NINETY-FIRST INTERNATIONAL ATLANTIC ECONOMIC EUROPEAN CONFERENCE

THE FED AS GLOBAL DOLLAR LENDER OF LAST RESORT

Robert N McCauley*

*Senior nonresident fellow, Global Development Policy Center, Boston University and Associate member, Faculty of History, University of Oxford

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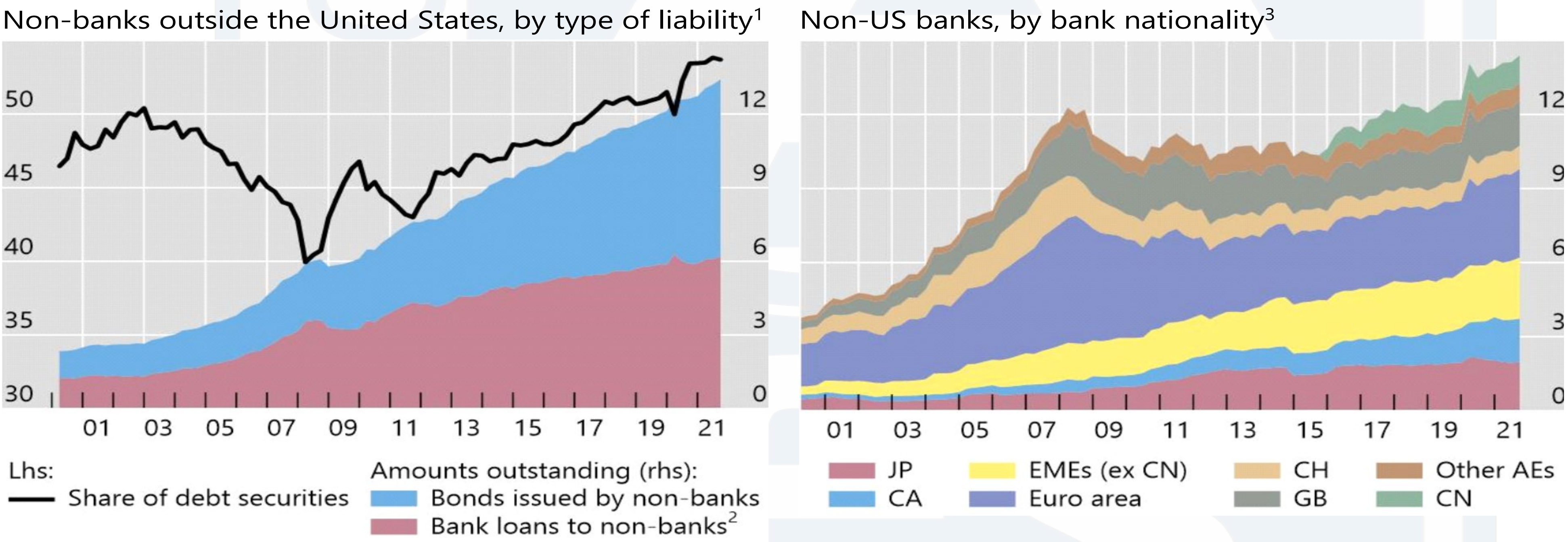
Punch lines

- In response to crises in 2008 and 2020, the Fed backstopped the global domain of the dollar.
- In 2008, supported the dollar funding of non-US banks in three ways:
  - Through *domestic* discount window lending to US branches of non-US banks.
  - By serving as *domestic* buyer and underwriter of last resort of assets held by US money market funds (MMFs), stopping a run on dollar funding of non-US banks.
  - By swapping dollars with central banks that in turn provided dollars offshore to non-US banks.
- In 2020, Fed extended its backstop from money market to bond market.
  - Again, it stabilised MMFs and thereby the dollar funding of non-US banks.
  - Again, it extended its credit to non-US banks through central bank swap lines.
  - Fed bought Treasuries from foreign central banks, who sought liquid balances.
  - Fed bought US corporate bonds and thereby stabilised market for dollar bonds issued by firms and governments outside the United States.

$ debt: non-banks offshore and non-US banks

On-balance sheet US dollar liabilities of . . .

Amounts outstanding, in USD trillions — Graph 1



[1] Non-banks comprise non-bank financials, non-financial corporations, governments, households and international organisations. [2] Loans by LBS-reporting banks to non-bank borrowers, including non-bank financial entities, comprise cross-border plus local loans. [3] Non-US banks' US dollar-denominated liabilities raised in any of the 47 BIS reporting countries (including the United States). Excludes intragroup positions but includes liabilities to other (unaffiliated) banks. From end-2015, includes positions reported by China and Russia.

Sources: Dealogic; Euroclear; Thomson Reuters; Xtrakter; BIS locational banking statistics; BIS calculations.

2008: Fed discount window credit to non-US banks

- Non-US banks lose dollar funding as US house price declines reduce value of holdings of private mortgage-backed securities.
- In December 2007, Fed retools discount window into term auction facility (TAF) with no stigma and non-US banks in US use heavily.
- Central bank swaps play a supporting role as ECB ($20b) and Swiss National Bank (SNB, $4b) provide parallel dollar funding offshore against their usual collateral (ECB as "13th Federal Reserve district").
- Before Lehman default, large non-US bank share of $150b TAF dominates ECB swap at $55b and SNB at $6b.

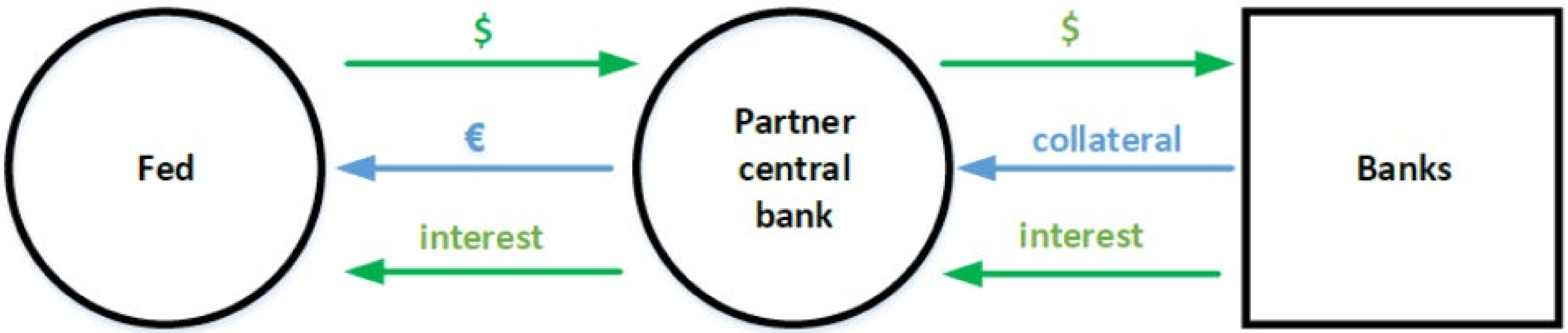
2008: Fed backstops MMFs, non-US banks' $ source

- Lehman default "breaks the buck" at a MMF, shares not worth par, setting off run on $1.2 trillion of dollar funding for non-US banks.
- To stabilise MMFs, the key US commercial paper market, and bank funding, Fed and US Treasury backstop MMFs.
  - Fed in effect buys asset-backed commercial paper: buyer of last resort.
  - Fed underwrites commercial paper: underwriter of last resort.
  - US Treasury offers guarantees on par value of MMFs.
- Non-US banks lose at least $175b dollar funding from MMFs.
- Like the TAF, the backstop for US MMFs was a domestic last-resort operation that supported non-US banks' global dollar funding.

2008: Fed swaps dollars to central banks

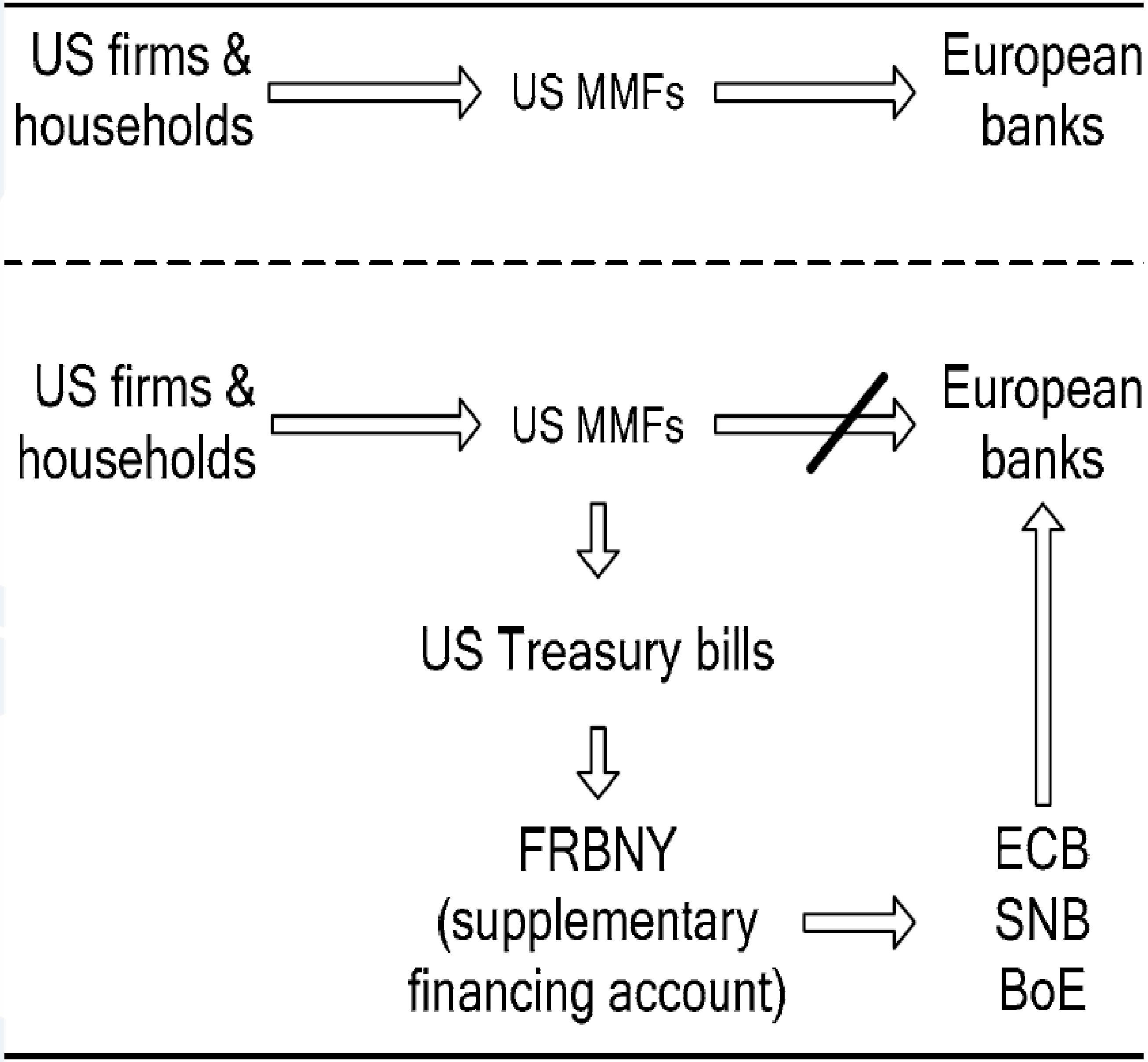
- Non-US banks' dollar needs after Lehman lead to wider swap lines:
  - Immediately with the Banks of Japan, England and Canada.
  - And subsequently with central banks of Australia, Sweden, Denmark, Norway and then New Zealand.
  - And finally to emerging markets Brazil, Mexico, Singapore, South Korea.
- And larger swap lines, from $61b to $290b in late September.
- Then in mid-October 2008, the swaps with the ECB, SNB, Bank of Japan, Bank of England and Bank of Canada ceased to have pre-set limits: An "unimaginable" step in central bank cooperation, according to the General Manager of the Bank for International Settlements.
- Total amounts swapped by the Fed to partner central banks and provided offshore to banks reached almost $600b.

Providing dollars offshore through swaps



Central bank swaps replace dollar funding from MMFs after Lehman failure

- Lehman failure leads to switches from corporate to government MMFs.
- Government MMFs buy Treasury bills, Treasury deposits proceeds in FRBNY.
- Fed swaps dollars with European central banks.
- European central banks provide dollars to European banks.



2020: Fed backstops $ money & bond market

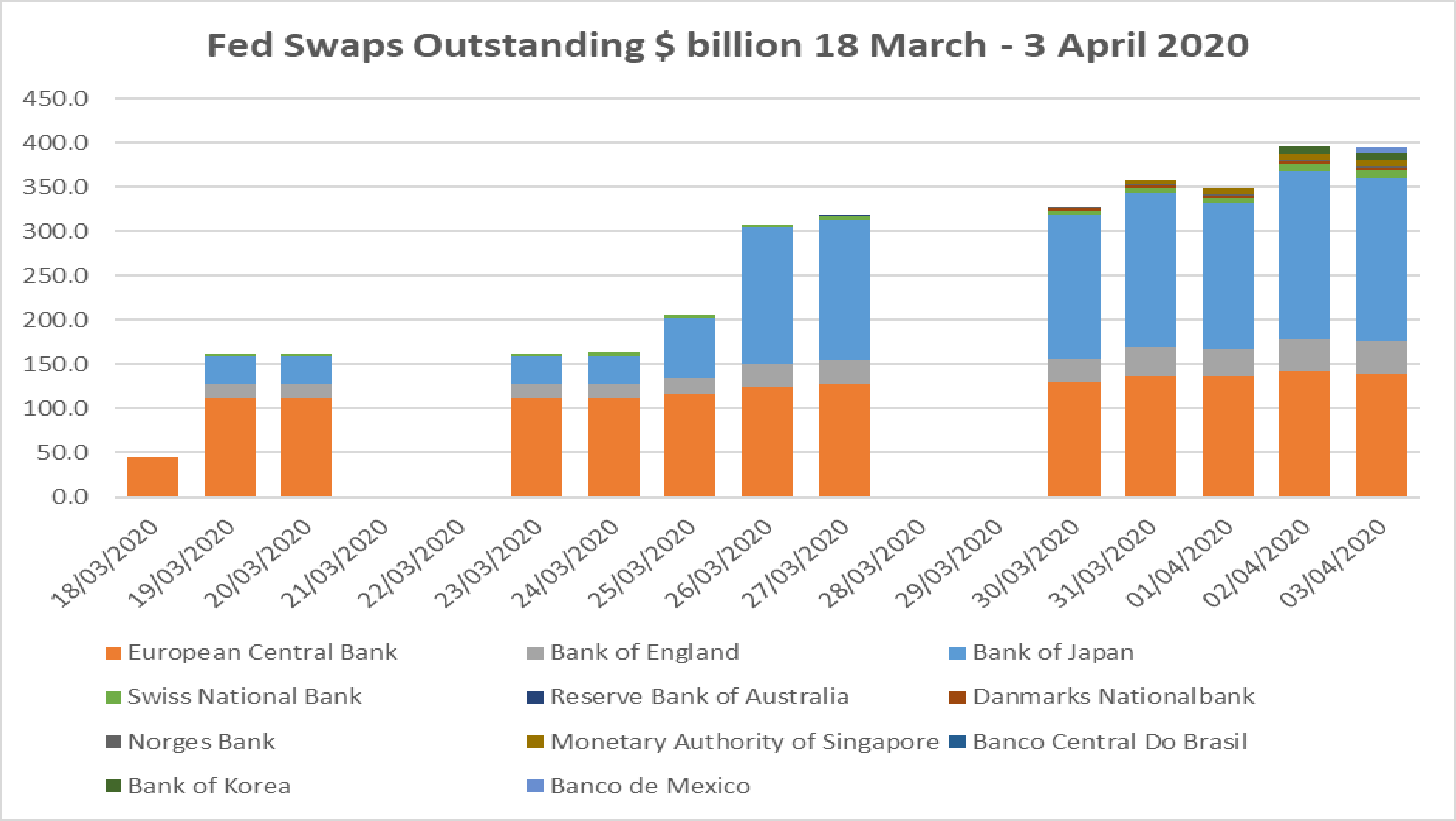
- Fed faced runs on MMFs and on bond funds, and dumping of US Treasury securities in strained markets, while banks experienced not runs but wholesale precautionary draw-down of credit lines.
- Again, Fed stabilised MMFs and thereby the dollar funding of non-US banks.
- Again, it extended its credit to non-US banks through central bank swap lines.
- Fed bought Treasuries from central banks, who sought liquid balances.
- Fed bought US corporate bonds and thereby stabilised market for dollar bonds issued by firms and governments outside the United States.

2020: Fed supports MMFs and non-US bank $ funding

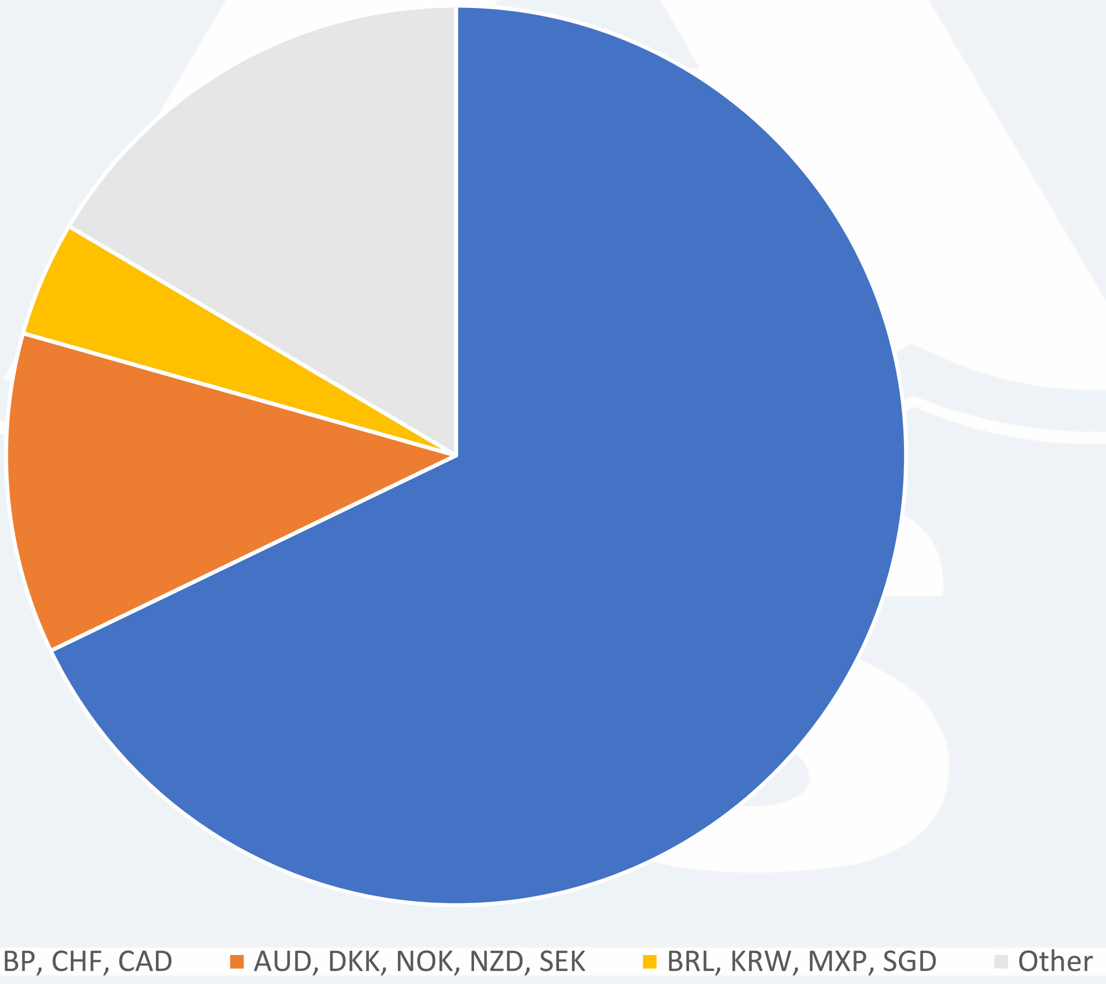
- Non-US banks relied on both US and offshore MMFs for about an eighth of their on-balance sheet funding before the onset of Covid (Aldasoro et al 2021).
- MMFs suffered runs in the dash for cash at the onset of the Covid pandemia, to some extent spurred by the reforms since 2008.
- In mid-March 2020, the Fed supported assets held by MMFs by last resort underwriting and buying of commercial paper.
- Still, non-US banks lost $200 billion in funding from MMFs, about 2% of their on-balance sheet dollar funding.

2020: Fed extends swap lines

- In March 2020, the Fed put the swap lines to work in days versus the months taken in 2007-08.
  - On 15 March, the spread on the standing swaps with the ECB, SNB and Banks of Japan, England and Canada was reduced, and 84 day operations were introduced; on 20 March daily operations started.
  - Swaps were agreed with the same 9 other central banks as in 2008 on 19 March.
- A new repo line against US Treasury holdings at the New York Fed was introduced on 31 March.
- The yield premium on dollars in private foreign exchange swaps tended to peak in late March.
- Through 14 central banks, Fed’s swap lines cover currencies accounting for a very large proportion of private foreign exchange swaps involving dollars.


Fed Swaps Outstanding $ billion 18 March - 3 April 2020
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
18/03/2020
19/03/2020
20/03/2020
21/03/2020
22/03/2020
23/03/2020
24/03/2020
25/03/2020
26/03/2020
27/03/2020
28/03/2020
29/03/2020
30/03/2020
31/03/2020
01/04/2020
02/04/2020
03/04/2020
European Central Bank
Bank of England
Bank of Japan
Swiss National Bank
Reserve Bank of Australia
Danmarks Nationalbank
Norges Bank
Monetary Authority of Singapore
Banco Central Do Brasil
Bank of Korea
Banco de Mexico

Fed's standing and temporary central bank swaps cover most FX market swaps vs $

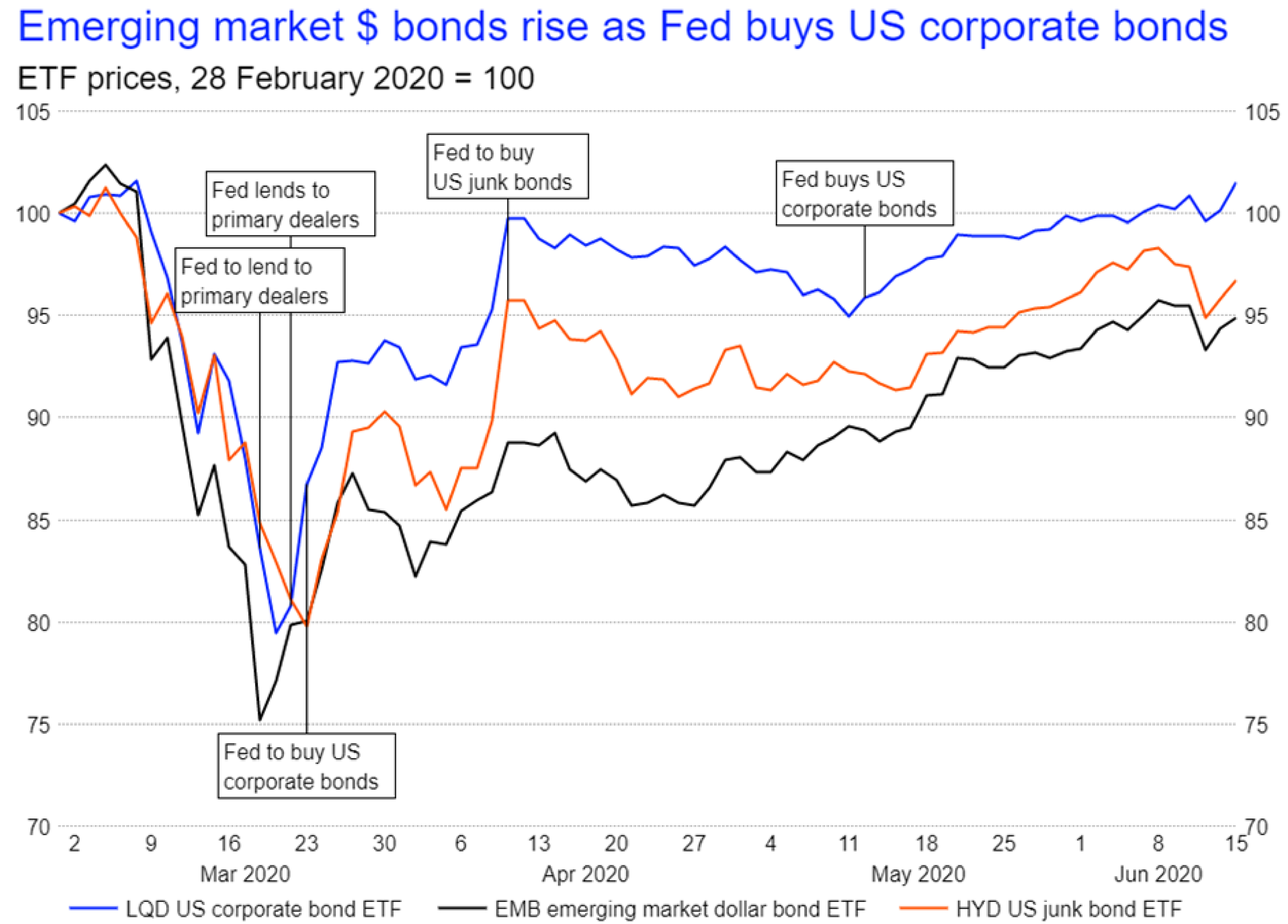


The Fed buys Treasuries from central banks

- Central bank dash to US dollar cash from US Treasury bonds was just part of a broad dumping of Treasuries in March 2020.
  - Highly leveraged hedge funds sold Treasury bonds to the tune of $200 b.
  - Spooked by price declines, investors in US bond funds sold a huge 5.6% of their holdings in March, and the funds dumped $260 b. of Treasuries.
  - Central banks, making their reserves liquid to fund banks and firms or to intervene to support their currencies, sold $200 b.
- Between 11 March and 2 April 2020 the Fed bought no less than $900 billion of Treasury and agency securities, “in the amounts needed” to restore proper functioning of the market.
- Fed served as buyer of last resort from global central banks.
- At end of March 2020, Fed introduces repo facility so central banks can become liquid without selling Treasuries held at the Fed.

The Fed’s promise to purchase US corporate bonds stabilises prices of and flows into offshore $ bonds

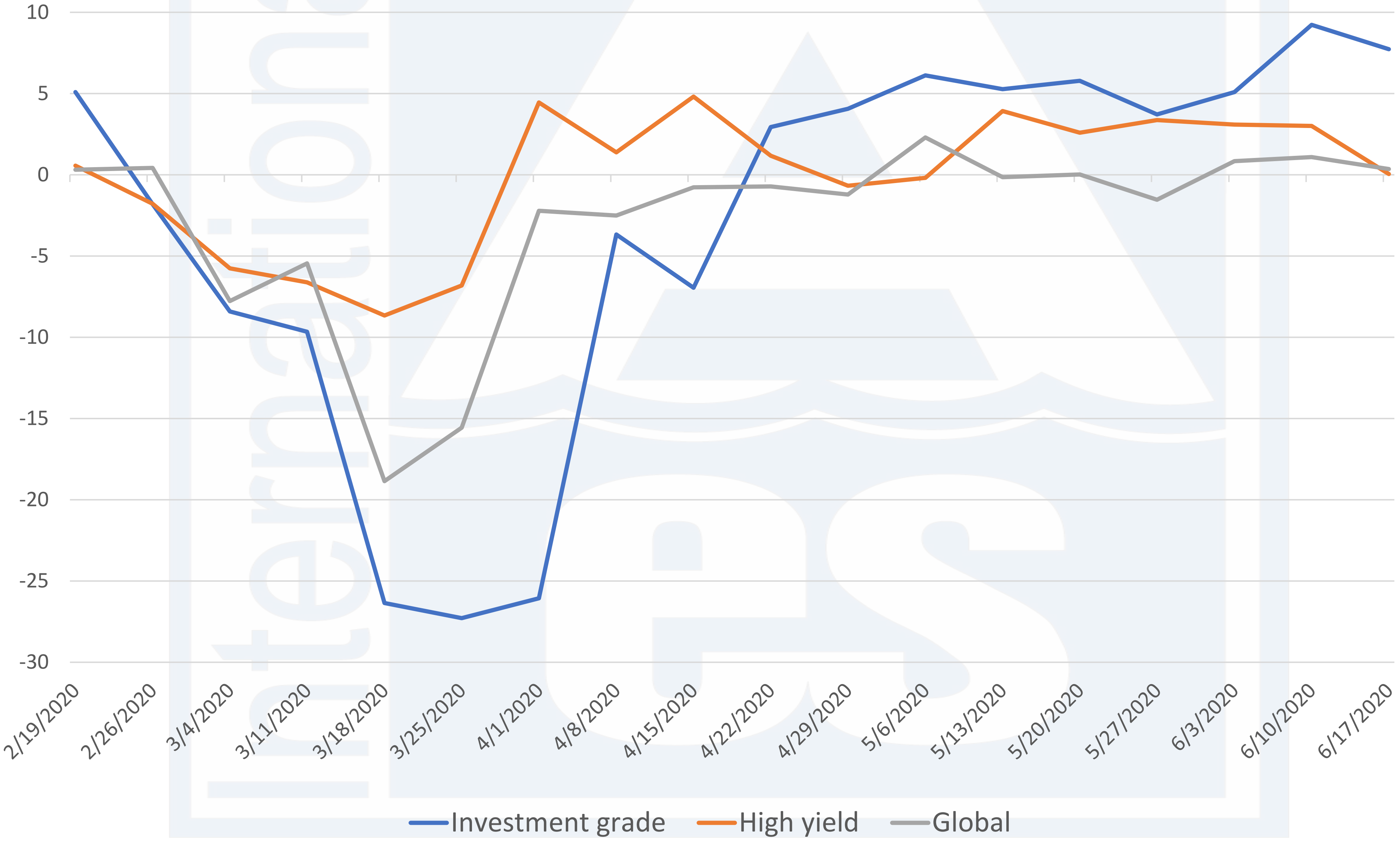
- Precedents: The Fed was buyer of last resort and underwriter of last resort of corporate money market paper in 2008 and used its emergency powers to revive these facilities in mid-March 2020.
- Lender of last resort to securities dealers: In March 2020, the Fed also revived its emergency lending to securities dealers, allowing them to finance themselves with corporate bonds as collateral.
- In March 2020 the Fed undertook to buy US corporate bonds, raising prices and turning around flows to bond mutual funds.
- An unintended result: the Fed’s last resort buying of US corporates also raised prices and turned around flows into dollar bonds issued by non-US borrowers.



Source: Refinitiv Datastream; Federal Reserve; author's calculations.

Global bond fund flows turn as Fed to buy US corporate bonds

Billions of dollars per week



Fed’s last resort operations are maintaining US global economic leadership

- Global economic leader at least maintains its lending to the rest of the world during an economic downturn—Kindleberger.
- Yet, left to themselves, US financial markets tended to cut credit to the rest of the world in 2008 and 2020.
- Fed’s lending and buying of last resort in 2008 and 2020 has both replaced private credit to the rest of the world, and checked the withdrawal of private credit to the rest of the world.
- US global economic leadership has come to depend on Fed’s backstopping of global dollar banking and bond markets.