Alternative monetary operating procedures

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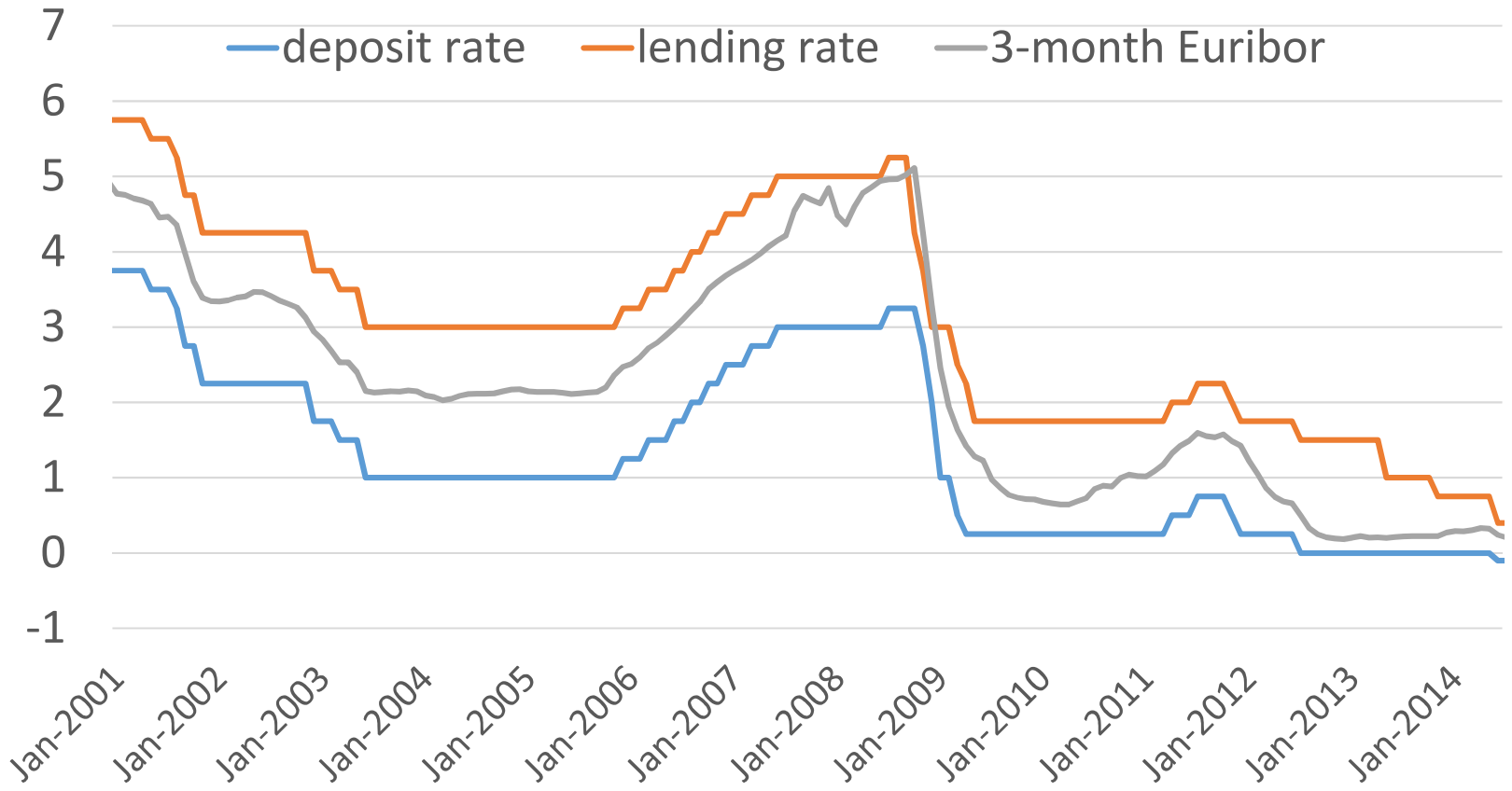
Corridor system (ECB)

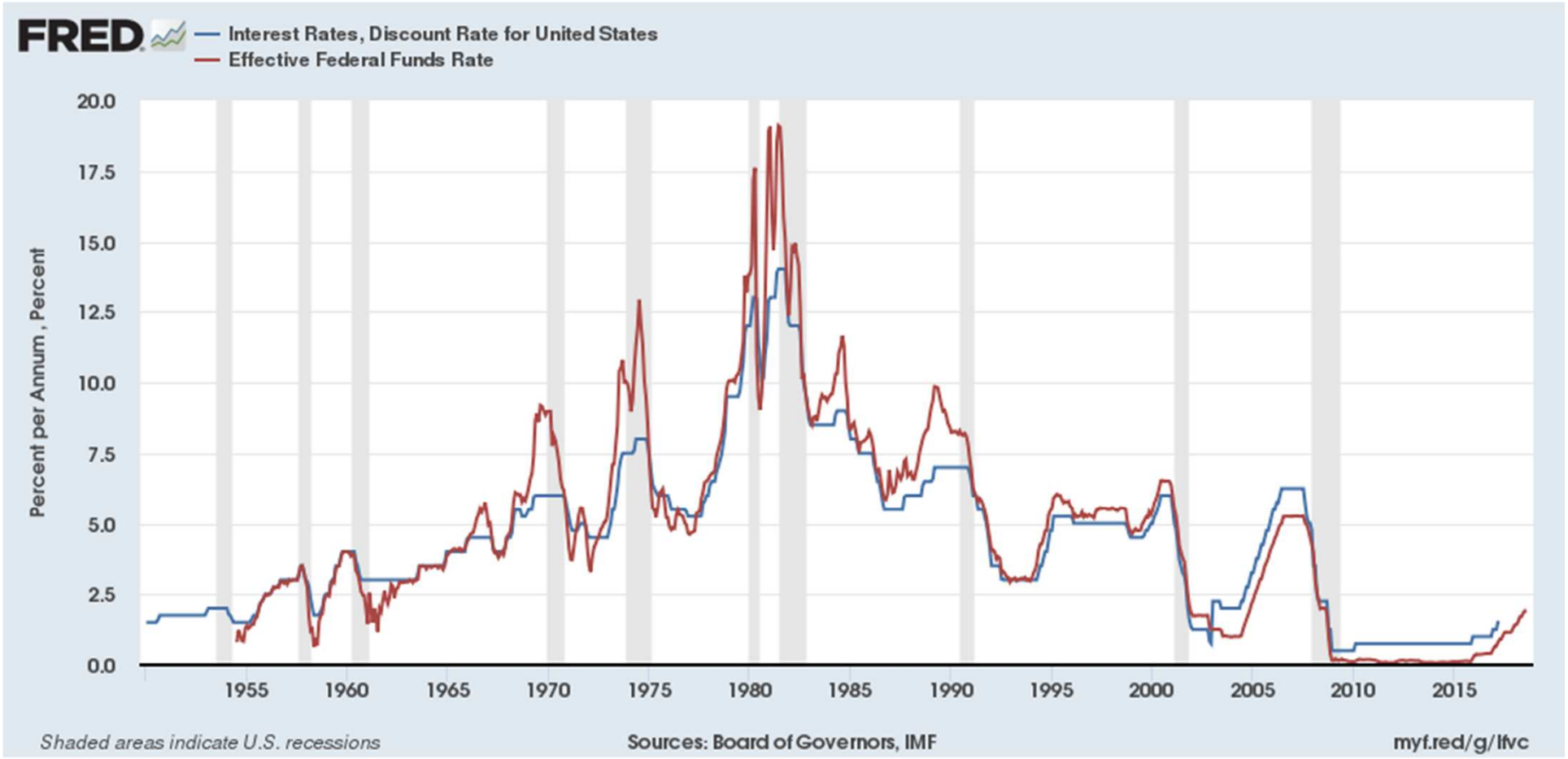
- Central bank offers to lend banks as much as they want at some fixed rate i_L
  - Banks won't pay more to borrow from someone else (i_L puts ceiling on interbank rates)
- Central bank offers to pay rate i_D on reserves held with bank
  - Banks won't lend for less to other banks (i_D puts floor on interbank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



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

Historical U.S. system

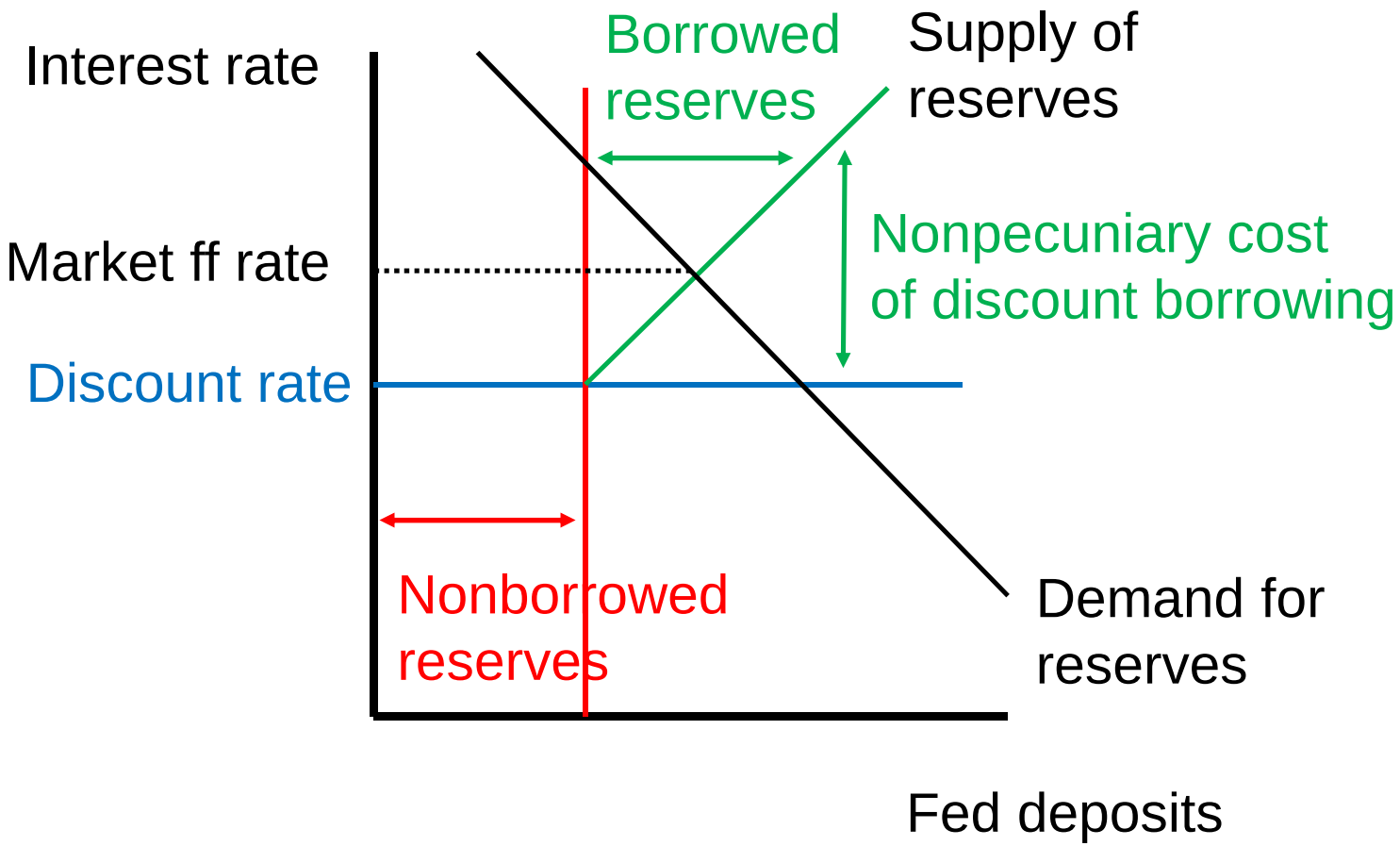
- Federal Reserve set discount rate at which banks could borrow from Fed
- But often this was a floor, not a ceiling on interbank loans!

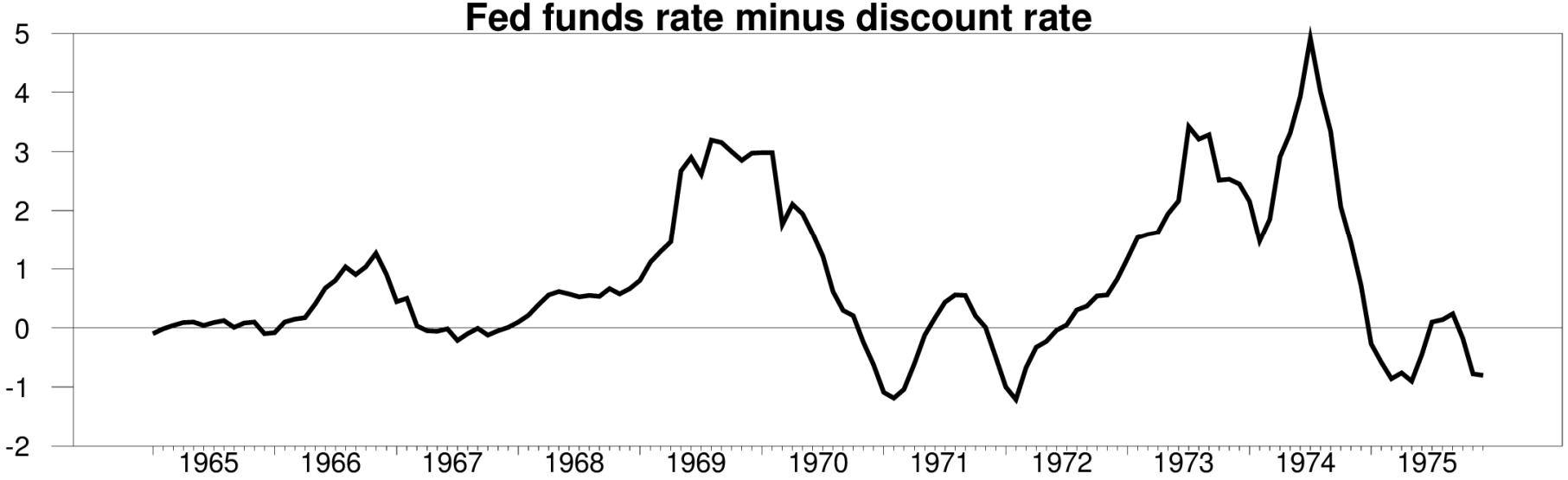

FRED
Interest Rates, Discount Rate for United States
Effective Federal Funds Rate
Percent per Annum , Percent
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Shaded areas indicate U.S. recessions
Sources: Board of Governors, IMF
myf.red/g/lfvc

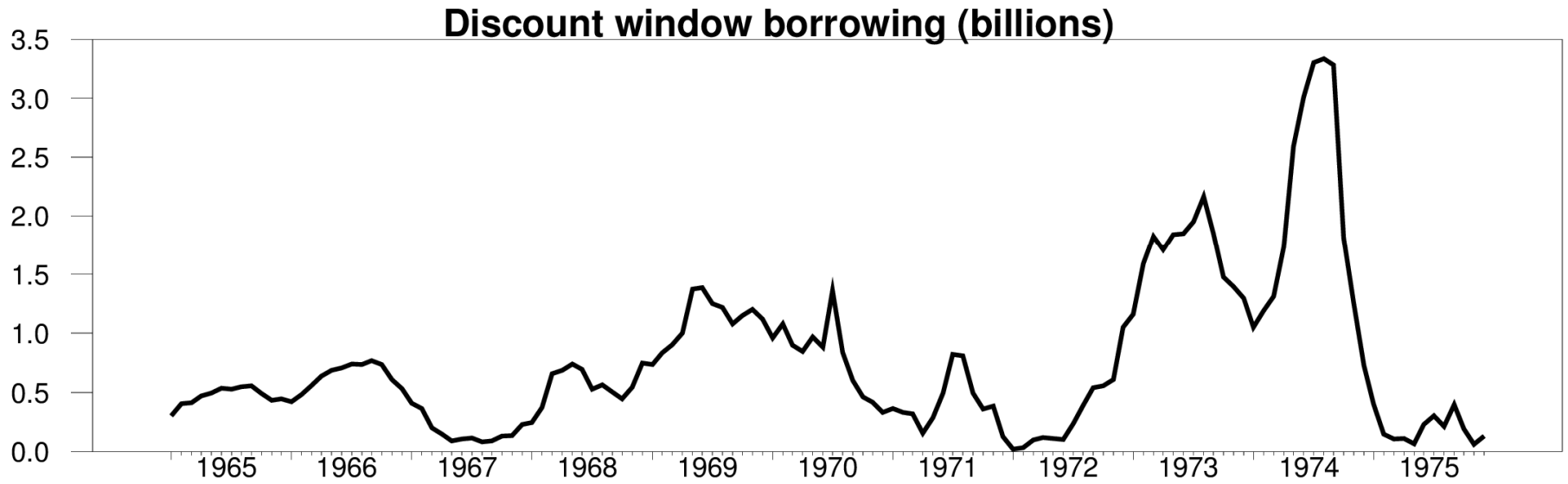
Why was this a floor?

- 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 demand for reserves increased or supply 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)



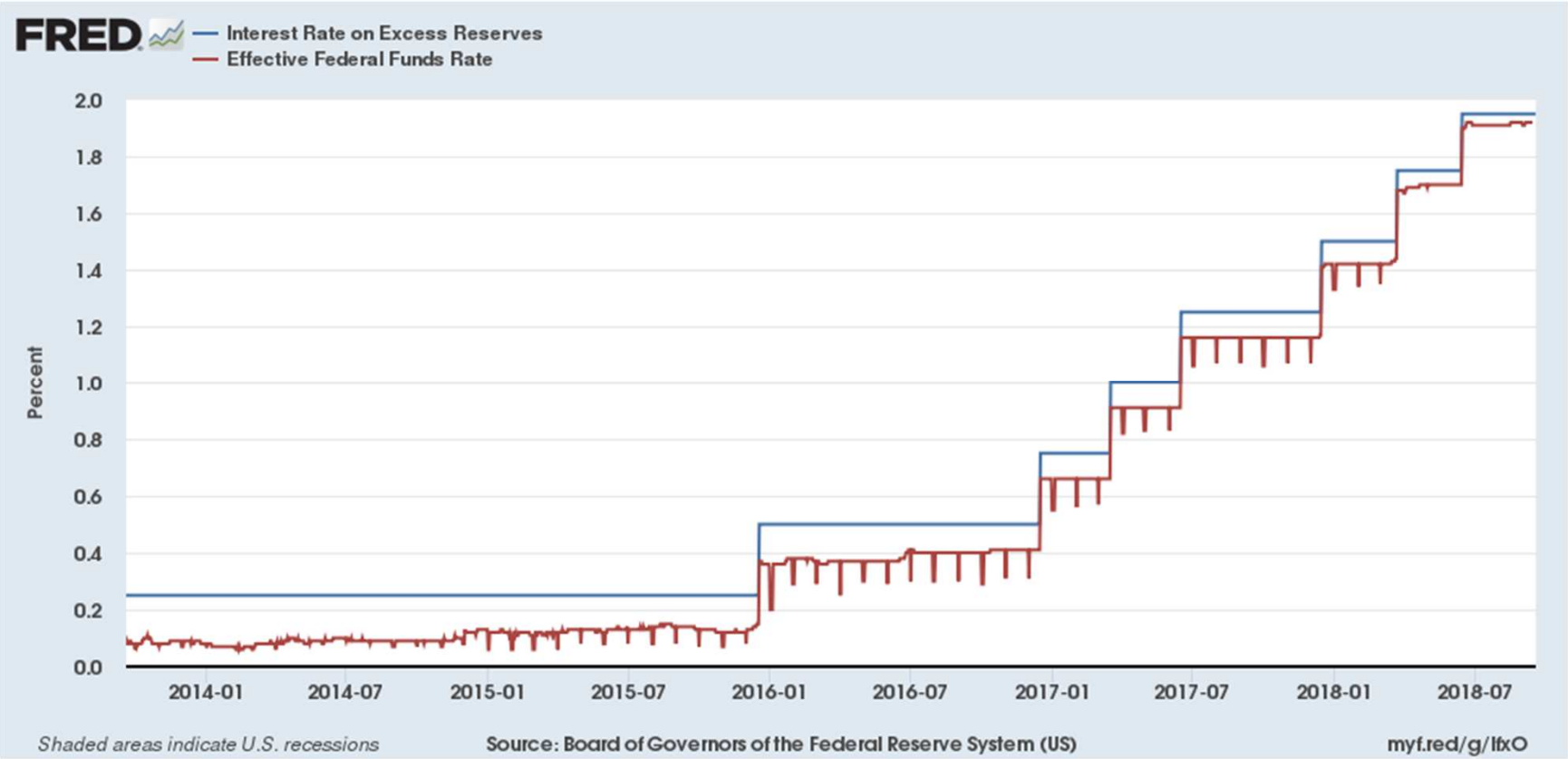

Fed funds rate minus discount rate
5
4
3
2
1
0
-1
-2
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975


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 is not a floor on fed funds rate!

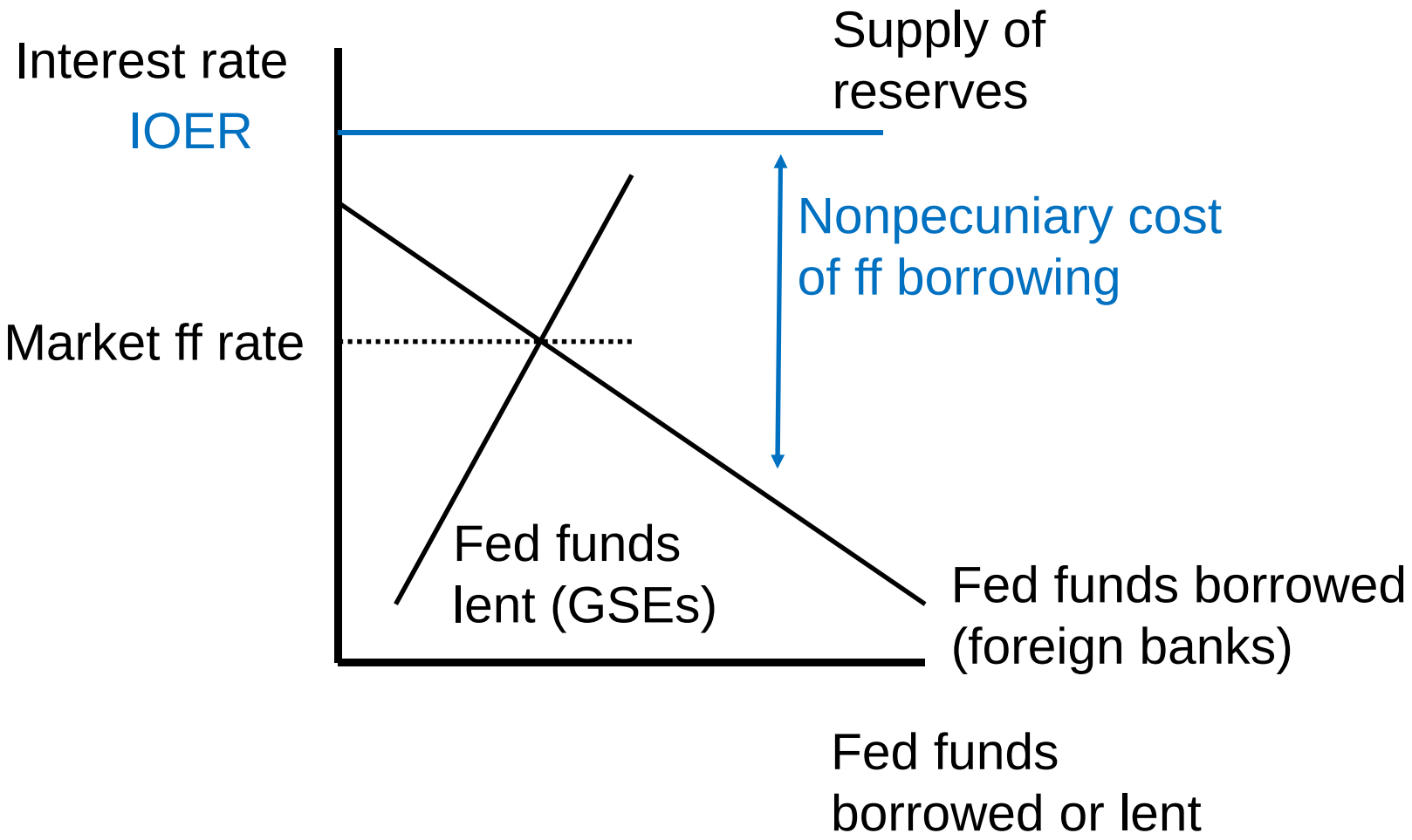
Interest on excess reserves and fed funds rate



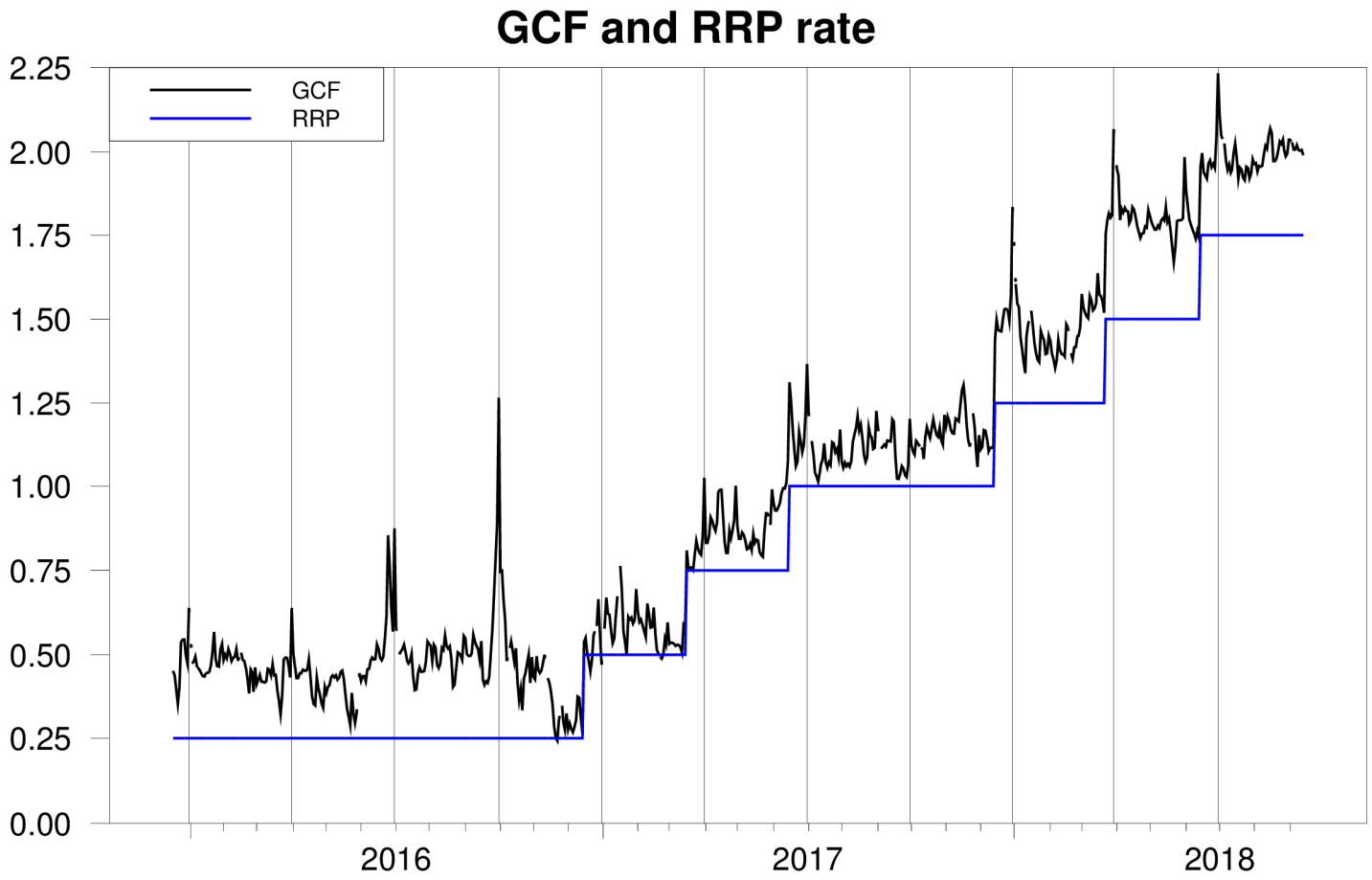
Why is ff below IOER?

- If bank borrows at fed funds rate and earns IOER, seems like arbitrage profit
- But 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
- Banks borrow fed funds up to point where IOER minus ff rate equals marginal nonpecuniary costs of balance-sheet expansion

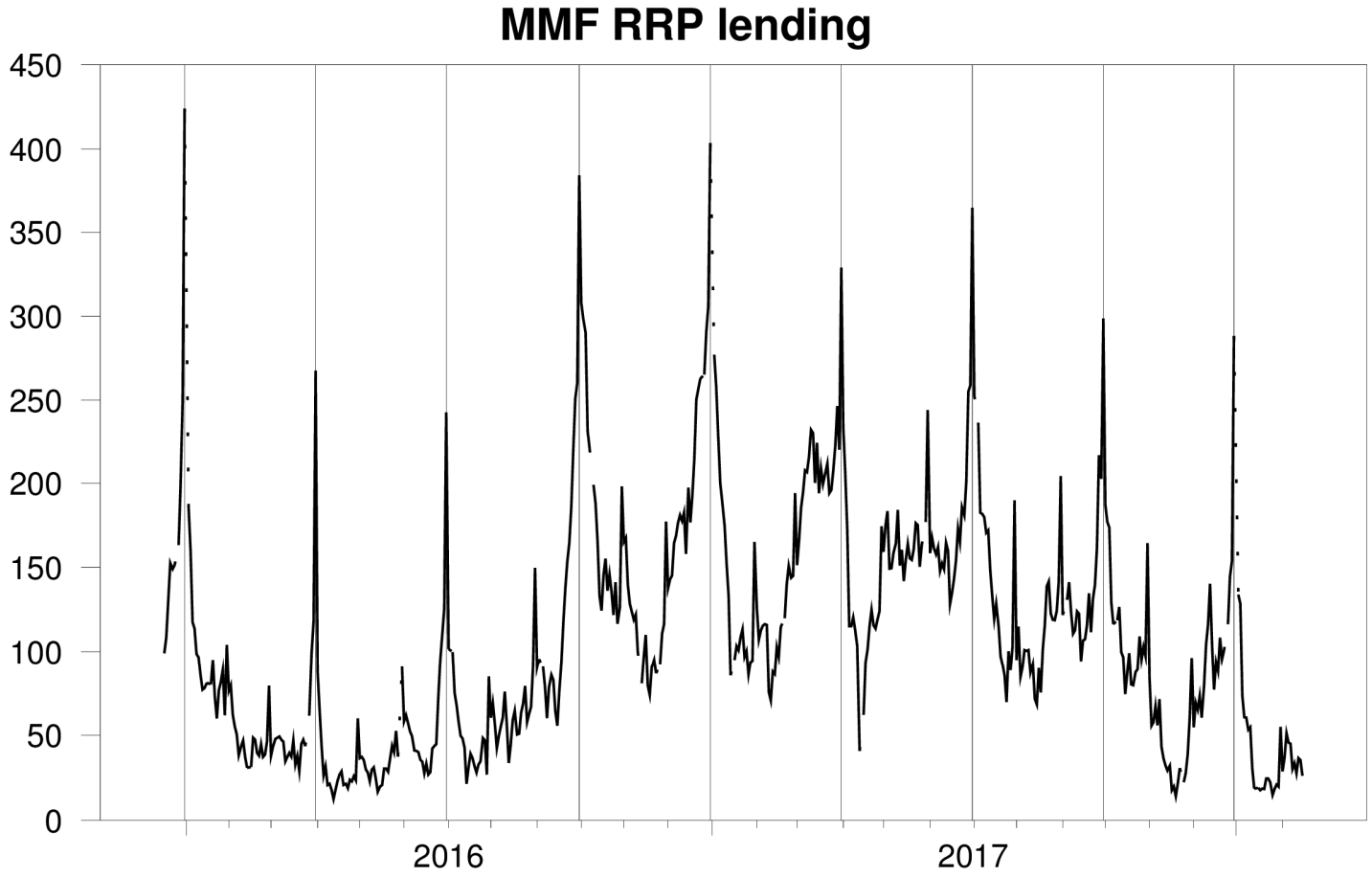
Fed funds equilibrium (current)



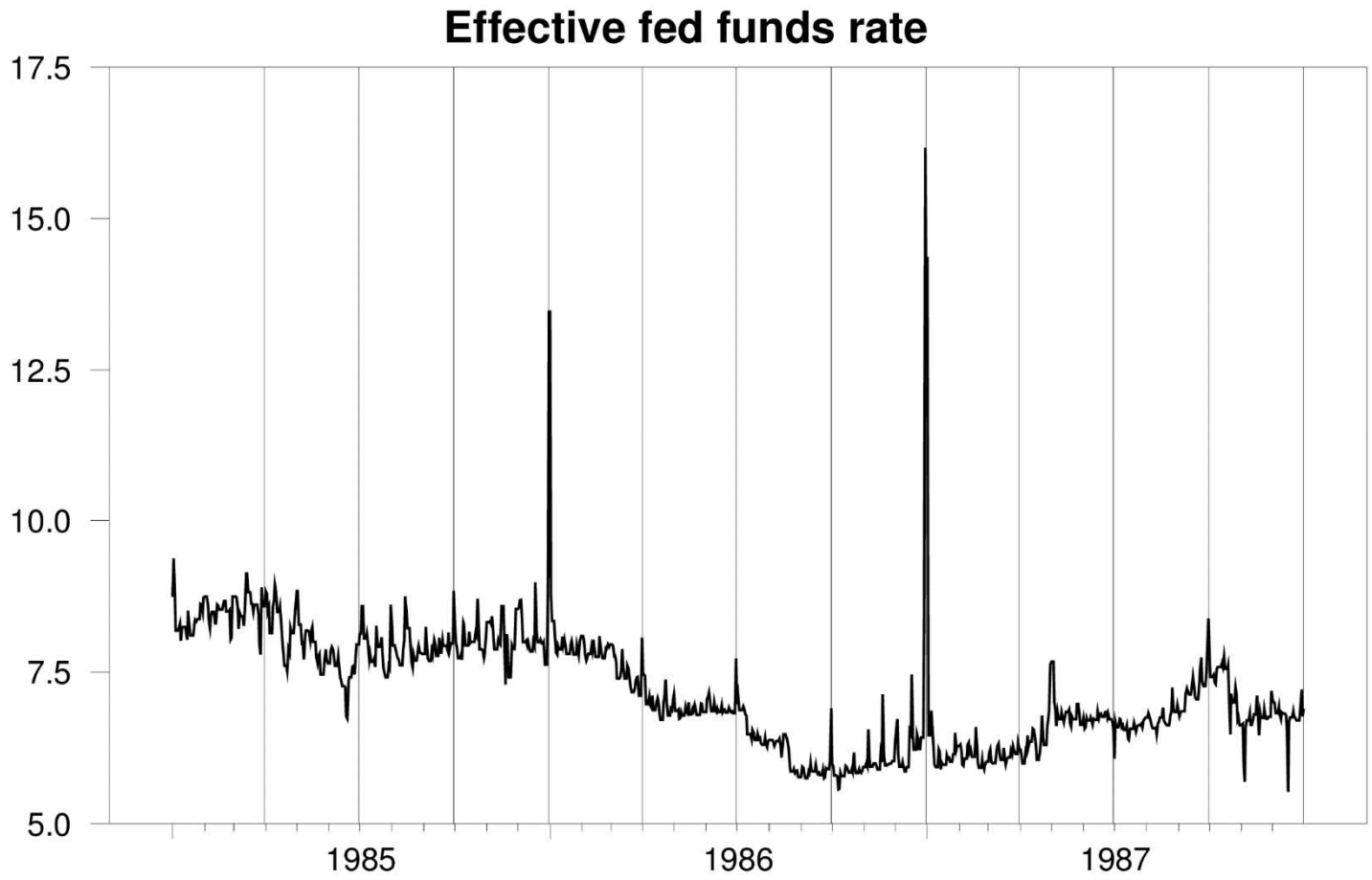
Reverse repo rate puts floor under rate at which MMF lend



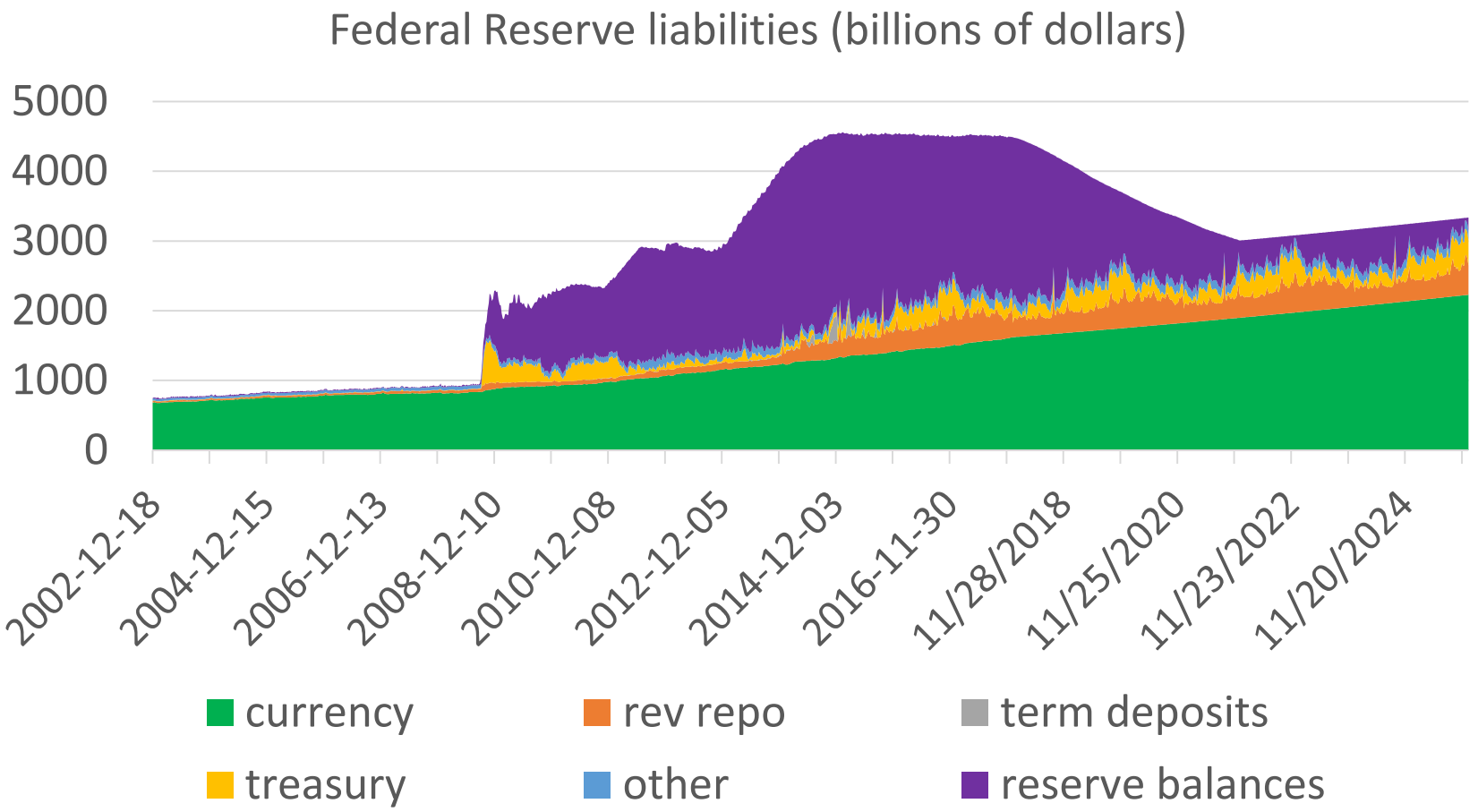
But there is a huge surge in reverse repo volume from end-of-quarter window dressing



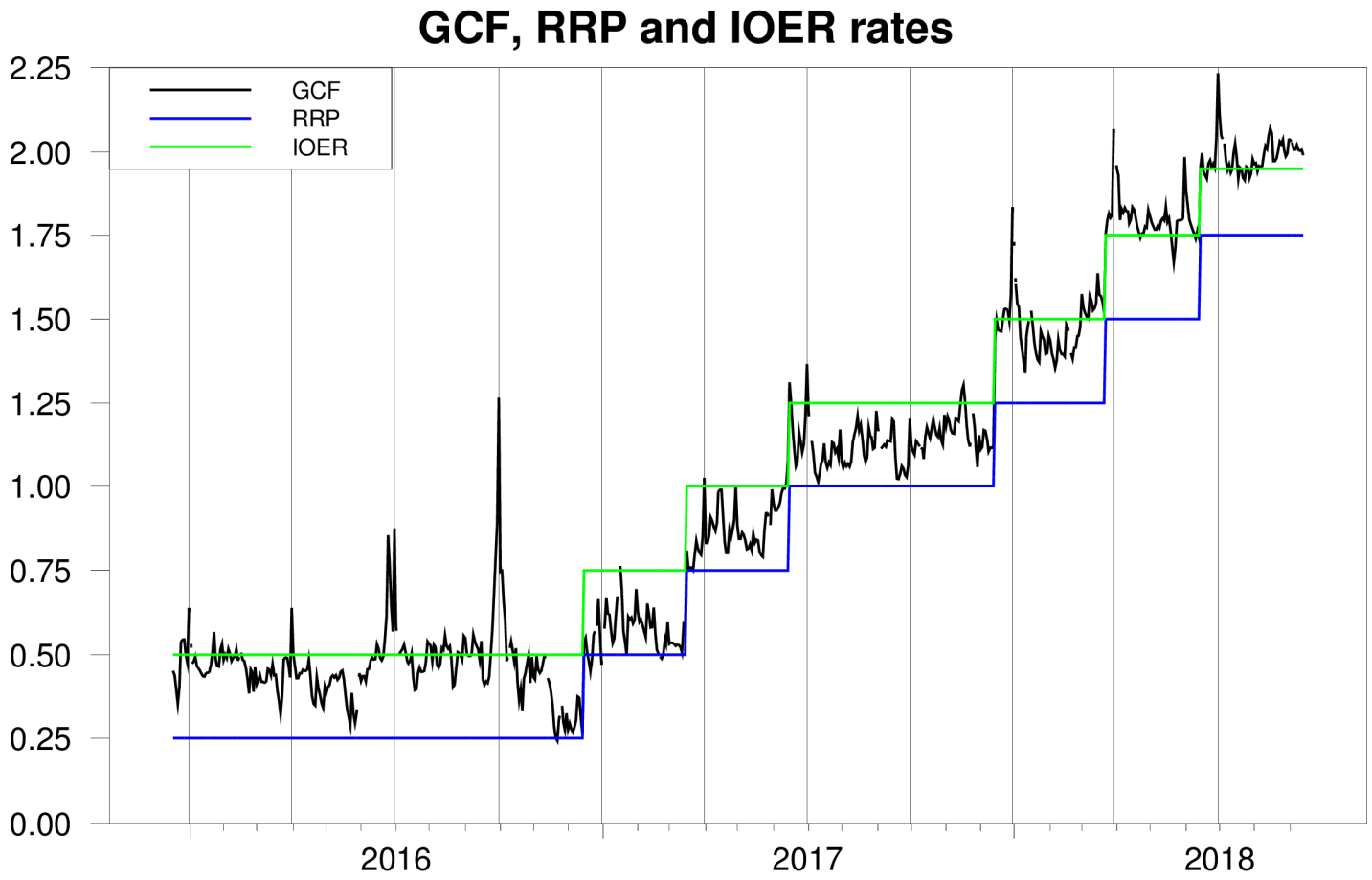
Very different from historical system of letting market rate reflect pressures



Current system requires huge buffer of excess reserves to accommodate volatile RRP and Treasury balance



What puts ceiling on rates in current system?



Conclusion

- Current system relies on supersaturation of reserves
- Not clear how would function with excess reserves under $500 B