

# What factors drove the rise in euro zone public debt from 1999 to 2019?

by [Pierre Aldama](#)

*Between 1999 and 2019, the eve of the Covid-19 pandemic, the public debts of the 11 oldest euro zone members had risen by an average of 20 percentage points of GDP. This increase in public debt is commonly attributed to structural budget deficits, particularly those in the pre-crisis period and in the “South”. But how much of the stock of public debt in 2019 can be attributed to structural deficits, and how much to GDP growth, interest payments or cyclical deficits? In this post, we use the December 2020 edition of the OECD’s Economic Outlook to break down the changes in public debt into its main factors: structural and cyclical primary balances, the interest burden, nominal GDP growth and stock-flow adjustments. This shows that the structural deficits generally contributed less than is commonly assumed, and that the increase in public debt over the period was largely the result of the direct and indirect consequences of the double-dip recession in the euro zone.*

On the eve of the Covid-19 crisis, the 11 oldest euro zone countries had an average level of public debt (in the Maastricht sense) of 92% of GDP. Between 1999 and 2019, the public debt in these 11 countries increased by an average of 20 percentage points of GDP, although with considerable heterogeneity (Figure 1). On the one hand, a group of so-called virtuous countries – Germany, the Netherlands, Austria, Finland and Ireland – reduced their debt ratios to their 1999 level of 60% of GDP or even lower. In contrast to this were the countries whose public debt increased – France, Spain, Greece and Portugal – or remained at a high level – Belgium and Italy. Can we simply deduce from this that there are some countries that acted like the proverbial ant and others like the grasshopper? Probably not.

Indeed, not all countries entered the European Monetary Union (EMU) with the same level of debt: their starting point therefore biases observation insofar as it does not inform about the structural or cyclical factors or to the interest burden associated with the fiscal policy in place from 1999 to 2019. Is the rise in public debt in the “grasshopper” countries largely attributable to the accumulation of structural deficits, or on the contrary, to cyclical factors and the impact of the recessions in the euro zone (2008-2010 and 2011-2013)?

This post uses the December 2020 edition of the

OECD's *Economic Outlook* to break down the changes in public debt into the main components: structural and cyclical primary balances, the interest burden, nominal GDP growth and stock-flow adjustments. This shows that the contribution of structural deficits is generally lower than commonly assumed and that the increase in public debt over the period largely results from the direct and indirect consequences of the double-dip recession in the euro zone.

### **The accounting decomposition of public debt dynamics**

The change in public debt (as a percentage of GDP) between year  $t$  and year  $t-1$  can be broken down into five main factors, using the following equation:

$$\Delta d_t = \frac{r_t}{1+y_t} d_{t-1} - \frac{y_t}{1+y_t} d_{t-1} + sp_t^{cyc} + sp_t^{struc} + afs_t$$

where  $r_t / (1+y_t) d_{t-1}$  is

the effect of the interest burden,  $-y_t / (1+y_t) d_{t-1}$  is

the effect of nominal GDP growth (and the sum of the two terms is the infamous

snowball effect<sup>[1]</sup> of public debt),  $sp_t^{cyc}$  is

the cyclical component of the primary budget balance (excluding the interest

burden),  $sp_t^{struc}$  is

the structural primary balance (adjusted for the output gap) and  $afs_t$  represents

the stock-flow adjustments, i.e. transactions on the assets and liabilities of

general government that are not accounted for in the primary

balance.

By aggregating each of these terms, we calculate the contributions to the total change in public debt between 1999 and 2019 (Figure 2) and year by year (Figure 3). Finally, Figures 4A and 4B present breakdowns of the public debt similar to Figure 2 but over two sub-periods: 1999-2008 and 2008-2019.

Figure 1. Public debt/GDP in the Maastricht sense from 1999 to 2019, in GDP points

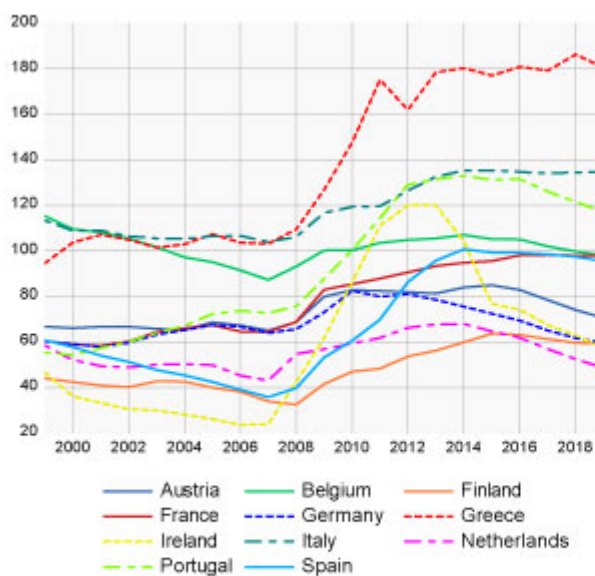
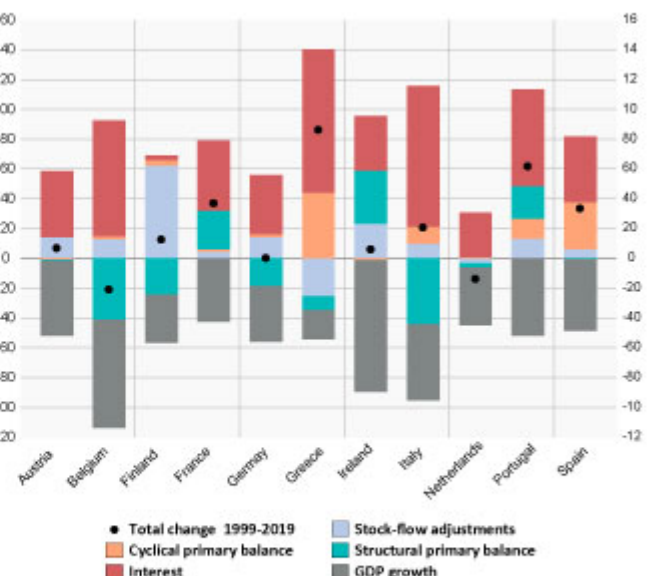


Figure 2. Breakdown in the change in public debt from 1999 to 2019, in GDP points



Notes: For each country, the total change from 1999 to 2019 in the public debt/GDP ratio is broken down between the effects of the interest burden, of GDP growth, of cyclical and structural primary surpluses (+) and deficits (-), and finally of stock-flow adjustments (i.e. of transactions on the assets and liabilities of general government that are not accounted for in the primary balance).

Source: OECD Economic Outlook 2020/2, author's calculations.

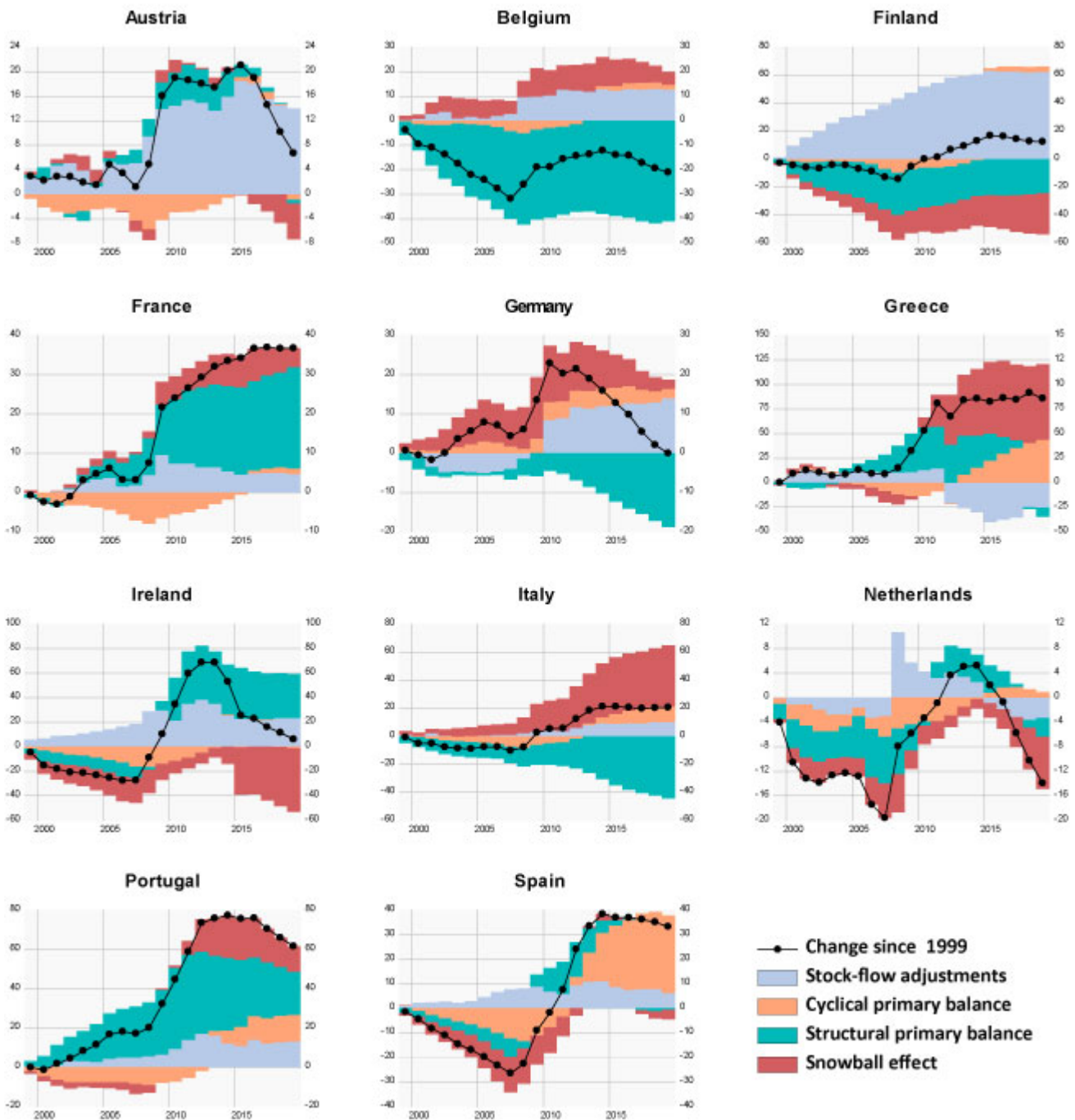
## The scars of the double recession of 2008-2010 and 2011-2013 in the euro zone

The rise in public debt in the EMU is largely explained by the cyclical effects of the double recession of 2008-2010 and 2011-2013 (Figure 3). Between 2008 and 2019, in the three countries with the largest increases in public debt (Greece, Spain, Portugal), the rise in debt is due largely to cyclical primary deficits and the snowball effect. Greece is a

striking example: the snowball effect accounts for almost 3/5 of the increase in public debt between 1999 and 2019, and this is concentrated mainly between 2008 and 2019, with the collapse of the level of GDP. In contrast, the apparent Irish “miracle” is actually due to massive nominal growth in 2015, which in turn is explained by [the relocation of existing intangible assets in Ireland by multinationals](#).

Moreover, any positive contribution of *structural* deficits to debt growth during the 2008-2010 crisis is in fact an optimal countercyclical response of fiscal policy during the recession, and cannot be interpreted as a lack of fiscal seriousness *per se*. This was the case, however, in fewer than half of the countries studied: Spain, the Netherlands, France, Austria, and Ireland, and for the other countries this largely reflects the pro-cyclical character of discretionary fiscal policies in the euro zone over the period [\(Aldama and Creel, 2020\)](#).

Figure 3. Change in the public debt/GDP ratios and cumulative contributions since 1999, in GDP points



Notes: For each country, the total change from 1999 to 2019 in the public debt/GDP ratio is broken down between the effects of the interest burden, of GDP growth, of cyclical and structural primary surpluses (+) and deficits (-), and finally of stock-flow adjustments (i.e. of transactions on the assets and liabilities of general government that are not accounted for in the primary balance).

Sources: OECD Economic Outlook 2020/2, author's calculations.

Finally, in general, the contribution of the stock-flow adjustments increases sharply after the 2008 crisis, mainly due to the banking sector rescue plan. In the case of Greece, the negative contribution of these adjustments largely corresponds to the 2012 default.

## Northern surpluses vs. Southern structural

## deficits in the euro zone?

Over the period 1999-2019, it appears that only three countries (France, Ireland and Portugal) showed a positive contribution of structural primary deficits to the rise in public debt. Remarkably, both Greece and Italy stand out from these countries with a negative contribution due to their structural primary surpluses, as shall be seen later, due in particular to the structural fiscal adjustment carried out since 2010 in the case of Greece. Belgium, which was heavily indebted at the time of its entry into the EMU (114% of GDP), is also characterised by the strong negative contribution of its structural primary balance to debt growth.

Figure 4A. Breakdown in the change in the debt between 1999 and 2008, in GDP points

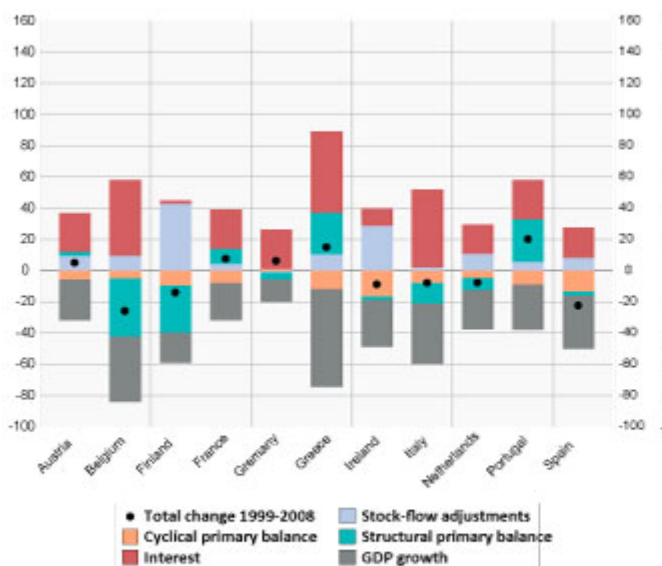
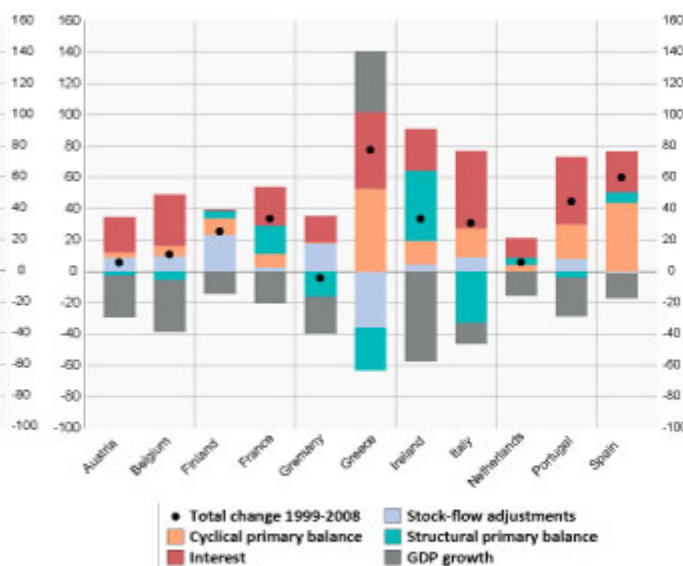


Figure 4B. Breakdown in the change in the debt between 2008 and 2019, in GDP points



Notes: For each country, the total change from 1999 to 2019 in the public debt/GDP ratio is broken down between the effects of the interest burden, of GDP growth, of cyclical and structural primary surpluses (+) and deficits (-), and finally of stock-flow adjustments (i.e. of transactions on the assets and liabilities of general government that are not accounted for in the primary balance).

Sources: OECD Economic Outlook 2020/2, author's calculations.

In the case of Greece, we observe in particular the sharp decline in the contribution of the structural primary balance, which even becomes negative in 2019: in other words, by 2010 Greece has

more than offset the effect of its previous structural primary deficits. Even more remarkably, Italy has pursued a very tight fiscal policy *over the entire period*, in so far as the (negative) contribution of its structural primary surplus has steadily increased in absolute terms. Portugal lies in between, and started to run structural primary surpluses, without cancelling out the effect of its pre-2010 deficits. Ireland, sometimes presented as the “good pupil” in the euro area following the 2010 crisis, did not have post-crisis structural surpluses that offset the structural deficits run up during the crisis (the contribution to the change in debt was stable).

Focusing on the pre-2008 period (Figure 4A) and the so-called Southern countries, again only Greece and Portugal saw a positive contribution of their structural deficits to debt growth, while the contribution of the primary structural surpluses in Ireland, Italy and Spain was negative.

On the Franco-German side, the divergence is clear. German fiscal rigour appears almost extreme: even following the 2008-2010 crisis, the federal government’s primary structural balance did not contribute positively to debt growth, reflecting a very weak countercyclical discretionary policy (the German structural balance increased by 1 GDP point in 2010).



Conversely, in the case of France, a large part of the variation in public debt can be explained by the structural deficits recorded *both before and after* 2008 (Figures 4A and 4B), although this slowed down in the second half of the 2010s (Figure 3). Thus, of the 37 GDP points of public debt accumulated since 1999, almost 26 points came from structural deficits accumulated over the period.

Of course, the distinction between the structural balance and the cyclical balance is critically based on the estimation of the level of “potential” GDP, i.e. of full utilization of production factors, without inflationary pressures. This measure is subject to great uncertainty, and there have been many criticisms, such as that it is too sensitive to the macroeconomic cycle and to demand shocks ([Coibion et al. 2018](#); [Fatas and Summers 2018](#)). Some studies suggest that the level of potential activity may be underestimated. This likely bias in potential GDP estimates points to the need for a note of caution about any definitive interpretation of the structural vs. cyclical nature of budget deficits or surpluses. [\[2\]](#)

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While public debt has increased overall in the euro zone since 1999, a large part of this growth is explained by the direct and indirect consequences of the 2008 crisis, through cyclical deficits, the aggravation of the snowball effect and the *structural* weakness

of growth in certain Southern European countries.

On the contrary, most of the more indebted countries today ran high primary structural surpluses over the period, such as Italy and Belgium. Greece has even more than offset the positive contribution of its past structural deficits. This is the reason why a reading grid that is still overly used, that of the North versus the South, or of fiscal strictness versus fiscal leniency, cannot stand up to a simple accounting analysis of the dynamics of public debt.

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[1] The snowball effect of public debt is the effect of the differential between the interest rate paid on the accumulated stock of debt and the economy's growth rate. If this differential is positive, then for a given primary budget balance public debt tends to increase mechanically; conversely, if it is negative, public debt tends to decrease mechanically.

2] However, using *the OECD Economic Outlook* has the advantage of providing a homogeneous approach across countries, and therefore a relatively uniform bias between them. Moreover, the measure of potential GDP used by the OECD is [less cyclical than the measures used by the IMF and the European Commission](#).

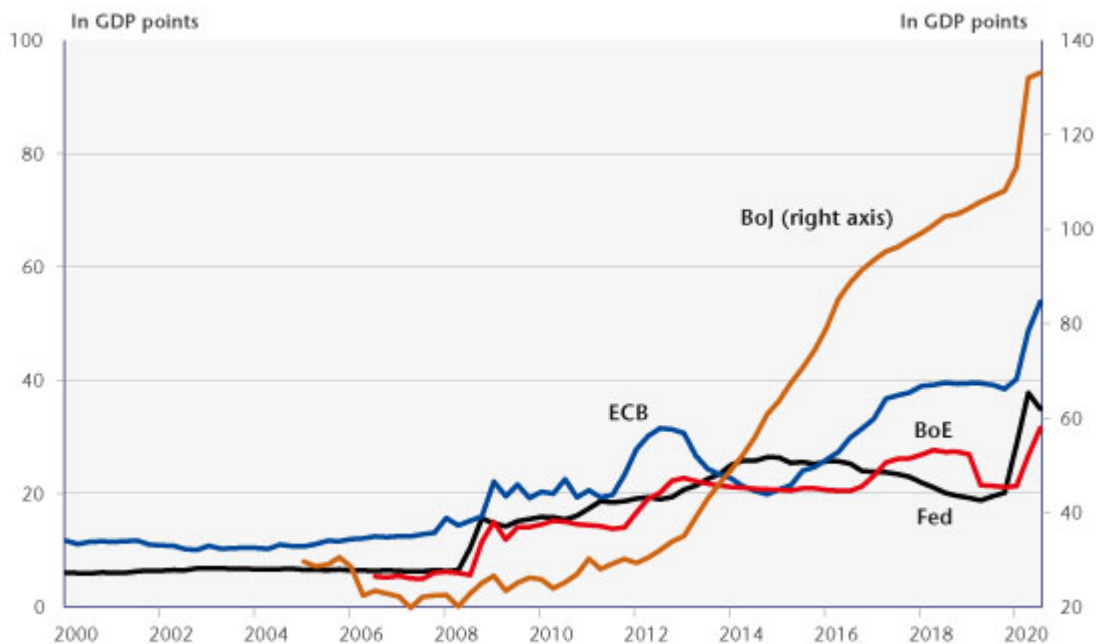
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# Public debt: Central banks to the rescue?

By [Christophe Blot](#) and [Paul Hubert](#)

In response to the health and economic crisis, governments have implemented numerous emergency measures that have pushed public debt up steeply. They have nevertheless not experienced any real difficulty in financing these massive new issues: despite record levels of public debt, the cost has fallen sharply (see [Plus ou moins de dette publique en France ?](#), by Xavier Ragot). This trend is the result of structural factors related to an abundance of savings globally and to strong demand for secure liquid assets, characteristics that are generally met by government securities. The trend is also related to the securities purchasing programmes of the central banks, which have been stepped up since the outbreak of the pandemic. For the year 2020 as a whole, the European Central Bank acquired nearly 800 billion euros worth of securities issued by the governments of the euro zone countries. In these circumstances, the central banks are holding an increasingly high fraction of the debt stock, leading to a de facto coordination of monetary and fiscal policies.

Figure 1. Size of central bank balance sheets

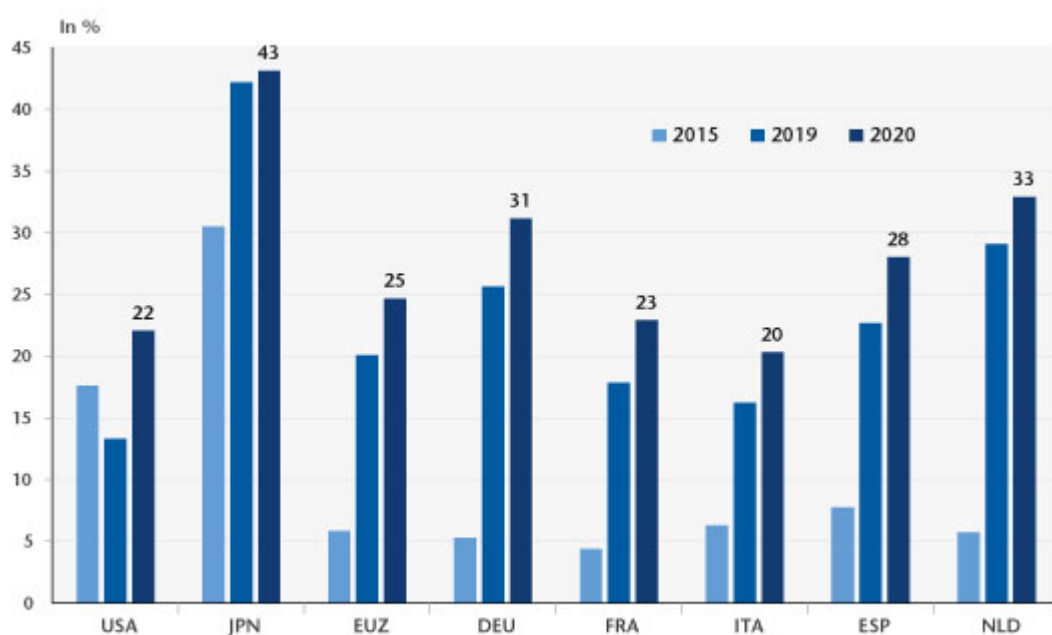


Source: Thomson Reuters Datastream.

Back in 2009, central banks launched asset purchase programmes to reinforce the expansionary impact of monetary policy in a context where the banks' key interest rates had reached a level close to 0% [1]. The stated objective was mainly to ease financing conditions by holding down long-term interest rates on the markets. This resulted in a sharp increase in the size of the banks' balance sheets, which now represents more than 53 GDP points in the euro zone and 35 points in the United States, with the record being held by the Bank of Japan, at 133 GDP points (Figure 1). These programmes, financed by issuing reserves, have focused heavily on government securities, meaning that a large proportion of the stock of government debt is now held by central banks (Figure 2). This proportion reaches 43% in Japan, 22% in the United States and 25% in the euro zone. In the euro zone, in the absence of euro bonds, the distribution of securities purchases depends

on the share of each national central bank in the ECB's capital. The ECB's distribution key stipulates that the purchases are to be made pro rata to the share of the ECB's capital held by the national central banks [2]. Consequently, the purchases of securities are independent of the levels and trajectories of public debt. As the latter are heterogeneous, there are differences in the share of public debt held by the national central banks [3]. Thus, 31% of Germany's public debt is held by the Eurosystem compared to 20% of Italy's public debt.

Figure 2. Stock of public debt held by the central banks

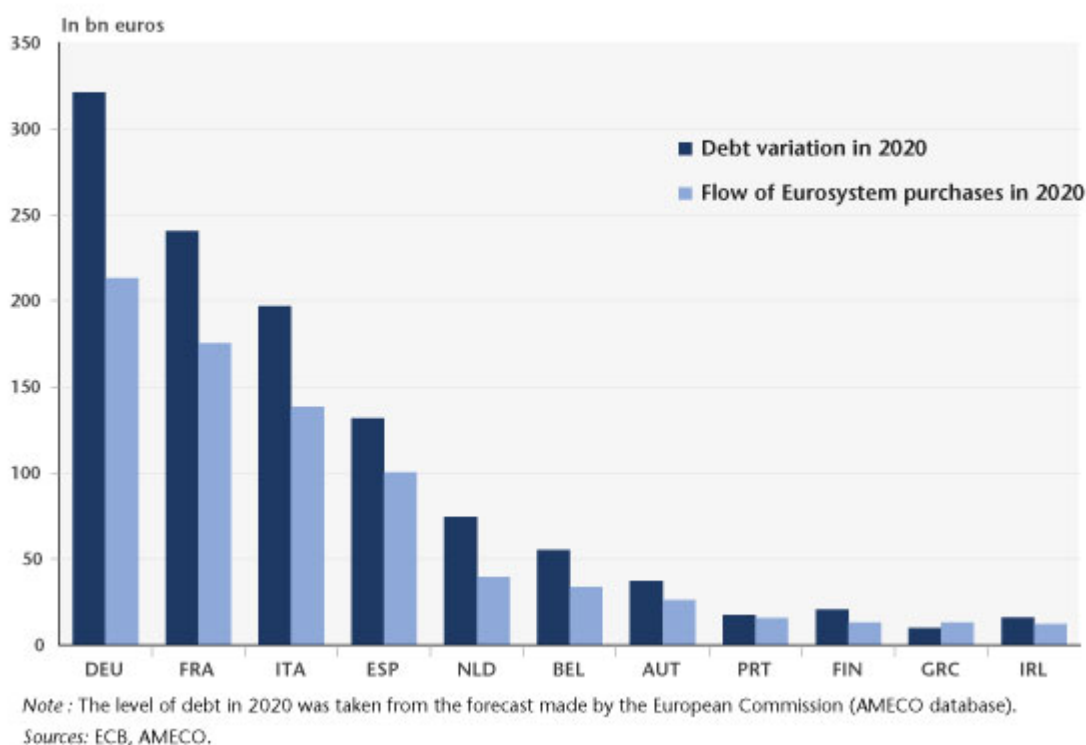


Note: The 2020 figures are calculated based on the data available in Q3 for the United States and in Q4 for Japan. In the euro zone, the level of debt in 2020 is taken from the forecast made by the European Commission (AMECO database).  
Sources: Federal Reserve (flow of funds), Eurostat, ECB, AMECO, Bank of Japan.

The decentralization of fiscal policies in the euro zone is also leading to tensions in the sovereign debt markets of some member countries, as seen between 2010 and 2012 and more recently in [March 2020](#). This is why Christine Lagarde has launched a new asset purchase programme called the Pandemic emergency purchase programme (PEPP). While the distribution key is not formally abolished, it may be applied more flexibly

in order to allow the ECB to reduce the sovereign spreads between member countries. Analysing the flows of securities purchases made by the euro zone central banks and the debt issues of the member states, it can be seen that the Eurosystem has absorbed on average 72% of the public debt issued in 2020, i.e. 830 billion euros out of the 1155 billion of additional public debt. The share amounts to 76% for Spain, 73% for France, 70% for Italy and 66% for Germany (Figure 3).

Figure 3. Flow of issues of public debt absorbed by the Eurosystem



Unlike purchases made under the APP programme, which aim to hit the inflation target, the PEPP's objective is first and foremost [to limit rate spreads](#), as Christine Lagarde reminded us on 16 July 2020. In fact, even if there is a structural downward trend in interest rates, some markets may be exposed to pressure. The euro zone countries are all the more exposed as investors can arbitrate between the different markets without incurring any exchange rate risks. This is why they may prefer German

securities to Italian securities, thereby undermining the homogeneous transmission of monetary policy within the euro zone. In addition to arguments about the risk of fragmentation, these operations also reflect a form of implicit coordination between the single monetary policy and fiscal policies, providing countries with the manoeuvring room needed to take the measures required to deal with the health and economic crisis. By declaring on 10 December that the allocation to the programme would increase to 1850 billion euros by no later than March 2022, the ECB sent a signal that it would maintain its support throughout the duration of the pandemic[\[4\]](#).

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[\[1\]](#) This policy, generally referred to as quantitative easing (QE), was launched in March 2009 by the Bank of England and the US Federal Reserve. Japan had already initiated this type of so-called unconventional measure between 2001 and 2006, and resumed this approach in October 2010. As for the ECB, the first purchases of securities targeted at certain countries in crisis were made from May 2010. But it was not until March 2015 that a QE programme comparable to those implemented by the other major central banks was developed.

[\[2\]](#) In practice, this share is relatively close to the weight of each member country's GDP in euro zone GDP.

[\[3\]](#) Securities purchasing operations are decentralized at the level of the national central banks. Doing this reduces risk-sharing within the Eurosystem since any losses would be borne by the national central banks, unlike assets held directly by the ECB, for which there is risk-sharing that depends on the share of each national central bank in the ECB's capital.

[\[4\]](#) The initial allocation was 750 billion euros, which was increased in June 2020 by a further 600 billion. As of 31 December 2020, securities purchases under the PEPP came to 650 billion.