The Supply of Money

Central banks have increased supply at unprecedented speed

The supply of money matters because it directly influences prices. We express prices for goods and services in Euro, Swiss Franc, or US dollar. Money is valuable because it is scarce. The less scarce money is - put differently, the more money there is - the less valuable is each Euro, Swiss Franc, or US dollar . That means, prices go up.

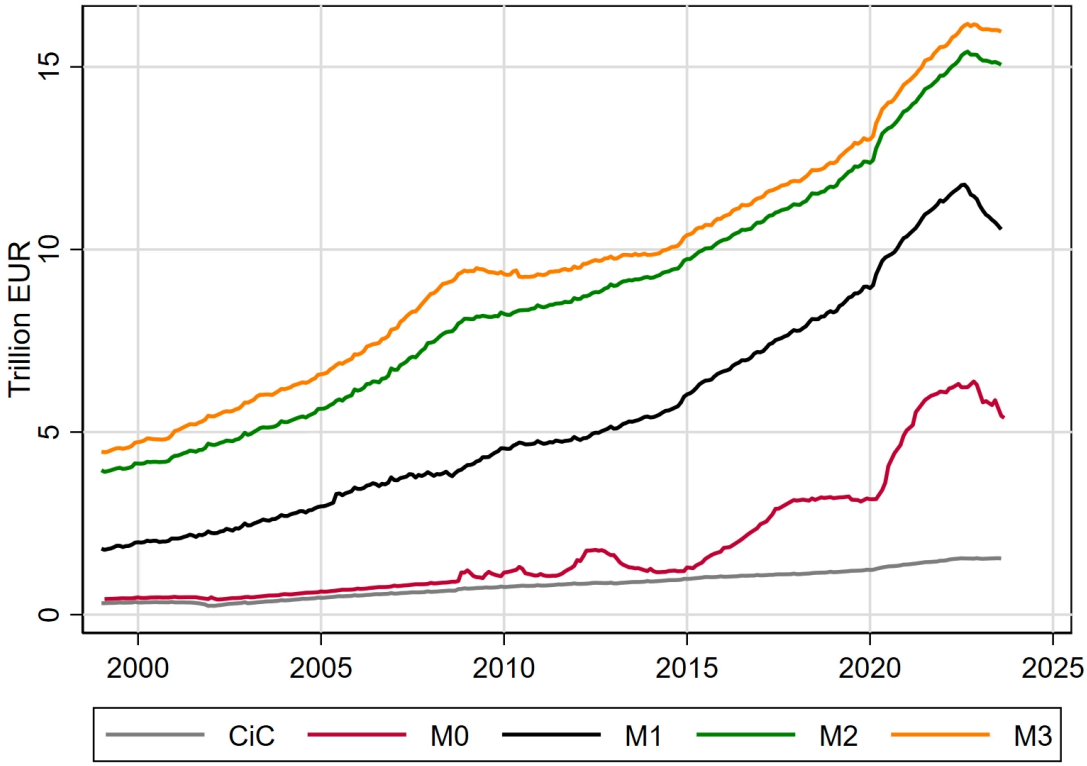
Money supply is managed by central banks: the European Central Bank (ECB) for the Euro, the Swiss National Bank (SNB) for the Swiss Franc, and the Federal Reserve (Fed) for the US dollar.

So, how much money do central banks supply?

European Central Bank

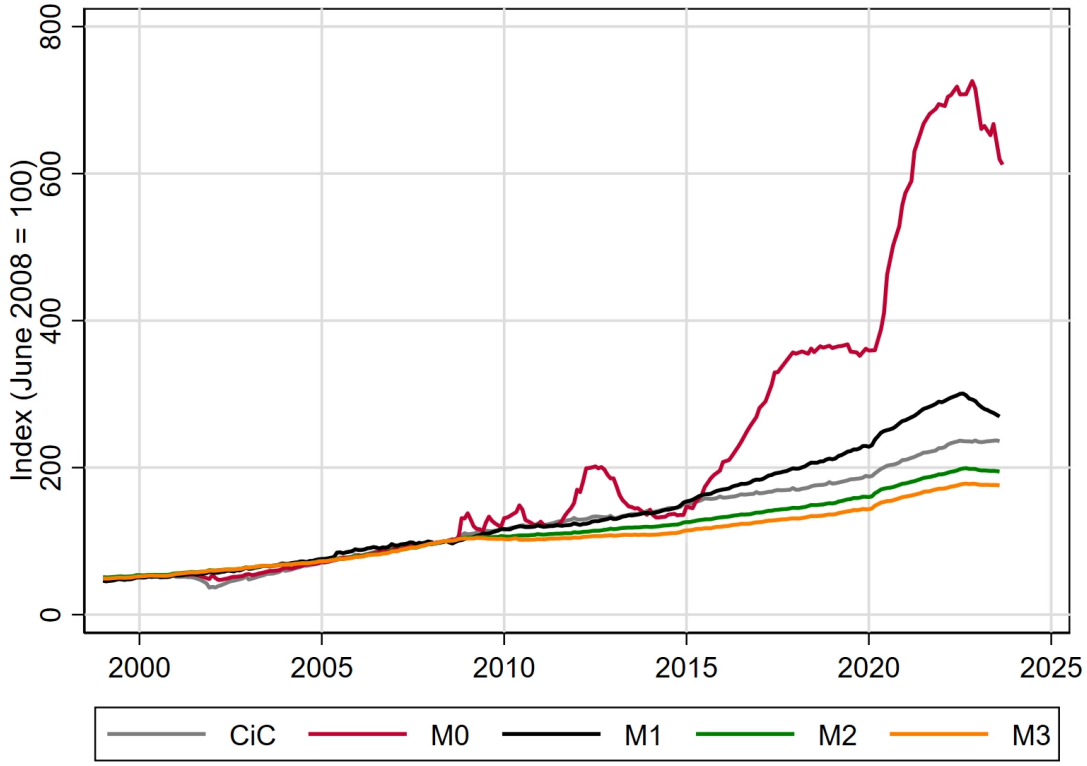
The ECB has increased money supply enormously. One reason for this is that eight nations joined the 11 founding members: Greece (2001), Slovenia (2007), Cyprus (2008), Malta (2008), Slovakia (2009), Estonia (2011), Latvia (2014), and Lithuania (2015). In addition, the economies of the Euro area grew in the past decades.

Yet, the different indicators of money supply (here shown as currency in circulation and M0 to M3, see background) indicate that the ECB expanded money supply more than needed due to countries joining the currency union and growing economies.



Source: ECB (ILM.M.U2.C.LT00001.Z5.EUR) accessed on Oct 23, 2023

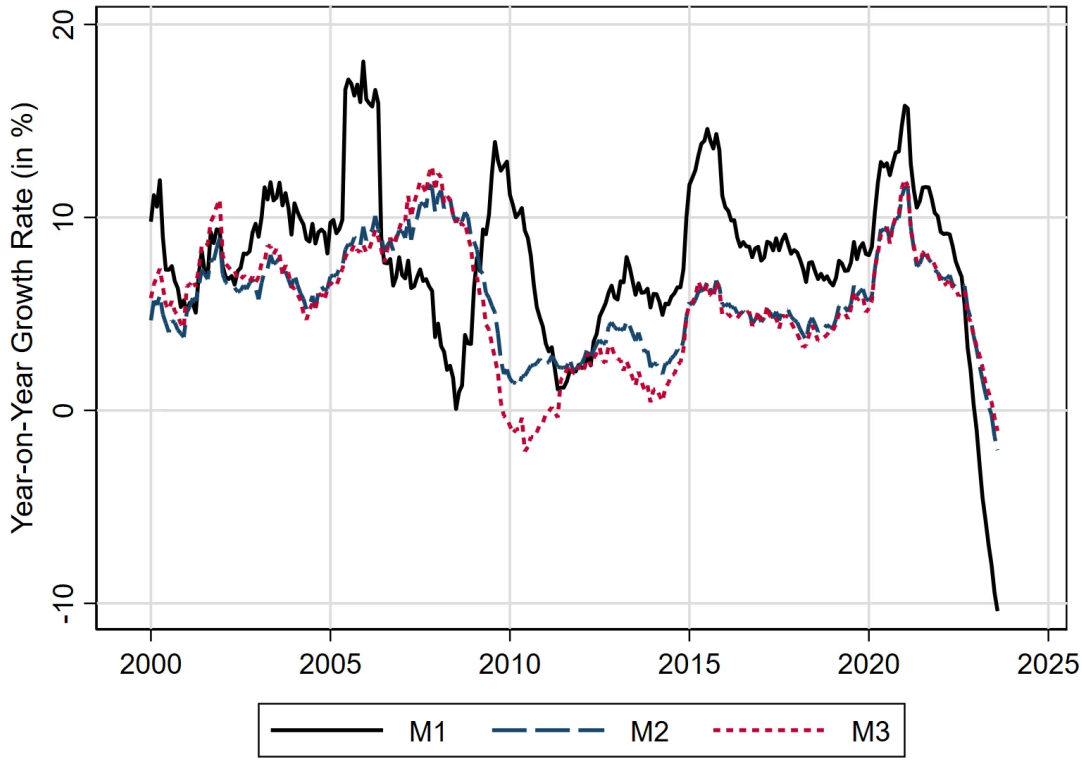
In relative terms, the monetary base grew the most - by a factor of seven since mid-2008. Since currency in circulation (CiC) and M1 did not grow that quickly, we know that most of the new money supplied by the ECB is stored as deposits by private banks in the ECB. This excess liquidity (commercial bank deposits held minus the minimum reserve requirements) in the euro area exceeded three trillion Euro.



Source: ECB (ILM.M.U2.C.LT00001.Z5.EUR) accessed on Oct 23, 2023

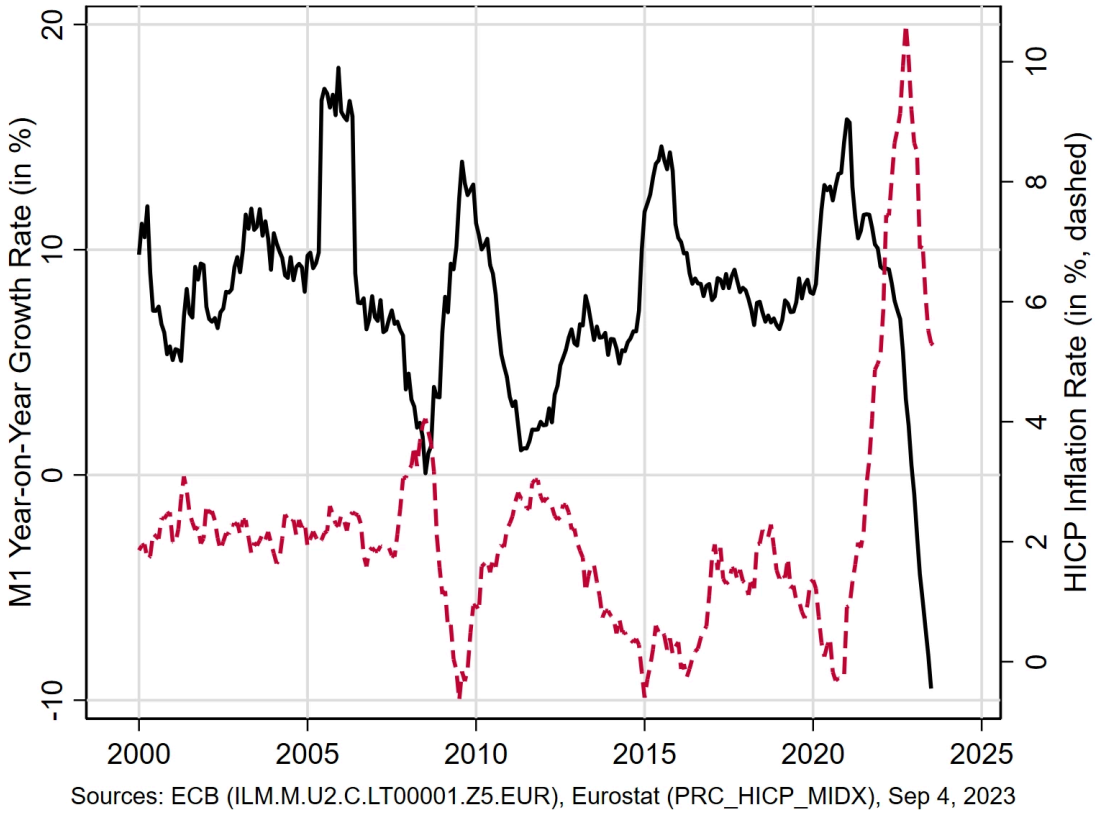
We see that until 2008, all monetary aggregates moved largely in tandem. But since then, M0 has been on a wholly different trajectory. This indicates what economists call "hording": much money is stored as deposits at the ECB by commercial banks.

Inflation is likely to pick up if and when M1 (and the other aggregates) increase. Thus, the following graph shows the growth rates of M1, M2 and M3. Lately, the growth rate of all three monetary aggregates was relatively high prior to the surging inflation. Put differently, since 2010 we generally saw an upward trend in M1, M2, and M3. The latest data, in contrast, show a sharp decrease in growth rates.



Source: ECB (ILM.M.U2.C.LT00001.Z5.EUR) accessed on Oct 23, 2023

In the past, the annual growth rate of M1 was, to some extent, a leading indicator of the HICP rate of inflation in the Euro area. Spikes in 2006, 2010, 2015, and 2021 were followed by upticks in the rate of inflation (here shown by the dashed line):



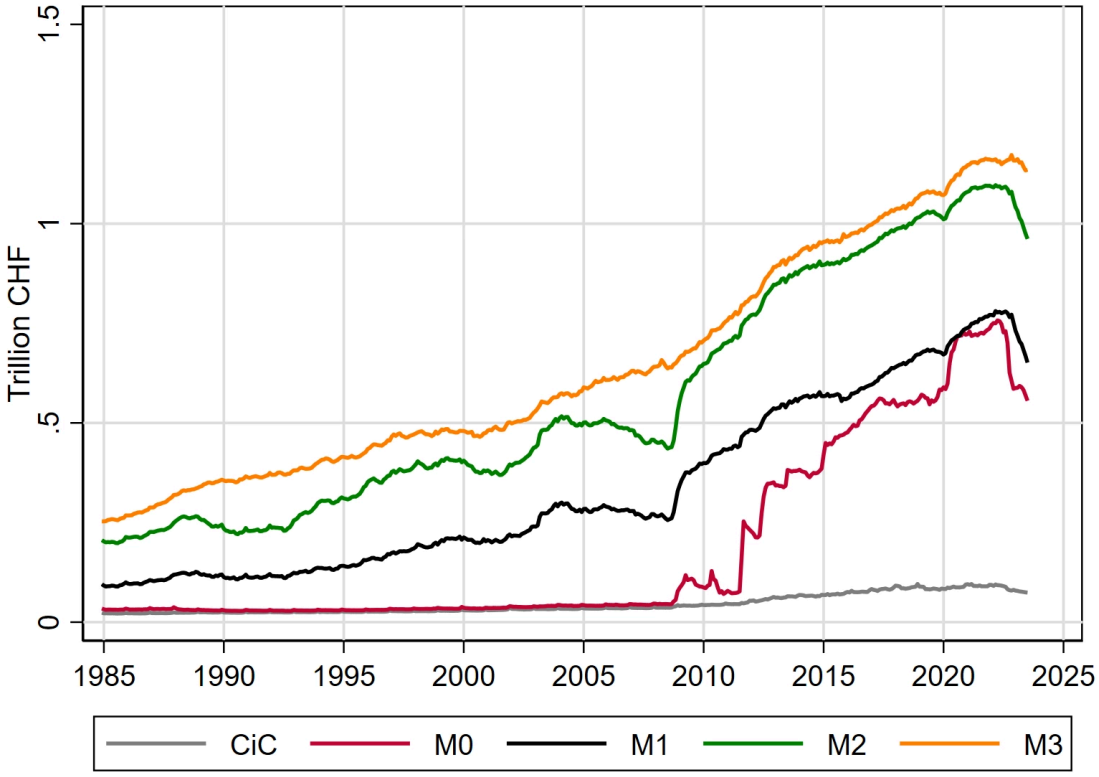
Swiss National Bank

The SNB has also increased money supply enormously. Unlike the ECB, the motivation was not to keep borrowing costs low for the government. Instead, the SNB intended to mitigate the appreciation of the Swiss Franc against the Euro - which would hurt Swiss exporters.

Why did the Swiss Franc appreciate against the Euro? Put simply, when the ECB increases the supply of Euros faster than the SNB increases the supply of Swiss Francs, there are more Euros relative to Francs. And as Euros become less scarce (relative to Francs) people expect the Euro to lose value. Many seek to exchange their Euros for Francs, thus driving up the "price" of Francs.

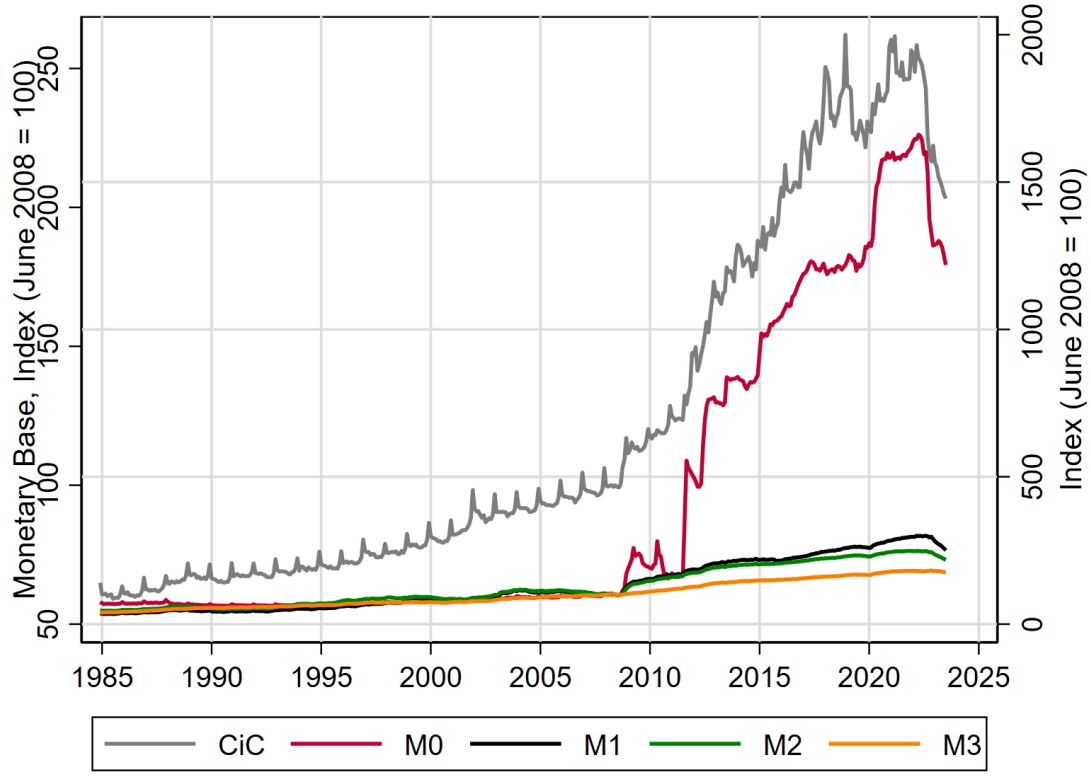
Looking at the data from Switzerland, we see that currency in circulation expanded from 36 billion CHF in January 2008 to about 90 billion CHF at the end of 2021. The most pronounced increase, however, occurred in sight deposits of domestic banks, which increased from 12 billion CHF in 2008 to 645 billion at the end of 2021.

So, as in the Euro area, most of the increase in money supply occurred in M0. Commercial banks are hoarding vast amounts of money at the central bank.



Source: SNB accessed on Sep 5, 2023

Note that when we illustrate changes in relative terms, using June 2008 as baseline, the monetary based in shown on the left-hand vertical axis and the others on the right-hand axis. This is due to the vast difference in magnitudes.



Source: SNB accessed on Sep 5, 2023

What the money is used for

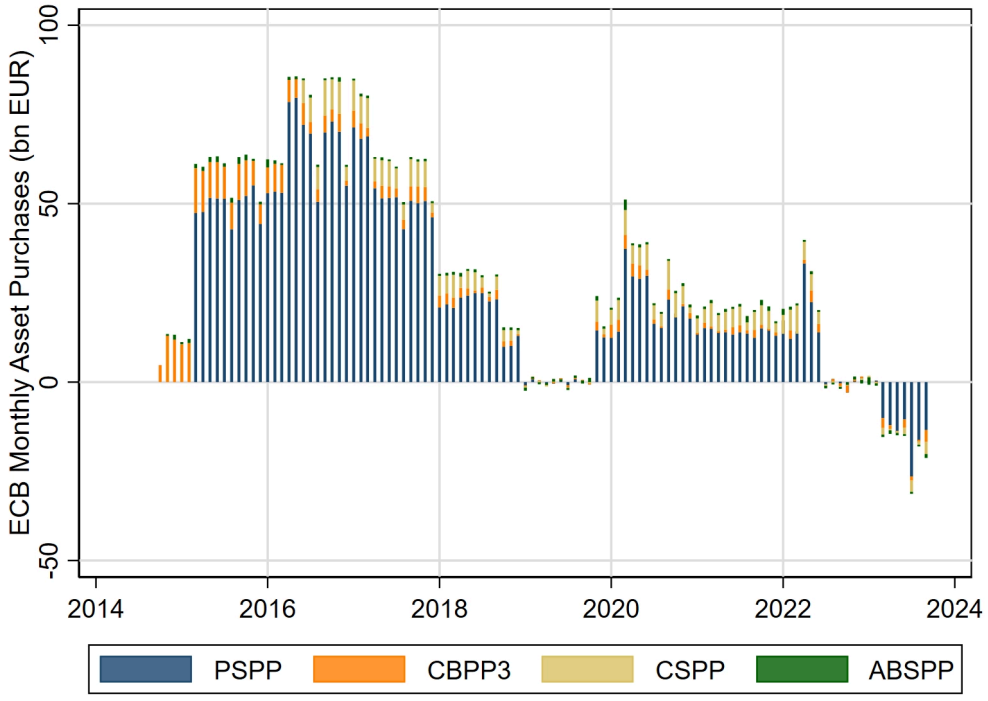
Central banks have purchased large amounts of public debt

The increase in money supply by the ECB and the SNB was motivated by different motives:

- The ECB bought government bonds to avoid public defaults.
- The SNB bought various assets to weaken the Swiss Franc.

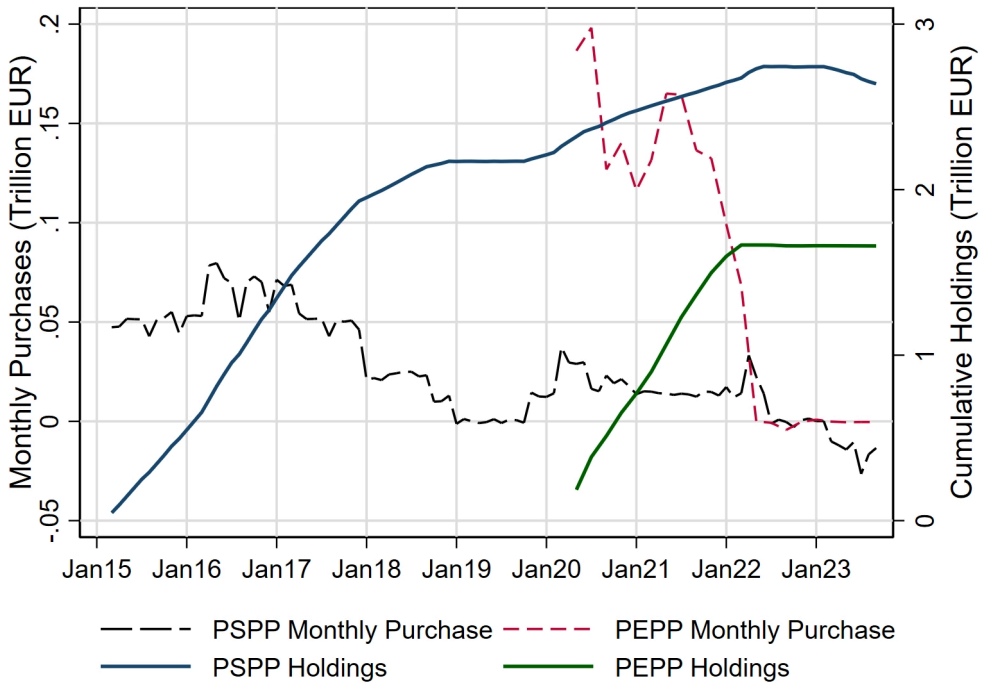
The ECB's Asset Purchase Program (https://www.ecb.europa.eu/mopo/implement/app/html/index.en.html) (APP) consists of four pillars: the public sector purchase program (PSPP), the third covered bond purchase program (CBPP3), the corporate sector purchase program (CSPP), and the asset-backed securities purchase program (ABSPP).

After €40bn in April 2022, €30bn in May, and €20bn in June, the ECB had no net purchases (only reinvestments of redemptions) from July 2022. Lately, we observe significant sales volumes.



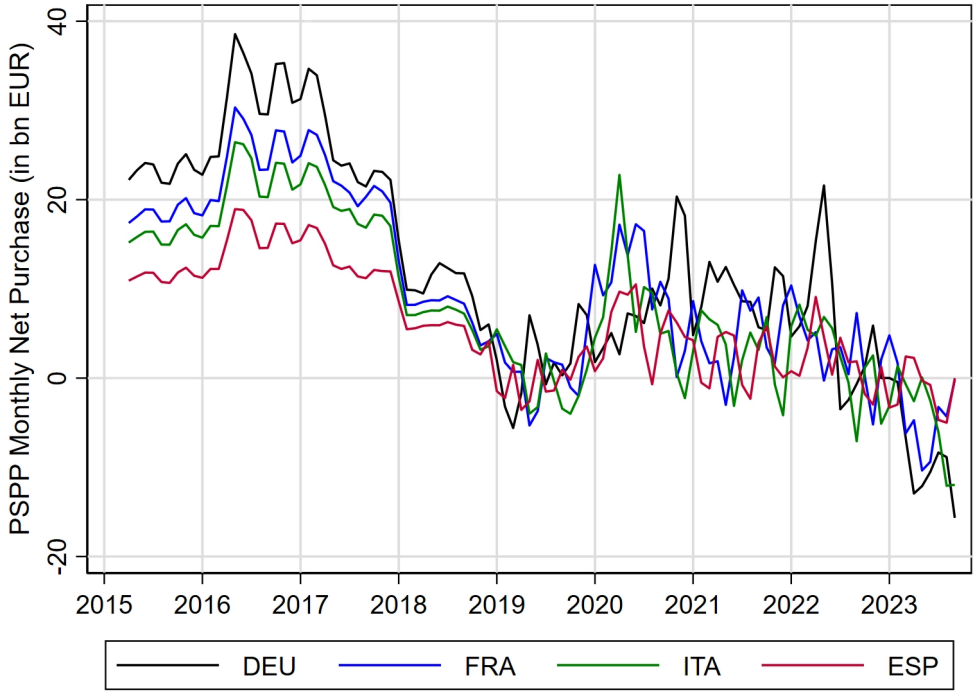
Source: ECB, accessed on Oct 23, 2023

The PSPP is the major one with about 2'600 billion Euro holdings in summer 2022. It is complemented by the Pandemic Emergency Purchase Program (PEPP) (https://www.ecb.europa.eu/mopo/implement/pepp/html/index.en.html) , "a non-standard monetary policy measure initiated in March 2020 to counter the serious risks to the monetary policy transmission mechanism and the outlook for the euro area posed by the coronavirus (COVID-19) outbreak". Since the summer of 2022, the ECB has held about 1'700 billion Euro with the PEPP.

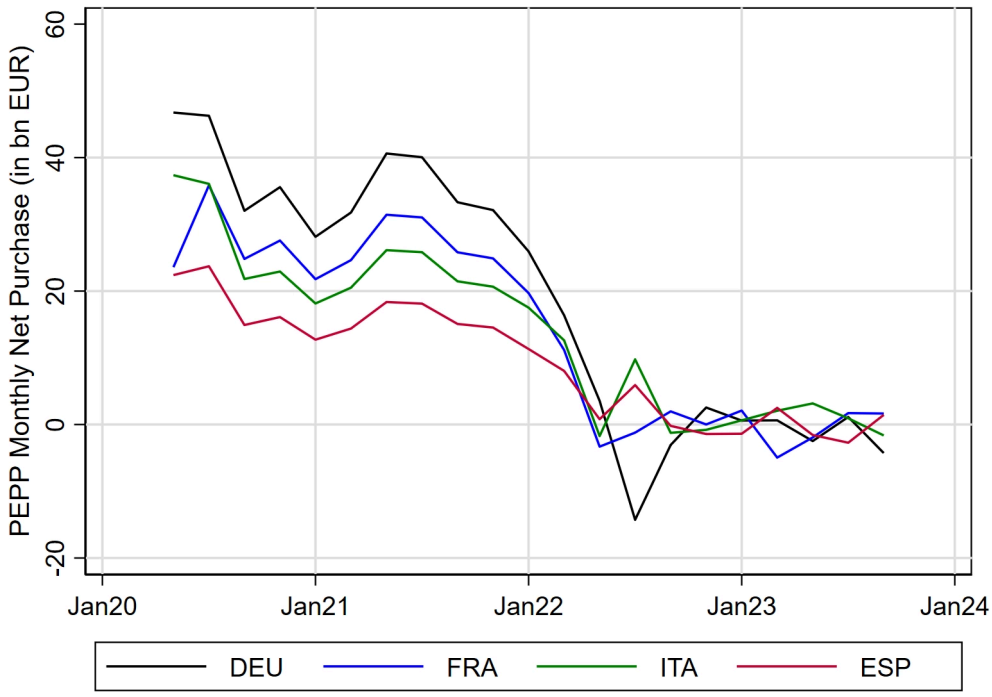


Note: Rolling 2-month sum. Source: ECB, accessed on Oct 23, 2023

It is interesting to plot the net monthly purchases of the two major programs, PSPP and PEPP, by jurisdiction. Data from summer of 2022 indicate that the ECB temporarily reduced its holdings of German debt while restarting the purchase of Italian and Spanish debt (using PEPP).

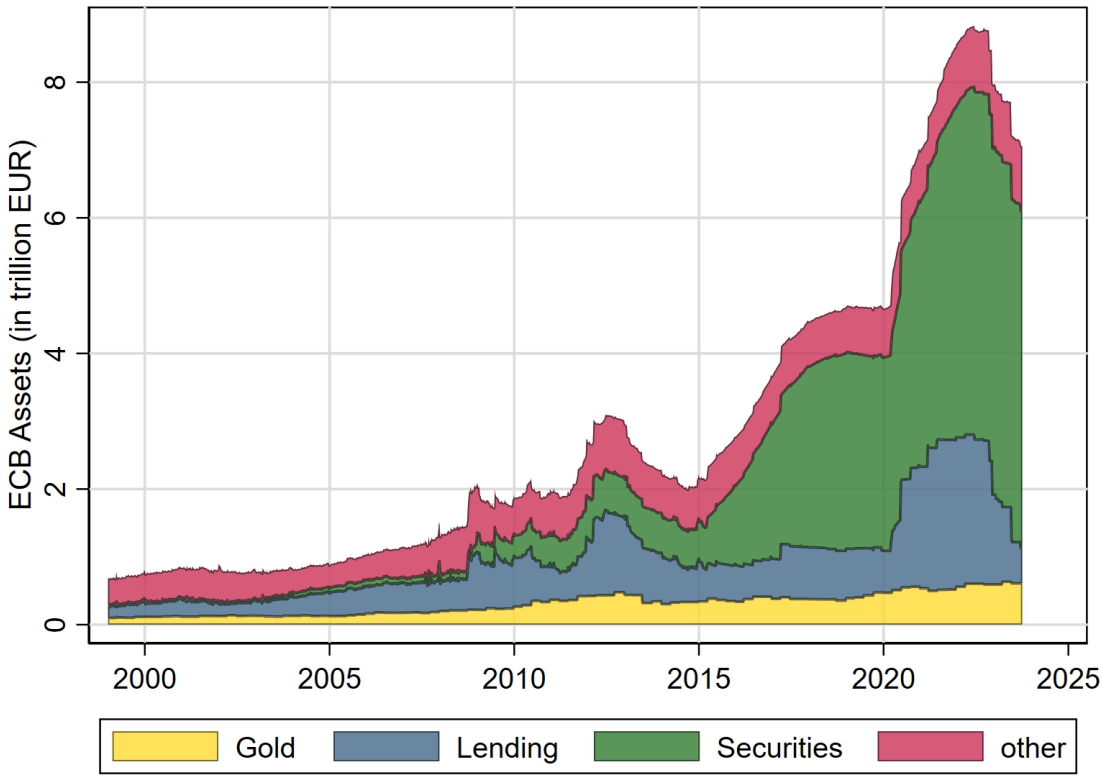


Note: Rolling 2-month sum. Source: ECB, accessed on Oct 23, 2023



Note: Rolling 2-month sum. Source: ECB, accessed on Oct 23, 2023

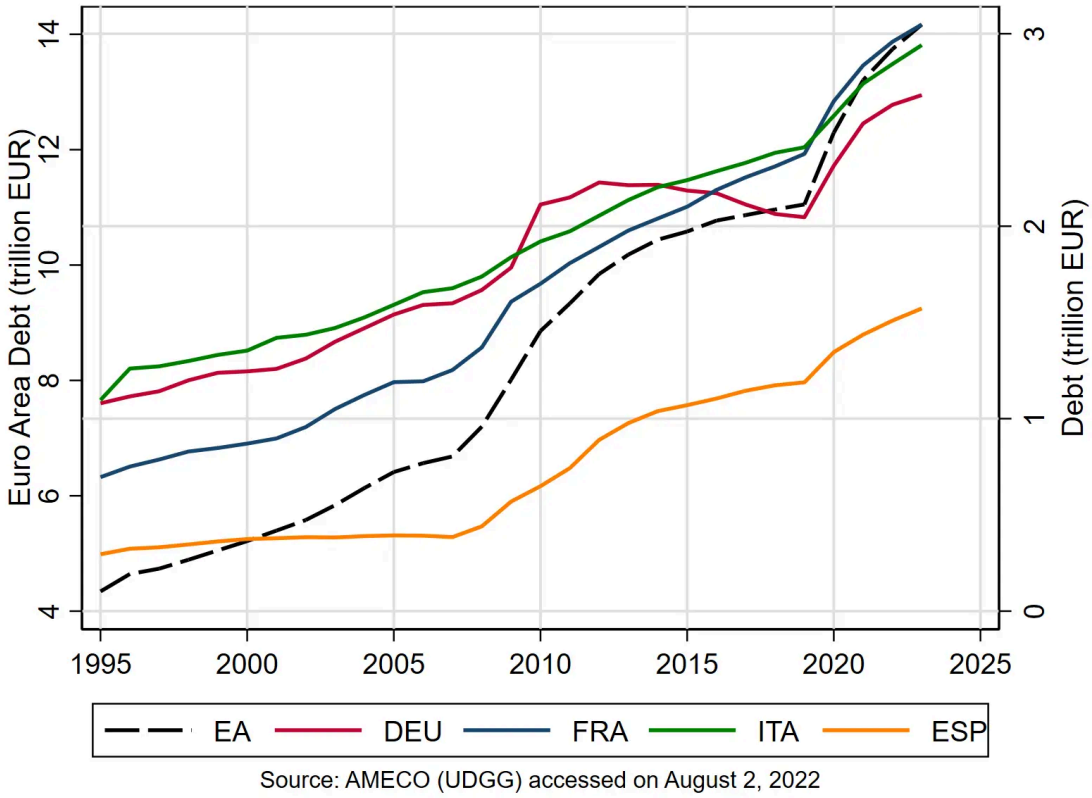
The result of these asset purchases become clear when looking at the ECB balance sheet (https://www.ecb.europa.eu/pub/annual/balance/html/index.en.html) . We see the enormous growth since 2008 and especially since 2015 and then again since the 2020 COVID crisis. Most of the increase is due to what is labeled "securities". This represents assets that the ECB purchased for monetary policy purposes. The lion share of these are government bonds. Since 2008, the ECB has purchased about trillions worth of such bonds. Most of this has occurred since March 2015.



Source: ECB, accessed on Oct 23, 2023

How much is 5.1 trillion Euro (the latest figure of securities in the chart)? To put things into perspective, we must illustrate public debt of the Euro member countries. Below, we find that total public debt of the 19 Euro area (EA) member countries stands at about 14 trillion Euro, or 100% of GDP.

Looking closely at the previous chart and the one below, we see that during the COVID crisis, the ECB bought *more* public debt than was issued - even though three trillion Euro of debt were issued. Since 2008, the ECB has financed about three quarters of the new debt issued by Euro member countries.



Source: AMECO (UDGG) accessed on August 2, 2022

Prior to the 2008 crisis, debt-to-GDP ratios were mostly flat or even falling. But three crises (the 2008 financial crisis, the subsequent European debt crisis, and the 2020 COVID crisis) lifted debt-to-GDP ratios to much higher levels.

Today, the ratio is above 100% in Italy, France, and Spain. Among the major countries, only Germany stands out with a relatively low debt ratio. Note that the figures for the latest years are (optimistic) forecasts.