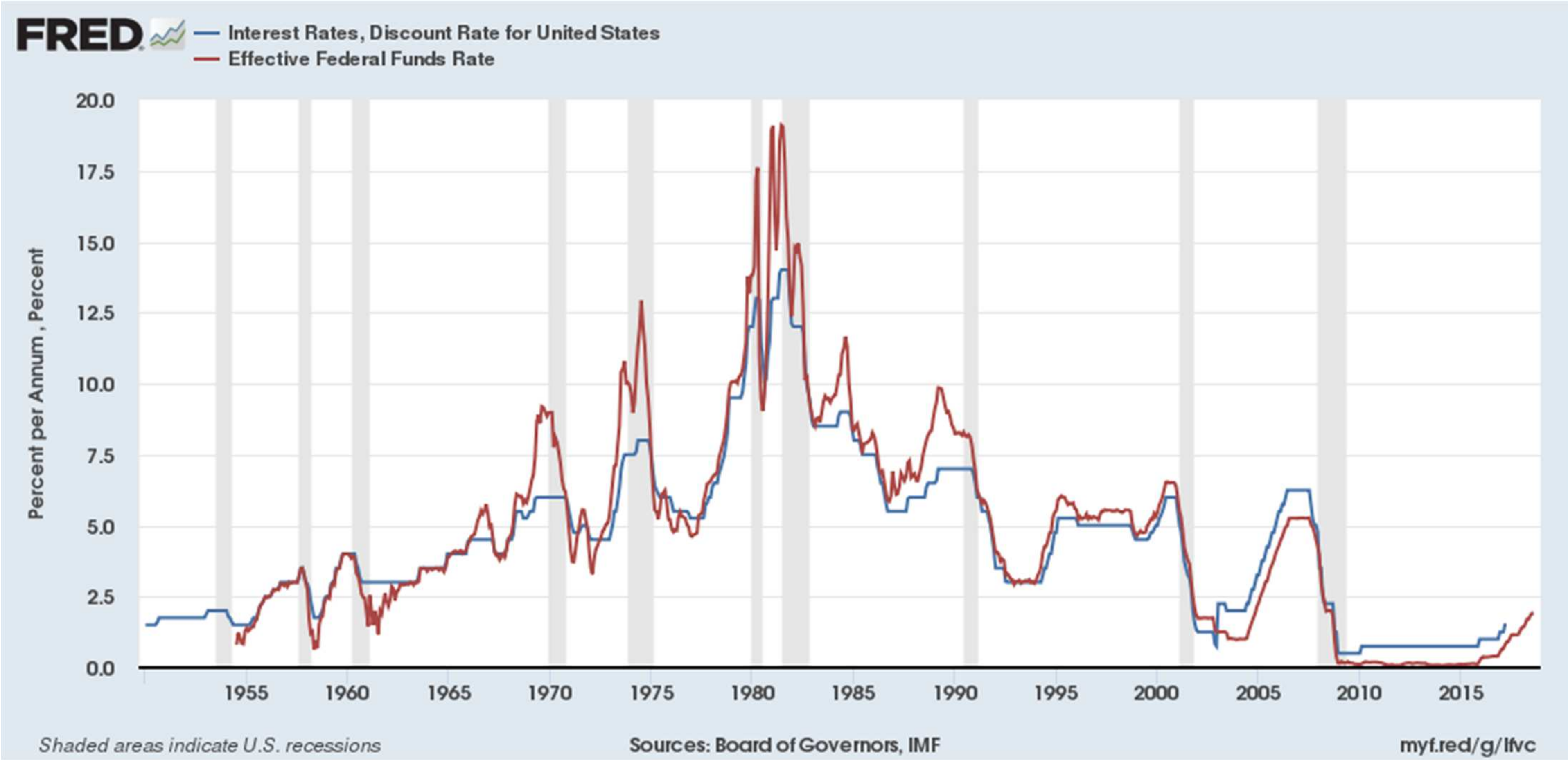
- Central bank offers to lend banks as much as they want at some fixed rate i_L
  - Banks won't pay more to borrow from someone else (i_L puts ceiling on interbank lending rates)
- Central bank offers to pay rate i_D on deposits with central bank
  - Banks won't lend for less to other banks (i_D puts floor on interbank rates)



ECB marginal lending rate (orange), rate paid on deposits (blue), and interest rate on loans between banks (gray).

Historical U.S. system

- Federal Reserve set discount rate at which banks could borrow from Fed
- But often this was a floor, not a ceiling on interbank loans!

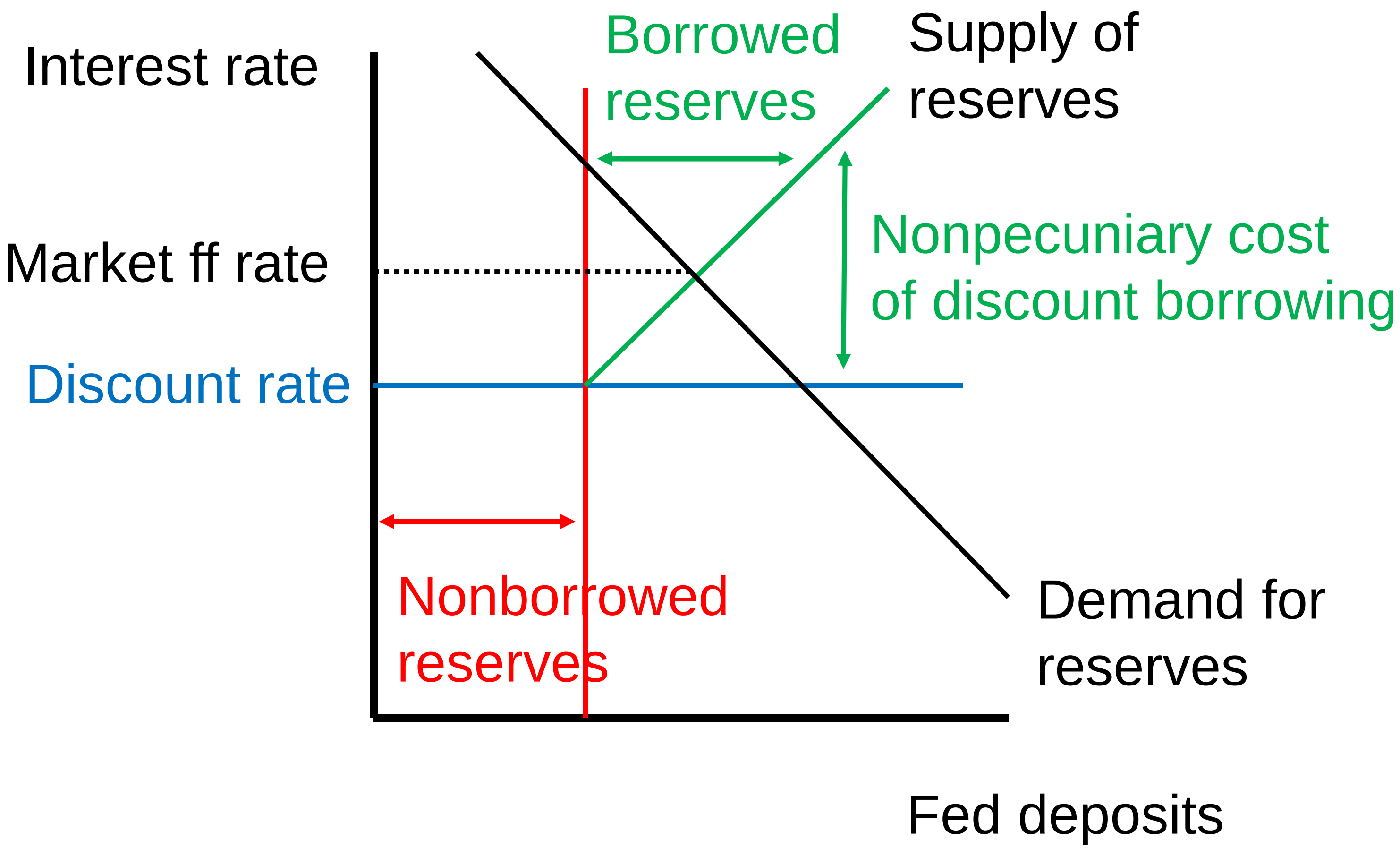


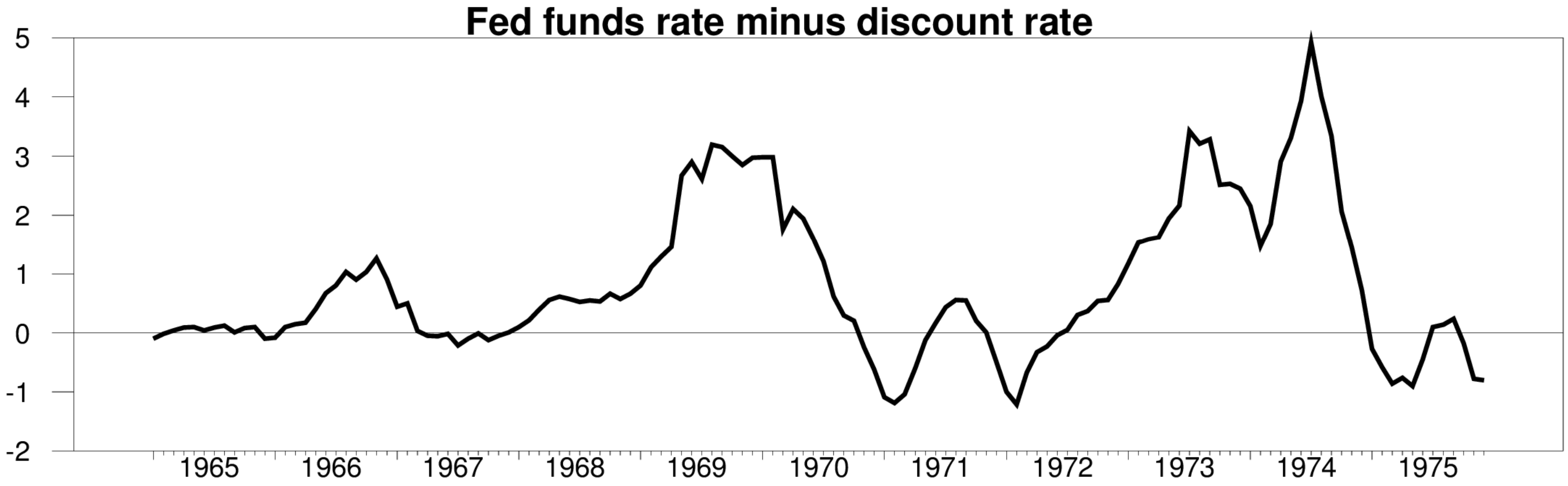
FRED
Interest Rates, Discount Rate for United States
Effective Federal Funds Rate
Percent per Annum , Percent
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Shaded areas indicate U.S. recessions
Sources: Board of Governors, IMF
myf.red/g/lfvc

Why was this a floor?

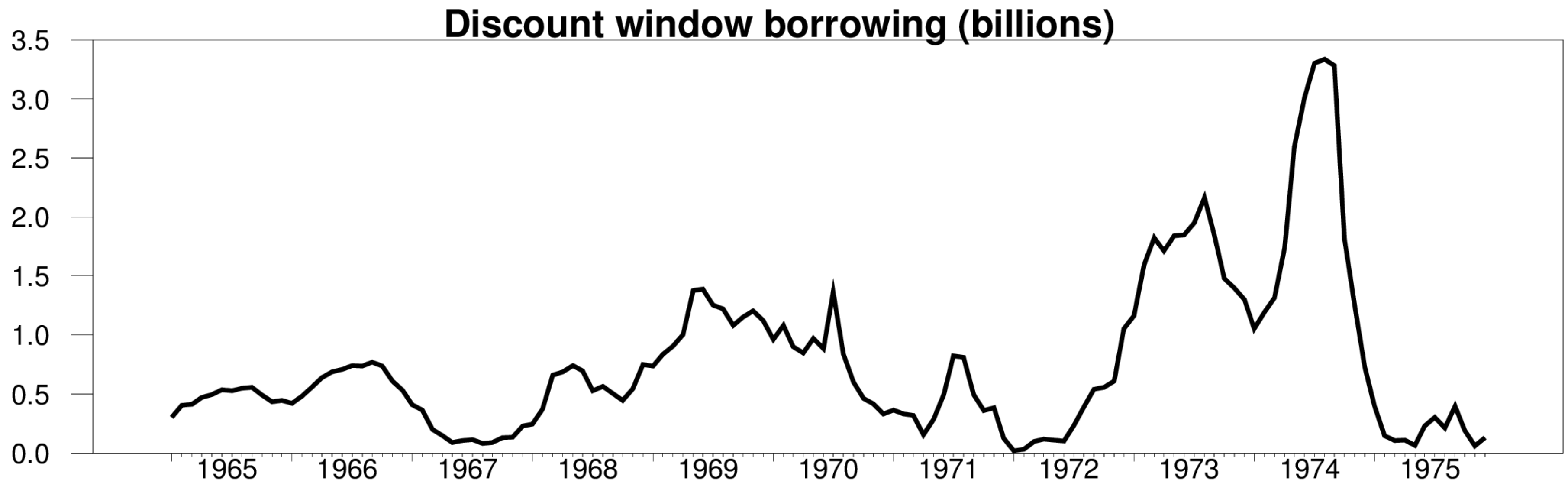
- Borrowing at discount window had nonpecuniary costs
  - Other banks would see my bank as weak
- Banks preferred to borrow fed funds from other banks at more than discount rate
- If supply of nonborrowed reserves decreased:
  - Banks forced to borrow more at discount window and incur more nonpecuniary costs
  - Increased the spread between fed funds and discount rate

Fed funds equilibrium (historical)





Fed funds rate minus discount rate
5
4
3
2
1
0
-1
-2
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975

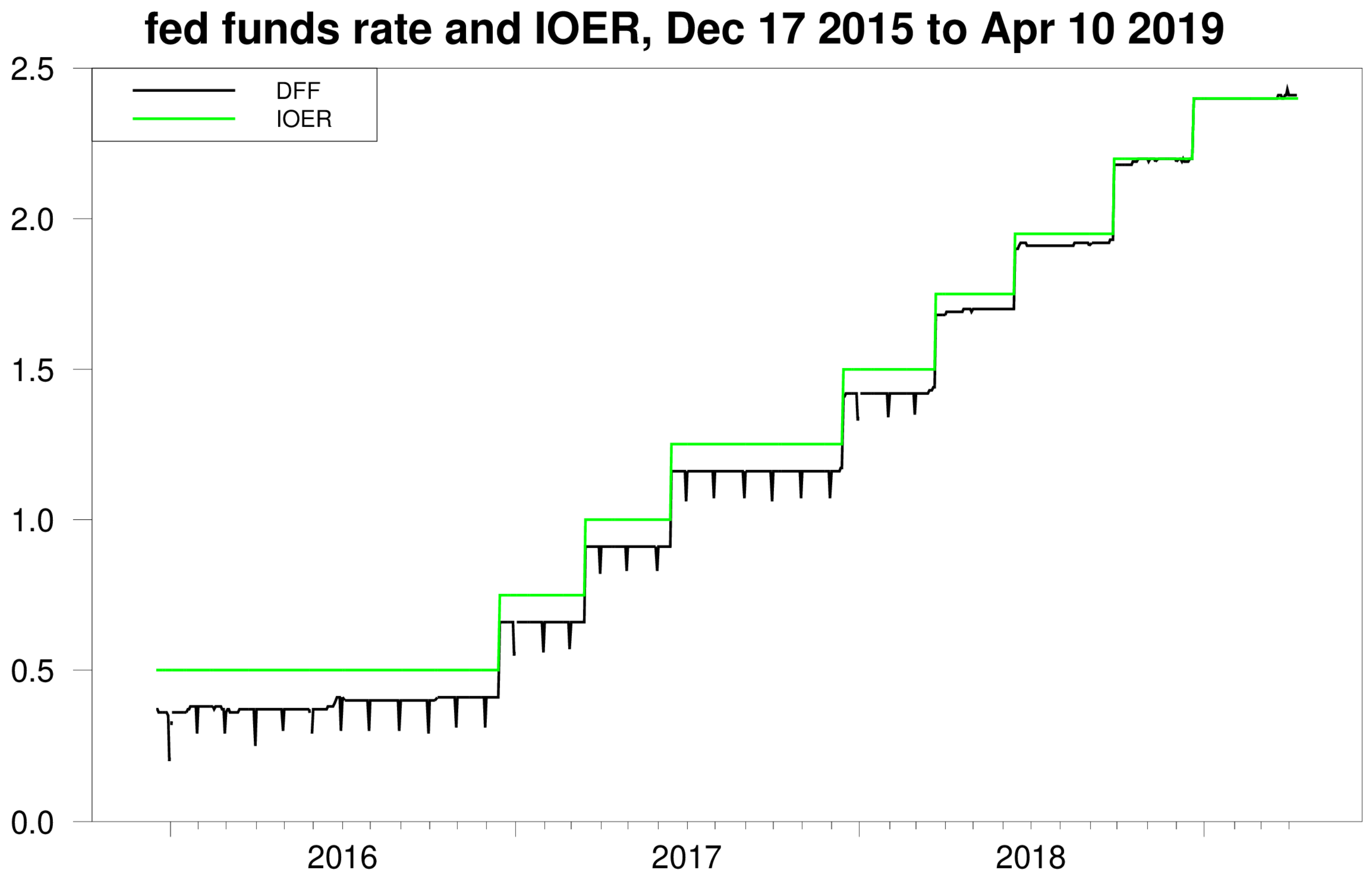


Discount window borrowing (billions)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975

Current U.S. system

- Fed pays interest on excess reserves
- But this until recently was a ceiling, not a floor on fed funds rate!

In 2017 fed funds rate was fixed amount below IOER with end-of-month seasonal

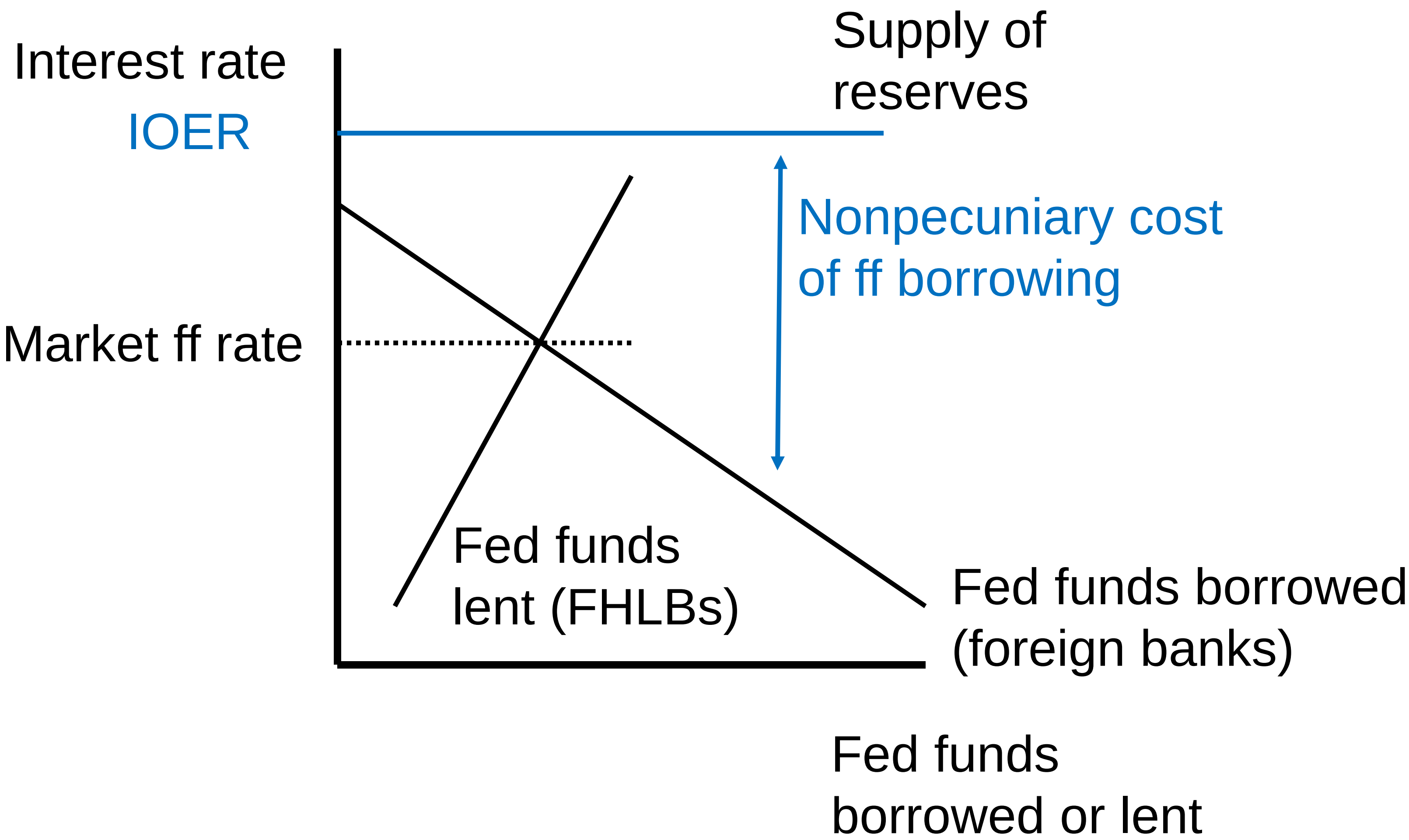


Why wasn't IOER a floor?

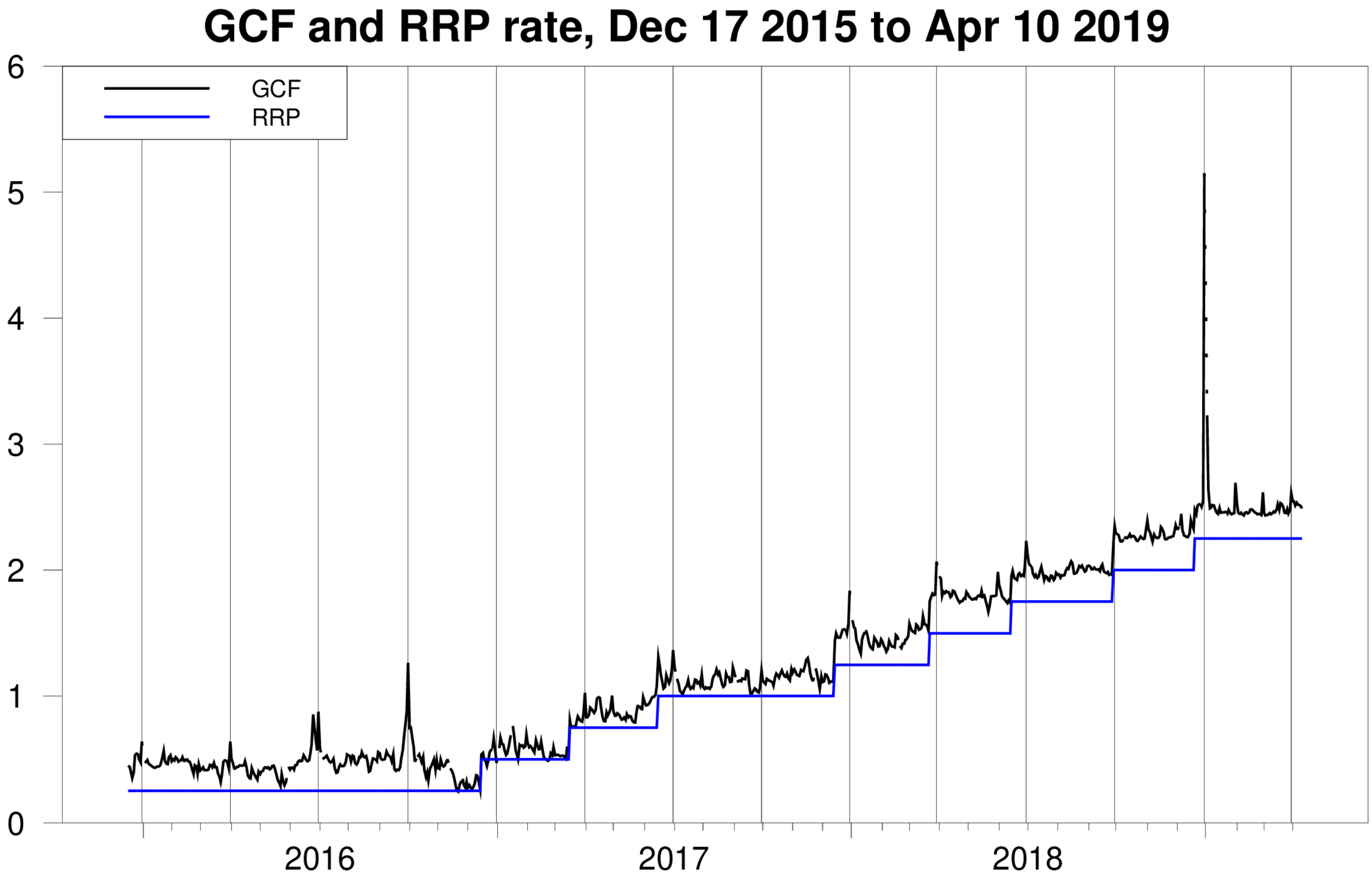
- Fed fund lending was primarily by institutions that couldn't earn IOER (government sponsored enterprises, Federal Home Loan Banks)
- But why didn't banks that could earn IOER borrow infinite amounts from FHLBs at fed funds rate and drive FF to IOER with arbitrage?

- By borrowing fed funds, bank’s total assets expand, exposing it to
  - Higher FDIC fees
  - Costs of meeting capital requirements
  - These are lower for foreign banks
  - But foreign bank costs higher last day of month due to Basel requirements
- Banks borrow fed funds up to point where IOER minus ff rate equals marginal nonpecuniary costs of balance-sheet

Fed funds equilibrium (2017)

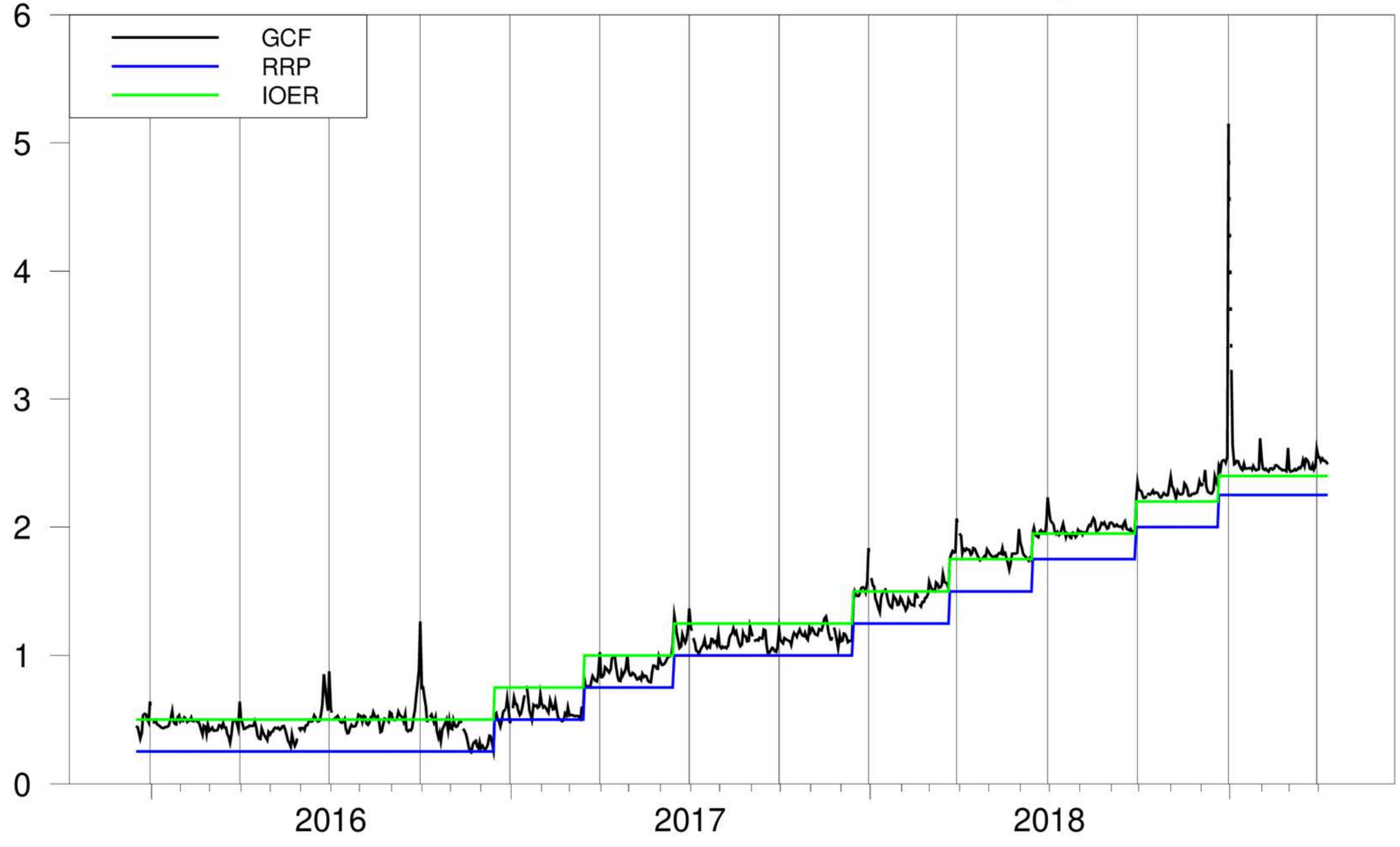


- Money market funds, Federal Home Loan Banks can’t earn IOER
- But can lend to Fed with reverse repos
- Alternatively could lend to private party with repo collateralized by Treasuries
- Reverse repo rate puts a floor under Treasury General Collateralized Finance rate

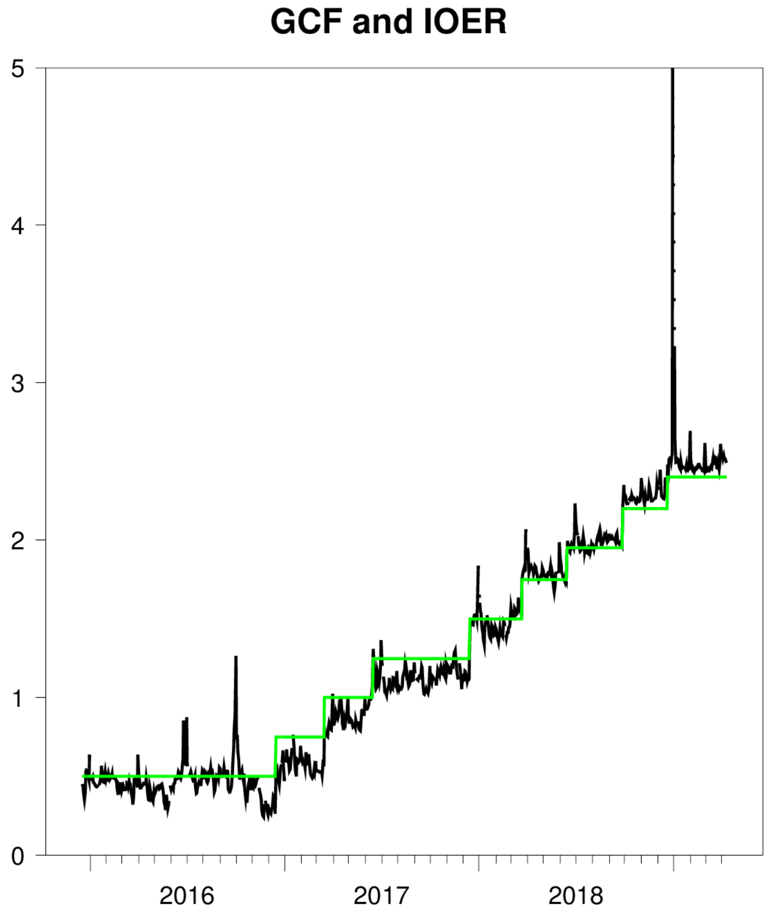

GCF and RRP rate, Dec 17 2015 to Apr 10 2019
GCF
RRP
0
1
2
3
4
5
6
2016
2017
2018

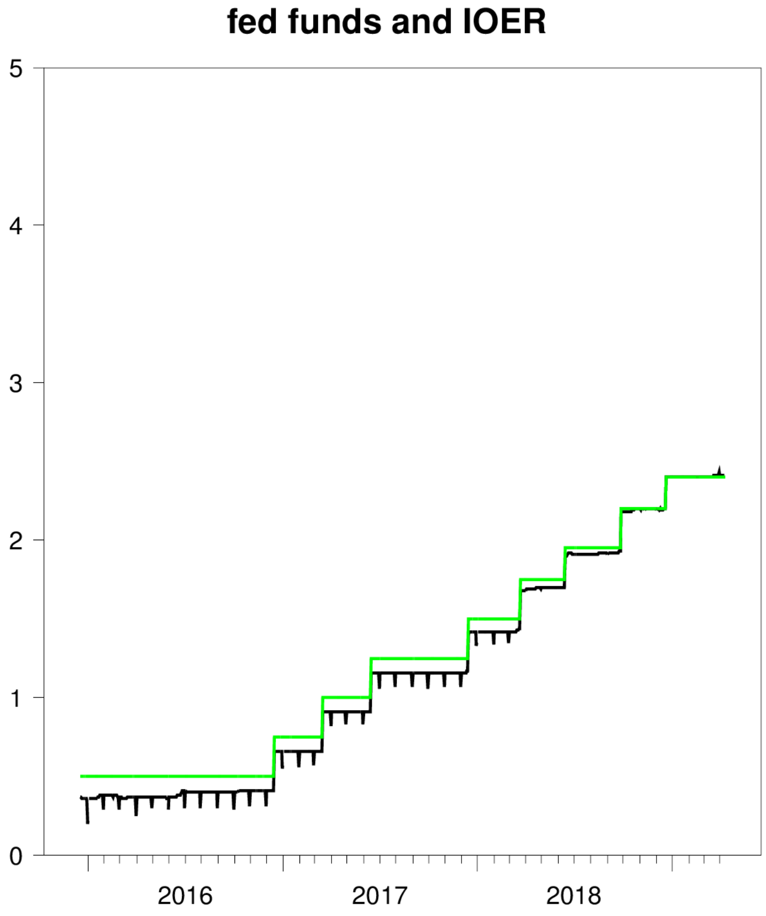
But IOER does not put a ceiling on GCF

GCF, RRP and IOER rates, Dec 17 2015 to Apr 10 2019

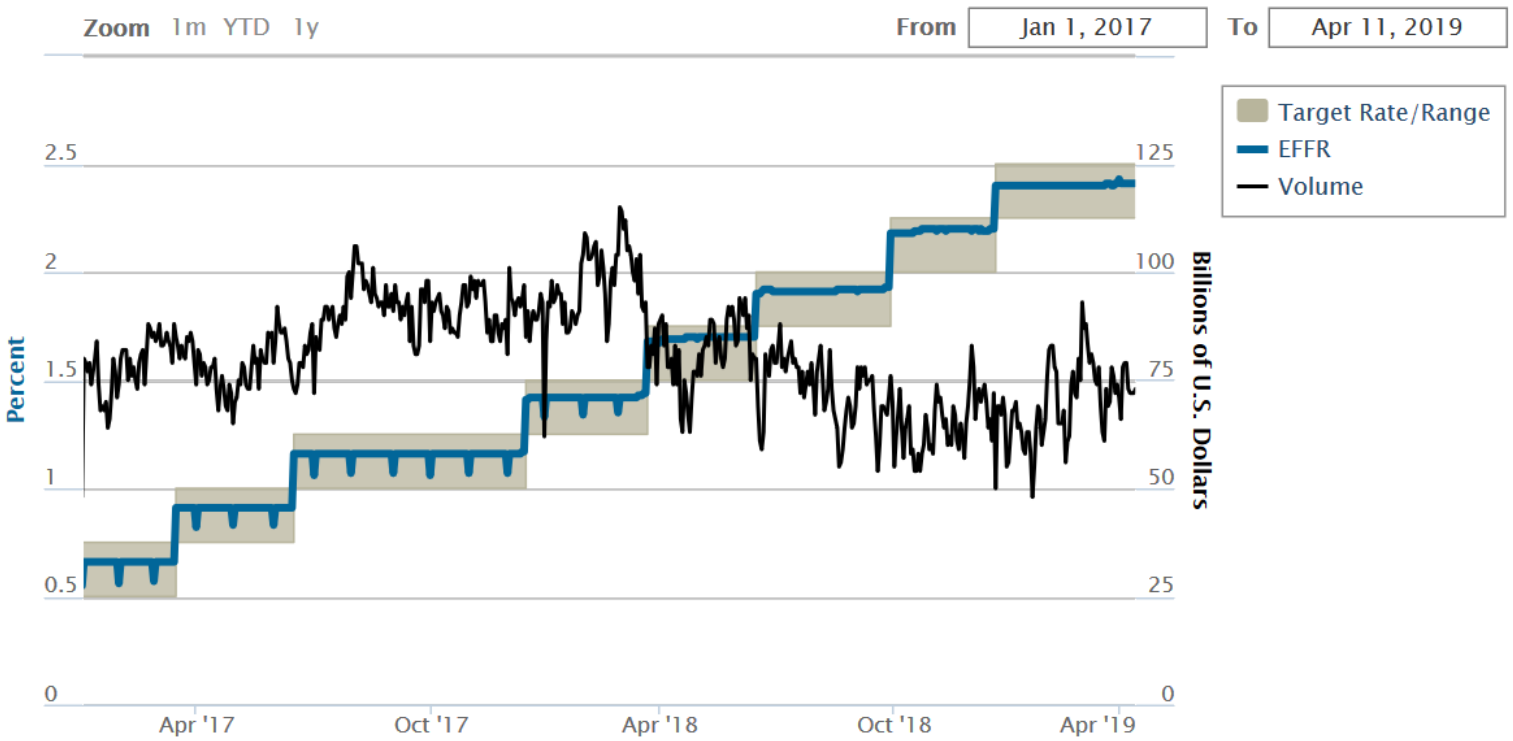


As GCF moved above IOER, the IOER-FF gap vanished



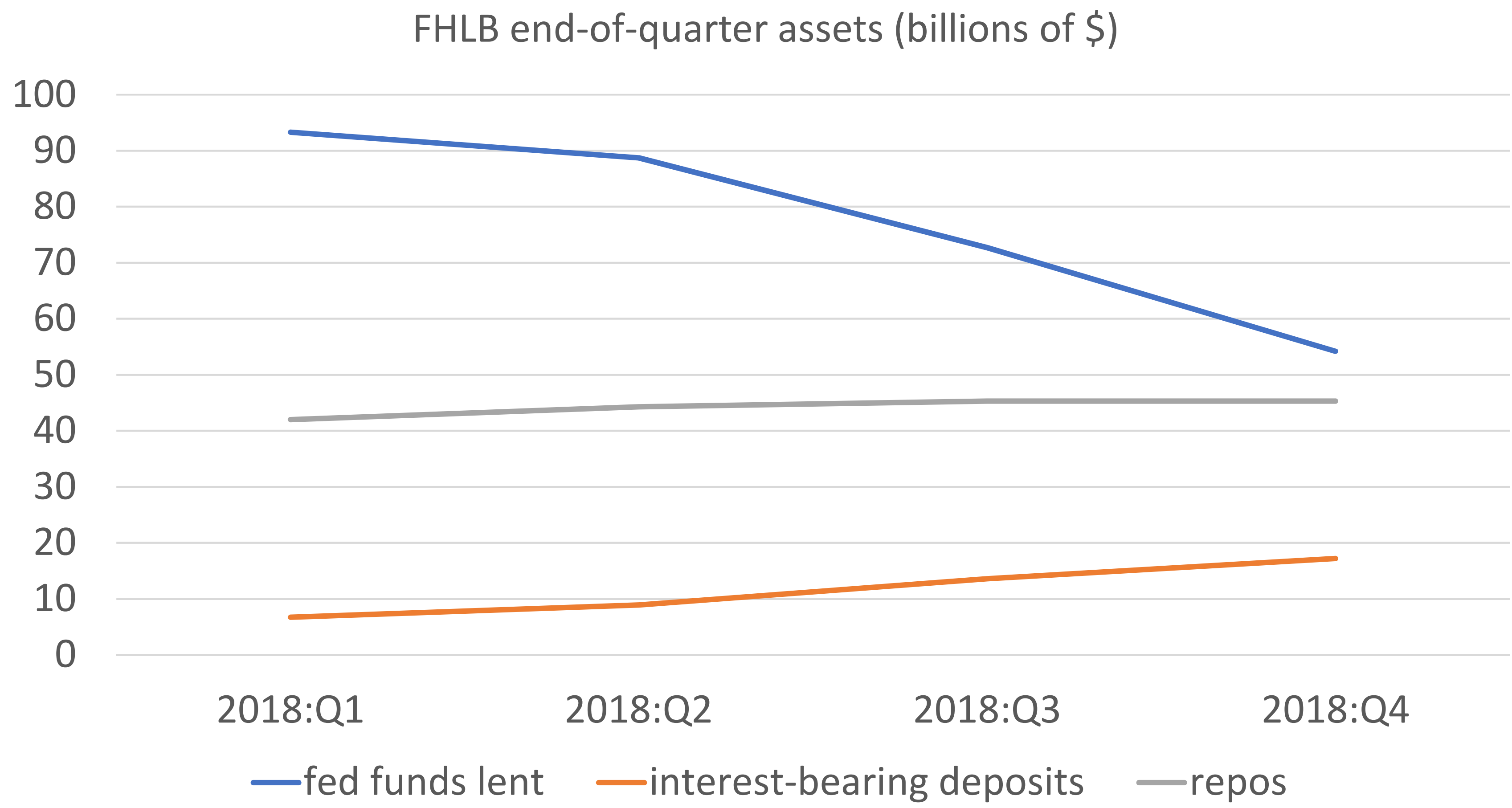


What changed? Drop in volume of fed funds lending



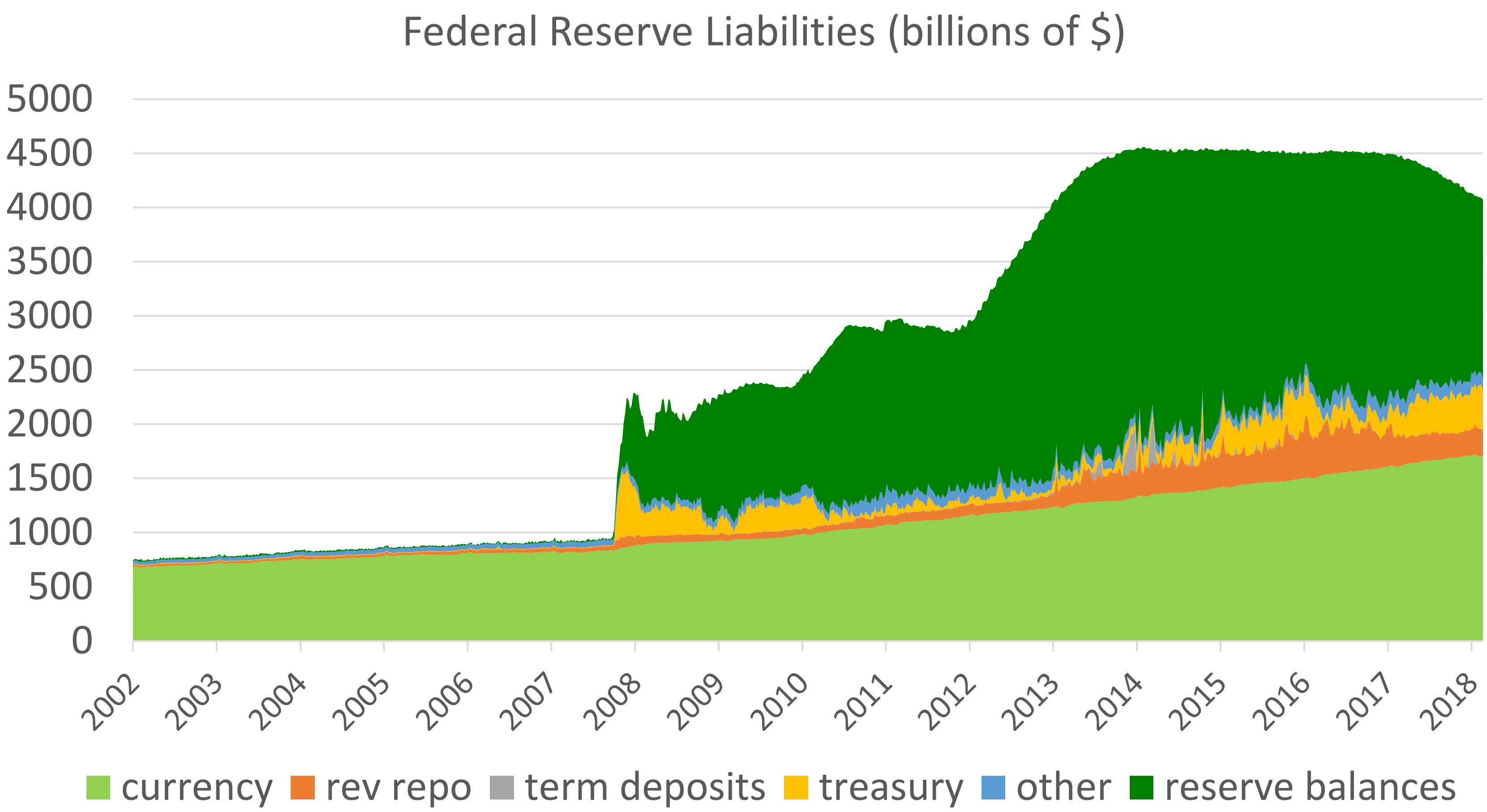
Source: https://apps.newyorkfed.org/markets/autorates/fed%20funds

Federal Home Loan Banks are finding better alternatives to lending fed funds



Source: FHLB end-of-quarter financial reports
http://www.fhlb-of.com/ofweb_userWeb/pageBuilder/fhlbank-financial-data-36

- What Fed policy tool is putting ceiling on interest rates currently?
- Huge volume of excess reserves may be one factor


Federal Reserve Liabilities (billions of $)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
currency
rev repo
term deposits
treasury
other
reserve balances

Conclusions

- Size of balance sheet seems imprecise tool for controlling interest rates
- As reserve balances shrink, Fed control of short-term interest rate may become more difficult
- May want to shift focus from fed funds to another short-term rate
- May want to revive stigma-free discount window to get effective ceiling on short rates