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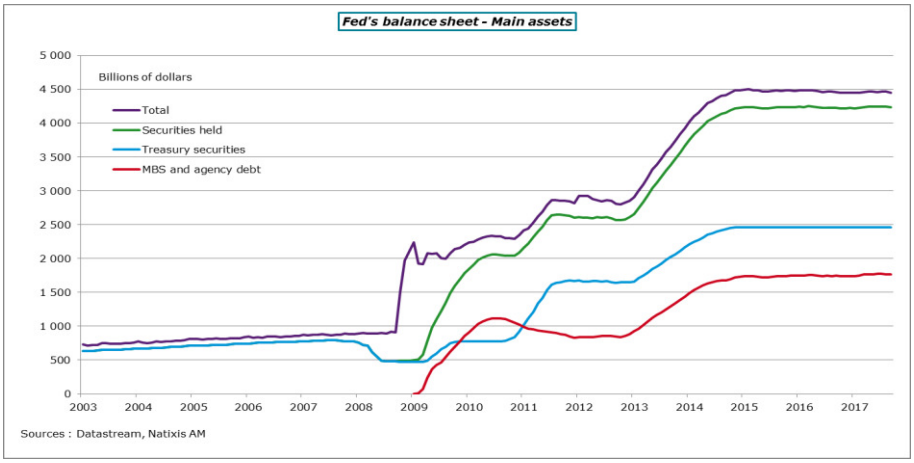
Fed's balance sheet normalization: Questions/Answers

During the economic and financial crisis of 2008/2009, the Fed took exceptional measures to make its monetary policy very accommodative and create the conditions for a recovery. It has lowered its key interest rates to bring the Fed funds rate back to [0%; 0.25%] and as this was not enough, it used a quantitative policy. It has bought massive financial assets in order to make the financial conditions even more favorable. This policy resulted in a sharp increase in its balance sheet. Its size was multiplied by five, from $ 900 billion to $ 4,500 billion between September 2008 and October 2014, to stabilize at that level thereafter. It comprises mainly bonds, mortgage backed securities (MBS) and agency debt. Despite the gradual reduction of its asset purchases from January 2014 and their halting in November 2014, the balance sheet size has stabilized at a very high level. The Fed reinvests the amount of maturing bonds and the payments received on MBS and agency debt. Today, it is preparing to reduce its balance sheet in order to normalize its monetary policy. This is a historic decision and represents a major challenge given its enormous size and the potential impact on the US bond market and by contagion in global bond markets. The purpose of this paper is to answer a number of simple questions in order to understand the process and the issues at work.



1- Why normalize the balance sheet?

The central bank believes it has reached its two goals. The first is a maximum level of employment and the second is the achievement of the 2% inflation target. The first seems to have been achieved and if the inflation is still below the target, the Fed anticipates that it will converge towards 2% in the medium term. It is no longer necessary to maintain such an accommodative monetary policy. The Fed funds rate and the size of the balance sheet must return to a level deemed "normal", ie at a level that ensures a maximum level of employment and inflation of 2%. This is why the Fed has made four rate increases since December 2015 and plans to reduce the size of its balance sheet in the near future. This will also allow it to have additional room for maneuver in the event of a shock on activity. The Fed thus benefits from favorable economic conditions to gradually reduce it and to be in a better position to buy again financial assets if necessary. Especially since the probability of this happening is higher than before the crisis given the low level of the Fed funds rate. Lastly, starting to normalize the balance sheet now with a predetermined process allows to tie the hands of the future president of the Federal Reserve and to limit the uncertainty in the markets.

2- When?

The Fed said it would begin once the normalization of the Fed funds rate is well underway and based on its judgment on economic and financial conditions as well as its economic outlook. The objective is that the Fed funds rate is relatively far from its low limit (0%) in order to reduce it if necessary. This may be justified in the event of a tightening of financial conditions (linked in particular to the reduction of the Fed's balance sheet) or a shock on activity.

After stating in the Minutes of the March meeting that the normalization of the balance sheet could begin later in the year, Janet Yellen, the Fed president, was more explicit during her press conference on 14 June. This could start "relatively soon" if the economy evolves as expected. The Minutes indicate that this could be announced "within a couple of months". This has been repeated since then. The reduction in the balance sheet should be announced at the meeting of 19 and 20 September to begin in October. In this context, the Fed may not increase its rates in September for two reasons:

- the main one: core inflation (inflation excluding food and energy), as measured by personal consumption expenditure prices, has significantly moderated since march to 1.4% in July. This decline is only partly due to temporary factors,
- the second one: this will enable the Fed to judge the reaction of financial markets to the reduction of its balance sheet.

3- How to proceed?

Since September 2014 and the publication of the "Policy Normalization Principles and Plans", it is known that **the reduction in securities held by the Fed will occur in a gradual and predictable manner and mainly by ceasing or phasing out reinvestments of repayments of principal on security held. It does not plan to sell assets at this stage.** Once triggered, the balance sheet will be reduced automatically and in the background of the adjustment of the main instrument of the central bank: the Fed funds rate. The central bank's prudent approach aims at reducing the risk of tensions in the bond market that might result from the reduction in the bonds held. This is indeed a form of monetary tightening with which it has little experience. This is why it is going to passively reduce the balance sheet in order to limit the impact on the markets. The Fed funds rate will be the main instrument used in the conduct of its monetary policy. However, the Fed is ready to increase its reinvestments again in the event of a marked deterioration in the economic outlook requiring a significant decline in the Fed funds rate.

In June 2017, it published the details of its modus operandi. Principal payments received from securities held "will be reinvested only to the extent that they exceed gradually rising caps". Reinvestments can only be done beyond a predetermined threshold. The latter will gradually increase over a period of one year to reach its maximum size and remain there afterwards. This will allow for a gradual and predictable decline in the Fed's holdings until it considers that it does not hold more securities "than necessary to implement monetary policy efficiently and effectively". In the long run, the Fed will hold primarily Treasury securities.

- For Treasury securities, the cap is originally set at $ 6 billion per month. It will increase by $ 6 billion every 3 months over a period of one year until reaching $ 30 billion a month.

- For asset-backed securities (MBS) and agency securities, the initial cap is set at $ 4 billion per month. It will increase by $ 4 billion every 3 months for a period of one year until reaching $ 20 billion a month.

The reduction in reinvestments could thus reach as much as possible in the first year $ 300 billion ($ 180 billion for Treasury securities and $ 120 billion for MBS and agency debts), and then $ 600 billion per year from the second year ($ 360 billion for Treasury securities and $ 240 billion for MBS and agency debt). This will result in a gradual decline in reserves on the liabilities side of the Fed's balance sheet.

Here is the example taken from the site of the Fed breaking down the reduction of its balance sheet. These are indicative values:

Billions of dollars

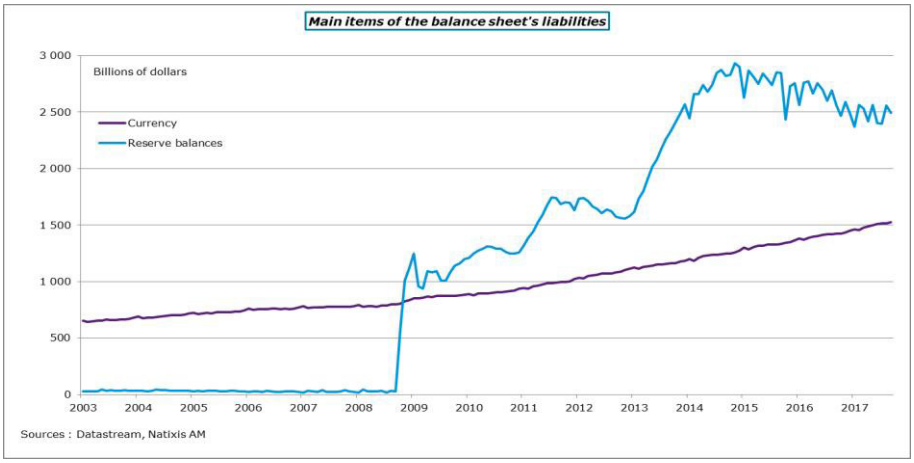
Months	Maturing Treasury securities	Cap	Redemptions	Reinvestments	Treasury holdings	MBS and Agency debt securities principal paiements	Cap	Redemptions	Reinvestments	MBS and agency debt holdings	Total securities holdings
	1	2	(3)=minimum of (1), (2)	(4)=(1)-(3)	5	6	7	(8)=minimum of (6), (7)	(9)=(6)-(8)	10	(11)=(5)+(10)
Assumed value of holdings in month before change in reinvestment policy					2500					1500	4000
1	20	6	6	14	2494	15	4	4	11	1496	3990
2	30	6	6	24	2488	15	4	4	11	1492	3980
3	40	6	6	34	2482	15	4	4	11	1488	3970
4	20	12	12	8	2470	15	8	8	7	1480	3950
5	30	12	12	18	2458	15	8	8	7	1472	3930
6	40	12	12	28	2446	15	8	8	7	1464	3910
7	20	18	18	2	2428	12	12	12	0	1452	3880
8	30	18	18	12	2410	12	12	12	0	1440	3850
9	40	18	18	22	2392	12	12	12	0	1428	3820
10	20	24	20	0	2372	12	16	12	0	1416	3788
11	30	24	24	6	2348	12	16	12	0	1404	3752
12	40	24	24	16	2324	12	16	12	0	1392	3716
13	20	30	20	0	2304	10	20	10	0	1382	3686
14	30	30	30	0	2274	10	20	10	0	1372	3646
15	40	30	30	10	2244	10	20	10	0	1362	3606
16	20	30	20	0	2224	10	20	10	0	1352	3576
17	30	30	30	0	2194	10	20	10	0	1342	3536
18	40	30	30	10	2164	10	20	10	0	1332	3496

Sources: Fed, Natixis AM

In blue, an indicative amount of maturing treasury securities (column 1), the thresholds (column 2), the reinvested amounts (column 4) and the reduction in treasury securities held (column 5). In red, the amounts and thresholds for payments received from principal of MBS and agency debt as well as reinvestments are shown.
Reading: the first month, $ 20 billion of Treasury securities mature. Given the $ 6 billion threshold initially applied, the Fed reinvests only $ 14 billion. This translates into a reduction in the amount of Treasury securities held by $ 6 billion. That same month, $ 15 billion is received from principal payments of MBS and agency debt. Given the $ 4 billion threshold, the Fed is reinvesting only $ 11 billion. In total, the amount of securities held by the Fed decreases by $ 10 billion over the first month.
In the 10th month, the example considers an amount of treasury securities reaching a maturity of $ 20 billion, which is below the threshold which will then be $ 24 billion. In this case, the Fed does not reinvest anything since it only reinvests amounts above this cap. As a result, the amount of Treasury securities held is down $ 20 billion. With regard to the example of the MBS and the agency debt, the payments received from the principal are equal to or lower than the cap applied to them from the 7th month. In this case, the Fed doesn't reinvest anything.

4- Up to what level? Until when?

The Fed has not yet determined the level considered "normal" of its balance sheet. This amount will depend on the evolution of two items on its liabilities: reserves and money demand. These have risen sharply since the crisis, as shown in the graph below.



Reserves:

- The increase in the Fed's purchases of financial assets was accompanied by an increase in reserves on its balance sheet liabilities, the Federal Reserve crediting the commercial banks' accounts with it. Reserves increased from $ 25 billion in September 2008 to almost $ 3 trillion at the end of 2014. In June, the Fed indicated in its "Policy Normalization Principles and Plans" that the amount of reserves would be reduced "to a level appreciably below that seen in recent years but larger than before the financial crisis; the level will reflect the banking system's demand for reserve balances and the Committee's decisions about how to implement monetary policy most efficiently and effectively in the future ".

  • With the sharp increase in reserves, the central bank had to change the process by which it controlled the Fed funds rate. Before the crisis, it used "open market" operations to manage liquidity in the market and to control its rate. This system is effective when the amount of reserves is relatively low. Due to the sharp rise in purchases of financial assets, the Fed had to change its instrument, setting an interest rate on excess reserves held by commercial banks with it. This system is called a "floor system".

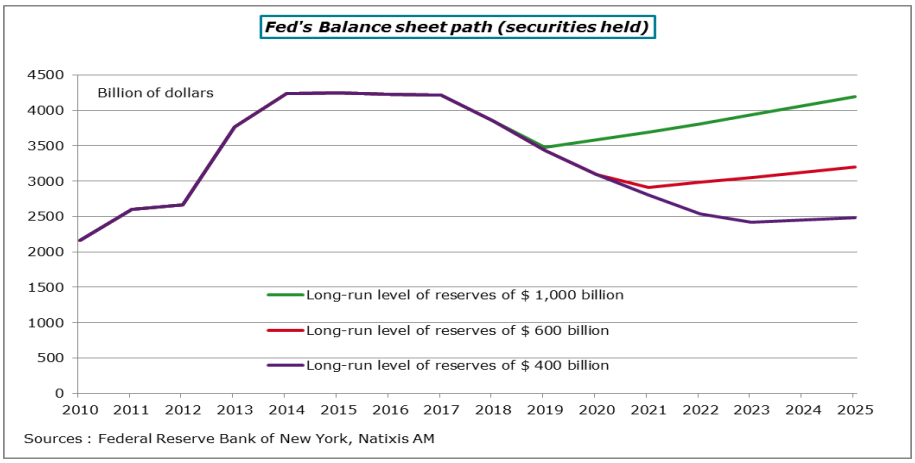
  If the central bank retains this mode of operation in the future then the amount of reserves will necessarily have to be larger than before the crisis to function well, implying a higher balance sheet than before. Available evidence suggests that the Fed would move towards this mode of adjustment. In the Minutes of the November 2016 meeting, participants commented on the benefits of such a policy. It is seen as "relatively simple and efficient to administer, relatively simple to communicate, and effective in controlling interest rates across a wide range of circumstances." It would notably make it easy to increase the Fed's balance sheet in the event of a business shock and 0% interest rates. This is likely to occur more often than before the crisis given the decline in the long-run neutral interest rate. More recently (September 7), William Dudley, the chairman of the Federal Reserve Bank of New York, said he wanted to keep this "floor system" since it was much easier to manage.

- Banks' demand for reserves is also higher than before the crisis, mainly due to new regulations that favor liquid and safe assets and changes in the behavior of financial institutions with regard to risk. The Fed expects to learn more about banks' demand for reserves during the process of reducing its balance sheet.

Currency

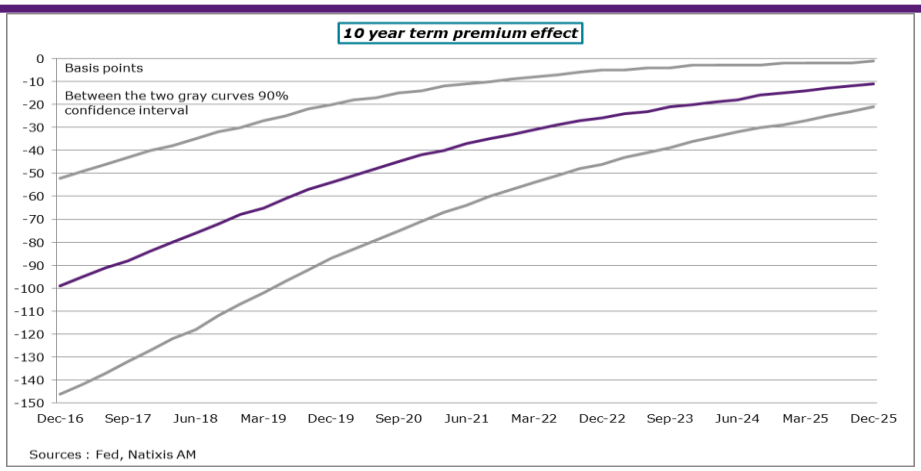
- Money demand is the second item of liabilities to be taken into account. This has almost doubled since the beginning of the crisis to reach $ 1,500 billion compared to 800 billion in early 2008, an increase of 6.8% per year over the past 10 years. This strong growth reflects high domestic and foreign demand for the US currency, nominal GDP growth and low interest rates. This growth is bound to persist and generate a steady rise in the Fed's balance sheet after its normalization. By maintaining its current pace of growth, demand for money would reach $ 2 trillion in 2022 and $ 2.8 trillion by 2027 (Powell, June 2017).

On September 7, William Dudley issued the results of a new estimate made by his teams on the Fed's balance sheet (more precisely, the securities held). The balance sheet is considered normalized when the reserves reach their long-term level. Assuming a level ranging from $ 400 billion to $ 1 trillion, the balance sheet would normalize between 2020 and 2023 with a stock of securities held between $ 2.4 billion and $ 3.5 trillion, a decrease of 1 to 2 trillion from the current level. This is much less important than the $ 3.7 trillion increase in the aftermath of the crisis. The balance sheet would thus remain at a high level (between 10% and 16% of GDP) and would then increase again with the demand for money and reserves.



5- What will be the consequences on rates?

The Fed massively bought financial assets after the crisis to weigh on long-term interest rates and make financial conditions even more accommodative. The main question is what impact the reduction of its balance sheet will have on rates. Estimates made by the Fed's research team show that it should be limited. One of the reasons given is that the central bank has prepared them well for many years for this normalization and that the effects are already partly integrated by the markets.
According to a study carried out in April 2017 by the Fed, purchases of financial assets would have allowed a 100 basis point reduction in the term premium on 10 year interest rates. This impact would be reduced to 85 basis points at the end of 2017 due to the approach of reducing the balance sheet and reducing the average maturity of the portfolio.
The estimate of the impact of the reduction in the balance sheet is based on a normalization process which begins in the second quarter of 2018 and ends when the reserves reach a level of $ 100 billion. When the size of the balance sheet normalizes in the first quarter of 2023, the impact of purchases of financial assets by the Fed is still negative by 24 basis points. This is related to the fact that the portfolio of securities held by the Fed has not yet recovered a "normal" composition. It would still contain $ 1.2 trillion of MBS securities, while it did not hold any before the crisis, and also more treasury securities with a maturity of more than 10 years.
In other words, the impact of the reduction of the Fed's balance sheet on the term premium is estimated according to this study to be limited. This also the sentiment shared by the members of the monetary policy committee.



These are only estimates and tensions could be greater than expected on the US bond market and consequently on the world bond markets. The Fed would then have to integrate it into its monetary policy decisions and thus modify the adjustment profile of its main instrument: the Fed funds. For this reason, it has waited until the interest rate normalization process is well advanced, so that it can be reduced if necessary. The margins for maneuver are however reduced and for this reason the Federal Reserve is ready to increase reinvestments in the event of deterioration of economic prospects requiring a sharp drop in the Fed funds rate. It is also ready to change the size and composition of its balance sheet if economic conditions required a monetary policy even more accommodative than that allowed by the decline in the Fed funds rate.

Conclusion:

The Fed is likely to announce the normalization of its balance sheet at its meeting of 19 and 20 September to begin in October. The objective is to regain room for maneuver in the conduct of its monetary policy in the event of a shock on activity. Moreover, starting from now the reduction of the balance sheet allows to tie the hands of the future President of the Fed and reduce the uncertainty in the markets. This will take place in a passive and predictable manner through the gradual reduction of reinvestment of reimbursements received on the securities it holds. Only amounts above a predetermined cap will be reinvested. It does not plan to sell assets at this stage. The Fed funds rate is the main instrument of monetary policy, the balance sheet adjusts in the background and automatically. However, the Fed could again increase its reinvestments in the event of a shock on activity or a tightening of financial conditions. The question concerns in particular the level considered "normal" of its balance sheet. It has not yet determined it precisely, but it should be well above the level prevailing before the crisis for two reasons. Demand for money is higher and is expected to continue to grow at a sustained pace. The second factor is the amount of reserves. It is also expected to be higher than before the crisis, mainly due to the stronger demand for safe assets from banks and the Fed's approach to managing the Fed funds rate once the normalization process completed. According to the latest estimates of the Federal Reserve Bank of New York, the balance sheet could be normalized between 2020 and 2023 and the amount of securities held would then be reduced from $ 1 to $ 2 trillion, depending on the assumptions used on the reserves. This compares with an increase of $ 3.7 trillion in securities held by the Fed between the end of 2008 and the end of 2014. The balance sheet would thus remain at a high level (between 10 and 16% of GDP) and then increase again with the rise in demand for money and reserves. Another major issue is the impact this could have on bond markets. The simulations carried out by the Fed teams suggest a limited impact due in particular to the Fed's communication aimed at preparing the financial markets for this eventuality for several years. This could be quite different given the major shift in the balance sheet. In the event of stronger than expected tensions, the Fed would take it into account in its monetary policy decisions. It could thus be led to realize less than expected increases in the Fed funds rate, or even reduce it in the event of excessive tensions. However, room for maneuver is reduced and the central bank is prepared to increase its reinvestments or to change the size and composition of its balance sheet if economic conditions warrant it.