FEDERAL RESERVE

FEBRUARY 26TH, 2020

FOMC's target for the FFR			
Date, 2019	Increase	Decrease	Level (%)
Decemeber 10	0	0	1.5 - 1.75
October 31	0	0.25%	1.5 - 1.75
September 19	0	0.25%	1.75 - 2.00
August 1	0	0.25%	2.00 - 2.25

2020 FOMC Meetings
January 28-29
March 17-18
April 28-29
June 9-10
July 28-29
September 15-16
November 4-5
December 15-16

Federal Reserve

Six men met secretly in November 1910 in Jekyll Island, Georgia, was the first step to the creation of the Federal Reserve. From the meeting resulted a plan to reform the nation's banking system. However, the Fed was created on December 23, 1913, during the Federal Reserve Act, due to some financial panics a desire for a central control of the monetary system grew.

Jerome Powell:

Born in February 1953 in Washington, D.C. He graduated in politics from Princeton University in 1975 and later graduated in Law at Georgetown University in 1979. He took office as Chair of the Board of Governors of the Federal Reserve System on February 5, 2018, for a four-year term. Powell is at the same time the Chairman of the Federal Open Market Committee, the System's principal monetary policymaking body. Before joining the Fed in 2012, Jerome was a visiting professor at the Bipartisan Policy Center in Washington, D.C, he specialized in federal and state fiscal issues. From 1997 until 2005, he was a partner at The Carlyle Group, one of the largest and most successful investment firms with $212 billion of assets.

FOMC last meeting: The FOMC and the Board of Governors met in Washington, D.C., on Tuesday, January 28, 2020, at 10:00 a.m. and continued on Wednesday, January 29, 2020, at 9:00 a.m.

Participants view on current conditions and Economic Outlook:

- Labor market remains strong with low unemployment and solid job gains;
- Economic activity rose at a moderate rate;
- On 12-month basis, overall inflation and PCE below 2%;
- Household spending rose at a moderate pace, however, business fixed investment and exports remained weak;
- Expected economic growth to continue at a moderate pace, supported by accommodative monetary and financial conditions;
- Consumption spending is expecting grow supported by strong labor market conditions, rising incomes and healthy household balance sheets.

<u>Overall economic outlook is positive.</u>

However, there are some risks for the current economic conditions:

- Uncertainty about the economic impact of the coronavirus;
- Ongoing challenge facing the energy and agriculture sector. Energy activity is expected to continue weak and so is the agricultural sector despite farm subsidies and recent optimism surrounding trade prospects.

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- The risk of an eventual overvaluation of risky assets and excessive indebtedness (especially in nonfinancial corporations).

Committee Policy Action:

The members agreed to maintain the target range for the federal funds rate at 1.5% to 1.75%

The Board of Governors of the Federal Reserve System voted unanimously to raise the interest rate paid on required and excess reserve balance to 1.6 percent (from 1.55).

The FOMC directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in the target range of 1.5 to 1.75 percent. The Desk will continue to purchase Treasury bills at least into the second quarter of 2020 to maintain over time ample reserve balances at or above the level that prevailed in early September 2019. The Committee also directs the Desk to continue conducting term and overnight repurchase agreement operations at least through January 2020.

The Committee directs the Desk to conduct overnight reverse repurchase operations at an offering rate of 1.5 percent (an increase from the previous level of 1.45).

Reasons for:

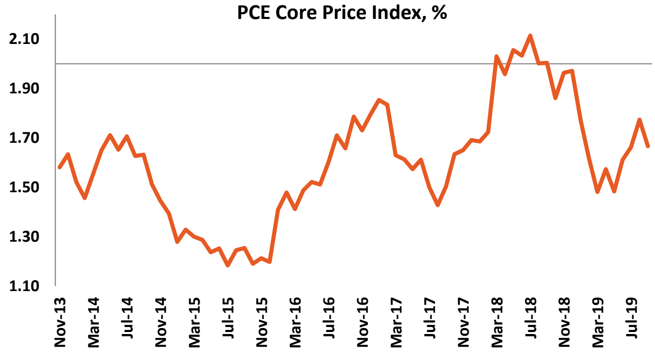
- Members considered that the current stance of monetary policy is appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation near the objective.

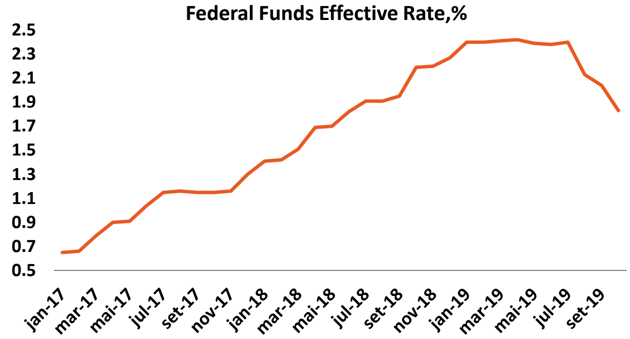
Reasons against:

- No member voted against.

Voting for this action (10 votes): Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, James Bullard, Richard H. Clarida, Charles L. Evans, Esther L. George, Randal K. Quarles and Eric S. Rosengren.

Voting against this action (0 votes)





Source: Bureau of Economic **Source:** Federal Reserve

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Fed Monetary Policy

Conducting the nation's monetary policy by influencing money and credit conditions in the economy in pursuit of full employment and stable prices.

- Stable Prices: Consistent long-run inflation of 2%
- Full-Employment: Long-run unemployment rate between 3.6 to 4.5 percent with a median value of 4.2 percent.

Other Responsibilities:

- Supervising and regulating banks and other important financial institutions to ensure the safety and soundness of the nation's banking and financial system, also protecting the credit rights of consumers.
- Maintaining the stability of the financial market by containing systemic risk.
- Provide financial services to the US government, financial institutions and foreign official institutions, and operating and overseeing the nation's payments systems.

Federal Reserve System: The Federal Reserve system is the central bank of the US and it is divided by three Key entities:

- Federal Reserve Board of Governors;
- 12 Federal Reserve Banks;
- Federal Open Market Committee (FOMC).

Federal Reserve Board of Governors: The Board of Governors is the governing body of the Fed. It is constituted by 7 governors, who are nominated by the president of US and accepted in their position by the US Senate.

The Board guides the operations of the Fed in order to achieve the responsibilities given to the Fed by the Federal Reserve Act. All the members of the Board also serve on the FOMC.

Board Appointment: Each member of the Board is appointed for a 14-year term. After the terms ends, a Board member may not be reappointed. If a member leaves the Board before the term ends, a person nominated and confirmed to serve the remainder of the term may later be appointed to a full 14-year term.

Both the Chair and the Vice Chair of the Board are appointed by the President and confirmed by the Senate as well. However, they serve only four-year terms and they may be reappointed to additional four-year terms. Those who are nominated to these positions must already be members of the Board or must be simultaneously appointed to the Board.

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Board Responsibilities: The Board oversees the operations of the 12 Reserve Banks. The Board also supervises and regulates certain financial institutions and activities alongside with the Reserve Banks.

Federal Reserve banks: Each of the 12 Reserve Banks is separately incorporated and has a nine-member board of directors.

Commercial banks that are members of the Federal Reserve System hold stock in their District's Reserve Bank and elect six of the Reserve Bank's directors, the other three are elected by the Board of Governors. Directors serve as a link between Federal Reserve and the private sector, with their input from the private sector's perspective; they contribute to the System's overall understanding of the economy. The decentralized structure of the System and its mixture of private and public characteristics help the effectiveness of the monetary policymaking.

The Federal Reserve is not funded by the Congress; its operations are financed mainly by the interest earned on the securities the banks own. The Federal Reserve net earnings are paid to the US Treasury.

Reserve Bank Responsibilities: The banks assume the following responsibilities:

- Supervising and examining state member banks;
- Lending to depository institutions;
- Providing key financial services;
- Examining certain financial institutions.

Federal Reserve banks and their District

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2019 Committee Members
Jerome H.Powell, Board of Governors, Chairman
John C. Williams, New York, Vice Chairman
Michelle W. Bowman, Board of Governors
Lael Brainard, Board of Governors
James Bullard, St. Louis
Richard H. Clarida, Board of Governors
Charles L. Evans, Chicago
Esther L. George, kansas City
Randal K. Quarles, Board of Governors
Eric Rosengren, Boston

Alternate Members
Patrick Harker, Philadelphia
Robert S. Kaplan, Dallas
Neel Kashkari, Minneapolis
Loretta J. Mester, Cleveland
Michael Strine, First Vice President, New York

Federal Open Market Committee (FOMC): The FOMC is the body of the Federal Reserve System that exercises the national monetary policy. The FOMC makes the decisions regarding the conduct of open market operations, which affect the federal fund rate (interest rate at which banks lend to each other), the Federal Reserve's balance sheet and the communications with the public of the possible future course of monetary policy.

FOMC Membership: It is constituted by 12 voting members, including the 7 Board of Governors members, the president of the Federal Reserve Bank of New York and 4 of the remaining 11 Reserve Banks presidents. The other 4 members are elected on a rotating basis to serve a one-year term.

All the other Reserve Bank presidents attend to the FOMC meetings and may participate in the discussion, however, only those who are Committee members at the time may vote on policy decision.

By law the FOMC determines its own internal organization and normally the FOMC elects the Chair of the Board of Governors as its chair and the president of the Federal Reserve Bank of New York as its vice chair. Typically there are 8 FOMC meeting per year in Washington, D.C., and there may be more if needed.

FOMC Responsibilities: The FOMC oversees the open market operations, the principal tool by which the Federal Reserve executes monetary policy. The FOMC also directs foreign exchange operations that the Federal Reserve undertakes. In recent years, has authorized currency swap programs with the foreign central banks.

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Open market operations (OMO)

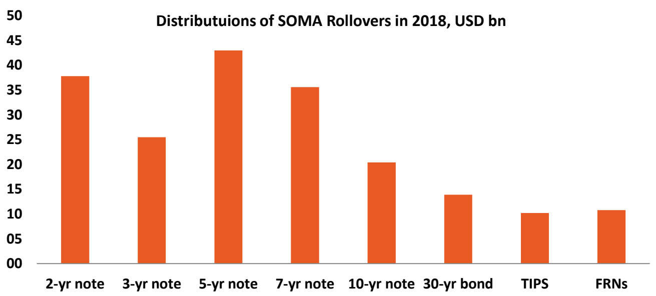
OMO – the purchase and sale of securities in the open market by a central bank, which is the key tool used by the Fed in the implementation of monetary policy. OMOs are conducted by the Trading Desk at the Federal Reserve Bank of New York.

Before the global financial crisis, the Fed used OMOs to adjust the supply of reserve balances in order to keep the federal fund rate around the target established by the FOMC. However, since the late 2008, the Fed's approach has changed significantly when the FOMC established a near-zero target range for the federal funds rate. Since late 2008 until October 2014, the Fed greatly expanded its holdings of longer-term securities through OM purchases. This put a downward pressure on longer-term interest rates and thus supporting economic activity.

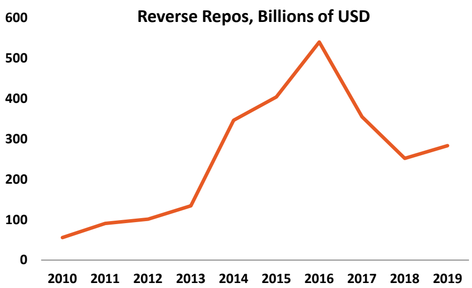
Since December 2015, the Fed initiated the normalization process, where overnight reverse purchase agreements (ON RRPs), to help stabilize the federal funds rate and keep it in the target range set by the FOMC.

In October 2017 the FOMC initiated a balance sheet normalization program that gradually reduced the Federal Reserve's securities holdings. This was done by stopping reinvesting the principal received buy securities held in the SOMA that reach maturity.

Permanent OMOs: Outright purchases and sales of securities for the System Open Market Account (SOMA), the Fed's portfolio. Permanent OMOs are used to accommodate the longer-term factors, primarily the trend growth of currency in circulation. To stimulate the economy after the global crisis, the Fed used permanent OMOs in order to put a downward pressure on longer-term interest rates. Nowadays, OMOs are used to implement FOMC's policies of reinvesting principal payments from the Fed's holdings.



Source: Federal Reserve



Source: Federal Reserve

Temporary OMOs: This type of OMOs is usually used to respond to transitory reserve needs. These operations are either repos or reverse repos (RRPs).

Repo: The Trading Desk buys a security under an agreement to resell that security in the future. Equivalent of collateralized loan by the Fed.

Reverse repo: The Trading Desk sells a security under an agreement to repurchase that security in the future. Equivalent of collateralized borrowing by the Federal Reserve.

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Reserve Requirements

It represents the amount of funds that a depository institution must hold in reserve against specified deposit liabilities. The Board of Governors has sole authority over changes in reserve requirements. These reserves must be held in the form of cash or deposits with the Federal Reserve Banks.

Reserve liabilities consist of net transaction accounts, nonpersonal time deposits, and Eurocurrency liabilities.

Liability Type	Requirement	
	% of liabilities	Effective date
Net Transaction accounts		
$0 to $16.9 million	0	16-01-2020
More than $16.9 million to $127.5 million	3	16-01-2020
More than $127.5 million	10	16-01-2020
Nonpersonal time deposits	0	27-12-1990
Eurocurrency liabilities	0	27-12-1990

Source: Federal Reserve

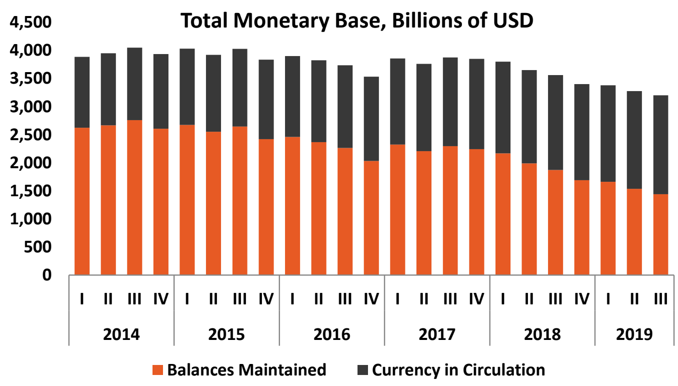
The Federal Reserve Banks pay interest on required reserve balances and on excess reserve balances. The interest rate on required reserves (IORR rate) is determined by the Board. The interest rate on excess reserves (IOER rate) is determined by the Board as well.

The normalization plan adopted by the FOMC, intends to move the federal funds rate into the target, primarily by adjusting the IOER rate.

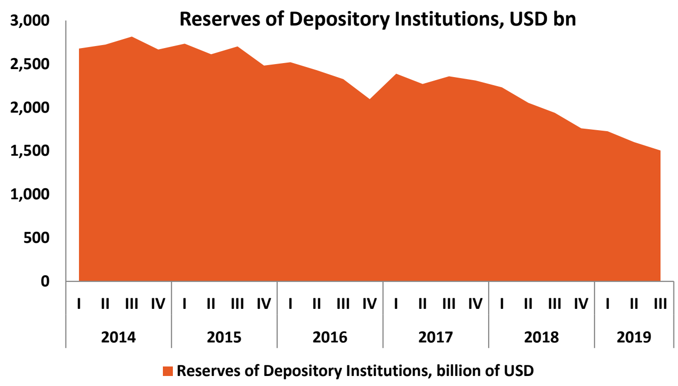
This table is determined by the Board and officially announced in the most recent implementation note.

Interest Rates on Reserve Balances for November 21, 2019	Rates (percent)	Effective Date
Rate on Required Reserves (IORR rate)	1.55	31-10-2019
Rate on Excess Reserves (IOER rate)	1.55	31-10-2019

Source: Federal Reserve



Source: Federal Reserve



Source: Federal Reserve

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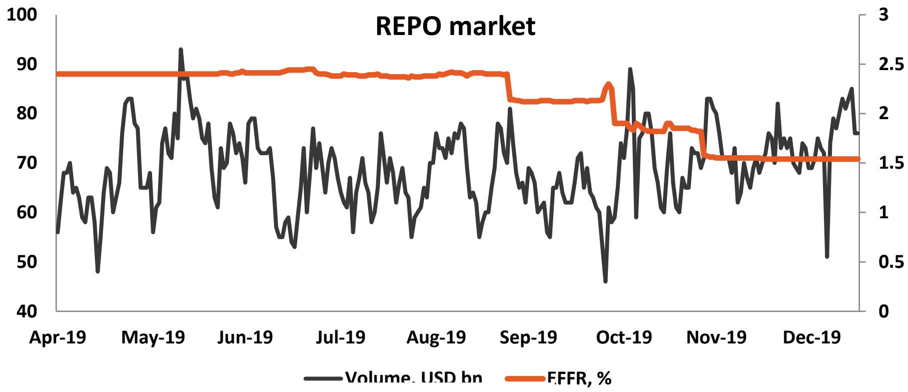
Federal Fund Market

The Federal Fund Market is the American interbank lending market, that is, the market where depository institutions (and certain other entities, primarily government-sponsored enterprises) concede liquidity through domestic unsecured borrowings (REPOs) in USD.

The Federal Reserve has to ensure that the effective federal funds rate (EFFR), stays inside the targeted interval (currently is at 1.5-1.75%) decided by the FOMC. The way the Fed intervenes in the market has changed after the financial crisis of 2007-08. Prior to the financial crisis, the Fed controlled the fed funds rate by buying and selling US government securities through open market operations. When the market is demanding more liquidity than the one is being supplied, it creates an upward pressure in the interest rate, and so the Fed would intervene in order to avoid the EFFR surpassing the targeted upper-value. Therefore, in this situation the Fed would purchase securities to the banks in need for liquidity, the banks are required to repurchase the securities the next day. The same reasoning goes for when excess liquidity might reduce the EFFR below the lower-bound. Due to the actions the Fed took during the financial crisis flooded the banks' balance sheets with reserves, and as a result, banks didn't need to borrow from one another to meet reserve requirements. The Fed could no longer rely on reserve balance manipulation to control the interest rate and so it had to change its operations.

Since October 2008, the Fed sets a target range for the federal funds rate and guarantees the EFFR stays within the target range through two instruments; the interest rate paid on reserves (IOR, before 2008 the Fed didn't pay interest on the reserves) and the overnight reverse repurchase agreement facility (ON RRP, or reverse repo). The IOR works as the floor on the fed funds rate, no bank would lend below the IOR as it would receive more to deposit those funds at the Fed. The need for a sub-floor came in 2013 when the Fed added the other tool to help it control the target rate, IOR alone was not able to contain the rate. While the IOR is only available to a limited number of institutions, ON RRP is available to a broader range of financial institutions. With the ON RRP, the Fed agrees to sell a security and repurchase it back at a higher price. The rate is set high enough to attract buyers but below IOR. Therefore, the rate at which banks lend to each other stays within the range bounded by IOR and ON RRP, and when the Fed decides to change the interest rate target, it adjusts both IOR and ON RRP.



Source: Federal Reserve Bank of New York

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Funding Crunch on Repo Market

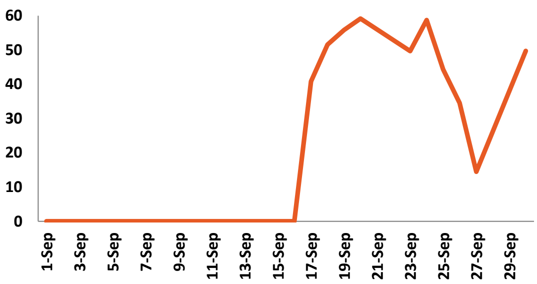
The repo market has been working fine for many years, the federal funding rate dictates how expensive it is for banks to access quick capital and it tends to be a usually-stable market.

Fed's intervention after the spike

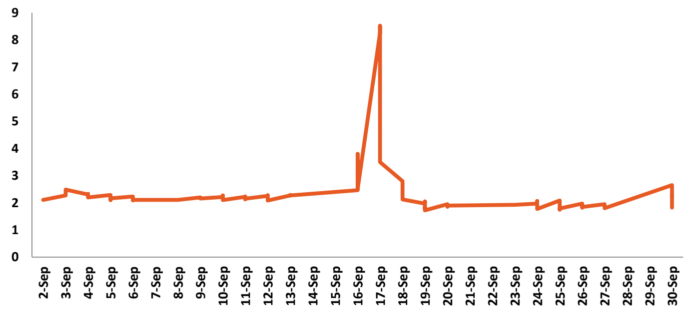
Date	Operation type	Operation Close	Amount, USD bn
17 September	Repo	10:10 AM	40.85
17 September	Reverse Repo	1:15 PM	1.825
18 September	Repo	8:30 AM	51.55
18 September	Reverse Repo	1:15 PM	18.91
19 September	Repo	8:30 AM	56.325
19 September	Reverse Repo	1:15 PM	5.004

The problem is when there is a sudden funding crunch that sends rates soaring as it happened in September 2019. On the 17th of September the markets were surprised by a sudden spike in the EFFR, that forced the Fed to intervene (through repurchase agreement operations) for the first time since the 2008 crisis. The Fed injected a total of USD 75 billion through repos, after the rate escalated from an average of 2% to a value close to 10% in a matter of minutes. Therefore, the Fed had to intervene quickly to ease the market. Looking at the graph from the previous section, the spike does not seem too accentuated because that graph is depicted by daily values. When we look at interday values, we can see the sudden spike. Since the incident, the Fed has been regularly injecting capital through monthly purchases of USD 60 billion in Treasury bills to keep the interest rate within the target range.

O/n REPOs September, USD Billion



EFFR in throughout September 2019, %



Source: Federal Reserve Bank of New York

There were many factors contributing to this event, namely the lack of excess reversers by banks which made them unwilling to lend, this because large U.S banks have to comply with liquidity regulations.

What caused the funding crunch:

The payment system, through intraday credit provision, used to be a credit system where banks would incur in daylight overdrafts (negative balances, that is; when a bank withdraws more money than it has in its Federal Reserve account) in their reserve balance with the Fed, ensured that payments between banks never bounced. Therefore, the overnight Fed funds market was where large banks with negative balances would borrow from small banks with excess reserves, to get the reserves necessary to resolve their daylight overdrafts at the Fed by the end of the day. Under Basel III larger banks (defined as G-SIBs – globally systemically important banks) are required to hold enough liquidity to pre-fund their 30-day outflows, intraday liquidity needs and resolution liquidity needs. These banks hold their liquidity either in the form of deposits at the Fed or in Treasuries, but the intraday liquidity needs and resolution liquidity needs have to be held in reserves, contrarily to the 30-day outflows that can be held both in reserves or treasuries.

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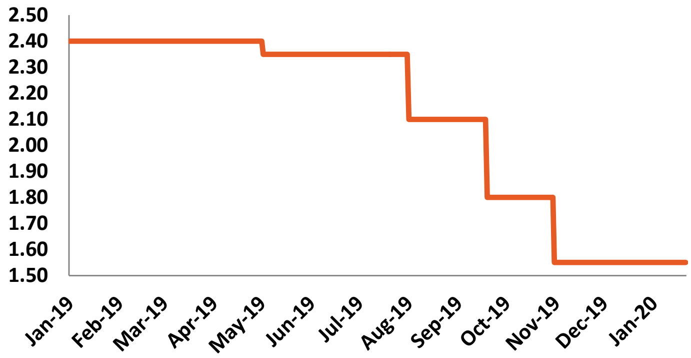
Under Basel III, banks do not incur in daylight overdrafts at the Fed, because if they do, it means that they are not complying either with the intraday liquidity needs or resolution liquidity needs. Therefore, under Basel III the system clears with the reserves in circulation, in other words, the reserves in circulation have to satisfy all single banks' needs, since no bank borrows temporary reserves from the Fed on the margin. Under this framework, the bank that has the most excess reserves functions as the lender of next-to-last resort, absorbing imbalances by lending some of its reserves. The reserves needed for intraday and resolution liquidity requirements are not available for lending (since these requirements can only be met through reserves). This means that a bank will only provide liquidity from its reserves in excess of its intraday and resolution requirements. However, the lender of next-to-last resort's excess reserves are someone's required reserves.

The daylight overdrafts functioned (before Basel III) as the system's imbalances resolution, now under Basel III, no bank uses the Fed for daylight overdrafts, which resulted in J.P. Morgan's excess reserves becoming the system's shock absorber (this because J.P. Morgan is the largest holder of reserves). Therefore, under the current system, an uneven distribution of reserves is the natural state, and due to the repeated cuts in the interest rate on reserves (IOR) it led to a more even distribution of reserves by eliminating excess reserves and consequently getting rid of the lender of next-to-last resort, and so there is no one left to supply the market needs. This was what caused the September funding crunch in the repo market. In fact the J.P. Morgan's CEO, Jamie Dimon said that the bank would have been able to ease the September spike if liquidity requirements were less strict.

Interest Rate on Excess Reserves, %



Source: Federal Reserve Bank of New York

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  - Accumulate, expected absolute return between +5% and +15%;
  - Hold/Neutral, expected absolute return between -5% and +5%;
  - Reduce, expected absolute return between -5% and -15%;
  - Sell, expected absolute return below -15%;

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