

Central Bank Deleveraging— A Solution in Search of a Problem?

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The threat posed by ballooning Federal reserves

By John Taylor

An explosion of money is the main reason, but not the only one, to be concerned about last week's surprise decision by the Federal Reserve to increase sharply its holdings of mortgage backed securities and to start purchasing longer term Treasury securities.

“There is no question that this enormous increase . . . will lead to inflation unless it is reversed.”

Some Items on the Fed's Balance Sheet through Time

| | 4/8/2015 | 4/8/2010 | 4/9/2009 | 4/10/2008 | 4/12/2007 |
|---------------------------------|----------|----------|----------|-----------|-----------|
| Assets | | | | | |
| Treasury Securities | 2460 | 777 | 508 | 560 | 783 |
| Agency Debt Securities | 37 | 169 | 56 | 0 | 0 |
| Mortgage-Backed Securities | 1732 | 1069 | 237 | 0 | 0 |
| Repos | 0 | 0 | 0 | 120 | 29 |
| Loans/Credit/Swaps | 0.032 | 92 | 1146 | 134 | 0.05 |
| | | | | | |
| Liabilities & Equity | | | | | |
| Currency | 1319 | 896 | 866 | 779 | 773 |
| Reserve Balances | 2793 | 1114 | 842 | 26 | 15 |
| Reverse Repos | 244 | 56 | 67 | 39 | 34 |
| Treasury Balances | 44 | 170 | 224 | 4 | 5 |
| Equity | 58 | 53 | 46 | 41 | 33 |

Federal Funds Market & Fed Operations 101

| Assets | Liabilities/Equity |
|----------------------------|-----------------------|
| Loans to Banks | Currency + Vault Cash |
| Loans to Non-Bank FIs | Bank Reserve Balances |
| Treasury Securities | Treasury's Account |
| Mortgage Backed Securities | Equity |

Fed's Balance Sheet

| Assets | Liabilities/Equity |
|------------------|-----------------------------|
| Vault Cash | Deposits |
| Reserve Balances | Savings Accounts, CDs, etc. |
| Securities | Borrowings |
| Loans | Equity |

Bank Balance Sheet

| Assets | Liabilities/Equity |
|----------------------------|-----------------------|
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Bank Balance Sheets

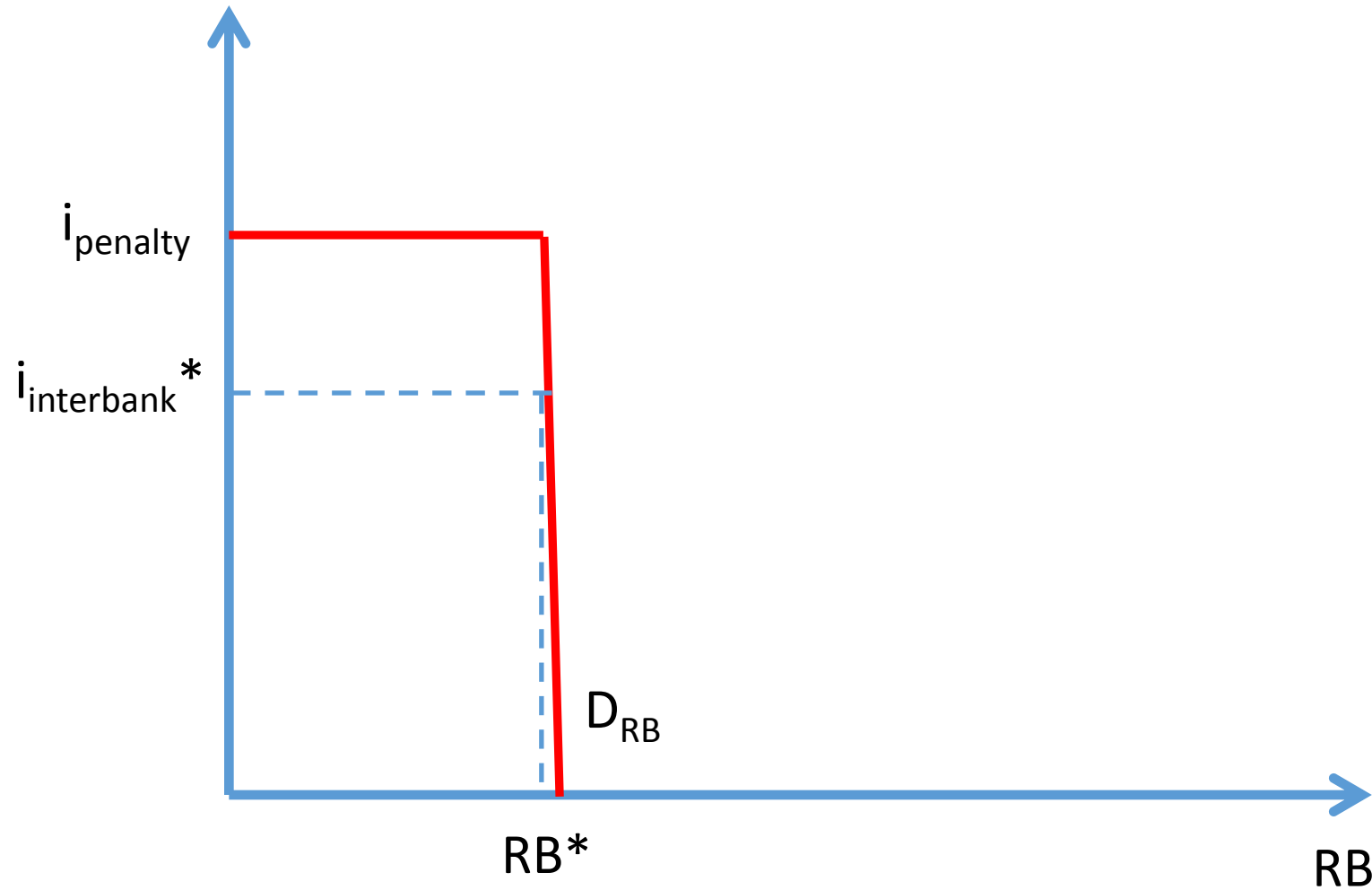
Data on Payment Settlement via Reserve Balances on Fedwire

(federalreserve.gov)

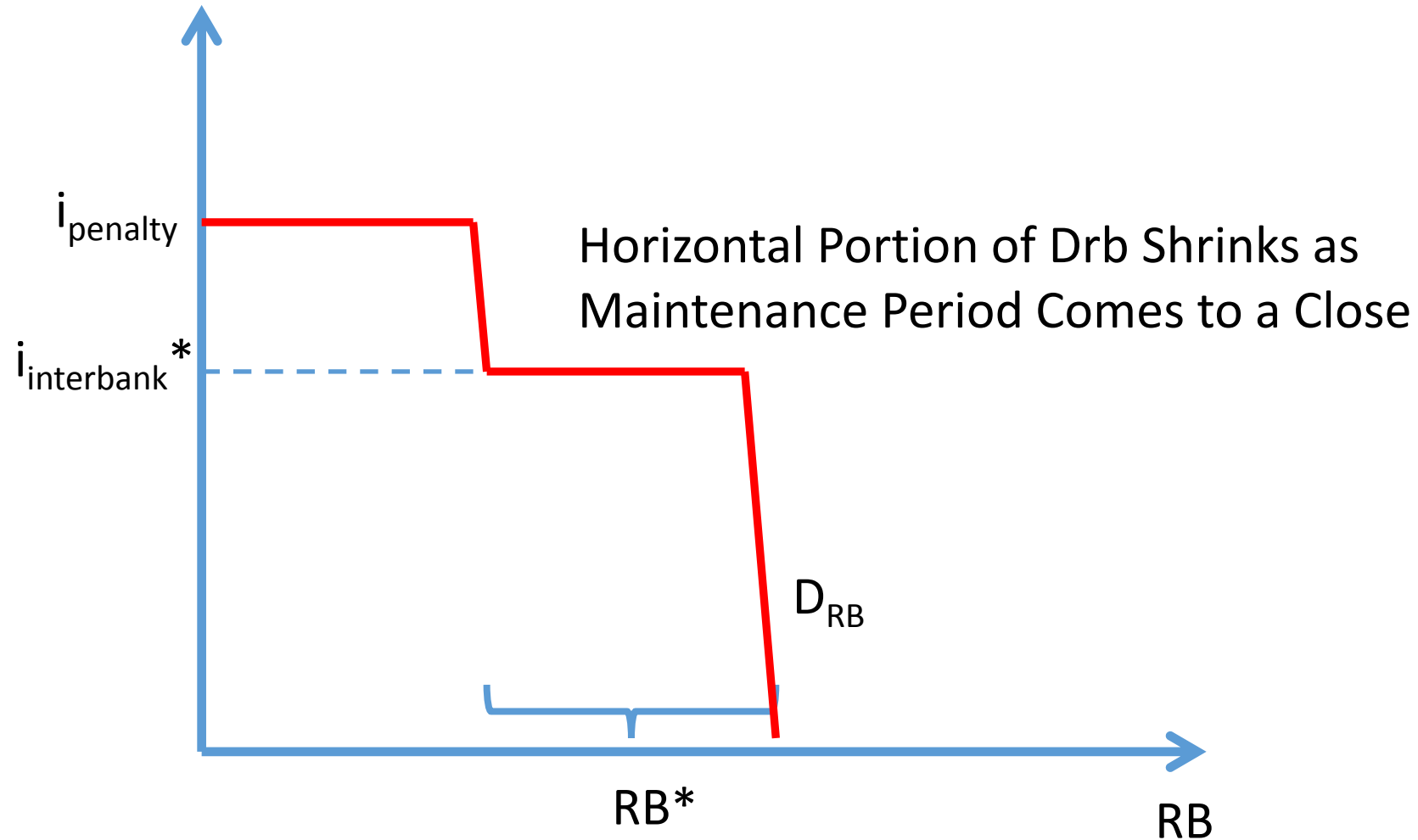
| Year | Transfers originated (number) | Annual volume growth (%) | Value of transfers originated (\$M) | Annual value growth (%) | Average value per transfer (\$M) | Average daily volume of transfers (number) | Average daily value of transfers (\$M) | Average daily volume of transfers (% of GDP) |
|------|-------------------------------|--------------------------|-------------------------------------|-------------------------|----------------------------------|--|--|--|
| 2014 | 135,022,749 | 0.6 | 884,551,876 | 24 | 6.55 | 537,939 | 3,524,111 | 20.2% |
| 2013 | 134,244,177 | 2 | 713,310,354 | 19 | 5.31 | 534,837 | 2,841,874 | 16.9% |
| 2012 | 131,637,349 | 3.6 | 599,200,625 | -9.7 | 4.55 | 524,452 | 2,387,253 | 14.8% |
| 2011 | 127,022,420 | 1.5 | 663,837,575 | 9.1 | 5.23 | 506,065 | 2,644,771 | 17.0% |
| 2010 | 125,130,561 | 0.3 | 608,325,851 | -3.6 | 4.86 | 496,550 | 2,413,991 | 16.1% |
| 2009 | 124,731,244 | -5 | 631,127,108 | -16.4 | 5.06 | 494,965 | 2,504,473 | 17.4% |
| 2008 | 131,362,107 | -2.5 | 754,974,633 | 12.6 | 5.75 | 521,278 | 2,995,931 | 20.4% |
| 2007 | 134,688,381 | 0.8 | 670,665,569 | 17.1 | 4.98 | 536,607 | 2,671,974 | 18.5% |
| 2006 | 133,605,267 | 0.9 | 572,645,790 | 10.4 | 4.29 | 532,292 | 2,281,457 | 16.5% |
| 2005 | 132,437,838 | 5.9 | 518,546,733 | 8.3 | 3.92 | 527,641 | 2,065,923 | 15.8% |
| 2004 | 125,103,104 | 1.5 | 478,946,947 | 7.1 | 3.83 | 494,479 | 1,893,071 | 15.4% |
| 2003 | 123,280,721 | 7.2 | 447,341,692 | 10.2 | 3.63 | 491,158 | 1,782,238 | 15.5% |
| 2002 | 114,979,176 | 2.2 | 405,761,750 | -4.2 | 3.53 | 458,084 | 1,616,581 | 14.7% |
| 2001 | 112,455,615 | 3.8 | 423,606,365 | 11.5 | 3.77 | 448,030 | 1,687,675 | 15.9% |
| 2000 | 108,313,521 | 5.4 | 379,756,389 | 10.6 | 3.51 | 429,816 | 1,506,970 | 14.7% |

Interbank Market

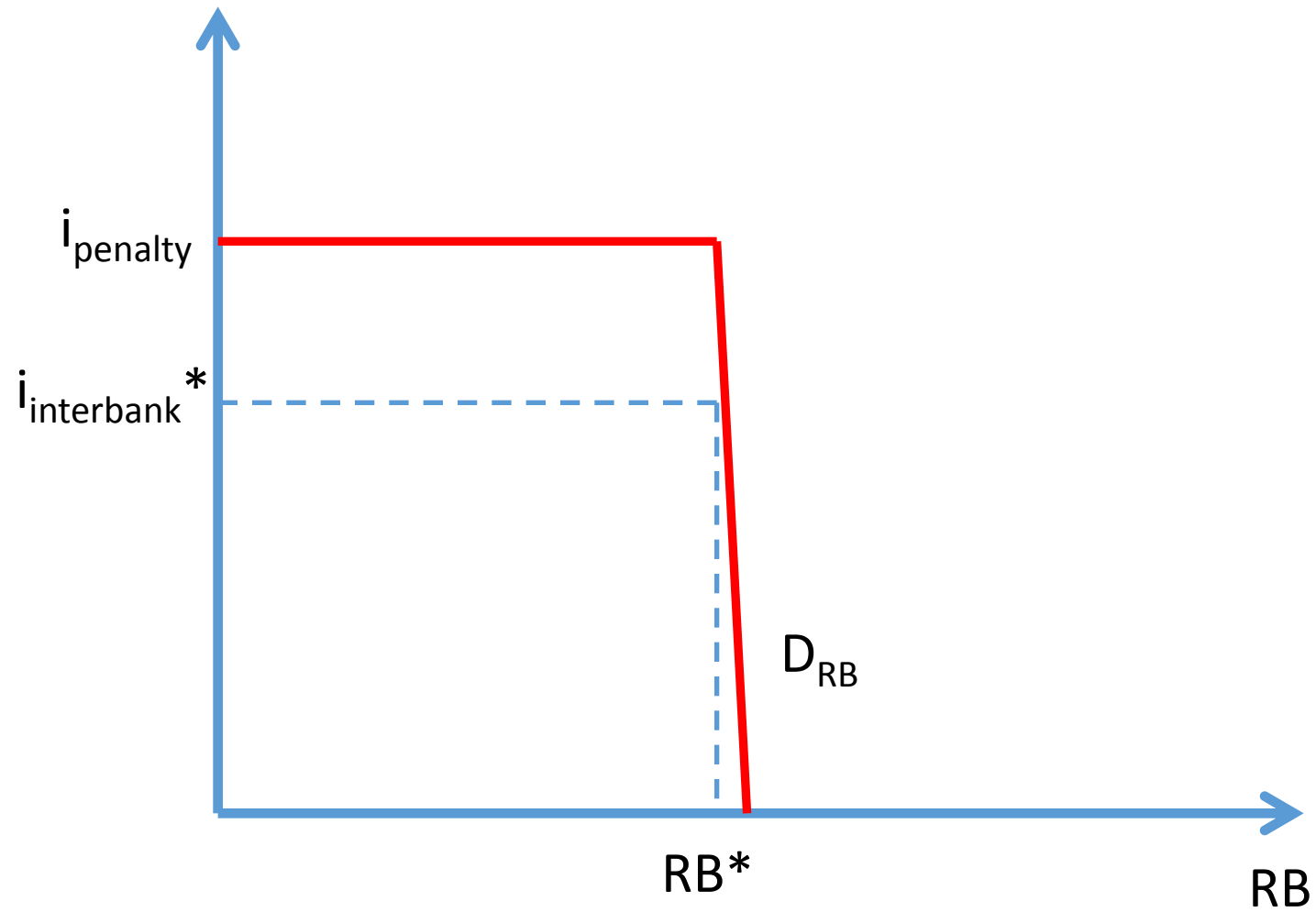
Demand for Reserve Balances for Payments Settlement



Interbank Market w/ Reserve Requirements

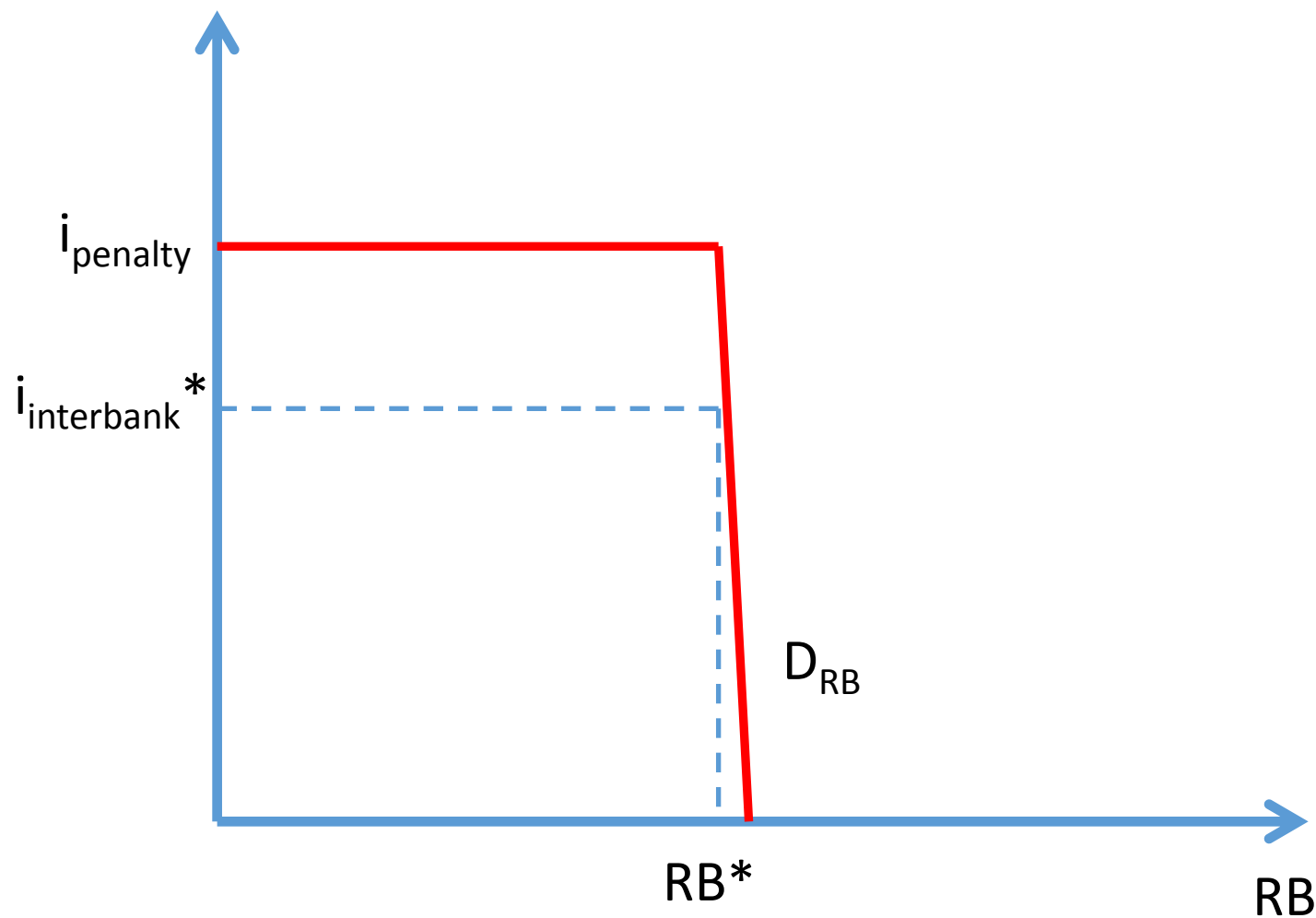


By the end of the maintenance period,
horizontal region is gone

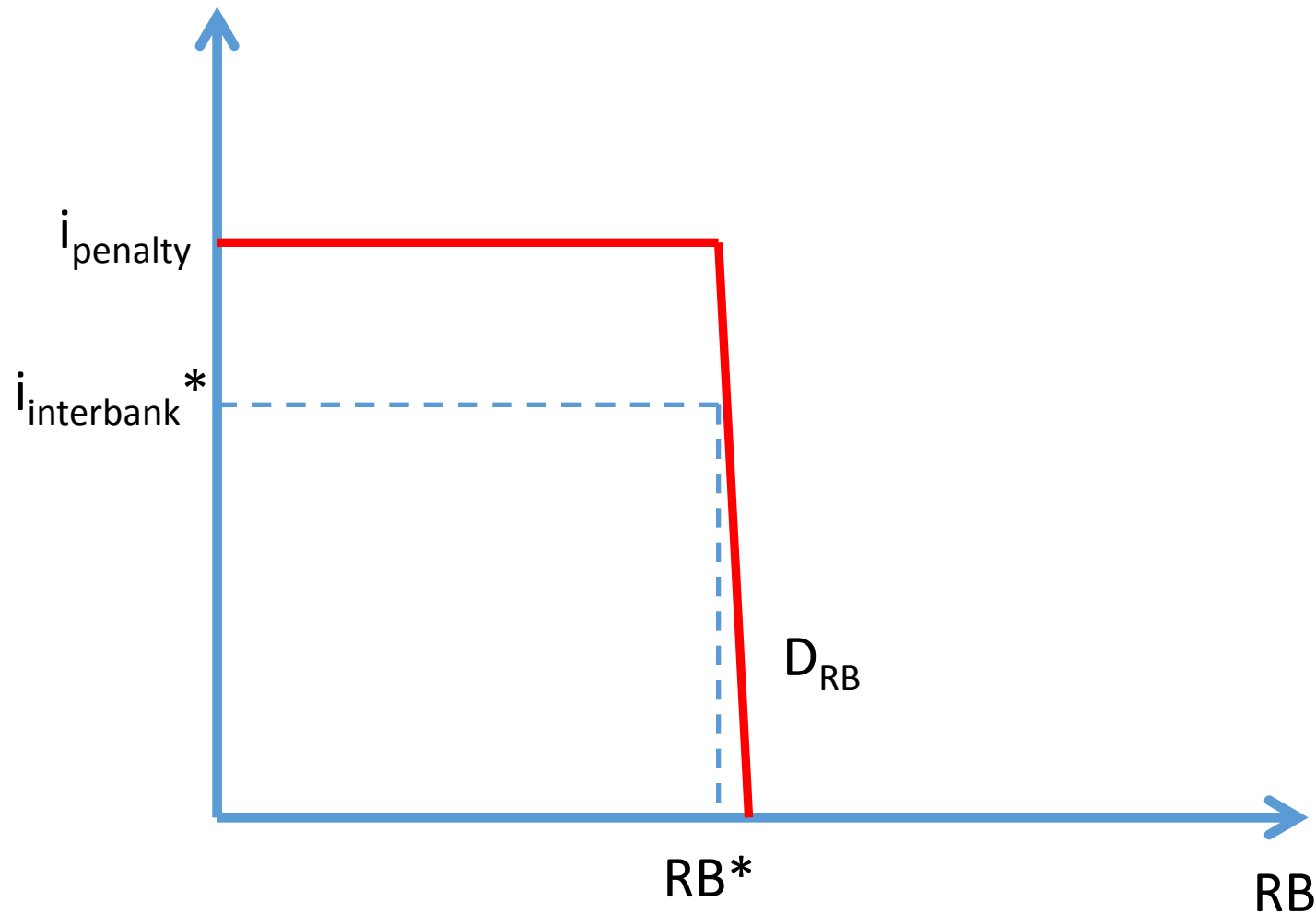


By the end of the maintenance period,
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1. Reserve Balances exist only on Fed's Balance Sheet

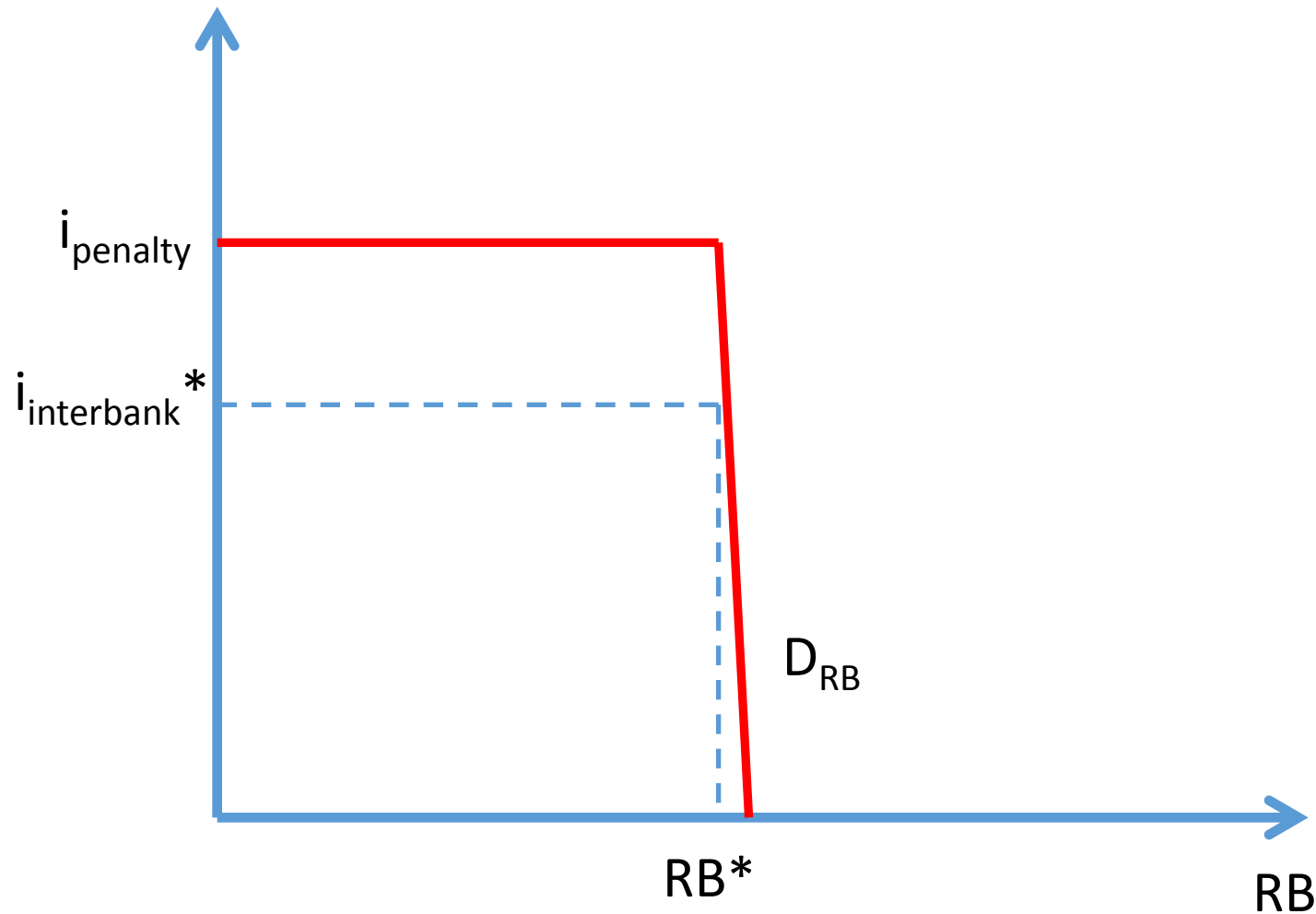


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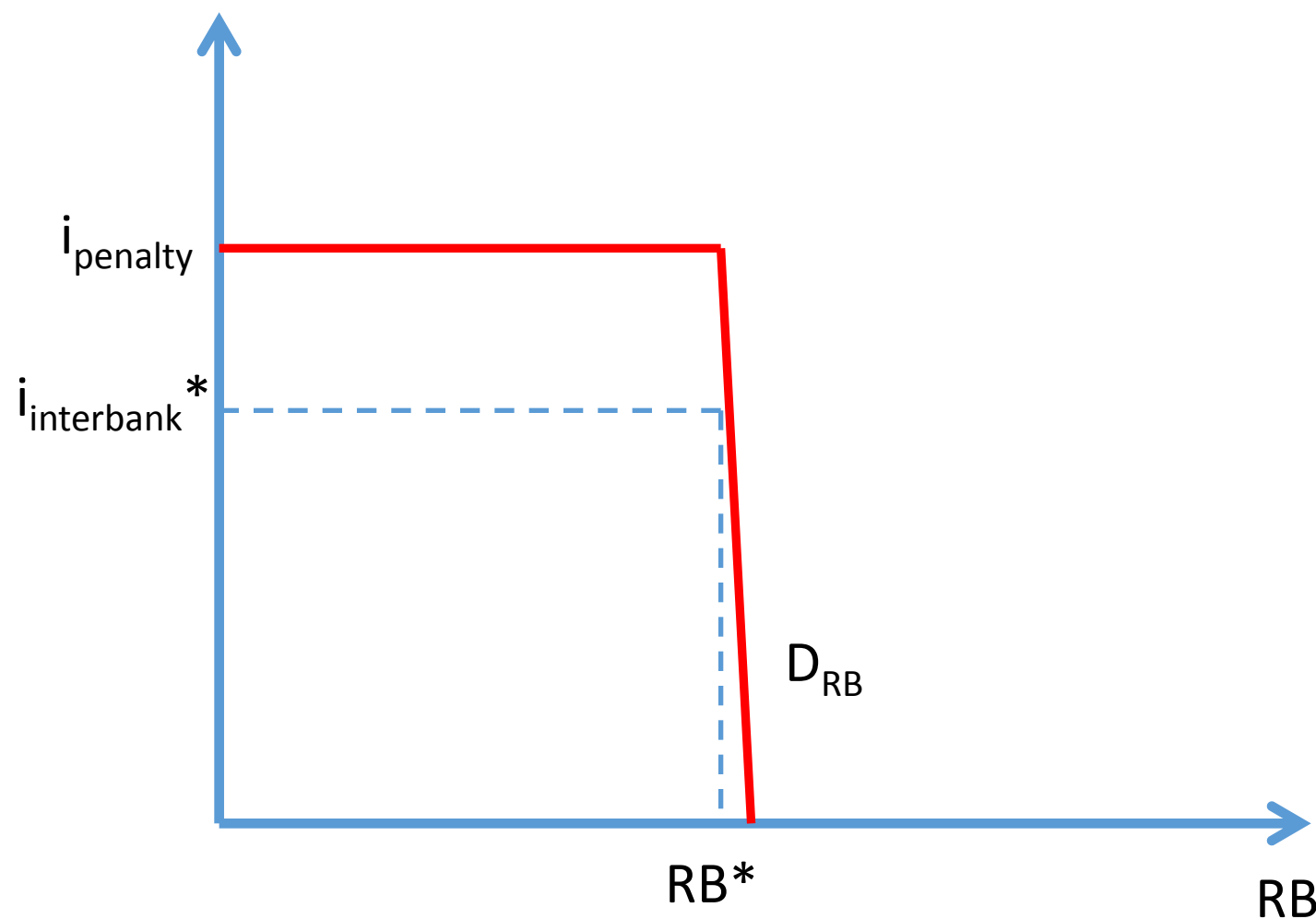
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2. Fed must protect the Payments System intraday and overnight

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3. Reserve requirements don't change *accommodative nature* of Fed's operations

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1. Reserve Balances exist only on Fed's Balance Sheet
2. Fed must protect the Payments System intraday and overnight
3. Reserve requirements don't change *accommodative nature* of Fed's operations
4. Fed necessarily sets a target rate *somewhere*

The costs of reserves, both intraday and overnight, are policy variables. Consequently, a market for reserves does not play the traditional role of information aggregation and price discovery. In fact . . . many demand management features determined by central bank policy are intended to dampen price volatility in the market for reserves.

Martin & McAndrews (New York Fed), 2008, p. 1

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Contrary to what sometimes seems to be alleged, the Fed cannot somehow withdraw and leave interest rates to be determined by “the markets.” . . . it has no choice but to set the short-term interest rate somewhere.

Bernanke, Brookings Institute Blog, March 30, 2015

Banks & Credit Creation 101

Money Multiplier Model

Money multiplier view of reserve balances (RBs) is that they “finance” bank balance sheet expansion via rising excess reserves (ER)

$\uparrow \text{RBs} \rightarrow \uparrow \text{ER} \rightarrow \uparrow \text{Loans and } \uparrow \text{Deposits}$

Money multiplier ($1/\text{rrr}$ in its simplest form) then tells how much loans and deposits can increase given a rise in RBs and ER

In the real world, though, loans are DEMAND DRIVEN and CREATE deposits

| Assets | Liabilities & Equity |
|------------|----------------------|
| + 100 Loan | +100 Deposit |

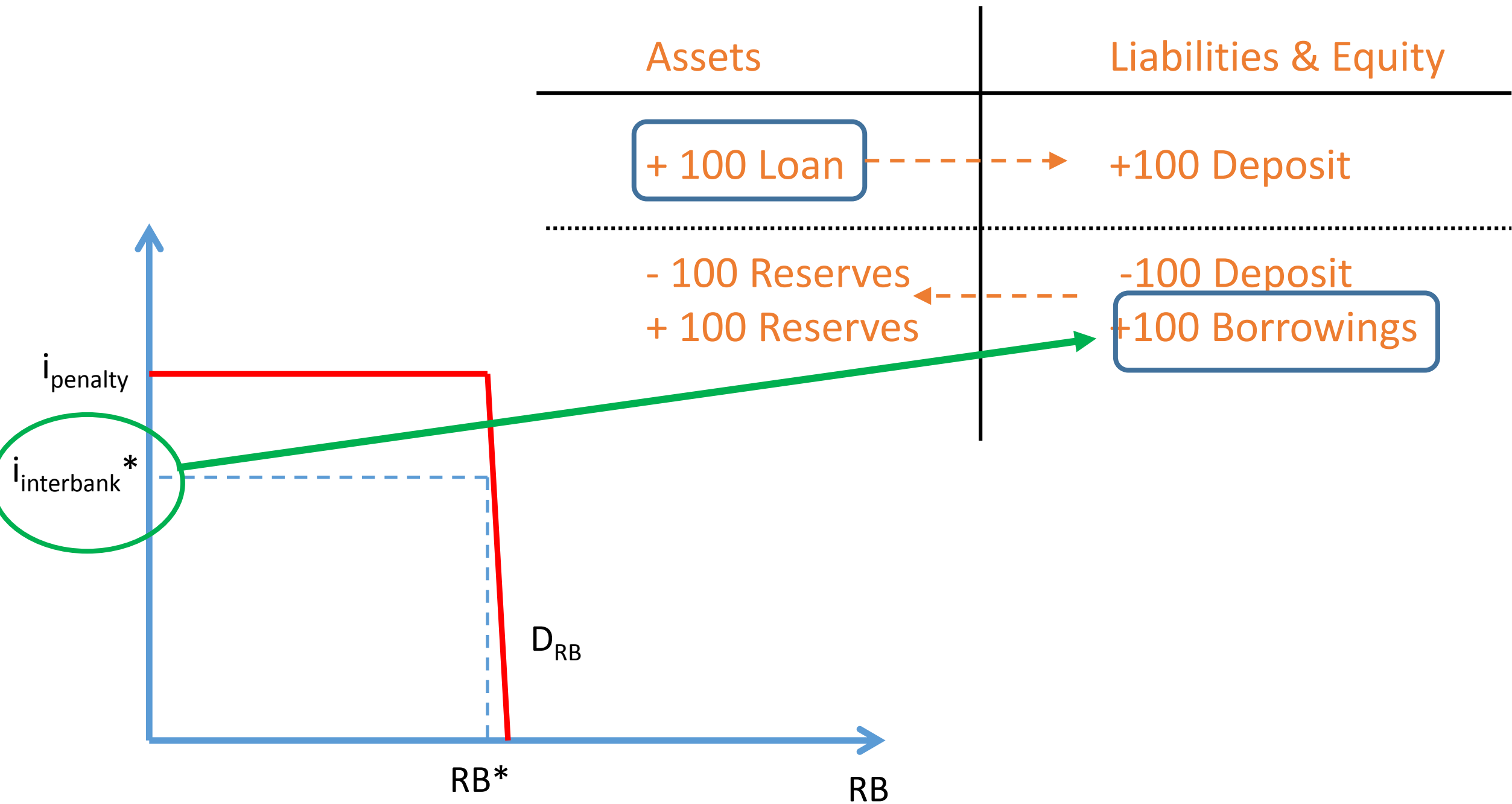
This process is not reserve constrained

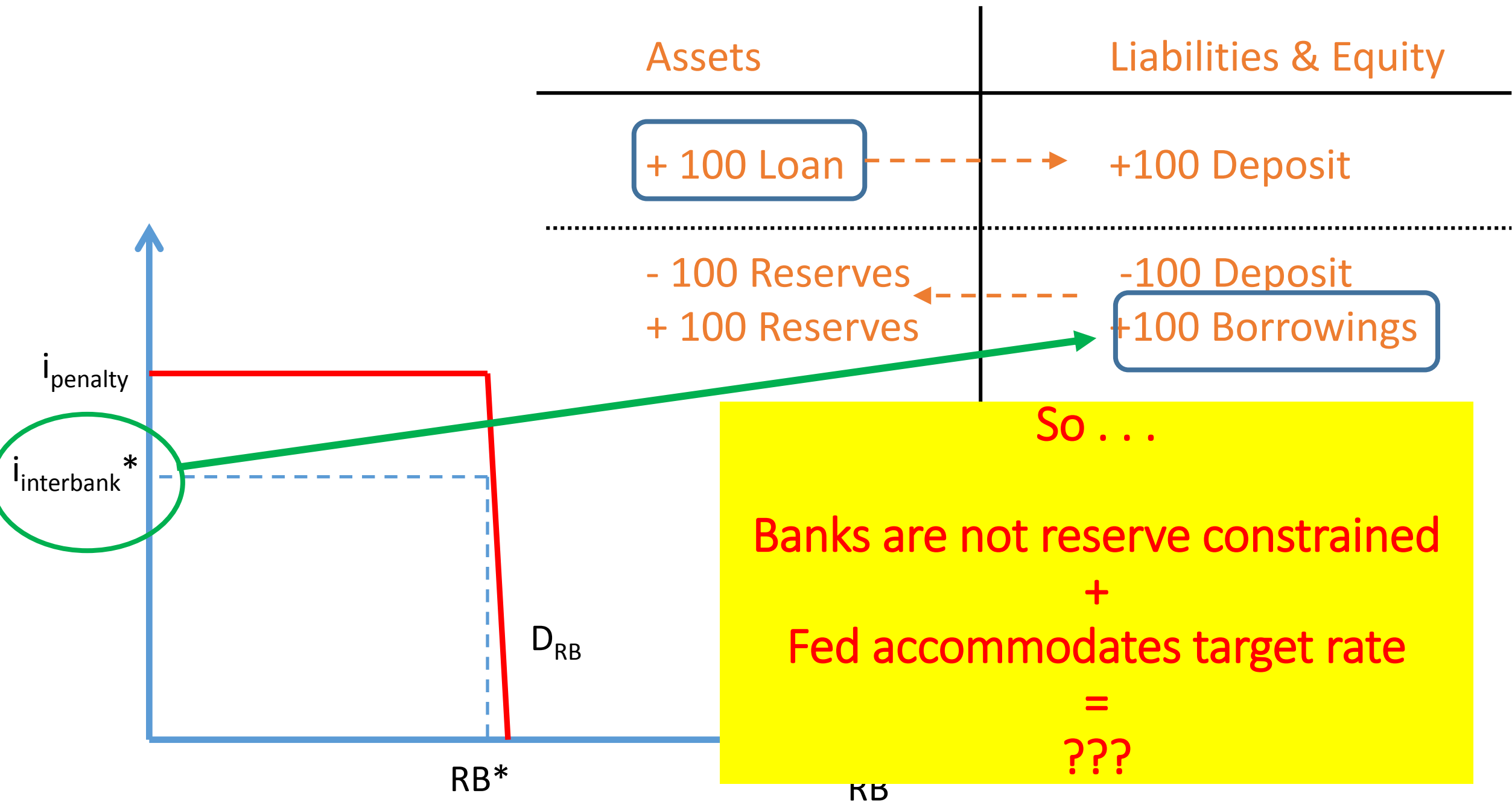
Additional RR are obtained as needed in money markets

| Assets | | Liabilities & Equity | |
|---------------|--------|----------------------|--|
| + 100 Loan | -----▶ | +100 Deposit | |
| + 10 Reserves | ◀----- | + 10 Borrowings | |

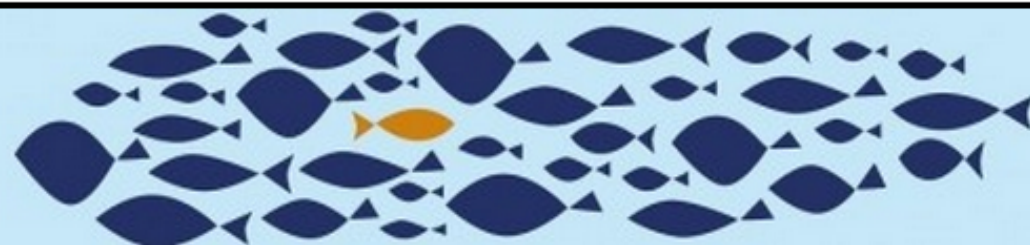
Deposit outflows, if they exceed the bank's Reserves, result in banks borrowing in money markets

| Assets | | Liabilities & Equity | |
|----------------|--------|----------------------|--|
| + 100 Loan | -----> | +100 Deposit | |
| - 100 Reserves | | -100 Deposit | |
| + 100 Reserves | <----- | +100 Borrowings | |





New Economic Perspectives



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[Professor L. Randall Wray responds to a question: →](#)

Don't Fear the Rise in the Fed's Reserve Balances

Posted on [June 18, 2009](#) by [Scott Fullwiler](#) | [3 Comments](#)

By [Scott Fullwiler](#)

Many in the financial press have noted the rise since September 2008 in the Fed's reserve balances from about \$20 billion to more than \$800 billion today. A number of well-known economists have expressed concern that this will be inflationary.

However, fears that these are inflationary are misplaced, even inapplicable, as they apply only to a monetary system operating under a gold standard, currency board, or similar arrangement, not the flexible exchange rate system of the U. S.

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Wither Monetarism?

Not so fast . . .

current issues

IN ECONOMICS AND FINANCE

Volume 15, Number 8 • December 2009 • www.newyorkfed.org/research/current_issues

Why Are Banks Holding So Many Excess Reserves?

Todd Keister and James J. McAndrews

The buildup of reserves in the U.S. banking system during the financial crisis has fueled concerns that the Federal Reserve's policies may have failed to stimulate the flow of credit in the economy: banks, it appears, are amassing funds rather than lending them out. However, a careful examination of the balance sheet effects of central bank actions shows that the high level of reserves is simply a by-product of the Fed's new lending facilities and asset purchase programs. The total quantity of reserves in the banking system reflects the scale of the Fed's policy initiatives but conveys no information about the initiatives' effects on bank lending or on the economy more broadly.

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Textbook accounts of the money multiplier assume that banks do not earn interest on their reserves. . . . If the central bank pays interest on reserves at its target interest rate, . . . then banks never face an opportunity cost of holding reserves and the money multiplier does not come into play.

| Assets | Liabs/Eq |
|--------------------|------------------------|
| Res. Bals Loans | Deposits Borrowings |

VS.

| Assets | Liabs/Eq |
|-------------------|------------------------|
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| Loans | Dep/Borr |

1. Profitability
2. Loans Create Deposits

| Assets | Liabs/Eq |
|-------------------------------|-----------------------------------|
| Res. Bals Loans | Deposits Borrowings |
| T-Bills | Dep/Borr |

VS.

| Assets | Liabs/Eq |
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1. Profitability
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3. T-bills



View A—IOR = Target Rate Stops QE in Its Tracks

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**View B—Return on “Money” = Return on “Bills” = 0%
Stops QE in Its Tracks**

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Krugman’s “Liquidity
Trap” at Zero Lower
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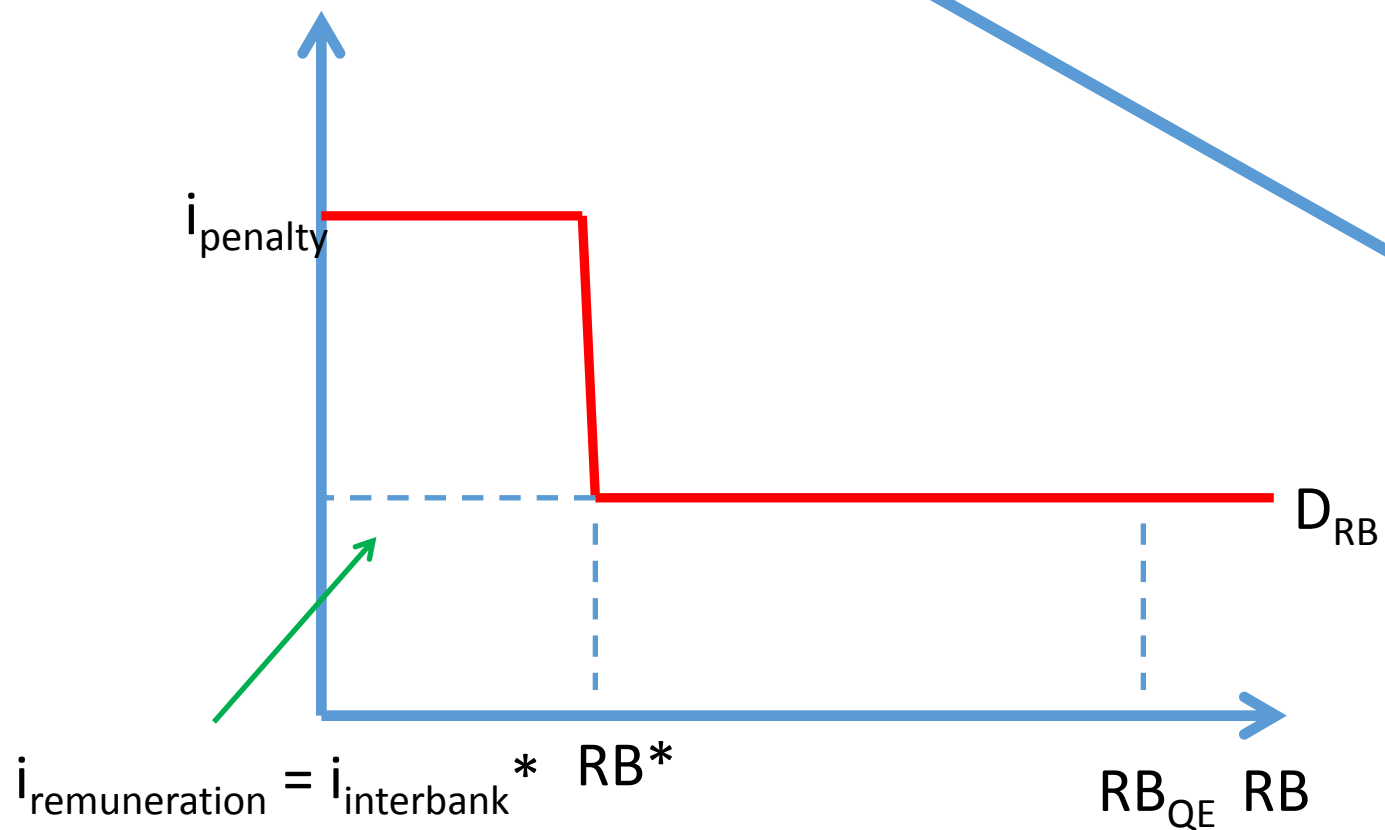
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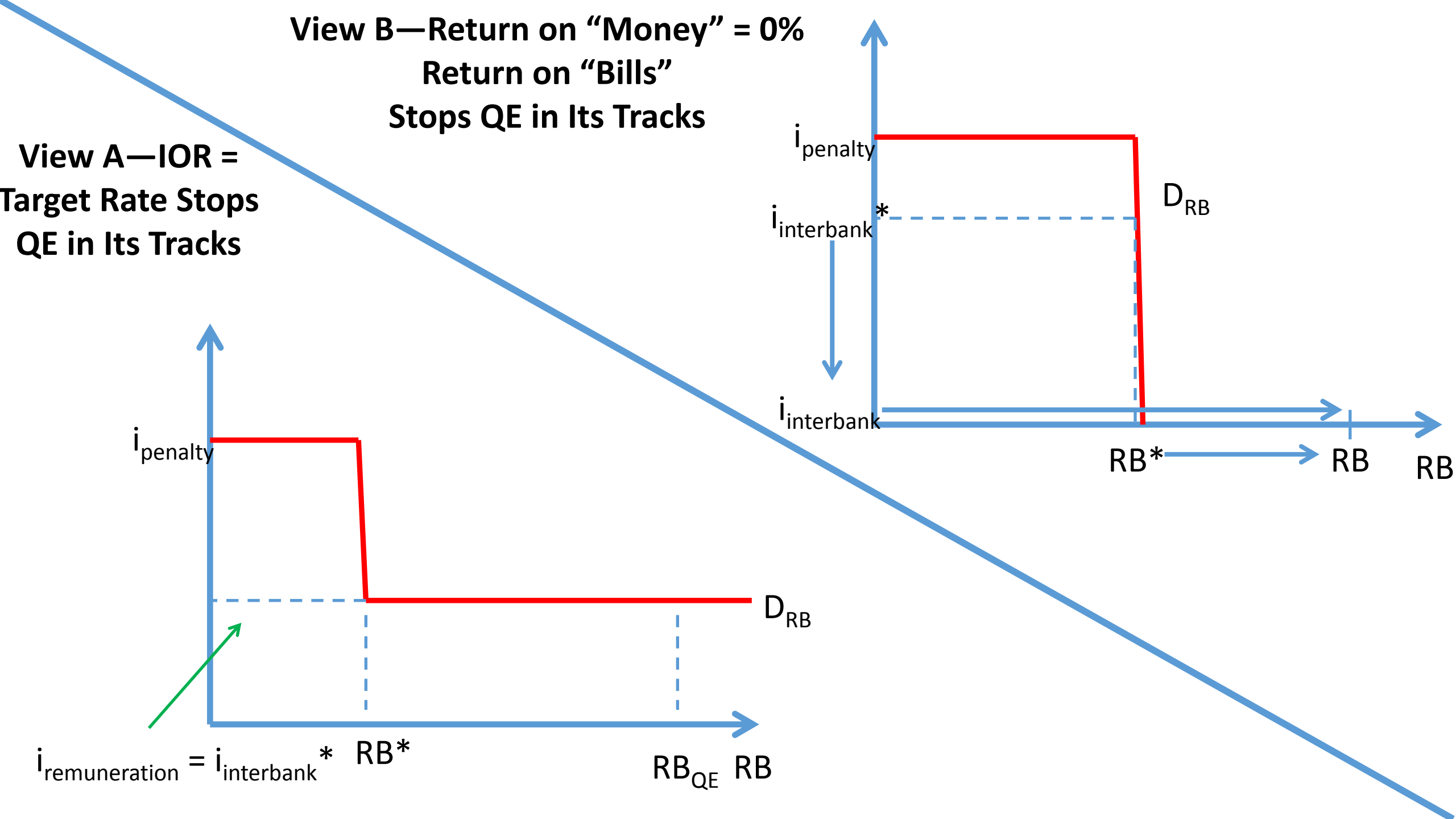
“It is true that the Fed could sterilize the impact of a rise in the monetary base by raising the interest rate it pays on reserves . . . ” (Krugman, 1/14/13, NYT)

**View A—IOR =
Target Rate Stops
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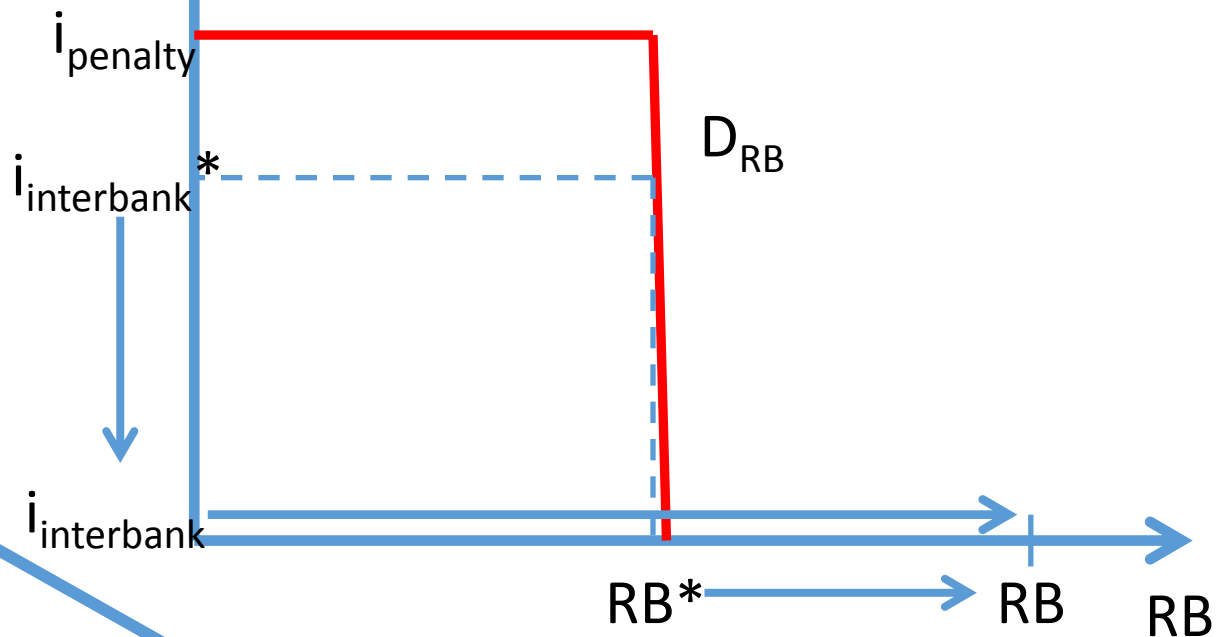
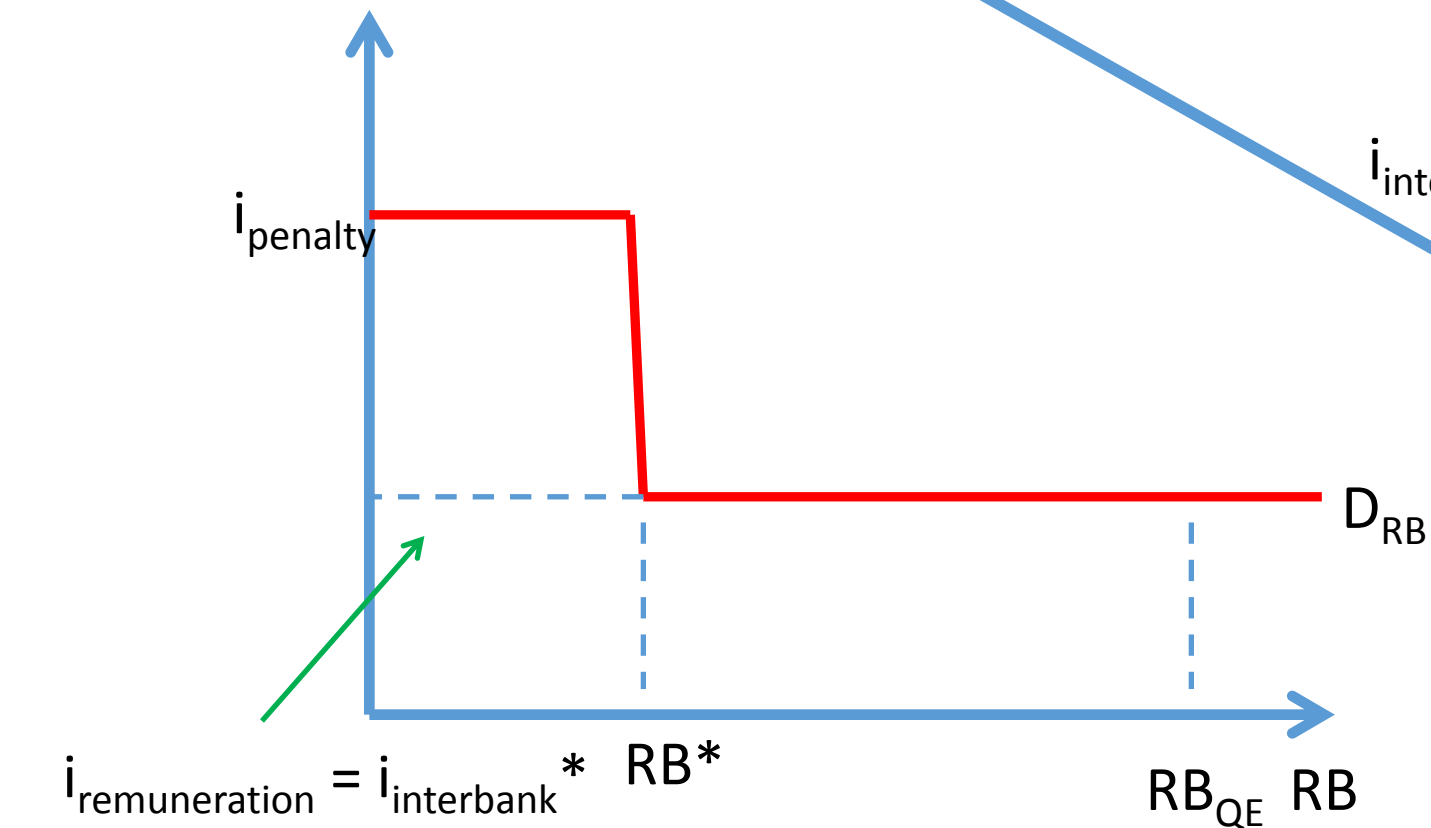
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**QE Isn't Operationally Possible
Unless Accompanied by
IOR=Target Rate or
0 = Interbank Rate**

Wither Monetarism? Some Unpleasant Arithmetic

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Operational Reality:

Fed's Direct Target Is an Interest Rate

+ Banks Are Not Reserve Constrained

= Central Bank Leveraging Is About Asset Prices, Not the Size of the Leverage

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Internal Inconsistencies In Preserving Belief in Pure Quantity Effect:

Target Rate = IOR Stops QE In Its Tracks

+ Interbank Rate at Lower Bound Stops QE In Its Tracks

= The Only Operationally Possible Ways to Carry Out Central Bank Leveraging

Concluding Remarks on CB Deleveraging . . .

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- Quantity effect? Meh ...

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- Quantity effect? Meh ...
- Asset price effects? Yep.

Concluding Remarks on CB Deleveraging . . .

- Quantity effect of reserve balances? Meh ...
- Asset price effects? Yep.
- Central bank operations are about interest rates and asset price

Thank You!