



**Patrick Artus**

**Making sense of monetary disorder**

## Introduction

### **Extraordinary monetary policy developments with inevitably far-reaching consequences**

#### **The quantity of money has exploded**

Central bank money is the quantity of money that is created by the central bank through its monetary policy operations. It consists of either loans to banks or purchases of financial assets, mainly bonds, which the central bank pays for by creating money.

This quantity of central bank money has risen at an extraordinary rate since the second half of the 1990s, especially in the wake of the subprime crisis in 2008 and even more so since the COVID crisis in 2020. Worldwide, it rose from 2.1 trillion dollars in 1996 to 30 trillion dollars at the end of 2020.

In the euro zone, where monetary policy is often said to be restrictive due to a resolute determination to prevent inflation, the quantity of central bank money actually rose from 300 billion euros in 1996 to 5 trillion euros at the end of 2020; in the United States, it rose from 400 billion dollars in 1996 to 7.8 trillion dollars at the end of 2020.

Far from being restrictive and killing growth and employment out of a desire to prevent inflation, the reality is that central banks have lost all inhibition and have caused the quantity of money to explode.

#### **Why have central banks adopted this behaviour?**

The first task before us is to understand the reasons that led central banks to adopt this behaviour. To be sure, there has been a proliferation of crises: collapse of the dot-com stock market bubble in 2000, the subprime and banking crisis of 2008, the euro-zone crisis from 2010, the COVID crisis in 2020. It is understandable if central banks respond to crises with force. But there is more to it: they have adopted a behaviour where monetary policy is permanently highly expansionary – not only during and after recessions.

Central banks now permanently use monetary policy as an instrument to prop up the economy, and no longer merely out of a desire for strong countercyclical action. It is a striking change of strategy that needs to be understood.

#### **Obscure and complex mechanisms**

One complication that very quickly becomes apparent is that this new monetary policy practice has led to new mechanisms: monetisation of public debt, quantitative easing, helicopter money. These mechanisms are complex and often misunderstood by public opinion – even by politicians and finance professionals. This creates an opacity: it is not understood what central banks do, so the transparency of monetary policy, which is vital, is jeopardised.

Consider the revealing example of the debate on public debt. To all appearances, public debt ratios have risen considerably (in France, for example, from 55% of GDP at the start of the 2000s to 120% of GDP at the end of 2020). There is widespread concern about the risk of governments becoming insolvent and of a public debt crisis.

But central banks have bought considerable quantities of public debt, such that the portion of the public debt that is not held by central banks has barely risen. It is challenging to communicate that the

problem is not public debt, but the money created by the central bank to pay for its purchases of public debt.

This book sets out to shed light on these complex new mechanisms.

## **Do the costs of these new monetary policies outweigh their benefits?**

So the practice of modern monetary policy consists of constant monetisation of fiscal deficits by central banks (central banks create money to buy the government bonds issued to finance the fiscal deficits).

From governments' viewpoint, it is clear that this gives free rein to conduct the fiscal policy that they desire, as evidenced in particular by the COVID crisis in 2020: central banks' intervention allowed fiscal deficits to reach 19% of gross domestic product (GDP) in the United States, 13% in the United Kingdom, 11% in France and so on.

We will look at sources of concern. First, these economic policies have had no lasting beneficial effect on OECD countries, where the investment effort and long-run growth have continued to decline. Second, there is no miracle cure: the freedom these monetary policies give fiscal policy in the short term and continued very-low interest rates will, in the long run, come at the cost of financial instability, bubbles, a loss in the value of money and a loss of confidence in money.

## **Beware the short-term euphoria**

In the short term, there may be hope of a magic cure: even the highest fiscal deficits are financed without difficulty, interest rates remain very low and the risk of a public debt crisis is kept at bay. But the costs of this policy will appear later, when the financial instability appears. The worst-case scenario is flight from money, whereby economic agents try to get rid of money, which they think will lose value. In the past, flight from money took the form of hyperinflation; today, it would take more complex forms, which we will describe. So one should beware of congratulating central banks for their current actions.

## **The question of institutional arrangements**

Since the 1980s, the institutional arrangement has been quite straightforward in theory: central banks are independent and work to prevent inflation. But in practice, the reality has become quite different: with their monetisation of public debt, central banks now interfere with fiscal policy. Effectively, as we will see, they raise taxes and alter inequality in income and wealth. So it is no longer tenable for them to remain independent and outside democratic control.

## **How will all this end?**

How this story ends remains to be determined: what will end up happening if central banks continue for years to monetise fiscal deficits, keep interest rates extremely low and increase the quantity of money in gigantic proportions? There may be reason to fear the worst, possibly including resurgent inflation (hyperinflation), and not just asset price bubbles, and probably including the collapse of even more bloated bubbles than in the past.

# Prologue

## What is money?

This book will make very frequent use of the terms money, money supply and money creation. First, we want to clarify what they mean and recap the key mechanisms that need to be understood in order to analyse the developments in contemporary economies.

Let us begin with money and the money supply. There are two kinds of money: central bank money and money for non-bank economic agents.

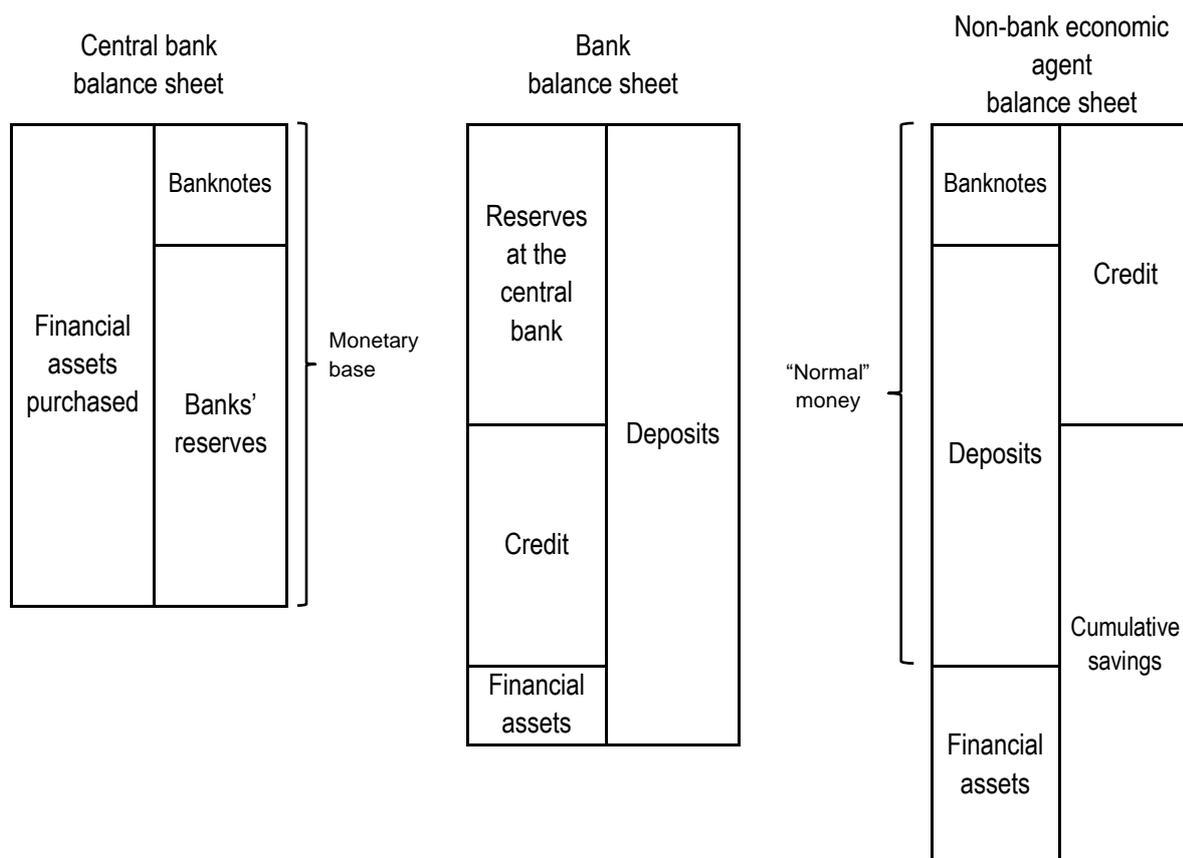
### Central bank money (monetary base) and “normal” money

Our analysis will draw on the balance sheets shown in Inset 1.

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#### Inset 1

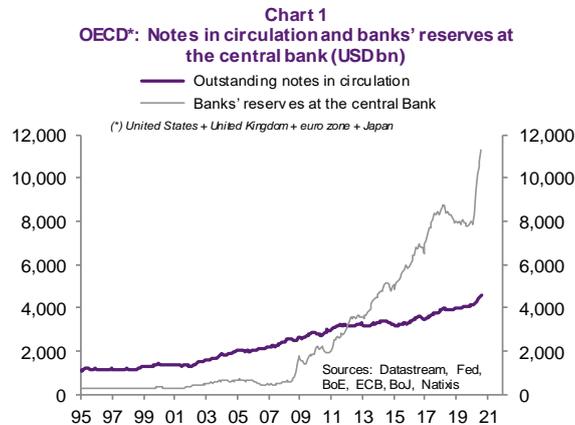
##### Money in economic agents' balance sheets



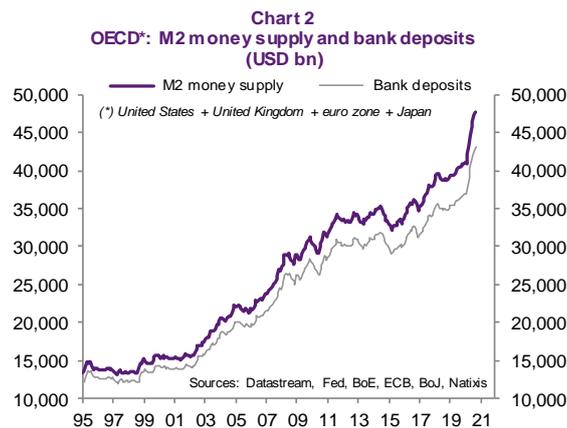
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Central bank money, which is also known as the monetary base, forms the liabilities of a central bank. It comprises banknotes and banks' reserve accounts at the central bank. Central bank money is the counterpart of the financial assets (mainly bonds) bought by the central bank.

Central bank money appears on the asset side of banks' balance sheets (banks' reserves at the central bank) and on the asset side of non-bank economic agents' balance sheets (banknotes). In practice, central bank money (the monetary base) mainly consists of banks' reserves at the central bank (Chart 1).



What we have called “normal” money is the money that is held by non-bank economic agents. It comprises banknotes and bank deposits (known as the M2 definition of money: deposits and banknotes, Chart 2)

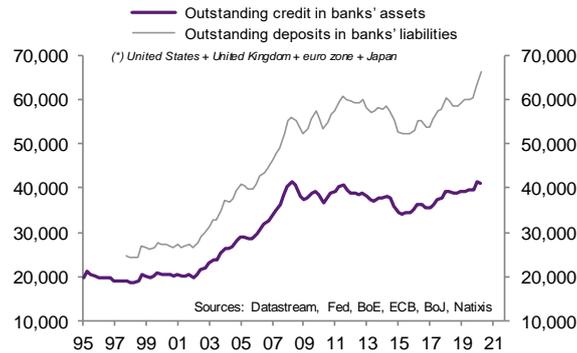


As we will see, some forms of money creation create a link between central bank money and “normal” money for non-bank economic agents.

## Money creation by banks

The normal form of money creation is money creation by banks: when a bank grants a loan, it credits by the amount of the loan the deposit account of the economic agent who receives the loan. This creates matching increases in loans and deposits (Chart 3), giving rise to the creation of “normal” money.

**Chart 3**  
**OECD\*: Banks' outstanding credit and deposits**  
**(USD bn)**



Banks operate within a system of reserve requirements: they must hold a fraction of their deposits in reserve at the central bank. When “normal” money is created, this increases the quantity of central bank money.

## Quantitative easing

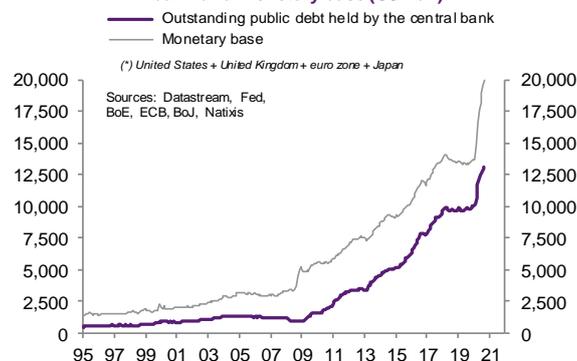
Contemporary monetary policy practices will be the focus of this book. One such practice is quantitative easing, whereby central banks intervene by buying financial assets (mainly bonds and above all public sector bonds) and pay by creating money. Inset 1 shows that there are two possibilities here.

Either the central bank buys financial assets from banks and pays by crediting their reserve accounts at the central bank. This increases the central bank money supply (monetary base).

Or the central bank buys financial assets from non-bank economic agents. It asks banks to credit the deposit accounts of these economic agents and pays the banks by crediting their reserve accounts at the central bank. This results in matching increases in the monetary base (the stock of central bank money) and “normal” money (held by non-bank economic agents).

The practice of quantitative easing explains why there have been parallel increases in the stock of government bonds held by central banks and in the central bank money supply (monetary base, Chart 4).

**Chart 4**  
**OECD\*: Outstanding public debt held by the central bank and monetary base (USD bn)**



Now that we have a better grasp of the nature of money and money creation, we can look at how central banks' behaviour has evolved in contemporary economies.

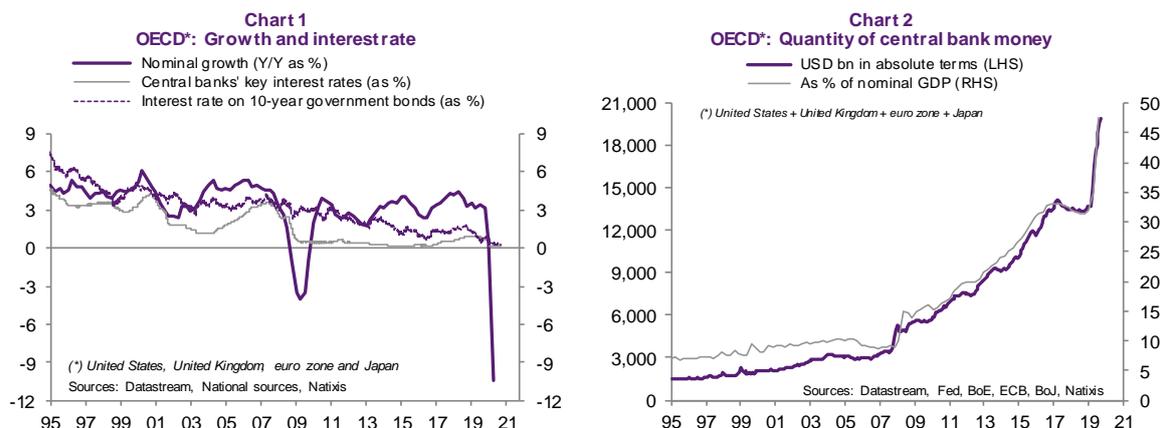
# Chapter 1

## It was difficult to do otherwise

Monetary policy in OECD countries was quite expansionary from 2000 to 2007, highly expansionary from 2008 to 2019, and has been ultra-expansionary since 2020. This trend towards ever more expansion is cause for much concern. At least initially, however, it was the result of a desire to respond to increasingly drastic crises: the subprime crisis, the euro-zone crisis and now COVID.

## Ever more expansionary monetary policy

Monetary policy in OECD countries became quite expansionary after the 2000-2001 crisis (collapse of the equity market bubble), highly expansionary after the 2008-2009 subprime crisis (collapse of the bubble in real estate prices and subsequent banking crisis) and extremely expansionary in response to the COVID crisis in 2020. Monetary policy's expansionary nature can be seen both in the fact that central banks' key (or policy) interest rates and long-term interest rates are ever lower relative to GDP growth rates (Chart 1); and in the fact that the quantity of money created by central banks is ever more abundant (Chart 2).



Now, an interest rate that is chronically lower than the growth rate is an anomaly. In particular, what this situation means is that debt ratios decrease by themselves, since the numerator – debt, which increases with the interest rate – increases less fast than the denominator – income, which increases in line with nominal GDP.

It also means that one is no longer able to calculate the fundamental value of an asset (a share or a house). An asset's fundamental value is the discounted value of the future income that it provides. If the rate of growth in this income is higher than the interest rate, the asset's fundamental value no longer makes sense, as it is infinite (see Inset 1).

### Inset 1

#### The fundamental value of an asset

An asset's fundamental value is the sum of the future income that is provided by holding it, discounted by the long-term interest rate.

Consider the example of a share. We have:

$$\begin{aligned} \text{Fundamental value of a share} &= \frac{\text{Discounted sum of future dividends}}{\text{Present dividend}} \\ &= \frac{1}{\text{Risk free interest rate} - \text{Dividend growth} + \text{Risk premium}} \end{aligned}$$

If interest rates, including the risk premiums added to them, become lower than the dividend growth rate, the share's fundamental value can no longer be calculated, as it is infinite. In practice, the implication is that under such conditions, investors should borrow infinitely to buy shares and benefit from the above-interest dividend growth.

Let us now return to how a central bank creates money: it buys financial assets from economic agents (banks, institutional investors such as insurance companies, households and so on) and pays by creating money (Inset 2 recaps this money creation mechanism).

### Inset 2

#### Money creation by the central bank

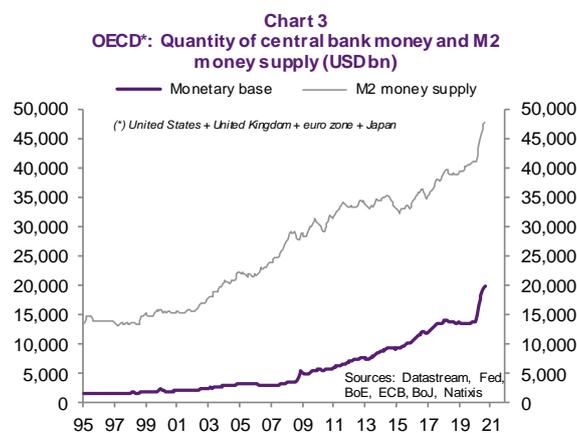
Central bank balance sheet	Bank balance sheet	Non-bank economic agent balance sheet																
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%; text-align: center;">Banknotes</td> </tr> <tr> <td style="text-align: center;">Financial assets purchased</td> <td style="text-align: center;">Banks' reserves at the central bank</td> </tr> </table>		Banknotes	Financial assets purchased	Banks' reserves at the central bank	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Credit</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: center;">Reserves at the central bank</td> <td style="text-align: center;">Deposits</td> </tr> </table>	Credit		Reserves at the central bank	Deposits	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%; text-align: center;">Credit</td> </tr> <tr> <td style="text-align: center;">Deposits</td> <td style="text-align: center;">Cumulative savings</td> </tr> <tr> <td style="text-align: center;">Banknotes</td> <td></td> </tr> <tr> <td style="text-align: center;">Financial assets</td> <td></td> </tr> </table>		Credit	Deposits	Cumulative savings	Banknotes		Financial assets	
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When the central bank buys financial assets from non-bank economic agents, their bank deposits are credited by the amount of the sale and banks receive a matching credit in their reserves at the central bank.

So we have:

- An increase in the central bank money supply (the size of the central bank's balance sheet increases; the financial assets it holds and banks' reserves at the central bank increase by the same amount);
- A matching increase in the money supply for non-bank economic agents (bank deposits in this case).

Chart 3 shows the parallel increases in the central bank money supply (monetary base) and in the money supply for non-bank economic agents (referred to as M2) in OECD countries.



So monetary policy has become an increasing concern over time, due to ever lower interest rates relative to growth and ever more money creation. But at the outset, this highly expansionary monetary policy was entirely justified.

## Central banks' effective crisis responses: 2008, 2010, 2020

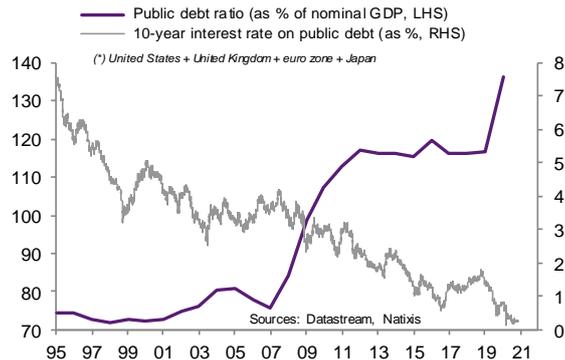
The increasingly expansionary monetary policy stems from a response beyond reproach to increasingly violent crises. First, there was the subprime crisis: the fall in real estate prices from 2007 led to a surge in household mortgage loan defaults (Chart 4), which triggered a banking crisis, directly due to loan defaults, and indirectly because banks held securitised assets based on mortgage loans, the value of which collapsed.

**Chart 4**  
**OECD\*: Household default rate on mortgage loans**  
**(as %)**



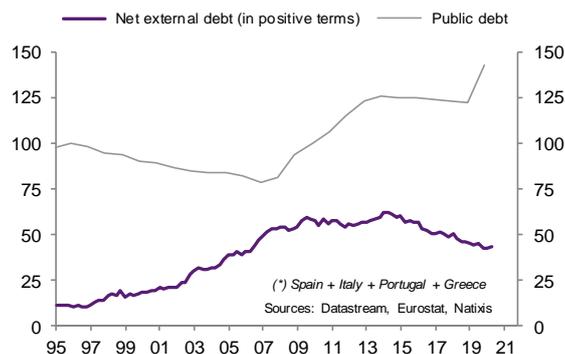
To prevent bank failures, central banks were forced to fulfil their role as lender of last resort and inject huge amounts of liquidity into bank balance sheets. They also had to ease the path for enormous fiscal deficits. In order to do so, they began quantitative easing, that is purchases of government bonds in return for money creation. This enabled a vertiginous rise in public debt ratios without long-term interest rates rising in response (Chart 5).

**Chart 5**  
**OECD\*: Public debt ratio and 10-year interest rate**  
**on public debt**



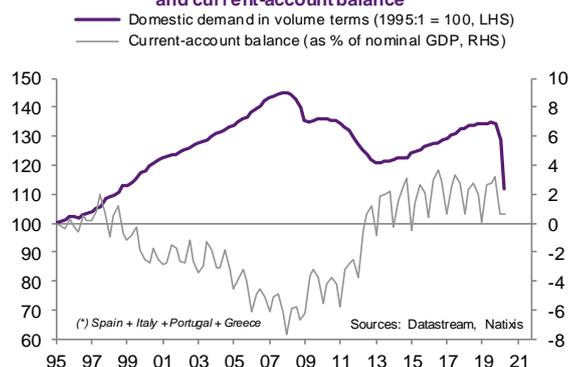
Next, in the euro zone, in the wake of the subprime crisis, the ECB had to contend with the 2010-2014 euro-zone crisis, which was a crisis of both external debt and public debt in the peripheral euro-zone countries (Spain, Italy, Portugal and Greece). These countries had huge external deficits and were accumulating huge external debt, which was largely the counterpart of fiscal deficits and public debt (Chart 6).

**Chart 6**  
**Peripheral\* euro-zone countries: Net external debt**  
**and public debt (as % of nominal GDP)**



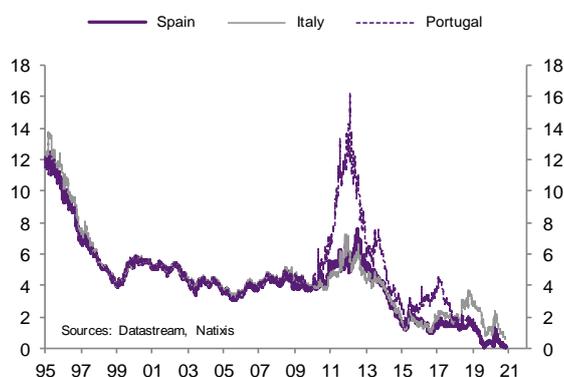
From 2010, the euro-zone countries with savings surpluses (mainly Germany and the Netherlands) refused to continue to lend to these countries out of concern at their mounting external debt. This stripped the “peripheral” countries of their capacity to service external deficits and forced them to contract their economy to eliminate them (Chart 7 shows the fall in domestic demand in the peripheral euro-zone countries that was needed to eliminate their external, or current account, deficits). The disappearance of lenders also caused their interest rates to soar, resulting in a public debt crisis.

**Chart 7**  
Peripheral euro-zone countries: Domestic demand and current-account balance



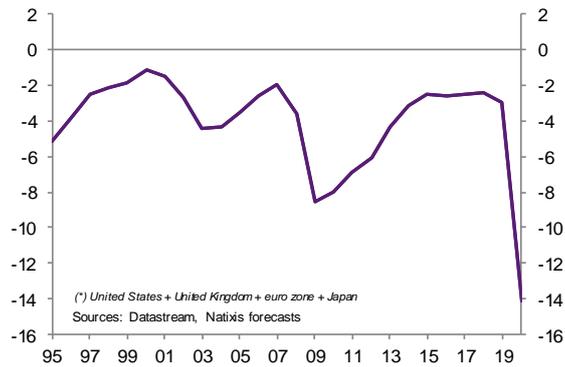
To prevent these countries from defaulting on their debt and the break-up of the euro that would have inevitably followed, the ECB decided to intervene by injecting liquidity into the economy, first through banks and then directly via quantitative easing. This caused interest rates to fall back down again from 2014 (see Chart 8) and averted the euro's demise.

**Chart 8**  
Interest rate on 10-year government bonds (as %)



Last, the COVID crisis in 2020 gave rise to another drastic acceleration in money creation (see Chart 2 above) under the effect of huge central bank government bond purchases. These purchases enabled governments to run considerable fiscal deficits (Chart 9; by convention, this chart shows a fiscal deficit as a negative value) without difficulty and without interest rates rising.

Chart 9  
OECD\*: Fiscal deficit (as % of nominal GDP)



We will revisit in subsequent chapters the effects of fiscal deficit monetisation and the status of public debt that is held by the central bank.

The key takeaway here is that since the early 2000s, monetary policy in OECD countries has become increasingly expansionary, and that at the outset this was due to the need to respond to violent crises such as the subprime crisis, the euro-zone crisis and the COVID crisis. These crises forced central banks to sharply lower interest rates and inject huge amounts of liquidity into the economy to bolster banks and enable the implementation of huge fiscal deficits.

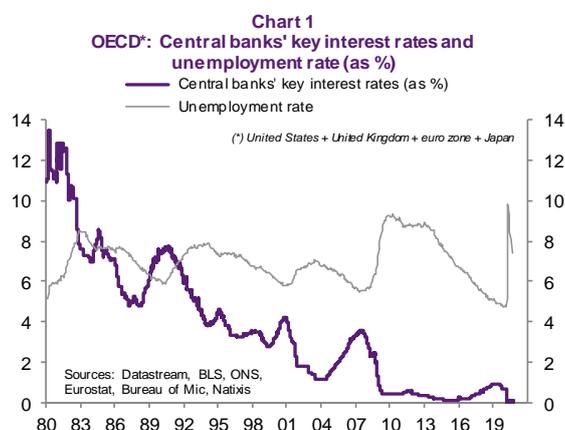
## Chapter 2

### Monetary expansion has become permanent

It is unsurprising that central banks have used highly expansionary monetary policies to respond to crises. However, what is surprising is that monetary policy has become permanently expansionary, and that it continues to be expansionary even in periods of growth and low unemployment.

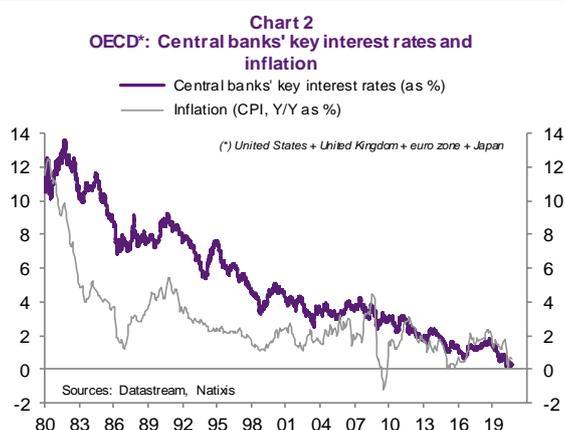
#### At first, monetary policy was countercyclical

In the past, central banks in OECD countries conducted countercyclical monetary policies: they were expansionary during recessions and the few years that followed them, then became less expansionary and finally restrictive in the second half of growth periods. This behaviour was on display when central banks hiked their interest rates in 1988, 1994 and 2005 (Chart 1), once the unemployment rate had begun to fall but before full employment had been reached.



At the time, central banks had learned two things.

First, that inflation had to be combatted in advance, pre-emptively, before it appeared. In the second half of the 1970s and in the early 1980s, central banks' slow reaction to inflation (see Chart 2) led to the need to hike interest rates very sharply, resulting in a large loss of activity and employment and giving rise to very high inflation. In the early 1980s, central banks therefore adopted "inflation targeting" (their objective became expected future inflation and no longer current inflation) and the concept of central bank credibility (a central bank must maintain low inflation expectations; see Inset 1).



## **Inset 1**

### **Central bank credibility**

The idea of credibility is as follows:

- Production grows with excess actual inflation over expected inflation;
- Economic agents perfectly expect the central bank's behaviour and therefore future inflation;
- If the central bank is not credible, future expected inflation is high and, at equilibrium, the central bank uses high inflation, which is correctly expected. This results in high inflation with no positive effect on production (negative effect on unemployment), because it is expected;
- If the central bank is credible, it uses low inflation and this low inflation is correctly expected; production is the same as if inflation were high and a well-being gain results from the disappearance of inflation.

The central bank must therefore stabilise inflation expectations to remain credible.

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The second thing central banks learned in the past was that they had to “lean against the wind”, that is gradually make monetary policy more restrictive during growth periods to prevent overborrowing and excessive rises in asset prices (share prices, real estate prices).

Since the 2008-2009 subprime crisis, however, central banks seem to have forgotten all these lessons.

### **Towards constantly expansionary monetary policies**

Since the 2008-2009 subprime crisis and even more so since the onset of the COVID crisis in 2020, central banks have changed strategy and objective. This strategy change has been expressed explicitly by the Federal Reserve in the United States, but it is discernible in the communication of all central banks. It consists in placing greater importance on the objective of making a rapid and complete return to full employment and obtaining an extremely low unemployment rate. The Federal Reserve explains it in terms of attracting back to the labour market people who had dropped out and face barriers to employment.

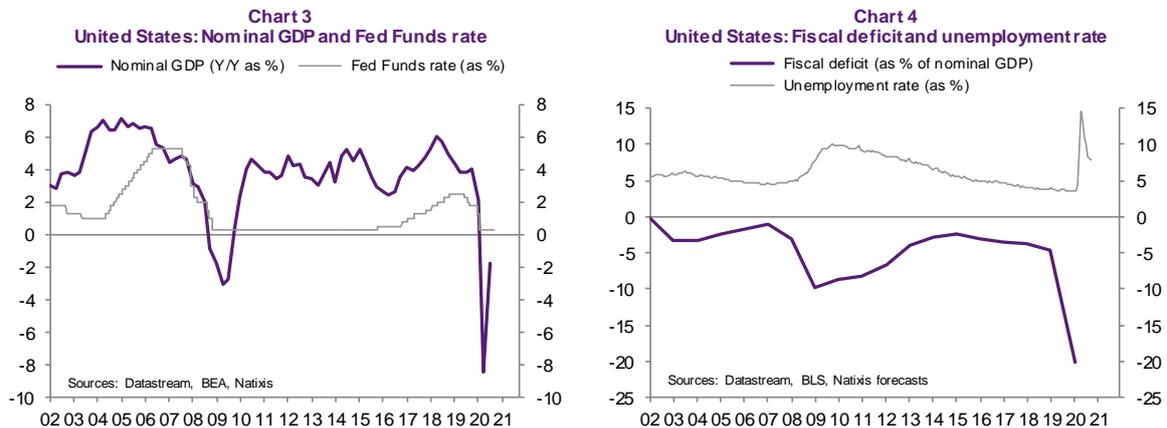
This new central bank practice has sometimes been referred to as the theory of “overheating”: it is argued that continued demand stimulus despite the fact the economy is already close to full employment leads to some positive outcomes: hard-to-employ people get back into work, firms improve efficiency as they attempt to meet additional demand at a time of labour shortages. Inset 2 shows that this overheating theory has been applied in the United States under Donald Trump's presidency.

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## Inset 2

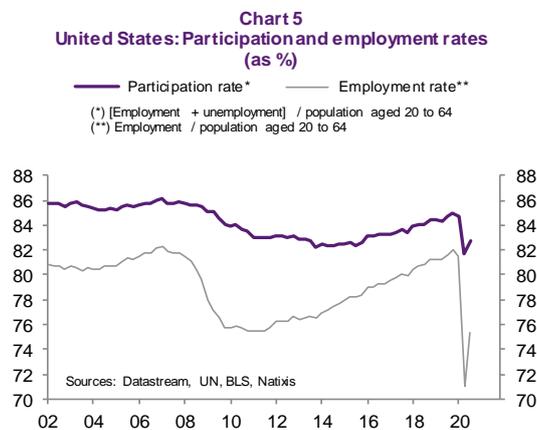
### Overheating theory in the United States under Donald Trump

US monetary policy (Chart 3) and fiscal policy (Chart 4) remained expansionary after 2017 even though the unemployment rate was low and remained so until the COVID crisis.



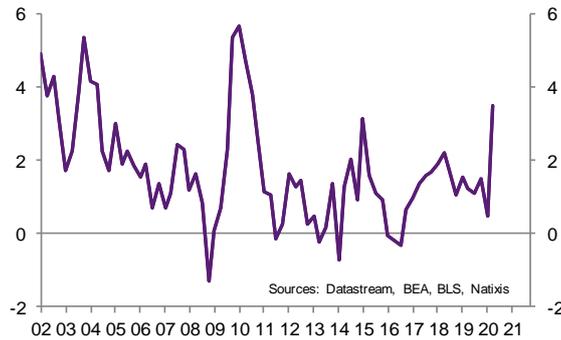
This had a number of positive effects:

- Rise in the participation rate (the percentage of the working-age population in the labour market) and in the employment rate (Chart 5), which means that the stimulation of demand attracted new people to the labour market;



- Upturn in productivity gains from 2016 until the COVID crisis (Chart 6), as firms had to become more efficient to meet strong demand at a time when the labour market was already tight.

Chart 6  
United States: Per capita productivity (Y/Y as %)



## Average inflation targeting and yield curve control: Two new objectives

So today, monetary policy remains expansionary throughout the entire growth period, not only early in the growth period like in the past. In technical terms, this may take the form of two new monetary policy modalities.

The first is average inflation targeting.

In the past, central banks practised inflation targeting. In recessions, inflation falls below the 2% inflation target (Chart 7; core inflation is inflation excluding energy and food). In economic recoveries, the central bank's objective is to lift inflation back to 2%. When inflation is threatening to rise above 2%, the central bank starts to raise interest rates.

Chart 7  
OECD\*: Inflation and core inflation (Y/Y as %)



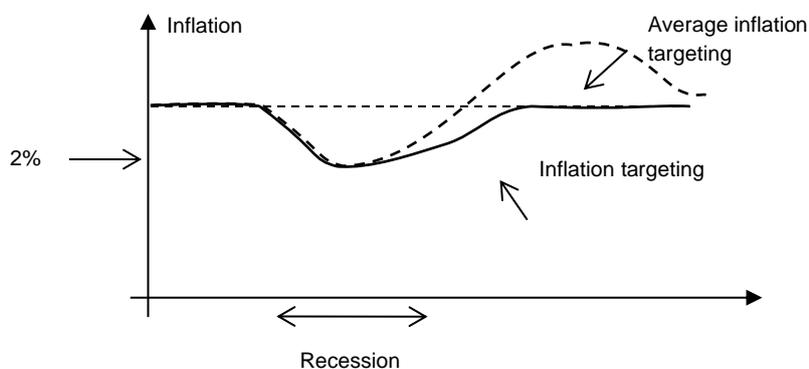
But with average inflation targeting, the objective is not to get inflation back to 2%, but to get it back to 2% on average over several years. This means that when inflation has been lower than 2%, it must subsequently be higher than 2% for an equivalent period of time (Inset 3).

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### Inset 3

#### Inflation profile across the economic cycle with inflation targeting and average inflation targeting

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With average inflation targeting, the recession is higher than 2% to offset the period when it was

higher

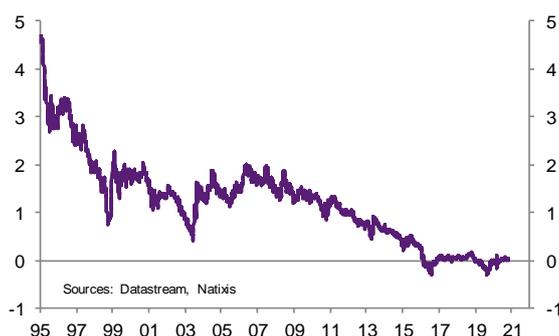
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The result is a monetary policy that remains highly expansionary long after the end of a recession.

Yield curve control is an even more extreme option. For the central bank, it involves adopting a target long-term interest rate. The Bank of Japan has gone down this path: in Japan, the 10-year interest rate is to remain between 0 and 10 basis points (Chart 8).

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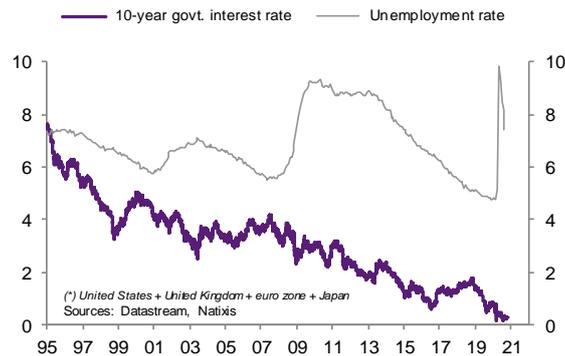
Chart 8  
Japan: Interest rate on 10-year government bonds  
(as %)



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This choice results in an even more expansionary monetary policy than average inflation targeting: the longer the economy is in expansion, the more long-term interest rates tend to rise as unemployment declines (Chart 9) and the more expansionary monetary policy must be in order to prevent this rise in long-term interest rates.

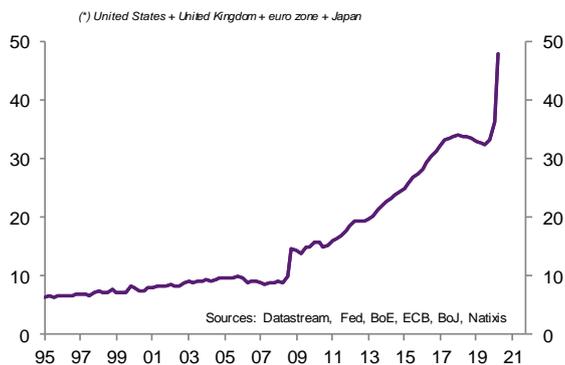
**Chart 9**  
**OECD\*: Interest rates on 10-year government bonds and unemployment rate (as %)**



The orientation of monetary policy in contemporary economies is clear: it is no longer countercyclical; it remains expansionary throughout the entire growth period, even when the unemployment rate has become very low. Moreover, in the case of yield curve control, it can even become increasingly expansionary the longer the economy spends in expansion.

So monetary policy no longer oscillates countercyclically between being expansionary after a recession and restrictive a few years later. Instead, it remains continuously expansionary. Hence the upward spiral in the quantity of central bank money (Chart 10).

**Chart 10**  
**OECD\*: Monetary base (as % of nominal GDP)**

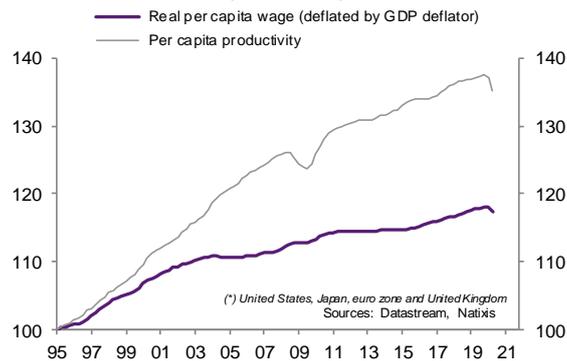


## Why did central banks change strategy?

Several factors may explain central banks' new strategy (to keep monetary policy expansionary throughout entire expansion periods).

One factor is the decline in inflation (Chart 7 above) mainly under the effect of wage austerity and the decline in wage earners' bargaining power, which has skewed the income distribution against wage earners (Chart 11 shows the extent to which real wages have been outpaced by labour productivity since the 1990s).

**Chart 11**  
**OECD\*: Per capita real wage and productivity**  
**(1995:1 = 100)**



Low inflation of course makes it easier to use monetary policy for objectives other than price stability.

A second factor is the decline in (long-run) potential growth in OECD countries (Chart 12) under the effect of population ageing and the slowdown in productivity. It has prompted central banks to stimulate investment strongly in an attempt to lift long-run growth.

**Chart 12**  
**OECD\*: Real potential growth\*\***



The third is the intense pressure from public opinion and governments for central banks to contribute to the fight against unemployment and the poverty that comes with it. It is striking to hear the Federal Reserve talk about the need to obtain a very low unemployment rate in order to reduce inequality. Inflation targeting alone is no longer socially acceptable.

But of course, as outlined in the previous chapter, all these objectives result in central banks above all seeking to avert public debt crises and restore governments' solvency despite their huge fiscal deficits.

## Chapter 3

### The oft-misunderstood nature of the new monetary policies

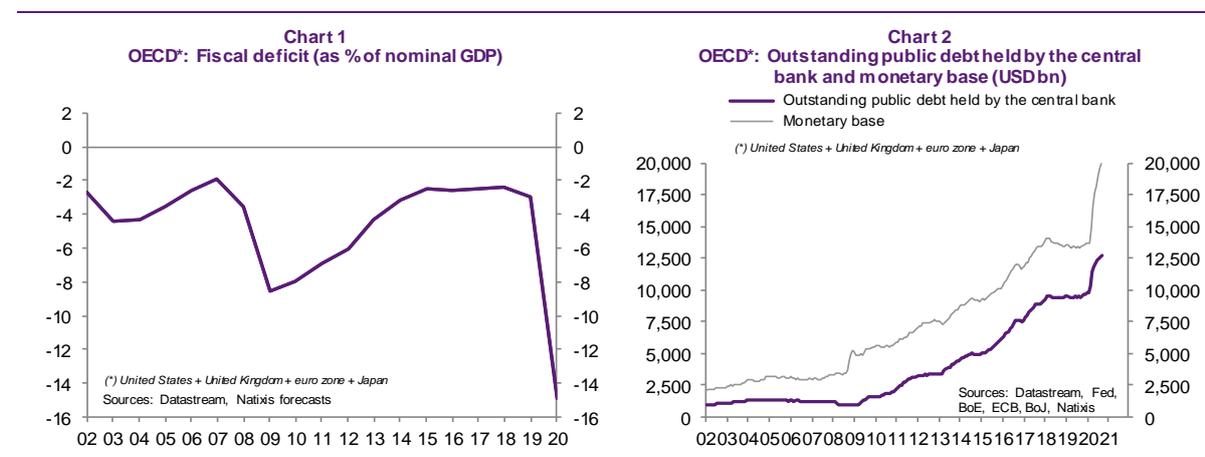
“Modern” monetary policy practice therefore consists in keeping monetary policy permanently expansionary. Since the subprime crisis, it has resulted from the monetisation of fiscal deficits.

The mechanisms put into action are often misunderstood: for example, the differences between quantitative easing and helicopter money, the specific character of the portion of the public debt that is held by the central bank, or how the long-run equilibrium responds to a large increase in the money supply: does money have a stable relationship with income or wealth?

### Monetisation of fiscal deficits and public debt

Since the 2008-2009 subprime crisis in the United States and the United Kingdom, since 2013 in Japan and since 2015 in the euro zone, OECD central banks have practised quantitative easing. In other words, they have monetised fiscal deficits. Governments have run fiscal deficits, financed them by issuing public debt (sovereign bonds) and this debt has been bought by central banks, which have paid for it by creating money.

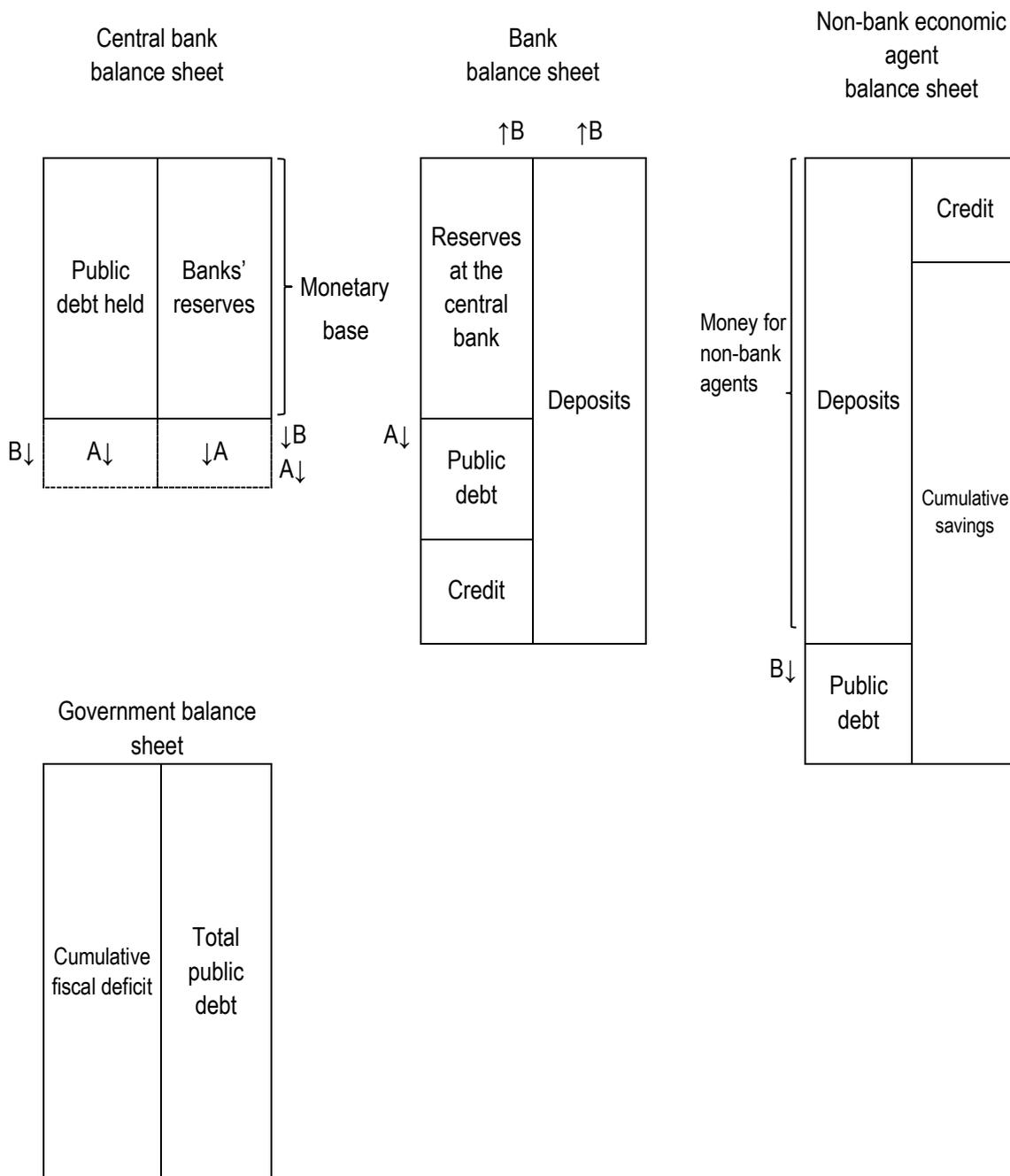
Indeed, since the subprime crisis, the OECD as a whole has run a continuous fiscal deficit (Chart 1; by convention the fiscal deficit is shown as a negative value) and has seen parallel increases in both the quantity of public debt held by central banks and the central bank money supply (monetary base, Chart 2).



The mechanism by which public debt (the fiscal deficit) is monetised is recapped in Inset 1: if the central bank buys government bonds from banks, it credits their reserve account at the central bank and the central bank money supply increases; if the central bank buys government bonds from a non-bank economic agent, this economic agent receives a credit in their deposit account: the central bank money supply and the money supply for non-bank economic agents increase by the same amount.

**Inset 1**

**Monetisation of fiscal deficits – quantitative easing**



- The arrows marked A show the effect of central bank public debt purchases from banks: the central bank pays the banks by crediting their reserve accounts at the central bank; the monetary base (the sum of the central bank's balance sheet) increases;
- The arrows marked B show the effect of central bank public debt purchases from non-bank economic agents: non-bank economic agents hold less public debt and more deposits; banks hold a matching amount of additional reserves at the central bank; the central bank holds more public

debt. There are equal increases in the monetary base (central bank money supply) and in the money supply for non-bank economic agents.

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This money creation mechanism, which can be called monetisation of public debt (fiscal deficits) or quantitative easing, has led to some debate that has betrayed a fairly widespread misunderstanding of the ensuing monetary mechanisms.

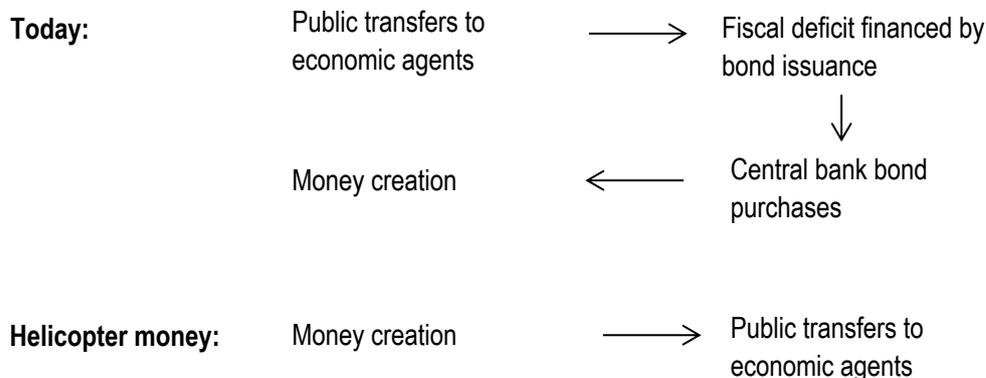
## Quantitative easing and helicopter money

Quantitative easing is a situation where the central bank buys public debt by creating money. Central banks have faced frequent calls to go further and switch to helicopter money. Helicopter money is a situation where the central bank creates money and distributes it to economic agents. But it is important to understand that helicopter money is simply the sum of a fiscal deficit and quantitative easing (Inset 2). When the government makes a public transfer payment to households or firms, finances it by issuing public debt and the central bank buys this public debt by creating money, it is as if the central bank gave the money to the economic agents who received the public transfers. In other words, helicopter money has indeed been implemented during the COVID crisis, albeit with a nuance: the government has selected the nature of the public transfers, not the central bank. And rightly so: in a democracy, it is quite unacceptable for the central bank and not the government or parliament to decide who receives public transfer payments.

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### Inset 2

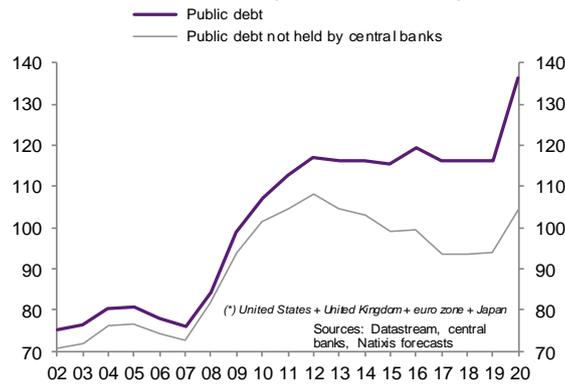
#### In reality, governments are implementing helicopter money



## The status of public debt held by the central bank

So central banks are buying large quantities of public debt, which they are financing with money creation (Chart 2 above). Yet the public debt ratio continues to be calculated as the total debt ratio, corresponding to all public debt issued including that held by the central bank (Chart 3).

**Chart 3**  
**OECD\*: Public debt (as % of nominal GDP)**



This very high level of public debt is the subject of much concern, especially after the COVID crisis. But only the portion of the public debt that is not held by the central bank matters (see Chart 3 above). This is because a central bank belongs to its government and pays its profits to the government. When a central bank holds public debt, the interest on the corresponding bonds that the government pays to the central bank is returned to the government. The public debt held by the central bank is a debt that the government owes to itself. In other words, because the central bank is the government, the balance sheets of the government and the central bank should not be assessed in isolation; rather, one must look at a consolidated balance sheet of the government and the central bank.

**Inset 3**

**Consolidated government and central bank balance sheet**

Government balance sheet		Central bank balance sheet		Consolidated government and central bank balance sheet	
Cumulative fiscal deficit	Public debt	Public debt held	Money issued	Cumulative fiscal deficit	Money
					Public debt not held by central bank

The money created by the central bank and the portion of the public debt that is not held by the central bank show up on the liability side of the consolidated balance sheet of the government and the central bank.

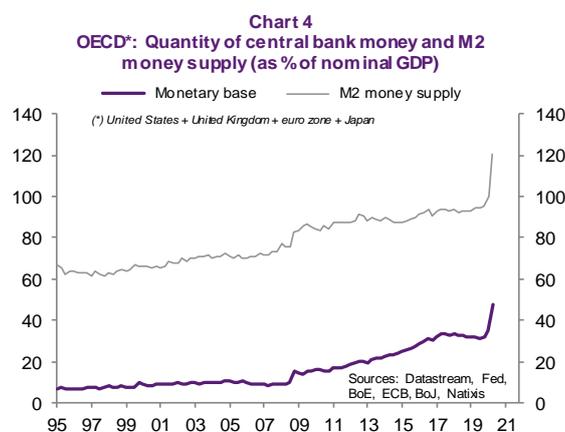
Chart 3 above shows that the public debt not held by the central bank has not risen relative to GDP. But there has been a large increase in money issued by the central bank (Chart 2 above). So the

question, which we will address below, concerns the excess money in supply – not the excess supply of public debt.

If there is no increase in the public debt (in the portion of the public debt that is not held by the central bank), there is no risk of a debt crisis and no need to increase taxes to repay the public debt, contrary to what is repeatedly claimed.

## Long-run equilibrium: Transaction money or investment money?

In the previous chapter, we saw that central banks have decided to keep monetary policy permanently expansionary throughout entire growth periods, with constant monetary expansion linked to purchases of public debt (fiscal deficit monetisation). The result is a continuous rise in the money supply, whether central bank money supply (the monetary base) or money supply for non-bank economic agents (banknotes and deposits, M2, Chart 4).



To understand the effects of continuous monetary expansion, one has to identify that with which demand for money has a stable long-run relationship.

In conventional monetary theory, money is transaction money: it is used to buy goods and services. Money therefore has a robust long-run relationship with nominal income or nominal GDP. In the long run, nominal GDP is equal to potential GDP. It is determined by demographic factors and technological progress, not monetary policy. If the money supply increases, then in the long run there will inevitably be a proportional increase in the price level in order to maintain proportionality between the quantity of money and nominal income (Inset 4).

### Inset 4

#### Transaction money

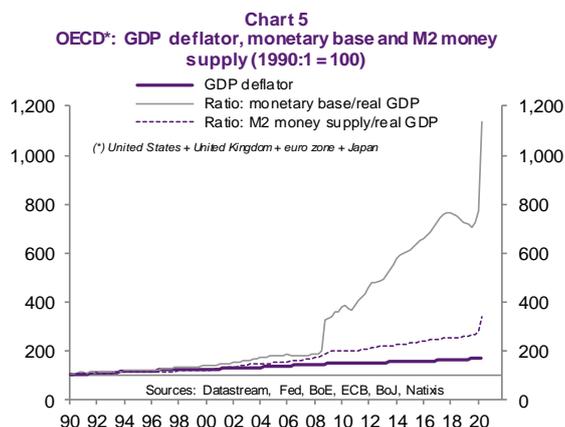
If money is transaction money, then in the long run:

$$\begin{aligned} \text{Money supply} &= \text{Demand for money} = \text{Constant} \times \text{Nominal GDP} \\ &= \text{Constant} \times \text{Price level} \times \text{Nominal GDP} \end{aligned}$$

If the money supply increases by 1%, then in the long run the price level will increase by 1%.

If money supply growth increases, inflation will increase by the same proportion.

But today, this conventional theory has been refuted by the facts. Chart 5 shows the evolution since 1990 of the level of the GDP deflator and the ratio of the money supply to real GDP for both central bank money (monetary base) and M2 money (deposits and banknotes) in OECD countries. It shows that the increase in the money supply relative to real GDP has not given rise to a similar increase in the price level at all. Another model for demand for money in the long run is therefore required.



The other possible model is an investment money model. Money is a component of wealth, like bonds, shares and real estate. In the long run, money's share of wealth must be stable. If the money supply increases, wealth must therefore increase proportionally. Because the quantity of financial and real estate assets (the number of bonds, houses or shares) is rigid in the short term, this proportionality is obtained thanks to an increase in their prices (Inset 5).

### Inset 5

#### Investment money

If money is investment money, then in the long run:

$$\text{Money} = \text{Constant share} \times \text{Wealth}$$

$$\text{And Wealth} = \text{Money} + \text{Value of other assets}$$

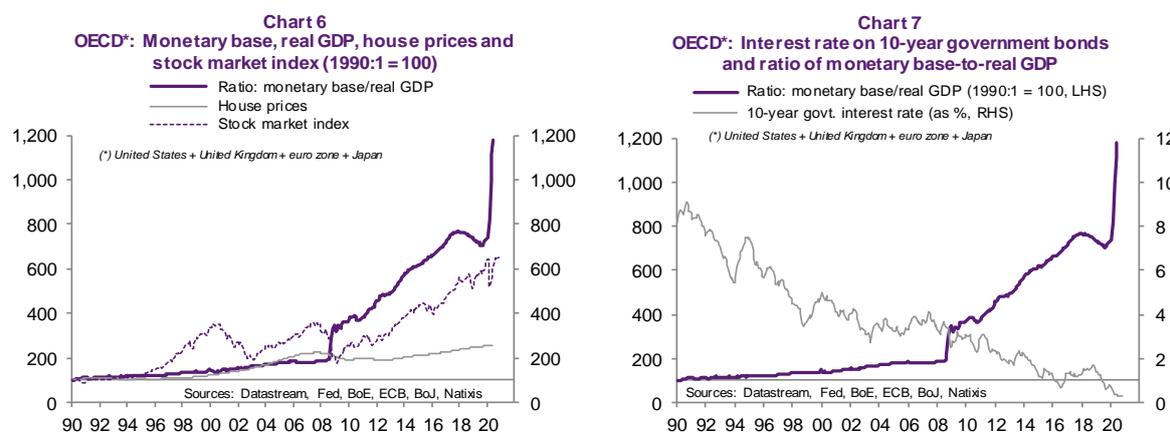
$$= \text{Money} + \text{Number of assets} \times \text{Price of assets}$$

where these assets are bonds, shares and real estate.

If the money supply increases, then the value of other assets must increase by the same proportion. In other words, the prices of these other assets must increase in line with the money supply.

With the investment money model, we therefore expect bond prices, share prices and real estate prices – but not goods and services prices – to increase in line with the ratio of the money supply to real GDP.

Indeed, Charts 6 and 7 show a relationship between increases in the central bank money supply, increases in share indices, increases in real estate prices and decreases in long-term interest rates (increases in bond prices).



## The debate needs clarity

There is a need for clarity in the debate on monetary mechanisms. This chapter has pointed out that helicopter money is simply the sum of the fiscal deficit and quantitative easing (fiscal deficit monetisation) and that central banks are already implementing helicopter money. And yet its implementation is still too often demanded.

It has also pointed out that it is only the portion of the public debt that is not held by the central bank – and not the total public debt – that matters for the assessment of government solvency.

Finally, to assess the long-term effects of vigorous money creation, which is the subject of the next chapter, one has to refer to the investment money model, which generates a stable relationship between the money supply and asset prices (bonds, shares and real estate). In contrast, the transaction money model generates a stable relationship between the money supply and goods and services prices.

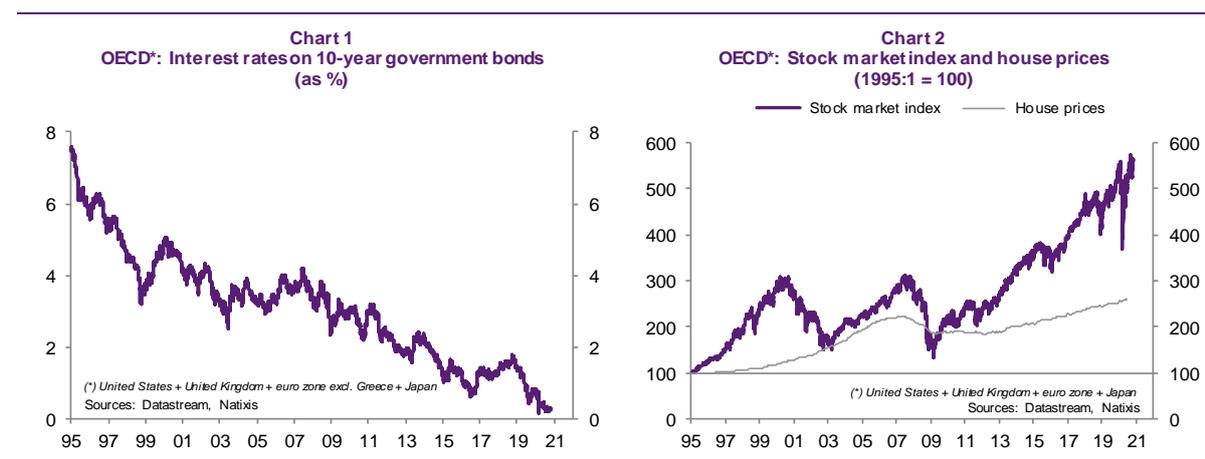
## Chapter 4

### Identifying all the harmful consequences of endless monetary expansion

So central banks have opted for a strategy of monetary expansion that is no longer countercyclical, but structural and endless. Now that the mechanisms set in motion have been understood, our attention must turn to the harmful consequences of this strategy in the long term. Endless monetisation of public debt prevents several types of crises in the short term, but cannot come without cost. What are these costs? Are they inflation, financial instability and asset price bubbles, a loss of value of money and the de facto taxation that results, or the incentive to never correct fiscal deficits given central banks' structural position of weakness?

#### Financial instability and bubbles

The previous chapter explained how in contemporary economies, money is more investment money (a component of financial and real estate wealth) than transaction money. So if central banks have adopted a monetary policy that is not only no longer countercyclical, but is endlessly expansionary, then in the long run the continuous growth in the money supply will lead to excessive rises in asset prices: abnormally low long-term interest rates (abnormally high bond prices, Chart 1), abnormally high share prices and real estate prices (Chart 2).



So one should expect asset price bubbles and therefore repeated financial crises, as asset price bubbles always end up collapsing.

Bubbles can collapse in two ways: exogenously, due to a rise in interest rates; or endogenously, due merely to the fact that the asset's price becomes abnormally high, which causes demand for this asset to plummet, leading its price to correct (Inset 1).

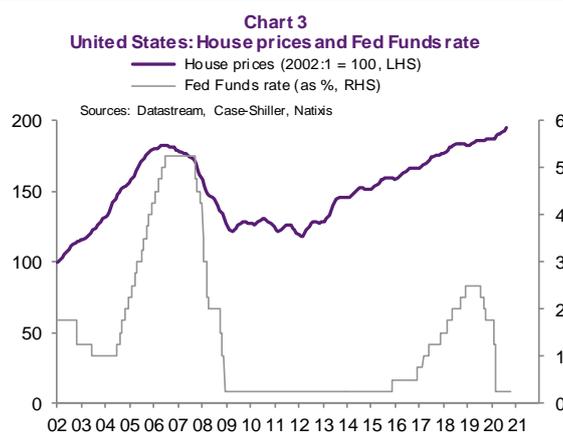
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## Inset 1

### Exogenous and endogenous bubble collapses

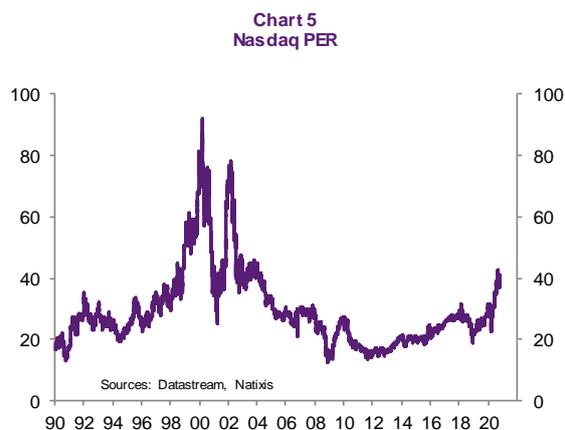
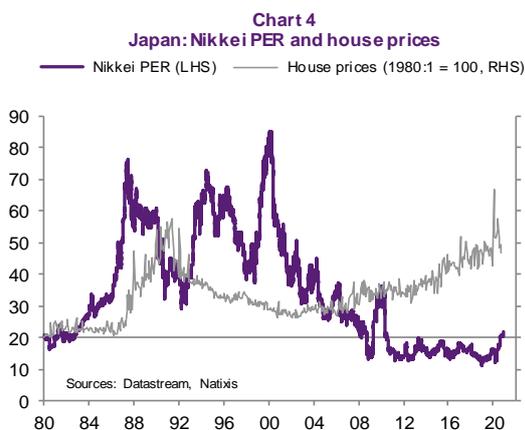
Asset price **bubbles collapse exogenously** when a rise in interest rates causes the asset's "fundamental" price to fall, which drives down demand for the asset, for example because borrowing is deterred, and collapses the bubble.

The collapse of the real estate bubble in 2007-2008 in the United States is a typical example of an exogenous bubble collapse (Chart 3).



Asset price **bubbles collapse endogenously** when the collapse is caused not by rising interest rates, but by the mere fact that the asset's price has become so high relative to income that demand for it disappears, leading to a correction in its price.

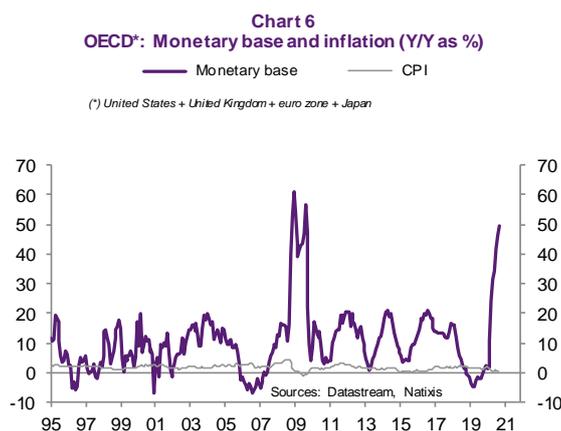
A largely endogenous bubble collapse was observed in the late 1980s in Japan, due to the absurd prices reached by equities and real estate (Chart 4), and in the United States in 2000 when the technology stock bubble burst (Chart 5). In Charts 4 and 5, the PER is the ratio of share prices to earnings, which is a measure of equity valuation.



## The question of inflation

It is still widely believed that very rapid money creation inevitably ends up leading to inflation or even hyperinflation. The previous chapter explained how this corresponds to a situation where money is transaction money, resulting in a stable relationship between money creation and goods and services prices. But we also saw that this relationship disappeared in the 1990s.

It is therefore difficult to imagine the current very rapid money supply growth bringing back inflation in goods and services prices (Chart 6). Instead, attention should focus on the risk of inflation in asset prices (equities, real estate).



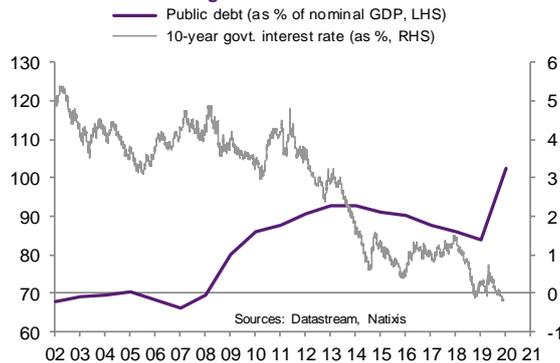
But consider the case of helicopter money: if the expansionary monetary policy continues to take the form of helicopter money, whereby money is effectively distributed to economic agents (we have seen that monetising the fiscal deficits that result from these transfers is equivalent to helicopter money), then eventually there could be a sharp rise in demand for goods and services and therefore a return of inflation.

While asset price bubbles are the most likely consequence of permanently expansionary monetary policies, resurgent inflation cannot be completely ruled out.

## Acceptability of money and loss of value of money

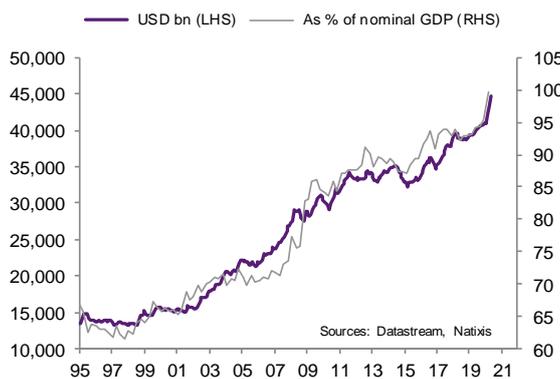
If the very high fiscal deficits run in OECD countries were financed by public debt (by issuing bonds without monetisation), then the problem would be the acceptability of public debt. Economic agents (savers and investors) would have to be willing to hold much more public debt. If the acceptability of public debt is too low, then it will be restored by higher long-term interest rates, making bonds more attractive. This kind of public debt acceptability crisis was observed from 2010 to 2014 in the euro zone (Chart 7).

**Chart 7**  
Euro zone: Public debt and interest rate on 10-year government bonds



But if the public debt is monetised, there is no longer any debt acceptability problem, as the public debt issued is immediately bought by the central bank. The problem then becomes the acceptability of money: are economic agents willing to hold the large increase in money issued by the central bank to finance the fiscal deficits (Chart 8; M2 represents banknotes and bank deposits)?

**Chart 8**  
OECD\*: M2 money supply



If there is too much money in circulation, the acceptability of money for savers and investors will have to be restored, to which end other assets will have to be made less attractive. The prices of these other assets must then become too high, requiring a sharp fall in long-term interest rates (that is, a sharp rise in bond prices, Chart 1 above) and sharp rises in share prices and in real estate prices (Chart 2 above).

Herein lies the major difference between debt- and monetary financing of fiscal deficits. In the case of debt-financing, the acceptability of debt must be restored, requiring a rise in long-term interest rates. In the case of monetary financing, it is the acceptability of money that must be restored, requiring rises in the prices of all other financial and real estate assets (a fall in long-term interest rates in particular), which deters savers and investors from holding them because they have become too expensive. A non-monetised fiscal deficit drives up long-term interest rates; a monetised fiscal deficit pushes them down. This difference is crucial.

One can therefore conclude that monetary expansion leads to asset price bubbles via the acceptability of holding money, that is within an investment money or portfolio choice approach.

An approach that focuses on the loss of value of money arrives at the same mechanisms.

If excessive money creation results in excess money supply, then money, like all goods and services, loses value.

Under the conventional transaction money approach, money loses value in terms of its capacity to buy goods and services: a given quantity of money can buy fewer goods and services, which is equivalent to saying that goods and services prices rise. If money loses value in terms of its capacity to buy assets, a given quantity of money can buy fewer assets (equities, real estate), which is equivalent to saying that asset prices rise (Inset 2).

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## Inset 2

### Loss of value of money

Excess money supply (excessive money creation) leads to a fall in the value of money. But it may fall with respect to its capacity to buy goods or its capacity to buy assets.

Chart 9 shows **the volume of goods that can be purchased with 1 monetary unit.**

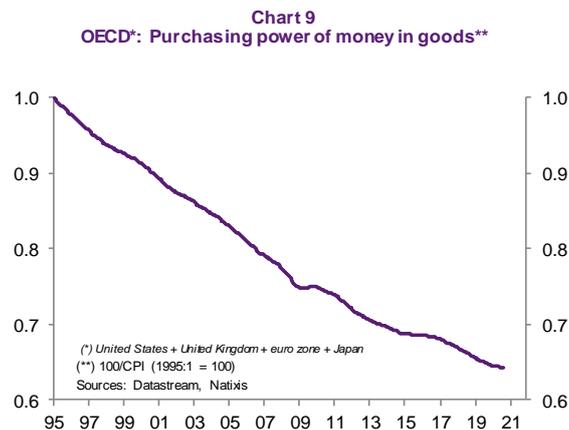
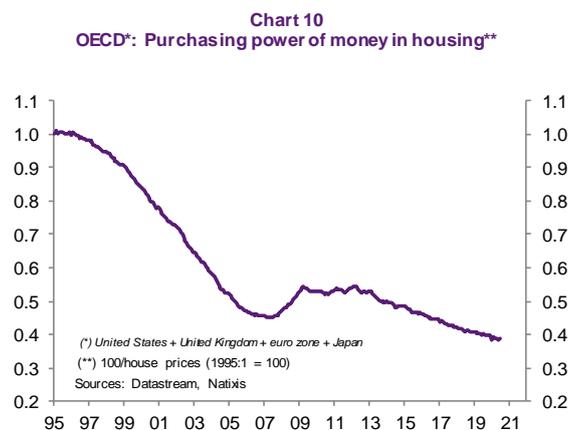


Chart 10 shows the volume of houses that can be purchased with 1 monetary unit.



## Flight from money

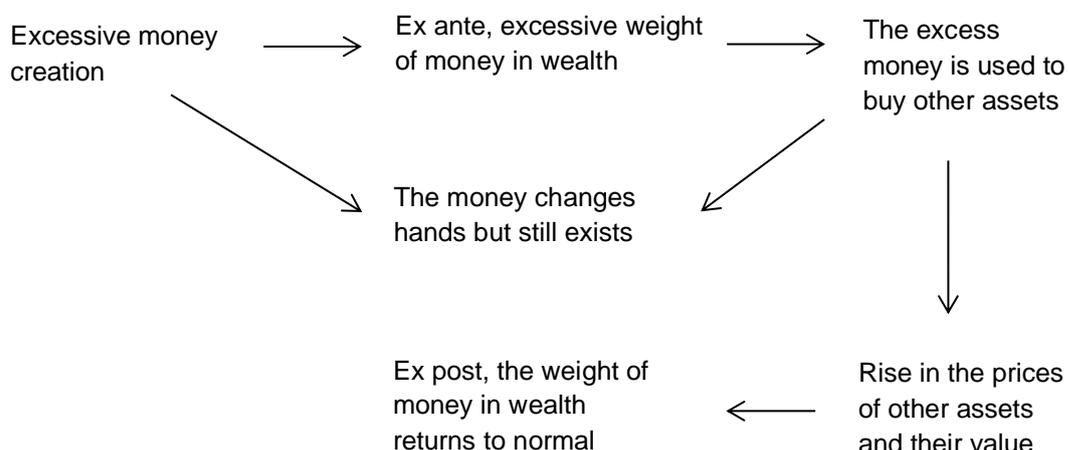
So when excessive money creation gives rise to asset price bubbles, it is because at equilibrium, money must account for a constant fraction of wealth and that, equivalently, money loses value in terms of its capacity to buy financial or real estate assets.

But it is important to identify the mechanism in concrete terms: money is created; initially, savers hold too much money; they then try to buy other assets; this drives up the prices of these assets and, ex post, pushes down the weight of money in portfolios, without modifying the quantity of money, which is simply transferred from the buyer of assets to the seller (Inset 3).

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### Inset 3

#### The mechanism of portfolio rebalancing

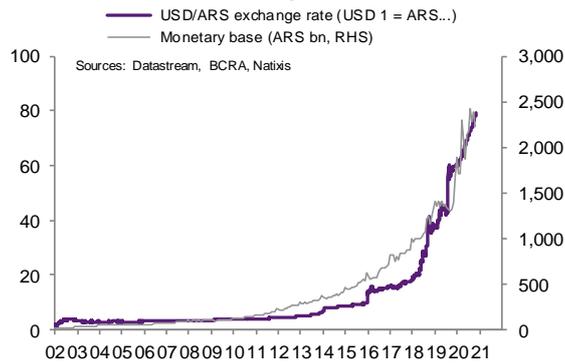


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In reality, flight from money is the same mechanism, but much more extreme: economic agents believe that money will lose all its value, so they want to get rid of it.

In an emerging country, the mechanism is straightforward: savers buy foreign currencies to get rid of the national currency, resulting in huge capital outflows and a sharp depreciation of the exchange rate. Chart 11 shows the example of the Argentine peso's collapse under the effect of the huge money creation in Argentina.

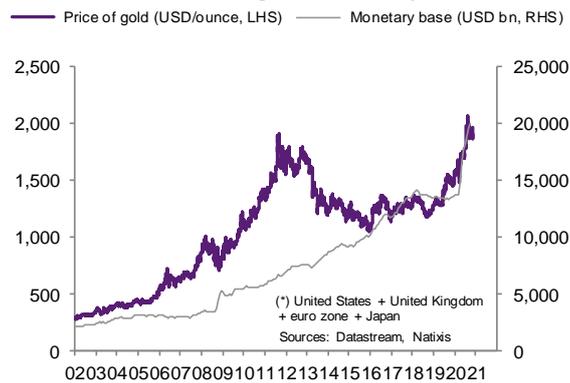
**Chart 11**  
**Argentina: Exchange rate against the dollar and monetary base**



But in an OECD country that issues a reserve currency (United States, euro zone, United Kingdom, Japan), flight to another currency is not a possibility.

Instead, there is either a widespread shift into other asset classes (real estate) and a very sharp rise in the prices of these assets. Or there is a search for safe-haven assets as a substitute for money, in which confidence has been lost: gold (Chart 12), private currencies and cryptocurrencies in the future (Bitcoin and its successors).

**Chart 12**  
**OECD\*: Price of gold and monetary base**



## An unequivocal tax, especially on the young

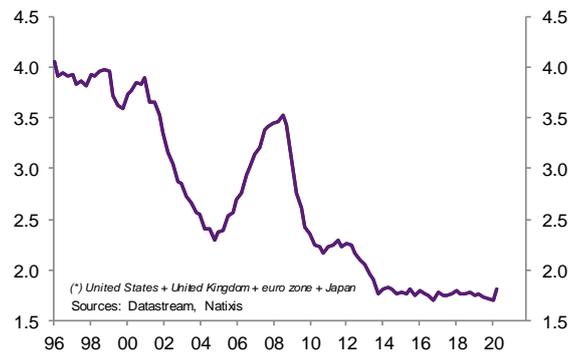
The above shows that permanent monetary expansion will in all likelihood lead in the medium term to a sharp and across-the-board rise in asset prices: bonds (very low long-term interest rates), equities (very high stock market indices), real estate (very high house prices).

Traditionally, when fiscal deficits were not monetised, returning to fiscal solvency required an increase in taxes to eliminate fiscal deficits.

But it is important to understand that when the fiscal deficit is monetised, there are also taxes that end up restoring fiscal solvency.

Abnormally low long-term interest rates are a tax on savers, whose savings income becomes ever lower (Chart 13 shows the striking fall in interest received by households on their savings). Abnormally high share prices are also a tax on savers, who have to overpay to receive future dividends; high real estate prices are a tax on home buyers, who pay too much.

Chart 13  
OECD\*: Interest received by households  
(as % of nominal GDP)



These various taxes are particularly unjust insofar as they affect the young, who have to build up wealth to supplement their future pension and have to buy a home.

So when a non-monetised fiscal deficit becomes monetised, the restoration of fiscal solvency still requires a tax, but its nature differs. In the case of a non-monetised fiscal deficit, the use of existing taxes tends to affect the wealthiest. In the case of a monetised fiscal deficit, the incidence of the tax falls on the young: this is unjust, especially as the “old”, who already own assets, benefit from the rise in asset prices.

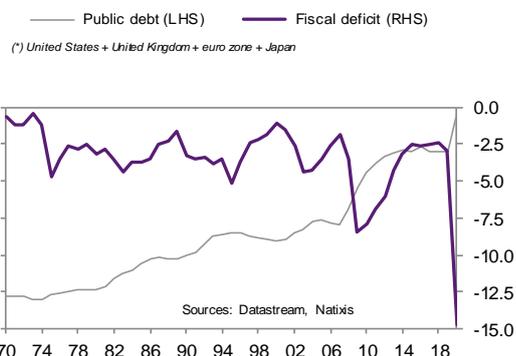
## Fiscal dominance

So one harmful consequence of continuous monetary expansion is asset price bubbles, the crises that are sparked when these bubbles collapse, and the taxes on the young that these bubbles raise.

A second harmful consequence of a policy of fiscal deficit monetisation is the change in the power relationship between the government and the central bank.

In normal times, fiscal policy is responsible for restoring fiscal solvency: if the public debt increases excessively, the fiscal deficit must be reduced to stabilise the public debt ratio. This is what was done in the 1970s, 1980s, 1990s and until 2007 (Chart 14).

Chart 14  
OECD\*: Fiscal deficit and public debt  
(as % of nominal GDP)



But the 2008-2009 subprime crisis gave way to a new relationship between the government and the central bank, which has been called “fiscal dominance”: the government no longer tries to restore fiscal solvency; instead, it falls on the central bank to do so, which it does by monetising public debt (Inset 4 recaps the possible ways fiscal solvency can be restored). This situation is dangerous,

because it creates a strong incentive for the government to never reduce its fiscal deficits. They are monetised by the central bank, which eliminates the risk of a debt crisis.

Moreover, over time this situation becomes irreversible: the more the government takes advantage of fiscal dominance to increase its public borrowing, the more impossible it becomes for the central bank to exit its monetisation policy due to the risk of an increasingly drastic public debt crisis. OECD countries may therefore become entrenched in a lasting situation of high and monetised fiscal deficits under fiscal dominance.

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#### **Inset 4**

##### **Return to fiscal solvency**

We begin with an accounting relationship:

$$\begin{aligned} \text{Change in the ratio of public debt to GDP} &= \text{Public debt ratio in year } t - 1 \\ &\times (\text{Nominal interest rate} - \text{Nominal growth rate}) \\ &- \text{Change in the money supply relative to GDP} \\ &- \text{Primary fiscal surplus} \end{aligned}$$

The public debt ratio increases with interest on the public debt, but decreases with economic growth; it decreases with the portion of the fiscal deficit that is financed by money creation; it decreases with a primary fiscal surplus, that is excluding interest payments on the public debt.

Fiscal solvency requires the public debt ratio to stabilise.

This can be obtained:

- Via a more restrictive fiscal policy (increase in the primary fiscal surplus);
- Via monetisation of the fiscal deficit, with a direct effect (the substitution of money for public debt) and an indirect effect (lower interest rates relative to the growth rate).

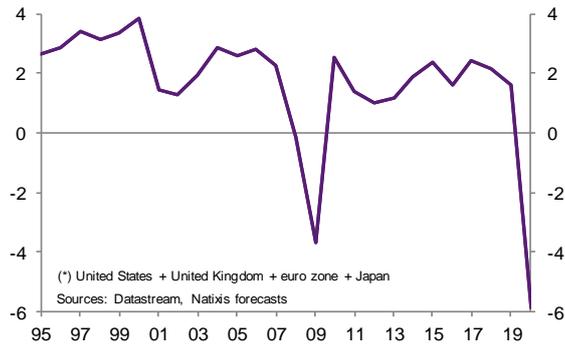
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## **There is no free lunch**

One might believe that governments have found a miracle cure to all their problems: central bank monetisation of fiscal deficits. Faced with even acute crises like the COVID crisis (Chart 15 shows the magnitude of the fall in production in OECD countries in 2020), governments can run a fiscal deficit of any size (see Chart 14 above), because it is financed without difficulty as the central bank buys the public debt issued in return for money creation.

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Chart 15  
OECD\*: Real GDP (as % per year)



But this chapter has identified the multiple drawbacks of such a policy in the medium term: asset price bubbles and possibly even the return of inflation due to the massive use of helicopter money; taxation of the young, savers and home buyers; irreversible fiscal dominance, that is central banks being forced to endlessly monetise fiscal deficits and governments lacking the incentive to reduce these deficits.

There is no free lunch.

The first chapter explained how repeated crises had imposed the monetisation of fiscal deficits. But the costs of this policy, even though inevitable and necessary in the short term, must not be overlooked.

## Chapter 5

### Microeconomic disorder also

The expansionary monetary policies therefore create macroeconomic disorder: asset price bubbles, loss of confidence in money, and so on. But they also create microeconomic disorder: they erase the information contained in the market equilibrium prices of financial assets. This loss of the informational content of financial market prices leads to the misallocation of savings; in turn, this inefficiency in the allocation of savings reduces potential growth.

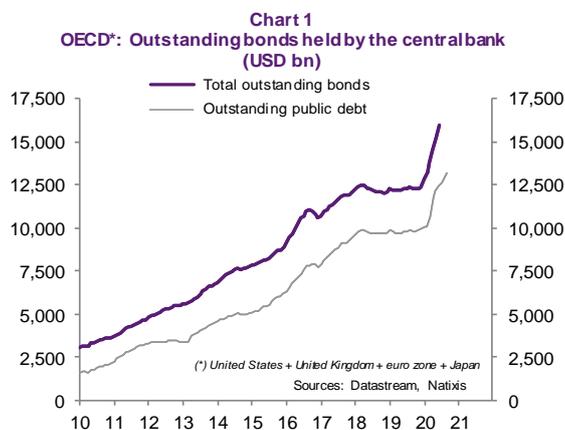
### The normal role of market equilibrium prices

Market equilibrium prices form the basic mechanism of the market economy. They give buyers and sellers (consumers and producers) all the information they need about supply, the degree of scarcity of the good exchanged and the related risks. This holds for all goods, services, real estate and also financial assets. For goods and services, the observation of market prices leads to an optimal equilibrium; for financial assets, it leads to an optimal allocation of savings.

It is the great virtue of the market economy that the observation of prices leads producers and consumers to behave in a way that results in an efficient equilibrium.

### Highly expansionary monetary policy gives rise to distortions in financial market equilibrium prices

As we saw above, a highly expansionary monetary policy consists in central banks buying huge quantities of government bonds and, in smaller amounts, corporate bonds (Chart 1).

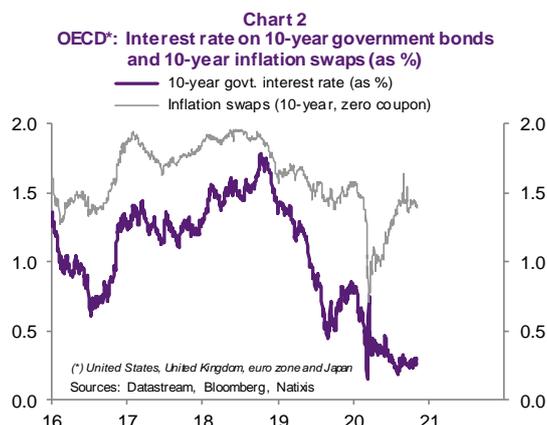


It is important to understand that this leads to a demand for financial assets that does not have the normal characteristics. Central banks buy bonds without paying attention to their yield; this forces other investors to shift into other financial assets and to have abnormally strong demand for these assets.

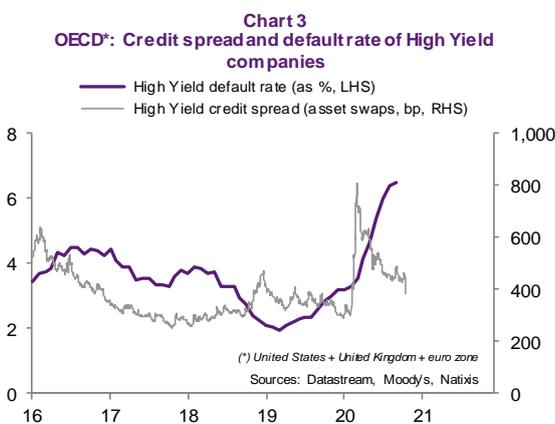
This abnormally strong demand for financial assets, regardless of their yield and risk characteristics, erases the informational content of asset prices, as demand for financial assets no longer depends on their characteristics.

## The informational content of financial market equilibrium prices has been erased

Let us focus on the recent period (2020). The COVID crisis has led to the introduction of particularly expansionary fiscal and monetary policies in OECD countries. During this period, long-term interest rates have remained very low, despite the fiscal deficits, as outlined above, and despite the more recent rise in expected inflation (Chart 2 shows the long-term interest rate and 10-year inflation swaps, which are a measure of expected inflation in financial markets).

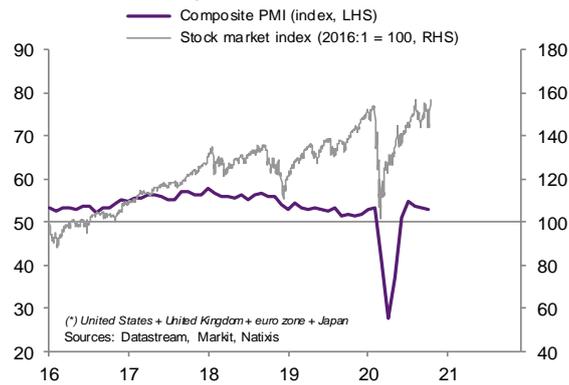


In the recent period, the risk premiums paid by firms on their bond issues have reacted only slightly to the rise in corporate default rates (bankruptcies). For the riskiest firms, referred to as high-yield, Chart 3 compares the credit spread, which is the risk premium they pay on their bonds, and the default rate.



Moreover, share prices have barely reacted to changes in growth expectations (the composite PMI measures expected economywide growth; expected growth is positive if the index is above 50; Chart 4) and therefore in expectations of corporate earnings.

Chart 4  
OECD\*: Composite PMI and stock market index



Long-term interest rates no longer provide information on the expected situation of public spending or expected inflation; risk premiums on corporate bonds no longer provide information on the outlook for corporate bankruptcies; share prices no longer provide information on the trajectory of activity or earnings.

## The erasure of the informational content of financial asset prices reduces potential growth

It is a serious problem that the equilibrium prices of financial assets (long-term interest rates, share prices, credit spreads) are de facto prices administered by central banks and no longer have any informational content (on growth, inflation, borrower defaults, earnings or fiscal deficits).

Savers and investors no longer receive this information when they look at financial market prices, so they can no longer allocate their savings optimally or efficiently between financial assets. This misallocation of savings, which no longer flow to where yield and risk should channel them, reduces the efficiency of investment, which is not financed in the right place or in the right way, and therefore reduces potential growth.

Let us give an example. If the risk premiums paid by the riskiest firms have disappeared due to abnormally strong demand for these firms' bonds, too many savings will be lent to the riskiest firms, because investors no longer know that they are risky and believe them to be risk-free. These firms then invest too much and too much risky investment is made with a high probability of failure.

## Chapter 6

### Central bank independence and democracy

Previous chapters have showed that the most likely scenario is a continuation of central banks' policy of fiscal deficit monetisation and massive money creation; moreover, while this policy will have major costs in the long term, the economic situation makes it inevitable in the short term.

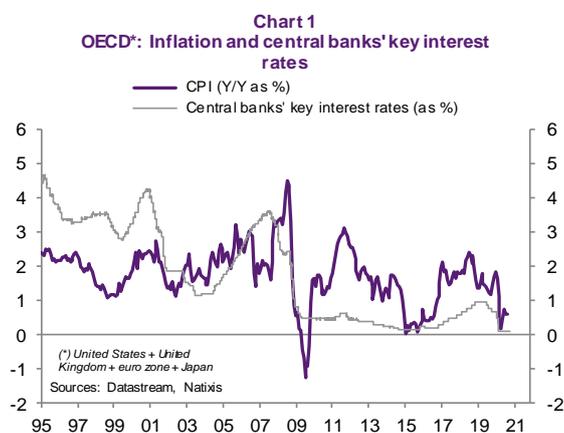
This chapter will argue that in addition to the prospect of the crises that it will give rise to later, this monetary policy poses two serious problems: it is incompatible with the central bank independence established in the 1980s; and it poses a problem for democracy, since it leads central banks to intervene de facto in the domain of parliaments' decision-making.

#### The reasons and conditions for central bank independence

Central banks were made independent in the 1980s. An independent central bank has a remit and objectives (for example inflation targeting) that have been set out in legislation and not in its own remits. But it may freely select the tools and policy to meet its objectives, without referring to or coordinating with governments or parliaments.

The objective of central bank independence is twofold: to free economic policy from the political cycle, which can encourage abnormally expansionary monetary policies in the lead-up to elections; and prevent central banks from being driven to use inflation to return to full employment (Chapter 2 covered the appearance of a credibility constraint for central banks).

Central banks were made independent after the oil shock episodes of the late 1970s and early 1980s, when central banks' timid and late response to inflation allowed it to become very high (Chart 1).

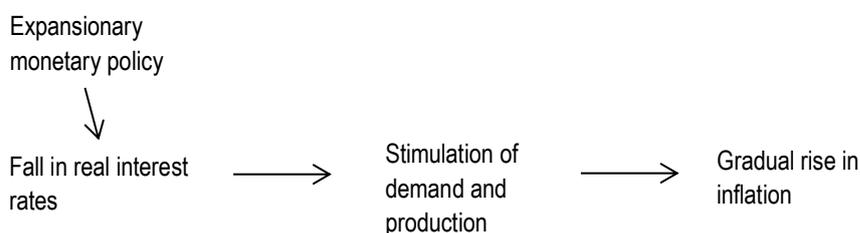


But it is important to understand what allows central banks to be independent, from both theoretical but also practical viewpoints: there must be “neutrality of money”. In other words, in the long run, monetary policy must have an effect only on inflation, with the equilibrium in the real economy (growth, unemployment and so on) depending on other economic policies, in particular fiscal policy and structural policies, which influence technical progress, education and people's employability (Inset 1).

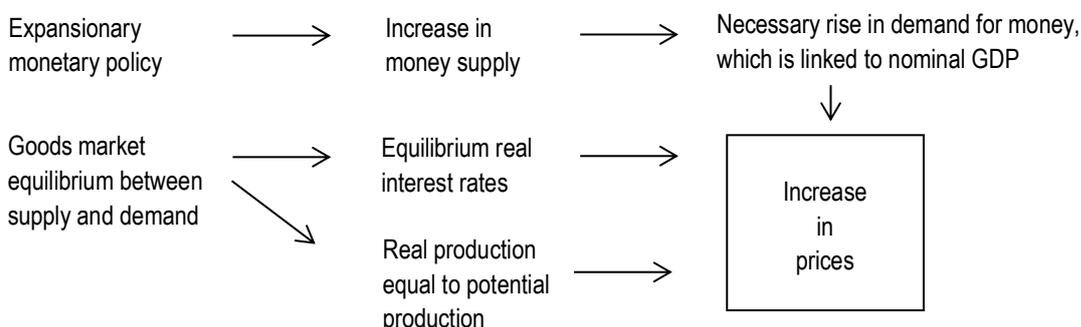
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## Inset 1: Neutrality of money

### In the short run:



### In the long run:



In the long run, the equilibrium between supply and demand for goods and services determines the equilibrium real interest rate, and production is equal to the supply of goods and services. Money is transaction money, which is linked to nominal income and therefore nominal GDP. If the money supply increases, prices rise to increase nominal income and rebalance supply and demand for money.

If monetary policy is expansionary, demand will be stimulated ex ante. Ex post, however, supply and demand will be rebalanced by a rise in the real interest rate. To increase production in the long run, the supply of goods and services must increase (technical progress, education), unrelated to monetary policy.

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This allows economic policies to specialise. Monetary policy focuses on controlling inflation; the other economic policies (fiscal, tax, innovation, education, labour market and so on) focus on supporting long-run growth and lowering structural unemployment. If economic policies can specialise, then the central bank can be independent. Monetary policy has no interaction with the other economic policies, as in the long run it influences only inflation. It is therefore completely pointless to coordinate monetary policy with the other economic policies.

## But in reality, the conditions for central bank independence are not met at all

For the central bank to be able to be independent, there must be no need to coordinate monetary policy with the other economic policies. But what has been outlined above shows that on the contrary, this coordination has now become indispensable and there is no longer monetary neutrality at all.

Indeed, central banks' monetisation of fiscal deficits enables the implementation of highly expansionary fiscal and tax policies: it therefore has an effect on the real economy, by giving

governments free rein to conduct the fiscal policy that they desire. Monetary policy has thus become a key component of fiscal policy, so it is necessary to coordinate it with the other economic policies. But in the extreme version of fiscal dominance mentioned in the previous chapter, we are no longer dealing with coordination: under fiscal dominance, monetary policy is subordinate to fiscal policy and the fiscal solvency constraint.

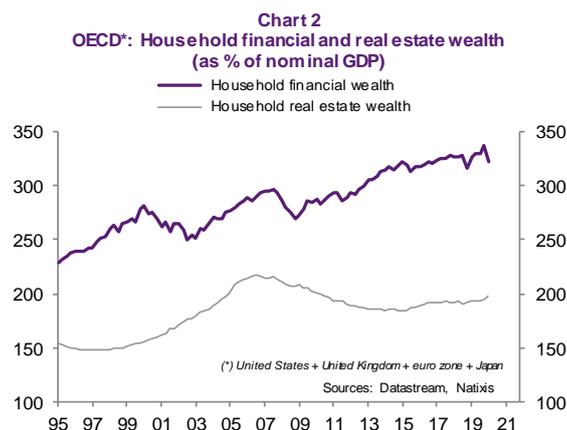
Under fiscal dominance, central banks are now only independent in theory.

In less extreme cases, the close link between monetary policy and leeway for the other economic policies does require coordination and therefore the end of central bank independence.

## The demands of democracy

Chapter 4 described how massive monetisation of fiscal deficits leads to a tax on the young, due to both the sharp fall in long-term interest rates, leading to low returns on savings or the equivalent of a tax on saving; and the rise in asset prices and real estate prices in particular, which is a clear tax because it requires the young to spend a large share of their income on housing and therefore reduces the income that remains for other spending.

Previous chapters have also shown how this highly expansionary monetary policy drives up financial and real estate prices and therefore increases the wealth of asset owners (Chart 2 shows the upward trend in financial and real estate wealth in OECD countries).



So highly expansionary monetary policy leads to a tax, and this tax is highly unjust insofar as it affects the young and drives up wealth inequality (interestingly, an expansionary monetary policy reduces income inequality but increases wealth inequality; see Inset 2).

In a democracy, the introduction of taxes - especially when they redistribute income between generations - and changes to the magnitude of inequality normally fall under the remit of parliament and not the central bank. That central banks are able to unilaterally introduce taxes or redistributive policies without the approval of parliaments is a shocking state of affairs.

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## **Inset 2: Expansionary monetary policy, income inequality and wealth inequality**



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This question of parliamentary oversight of central banks may also concern other central bank decisions. For example, should central banks be able to decide by themselves to favour, via their operations, financial assets issued by firms classified as “green” from a climate and environmental viewpoint?

## **Institutional arrangements must be revisited**

Under today’s theoretical institutional monetary policy arrangements, central banks are independent and work to stabilise inflation at a low level. Increasingly, the reality is that they intervene to enable governments to conduct expansionary fiscal policies, they introduce de facto taxes (on savers and the young) and alter income and wealth inequality. The theoretical concept will one day have to be adjusted to fit the reality. In particular, it must be acknowledged that central banks intervene to a great extent in the economy, and not only to stabilise prices. This means they cannot be independent. Instead, they form part of the wider economic policy toolkit available to governments and voted by parliaments.

## Chapter 7

### This monetary policy has not even been very effective

So contemporary monetary policy in OECD countries is permanently expansionary. In the short term, it gives huge leeway to fiscal policy; in the medium term, it raises the spectre of financial instability, asset price bubbles, a loss of value of money and possibly a loss of confidence in money.

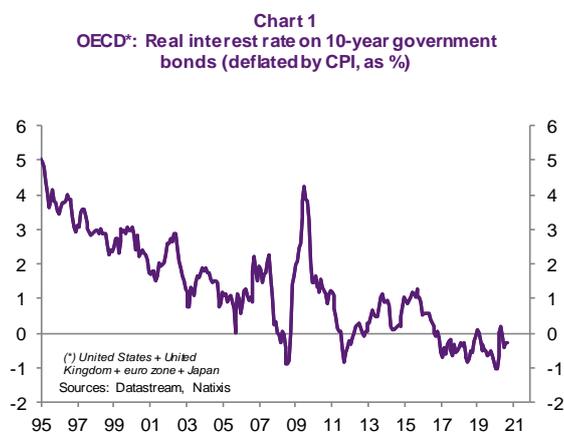
Unfortunately, these threats appear despite the fact that while these monetary policies have enabled huge fiscal deficits, one has to admit that they have not been very effective. They have not boosted corporate or housing investment; they have not prevented a fall in potential growth.

This begs the question why these policies have been so ineffective despite their extreme nature.

### Blunted monetary policy effectiveness

To be sure, the continuously expansionary monetary policy in OECD countries has allowed fiscal policies to become highly expansionary without giving rise to a public debt crisis or rising interest rates and without crowding out private spending.

But beyond facilitating huge fiscal deficits, there is no sign that these highly expansionary monetary policies have had a positive effect on the economy. This is despite the fact that they have given rise to negative real long-term interest rates (Chart 1), which ought to have boosted demand, investment and therefore potential growth.

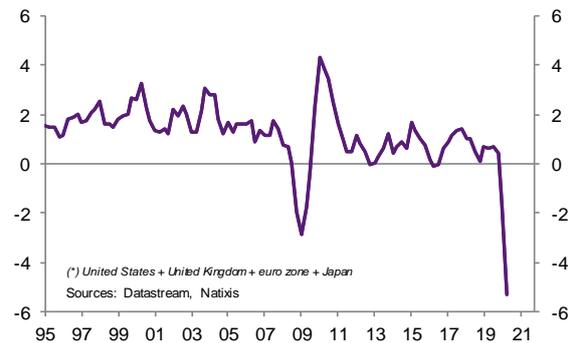


Indeed, there has been no rise in the corporate investment rate, on the contrary (Chart 2); housing investment has fallen (Chart 2); and productivity gains have weakened (Chart 3), which, coupled with population ageing, has resulted in a sharp fall in potential growth.

**Chart 2**  
**OECD\*: Total corporate investment and household housing investment (as % of nominal GDP)**



**Chart 3**  
**OECD\*: Per capita productivity (YY as %)**



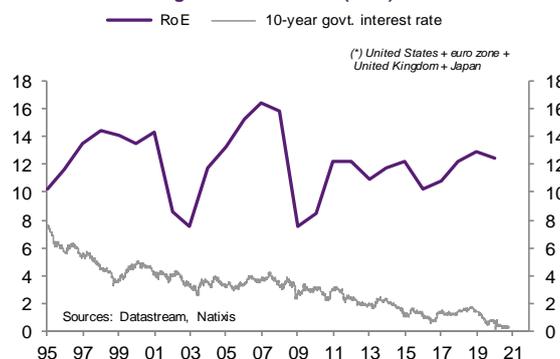
This ineffectiveness of the expansionary monetary policies at boosting investment and long-run growth is cause for much disappointment. What can it be attributed to?

## The growing gap between the required return on equity and risk-free long-term interest rates

A central feature of contemporary capitalism is the appearance of a growing gap between shareholders' return on equity (RoE) and the risk-free long-term interest rate.

Chart 4 shows the considerable widening of this gap since the 1990s.

**Chart 4**  
**OECD\*: RoE and interest rate on 10-year government bonds (as %)**



What accounts for this now considerable difference between the RoE and the risk-free interest rate? A small share may be explained by an increase in actual corporate risk, due to the repetition of crises. But the lion's share stems from a lack of arbitrage: faced with stringent prudential rules, institutional investors continue to buy risk-free bonds and not assets representing corporate capital. This lack of rotation by investors into corporate capital explains the persistence of the gap between the RoE and the risk-free interest rate.

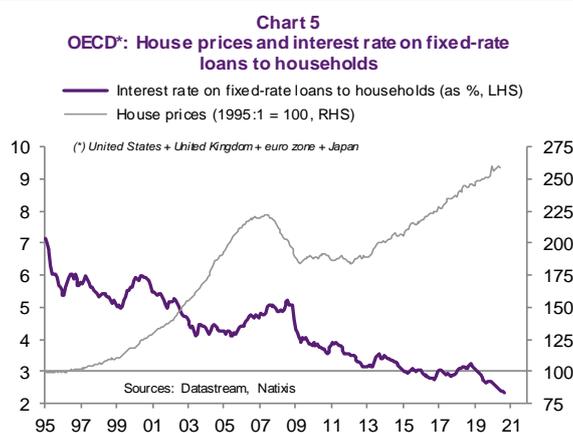
It also raises the question of how companies manage to generate such a high RoE (currently at least 12%). They are able to do so thanks to offshoring to emerging countries with low labour costs; wage austerity in OECD countries, with real wages growing much less than labour productivity; debt; and share buybacks.

With regard to monetary policy effectiveness, the persistence of such a high RoE despite the decline in interest rates has one clear consequence: the expansionary monetary policy has not driven down

required returns on corporate investment, despite low risk-free long-term interest rates, and so has not stimulated corporate investment.

## The effect of rising real estate prices

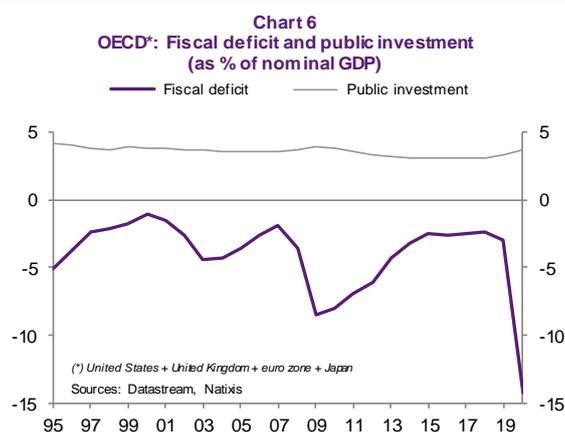
To be sure, the highly expansionary monetary policies have driven down mortgage loan interest rates. But at the same time they have led to a sharp rise in real estate prices (Chart 5).



This means that in the end, it is not easier or cheaper to buy a home – despite the lower interest rates – and explains why the expansionary monetary policies have not got housing investment going again.

## Public investment has not benefited from the fiscal deficits

The huge fiscal deficits made possible by the highly expansionary monetary policies have not been matched by an increase in public investment, on the contrary (Chart 6; the fiscal deficit is negative by convention).



Fiscal deficits stem from increases in welfare transfers (pensions, healthcare, labour market spending) and corporate tax cuts under the effect of tax competition. So they have not been used to accumulate efficient, potential growth-enhancing public capital.

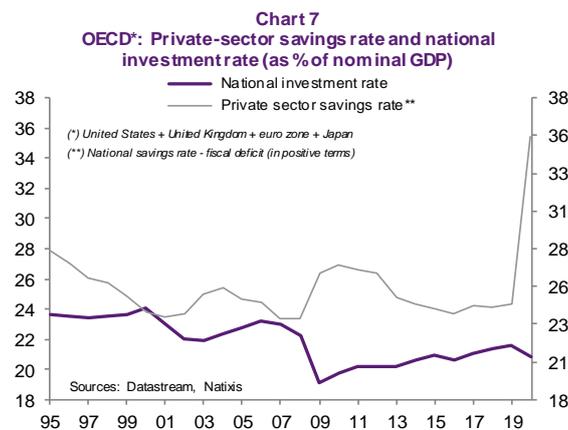
## The reversal interest rate

Attention has also been brought to a possible “perverse” mechanism associated with interest rate cuts. When interest rates become very low, banks’ profit margins are squeezed (because loan interest

rates are low relative to banks' funding costs), which discourages banks from lending. The credit supply falls, which curbs demand and makes interest rate cuts counterproductive. The interest rate below which further interest rate cuts also curb activity by eroding banks' profitability is known as the "reversal interest rate".

## A perverse situation

In the final analysis, the expansionary monetary policies and expansionary fiscal policies that they have made possible have not been used in OECD countries to lift investment, whether corporate investment, housing investment or public investment. The expansionary monetary and fiscal policies have enabled a current fiscal deficit (excluding public investment) to offset a situation of excess private savings over investment (Chart 7). But it would have been much more efficient and conducive to additional long-run growth had these expansionary policies boosted investment.



OECD countries are therefore running the risk of asset price bubbles, financial instability and financial crises, a loss of confidence in money and fiscal policy dominance over monetary policy without any benefit in terms of growth in the long run.

Of course, the flipside of these risks is a reduction in the severity of crises in the short term. But it would have been much more satisfactory had they also had the flipside of an improvement in potential growth.

## Conclusion

### How does this end? Towards private currencies?

The preceding chapters have showed why the new monetary policies in OECD countries (massive public debt monetisation, continued expansionary monetary policies throughout entire growth periods) will in all likelihood lead to lasting bubbles in asset prices (bonds, equities, real estate).

This verdict has been arrived at via several approaches: the need to maintain a stable weight of money in wealth; loss of value of money; the need to restore the acceptability of holding money.

### The costs will gradually outweigh the benefits

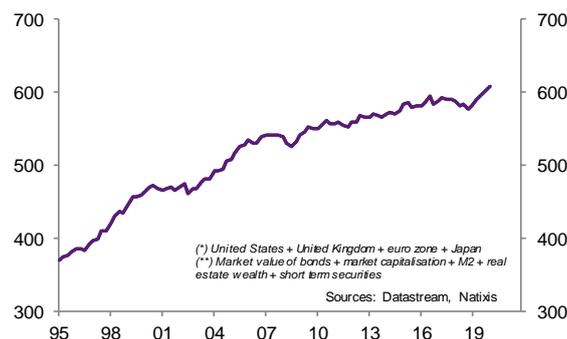
Initially, one may have the illusion that the benefits of the monetary policies conducted (enabling the implementation of huge fiscal deficits and preventing a loss of public or private borrower solvency) outweigh their costs (abnormally low interest rates, rapid rise in share prices and in real estate prices). But over time, as bubbles inflate, the costs will become increasingly clear.

In addition, it will become increasingly clear that the ultra-expansionary monetary policies give rise to a heavy tax on the young, who have to buy financial assets for their retirement and buy housing. It will become increasingly clear that central banks' behaviour poses a problem in democracies, as they influence taxation and the distribution of income and wealth. Further criticism of these policies will be fuelled by the observation that these expansionary monetary policies have been ineffective at boosting investment and long-run growth.

### The ratio of wealth to income must be stabilised

As long as these policies are in place, the ratio of total wealth to income will rise (Chart 1).

Chart 1  
OECD\*: Total wealth\*\* (as % of nominal GDP)



This results from the fact that the weight of money in wealth must be stable in the long run in order to maintain the structure of portfolios. If the money supply increases very rapidly, this means that wealth also increases very rapidly, and faster than income growth.

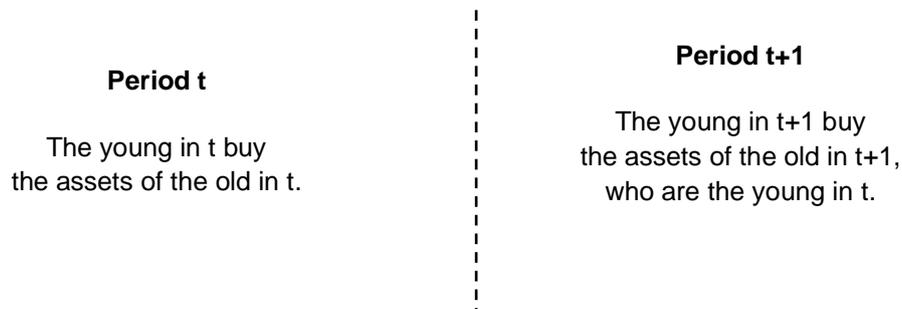
The problem posed by permanent monetary expansion can be summarised as follows: it is not possible for the ratio of wealth to income to increase forever. At some point, income would no longer

be sufficient to buy financial and real estate assets, as, in terms of the life cycle, the young must buy the assets owned by the old, who sell the assets they own to consume during retirement (Inset 1).

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## Inset 1

### The life cycle



For the young to buy the assets of the old in each period, the savings of the young must cover the value of the assets of the old.

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What may happen when the ratio of wealth to income becomes abnormally high?

The most likely scenario is that asset prices collapse so as to drive down wealth (above we called this an “endogenous” bubble collapse).

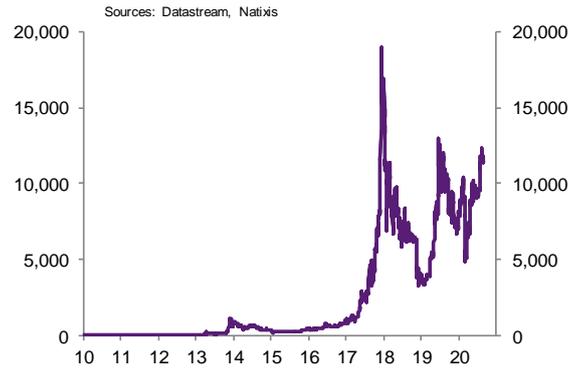
But it also possible that goods and services prices rise sharply (hyperinflation) to drive up income. This will happen if the very high level of wealth leads to a sharp rise in demand for goods and services.

So two scenarios remain open: massive and lasting growth in bubbles, followed by an endogenous collapse of these bubbles and therefore a very dramatic crisis, as the bubbles are late to collapse because interest rates remain low; or the eventual return of very high inflation if the wealth leads to spending.

## The implosion of the monetary system?

But worse could happen than the swelling and subsequent collapse of bubbles: the monetary system itself could be called into question. Today, the monetary system is based on a few major public currencies: the dollar, the euro, the yen. What will happen if confidence in these major public currencies disappears due to the excessive growth in their supply? When confidence in money disappears in an emerging country, savers turn to the dollar. But what happens if confidence in money disappears in the United States, Europe or Japan? Could there be a shift into private currencies or private cryptocurrencies? The fact that the price of Bitcoin has risen again in the recent period (Chart 2) is indicative of this wariness of public currencies.

Chart 2  
Price of Bitcoin (USD)

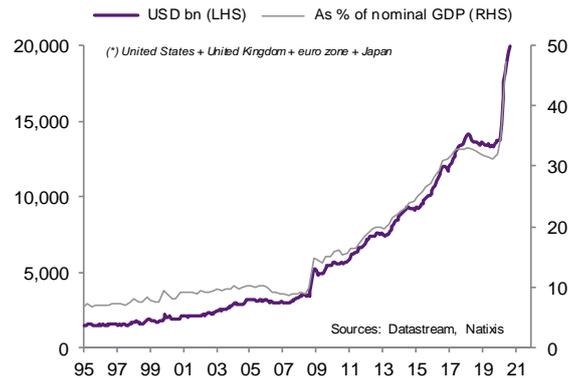


## But private currencies must be well-managed

A shift from depreciated public currencies to private currencies would require the latter to be well-managed. It is important to understand that both extremes are equally inefficient.

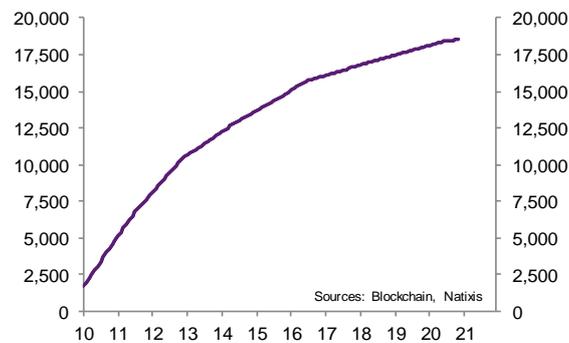
The first extreme entails the runaway explosion in the supply of public currencies (Chart 3).

Chart 3  
OECD\*: Monetary base



But the second is private currencies whose supply is fixed, endogenous, as is more or less the case of Bitcoin today (Chart 4).

Chart 4  
Number of Bitcoins in circulation (in thousands)



A massive increase in the money supply erodes confidence in money. But if the money supply is rigid, any shock that affects demand for money turns into a price shock (again, the case of Bitcoin, Chart 2), and excessive price variability ends up killing demand for this currency.

Failure by central banks to revert to managing the supply of public currency in a reasonable manner will require the emergence of well-managed private currencies, with reasonable growth in and smart management of the money supply, enabling them to absorb demand-for-money shocks and providing decent stability in their prices relative to other currencies.

If well-managed private currencies do not emerge and the monetary system continues to revolve around large public currencies, then one should expect to see a series of massive asset price bubbles and episodes of bubble collapses and financial crises.