V. Government

1. The sectoral balance identity

Sectoral division of an economy

An economy can be divided into three sectors:

- the domestic private sector, subdivided into the non-banking private sector (households and businesses) and the banking private sector (banks);
- the domestic public sector (local, regional and national public administrations); and
- the external or foreign sector (the private and public sectors of the rest of the world).

Stock variable and flow variable

A stock variable is one whose units are time-independent. A flow variable is one measured over a period of time. Flows are accumulated as stocks.

For example, the number of firms existing on a given day is a stock variable and the number of firms created during the last year is a flow variable. If a faucet is turned on for a few seconds, the water that flows through it defines a flow (water flow) and if the flow falls on a glass, the volume of water that is deposited in it defines a stock (the stock of water in the glass).

Sectoral balance

There are income and expenditure flows within each sector and between sectors. These flows consist of payments derived from the purchase and sale of goods or services and are thus flows related to the activity carried out in the real sector. In a period of time, a sector has a

- surplus if the sector's expenditure (or payment) flow is smaller than the sector's income (or revenue) flow over the period;
- deficit if the expenditure flow is greater than the sector's income flow over the period;
- zero balance (or balanced balance) if the sector's expenditure flow equals the sector's income flow over the period.

The flows of a sector during a period determine whether a deficit or a surplus occurs in the sector in the period. Stocks in a sector represent the accumulation or deaccumulation of debts or credits of the sector.

Basic accounting principle

The basic accounting principle states that, for every financial asset, there is an equivalent offsetting financial debt: someone's financial debt is someone else's financial asset.

Owning a financial asset means having a financial right over someone else, who in turn, has a financial liability (or financial obligation). The creation of a financial asset simultaneously generates a financial liability (financial obligation) of the same value and which offsets the asset.

• **Example 1.** When a bank grants a loan to a borrower, it creates an asset (the loan that the borrower will have to repay) and a liability (the deposit in the bank itself, for the value of the loan).

• **Example 2.** A Treasury bill issued by a government represents a financial asset for the buyer but a financial liability (a financial obligation) for the government.

Internal and external financial wealth

'Internal financial wealth' refers to financial assets owned by members of a sector of the economy that represent financial claims on members of the same sector. For example, for the private sector of the economy, corporate bonds owned by families are internal financial wealth.

'External financial wealth' refers to financial assets owned by members of one sector of the economy that represent financial claims on members of other sectors. For instance, for the private sector of the economy, Treasury bills held by banks are external financial wealth.

Financial and net financial wealth

The financial wealth of an economic agent (household, business, government, …) is the total value of the financial assets the agent owns.

The net financial wealth of an economic agent is the difference between the agent's financial wealth (the value of all financial assets that the agent has acquired) and its financial obligations or debts (the value of all financial assets that the agent has issued). An agent's net financial wealth is the total value of their financial assets minus the total value of their financial liabilities.

The net financial wealth of a sector is the sum of the net financial wealth of all agents in the sector. The balance of a sector is its net financial wealth. The balance is positive (or in surplus) if the net financial wealth is positive (value of financial assets greater than the value of debts). The balance is negative (in deficit) if the net financial wealth is negative.

• **Remark 1.** The world's net financial wealth is zero (assuming there are no aliens among us).

• **Remark 2.** If the private sector of an economy has no external financial wealth, the net financial wealth of the entire private sector is zero.

Surplus, deficit, financial asset, financial liability

A sector has a surplus during a period if the sector earns more than it spends during the period (income and expenses are understood to originate in the real sector of the economy). If a sector has a surplus during a period, the sector's financial wealth increases at the end of the period: the excess of the income flow over the expenditure flow accumulates in the form of financial assets or financial liabilities of the sector are de-accumulated (debts are settled).

• **Example 1.** A household that, during a year, earns 100 and spends 80 will accumulate financial wealth worth 20 at the end of the year (in the form of cash, deposits, Treasury bills, bonds…).

• **Remark 1.** If there are only two sectors, private and public, the private sector can only accumulate financial wealth if the public sector goes into debt (and thus spends more than it earns).

• **Remark 2.** If there are only two sectors, private and public, and if the public sector accumulates financial wealth (has a budget surplus), then the private sector must deaccumulate financial wealth (must spend more than it takes in).

A sector has a deficit during a period if the sector spends more than it earns during the period. If a sector has a deficit during a period, the sector's net financial wealth decreases at the end of the period: the excess of the flow of expenditure over the flow of income causes the sector to de-accumulate financial assets or to accumulate more financial liabilities (the sector issues more financial assets).

Sectoral surplus and deficit

A sector that has a surplus generates, in net terms, a flow of savings. This flow accumulates as a stock that takes the form of a net accumulation of financial assets, that is, an increase in the net financial wealth of the sector. When a sector has positive net financial wealth, some agent in the sector has a financial claim on some agent in another sector; for example, a household owns a Treasury bill issued by a government.

A sector having a deficit generates a flow of dissavings and reduces its net financial wealth. A sector that incurs a deficit sells previously accumulated financial assets or creates (issues) new financial assets. A sector finances its deficits by deaccumulating financial assets or by creating new ones.

Sectoral balance identity

The balance identity involving the three sectors establishes that the balances of the three sectors sum to zero:

$$\textbf{Domestic Private Balance} + \textbf{Domestic Public Balance} + \textbf{Foreign Balance} \equiv 0 .$$

The sectoral identity implies that sectors with deficits compensate for sectors with surpluses. For a sector to accumulate net financial wealth some other sector must increase its indebtedness. It is impossible for all three sectors to have a surplus (or a deficit) at the same time.

The sectoral identity is a tautology: that the sum of the inflows (that is, the income) to the three sectors equals the sum of the outflows (that is, the spending) of the three sectors.

Simply put, fiscal policy refers to the set of public sector measures that affect the public balance.

The external balance of payments is interpreted from the external perspective. A negative external balance (revenue from the external sector less than expenditure from the external sector) means a surplus of the domestic economy with respect to the rest of the world (the total payments for real transactions that the economy receives from the rest of the world is greater than the total payments for real transactions that the economy makes to the rest of the world). To maintain a single perspective, the external balance will be interpreted from the domestic perspective: a negative external balance will be called an 'external surplus' (surplus of the domestic economy with respect to the external) and a positive external balance will be called an ''external deficit' (deficit of the domestic economy with respect to the external).

On occasion, it may be helpful to subdivide the private balance into three subbalances, so that

Household balance + Balance of companies + Balance of banks + Public balance + Foreign balance ≡ 0 .

• **Corollary 1.** For a sector to have a positive balance (accumulate financial wealth) it is necessary for some other sector to have a negative balance (issue financial assets, accumulate debt).

• **Corollary 2.** It is not possible for all sectors to have a surplus or for all to have a deficit.

The private sector must have a surplus to accumulate financial wealth. Due to sectoral identity (remembering that the external sector balance is interpreted from a domestic perspective),

Private Surplus ≡ Public Deficit + Foreign Surplus .

This says that public deficits and external current account surpluses (domestic economy surpluses) create income and financial assets for the domestic private sector.

A public deficit is financed by issuing financial assets; by purchasing them, the private sector increases its net financial wealth.

An external surplus (roughly speaking, more exports than imports or, more precisely, a current account surplus) means that the private sector finances the rest of the world and this is a source of income for the private sector.

Similarly, public surplus and external deficit withdraw income from the private sector and destroy financial assets:

Private Deficit ≡ Public Surplus + Foreign Deficit .

GDP and the sectoral identity

The conventional formulation of the sectoral identity associates the flows of income and spending with GDP (designated by Y) and its known as 'the savings identity'.

This formulation even presumes that the private sector generates the GDP. Hence, Y is the inflow to the private sector: GDP is the source of income for the private sector. Its outflows (ways of spending the outcome) are two: consumption C (private sector spending in final goods/services) and investment I (private sector spending in capital goods/services, that is, goods/services used to produce other goods). In symbols:

$$Y \rightarrow \boxed{\text{Private Sector}} \rightarrow C + I.$$

Since $Y > C$, define savings S as $S = Y - C$. That is, S is income net of consumption. As a result:

$$S \rightarrow \boxed{\text{Private Sector}} \rightarrow I.$$

In view of this, the balance of the private sector (difference between inflows and outflows) is the net private savings, NPS.

$$\mathbf{NPS \equiv S - I}\,.$$

For the public sector, taxes T are the source of income, whereas spending takes the form of public expenditure G (which includes transfers to the private sector). In symbols:

$$\mathrm{T} \rightarrow \boxed{\text{Public Sector}} \rightarrow \mathrm{G}.$$

The balance of the public sector (difference between inflows and outflows) is the public savings (or budget surplus), PUS (thus, the public deficit PD is –PUS).

$$\mathbf{PUS \equiv T - G \equiv - PD}$$

For the foreign sector (that is, the rest of the world, ROW) the income that it takes from the economy comes from the exports that the ROW makes to the economy. But the exports of the ROW to the economy are the economy's imports, IM. Analogously, the spending that the ROW makes on the economy are the ROW's imports, which coincide with the economy's exports EX to the ROW. In sum,

$$\mathrm{IM} \rightarrow \boxed{\text{Foreign Sector}} \rightarrow \mathrm{EX}.$$

Accordingly, the balance of the foreign sector (difference between inflows and outflows) is the foreign savings, FS (observe that the economy's net domestic exports EX – IM equals –FS).

$$\mathbf{FS \equiv IM - EX \equiv - NX}$$

Though it may appear counterintuitive, when an economy runs an external (or trade) deficit (that is, the economy imports more than it exports: $\mathrm{FS} > 0$), it follows that the economy is using foreign saving (the ROW is financing the economy's external deficit).

The savings identity holds that the net savings all of three sectors add up to zero:

$$\mathbf{NPS + PUS + FS \equiv 0}\,.$$

Given the definitions of NPS, PUS and FS, the savings identity can be equivalently expressed as:

$$\mathbf{S - I \equiv G - T + EX - IM}\,.$$

or, more compactly,

$$\mathbf{NPS \equiv PD + NX}\,.$$

This is equivalent to equating total inflows S + T + IM with total outflows I + G + EX.

You may skip the following discussion

Revisiting the sectoral identity

The sectoral identity may appear evident and unchallengeable, but some details are not quite transparent. For instance, the presumed conventional interpretation is that the variables in the identify are real variables (variables measured in terms of goods and services, not in terms of money), but it seems that to be a useful relation variables should represent monetary flows. Yet, in the latter case, it may not be obvious what must be counted as a real flow and what as a financial flow (if they are not different the all sectors are always balanced to zero). Add to that the absence of a clear theory of how money is created or destroyed (it is commonplace to still refer to 'printing money' as the way in which money is created). Moreover, the conceptual representation of an economy as a circular flow (exactly of what?) that appears to motivate the identity is not quite compatible with the temporal linearity of economic processes. In the last instance, everything can be adjusted by definition to create an identity, though the real issue is whether what comes out actually corresponds to what occurs in an economy or helps to explain/understand it.

To illustrate the above remarks, find below a reformulation of the identity by John Xie, "A programmer with physics background who wanders around and stumbles on some very interesting things once in a while".

"The new equation is (note: per year):

Aggregated Firms Profit = Fiscal Deficit + Trade Surplus — Incremental Household Saving .

This equation ties the national aggregated corporates profit to a few things that can be directly manipulated by governments, so it's like a formula specifically tailored for the premiers or presidents, they will love it. Note, the national aggregated corporates profit actually represents the national economic prosperity level (...)

This equation also makes sense for ordinary people like you. Since, the aggregated corporates profit is a direct measure of the overall economic prosperity, if this number goes down, then firms will shrink or go bankrupt, they start to lay off workers, which then feedback to this number and cause it to go down further, a big trouble for everyone.

If you happen to be an investor, you know what aggregated corporates profit means for the stock market index and your investments, while this equation tells you unambiguously what determines aggregated corporates profit."

"In the following, a simple and straightforward proof will be given, you and anyone with no economics background, all should be able to understand it. Once you truly understand it, then it also becomes your tool.

The only precondition to understand the proof is knowing the simple principle that one's spending is another's income. This is embodied by the circular flow model of economics. Also the proof given makes no or little assumptions, so the identity is generally valid and accurate, i.e., not approximate.

Let's first very briefly introduce the principle and the circular flow model. The circular flow of economy mainly focuses on the circulation of money, which is similar to the blood circulation in human body. Firms pay wages, which individuals then spend on goods and services, sending money back to firms. This forms a continuous circular flow where the money you spend is someone else's income, and vice versa. This is the circular flow of economy.

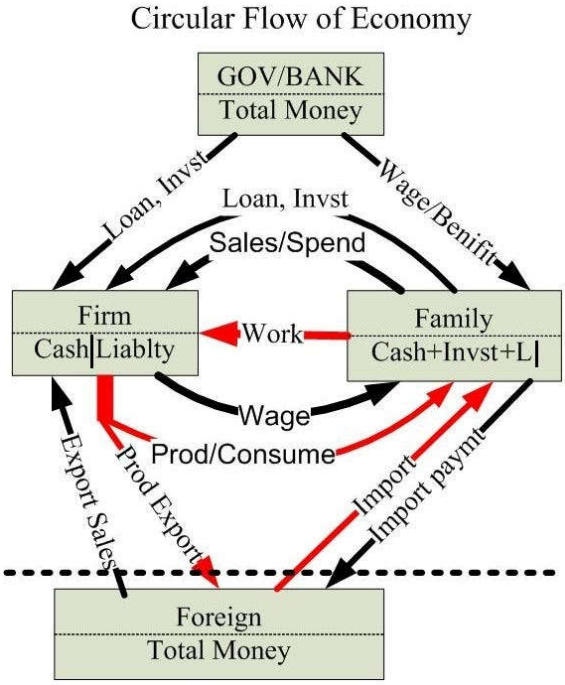
Using idea from the circular flow model, the following aggregated equations can be derived easily:

$$\text{Aggregated Firms Profit} = \text{Aggregated Firms Revenue} - \text{Aggregated Firms Expenditure} =$$
$$= (\text{Domestic Sales} + \text{Foreign Sales}) - (\text{Wages and Dividends}),$$

and

$$\text{Domestic Sales} = (\text{Wages and Dividends} + \text{Fiscal Deficit}) - \text{Import} - \text{Increment of Household Savings}.$$

Note the above equation says that household's income is distributed among domestic sales, import and new savings. Also Fiscal Deficit = (Government Spending — Tax), this represents money injection (newly printed money), it is actually split across household and firms, but for simplicity that does not alter the final result, it is entirely credited to household.



Now substitute the latter equation into the former and eliminate the items that cancel each other, we get:

Aggregated Firms Profit = Fiscal Deficit + Foreign Sales — Import — Incremental Household Savings.

However, Foreign Sales — Import = Trade Surplus, finally, we obtain an aggregated formula:

Aggregated Firms Profit = Fiscal Deficit + Trade Surplus — Increment of Household Savings.

There are several points that need to be clarified for this proof:

1. Borrowing/lending money and raising funds (financial investment) can affect a company's capital or cash, but they cannot be counted as profits.

2. In transactions between firms, the revenues and expenditures cancel each other when summed up. Therefore, they do not cause changes in the aggregated firms profit.

3. Firms Investment (capital investment, or fixed asset investment) has no direct role in the equation. Firms Investment either goes to workers (the households) or other firms, if the former, then you should not double count, if the later, then it is a transaction between firms. Investment may indirectly affects the Aggregated Firms Profit through the 3 terms in the equation.

4. The fiscal deficit = Government Spending — Tax, it is the money injection, these actually split across households and firms, for simplicity of derivation, it is totally credited to households, but this simplification does not affect the final formula.

This extremely simple equation can explain many important macro-economic phenomena and guide the macro-economic decision-making (…)

1. Keynes' famous counter-intuitive Thrift Paradox is an obvious corollary of this equation, because household savings have an inverse effect on firm profit. In a country without foreign trade and fiscal deficits, if the savings ratio is high, the country's economy will be doomed. Firms will go bankrupt one after another.

2. Prediction of the stock market index. The stock market index is directly correlated with the overall profitability of corporations, which is then determined by fiscal deficit, foreign trade, and consumer confidence, according to this simple equation.

3. The prosperity of US stock market, and US economy in general."

https://medium.com/@johnxie111/premiers-formula-for-national-economy-an-addition-to-macroeconomics-highly-recommended-by-ai-a9b1b07575e4

https://medium.com/@johnxie111/the-unnatural-and-confusing-sectoral-balance-identity-framework-fully-exposed-by-a-dialogue-with-d63774dff6ea

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Sectoral/savings identity, borrowing, economic activity

The sectoral/savings identity is at least two-fold useful: (i) for identifying what is possible for macroeconomic policy; and (ii) for clarifying the role of private sector borrowing and its impact on economic activity.

Recapitulating, a sector has a deficit if there is an excess of expenditure over income. Financing the deficit requires net borrowing: the sector must increase financial obligations (debts) more than it increases financial assets. In expression (1) below of the savings identity each difference between parentheses measures the sector's net borrowing. By changing its sign, net borrowing is transformed into net lending (that is, acquisition of financial assets). A sector generates net lending when the sector's income exceeds the sector's expenditure. Net external borrowing (inflows from the rest of the world minus outflows) is the inverse of domestic net borrowing.

$$(\text{Private Expenditure} - \text{Private Income}) + (\text{Public Expenditure} - \text{Public Income}) + (\text{Inflows from the rest of the world} - \text{Outflows to the rest of the world}) \equiv 0 \quad (1)$$

Equivalently,

$$\text{Private Expenditure} + \text{Public Expenditure} + \text{Outflows to the rest of the world} \equiv \text{Private Income} + \text{Public Income} + \text{Inflows from the rest of the world}.$$

Each difference within the three brackets of (1) represents the sector's contribution to the aggregate demand (purchases of final goods or services) of the domestic economy. A positive difference implies a demand expansion; a negative difference implies a demand contraction. Thus, any sector with a negative expenditure–income difference causes economic activity to contract. In fact, increases in investment **I** (private spending), public spending **G** or exports **EX** contribute to expanding economic activity (that is, GDP). Symmetrically, increases in savings **S** (private income), taxes **T** (public income) or imports **IM** contribute to contracting economic activity.

On bank money creation, public spending, exports, and investment (financed by loans) create deposits. Payment of taxes, payment of imports and payment of debts (through the accumulation of private savings) reduce deposits.

Graphical representation of the savings identity

The relationship $\mathbf{NPS} \equiv \mathbf{PD} + \mathbf{NX}$ can be represented graphically in the space where **NPS** is measured on the vertical axis and **PD** on the horizontal axis. It is left as an exercise to make the representation in the other five cases in the following table (the one discussed below is case 1).

		represented on the horizontal axis		
		NPS	**PD**	**NX**
represented on the vertical axis	**NPS**	—	**case 1**	**case 2**
	PD	**case 3**	—	**case 4**
	NX	**case 5**	**case 6**	—

If **NPS** and **PD** are equal (for example, they take the value x in Fig. 1a), then their common value cancels out in $\mathbf{NPS} \equiv \mathbf{PD} + \mathbf{NX}$. It follows that whenever **NPS** and **PD** are equal, $\mathbf{NX} = 0$. Geometrically, this means that the main diagonal represents all cases where net exports are zero; see Fig. 1a.

What can be said about a point (such as a) above the line $\mathbf{NX} = \mathbf{0}$? At every point like a, $\mathbf{NPS} > \mathbf{PD}$. Since $\mathbf{NPS} \equiv \mathbf{PD} + \mathbf{NX}$, having $\mathbf{NPS} > \mathbf{PD}$ entails $\mathbf{NX} > 0$. Consequently, points above the $\mathbf{NX} = \mathbf{0}$ line represent an external surplus (of the domestic economy). How is the amount of the surplus determined? Suppose, as illustrated in Fig. 1b, that point a is the pair (**NPS**, **PD**) = (y, z). At point a, the surplus **NX** satisfies $y = z + \mathbf{NX}$. Therefore, at a, net exports are $y - z$. In fact, net exports would also be $y - z$ when $\mathbf{NPS} = y - z$ and $\mathbf{PD} = 0$. Point b on the same graph represents this case.

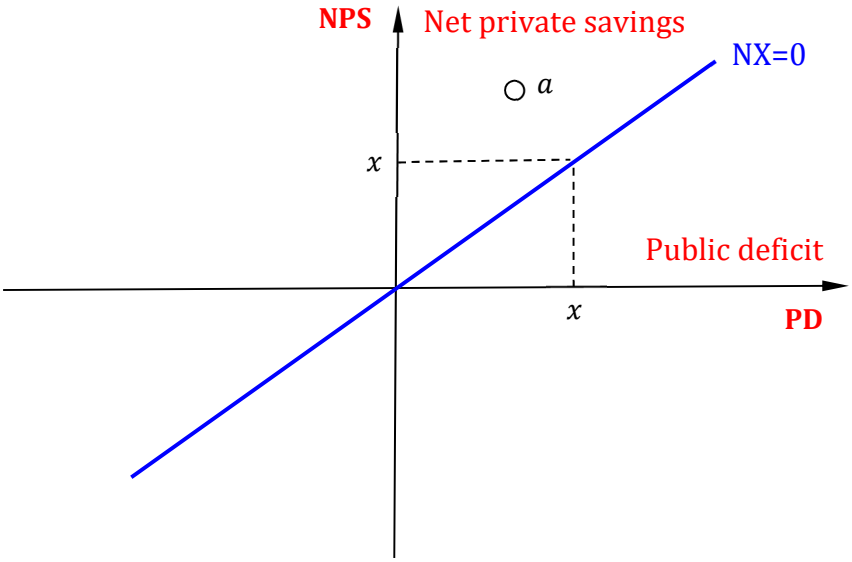

Fig. 1a. Representing graphically the sectoral identity

In general, adding or subtracting at the same time the same quantity to **NPS** and **PD** does not modify **NX**. Hence, a line with slope 1 joins all the points where net exports take a given constant value. This was already observed when **NX** = 0: the main diagonal captures all the points where the external balance is zero. An analogous result holds for the rest of the values of the external balance. Even more: the point of intersection with the **SPN** axis indicates the value of net exports of the line with slope 1 that goes through that point.

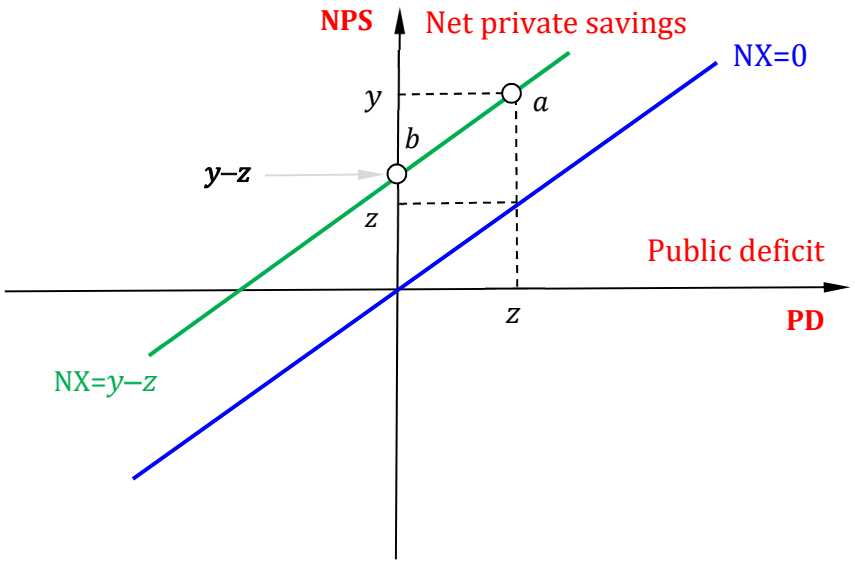

Fig. 1b. Representing graphically the sectoral identity

Below the **NX** = 0 line the external balance is negative. Fig. 1c represents the identity **NPS** ≡ **PD** + **NX**, where each diagonal with slope 1 collects the combinations (**NPS**, **PD**) of private balance and public deficit associated with the same value of the external balance.

Fig. 1c gives the same information as the identity **NPS** ≡ **PD** + **NX**, only in a visual way.

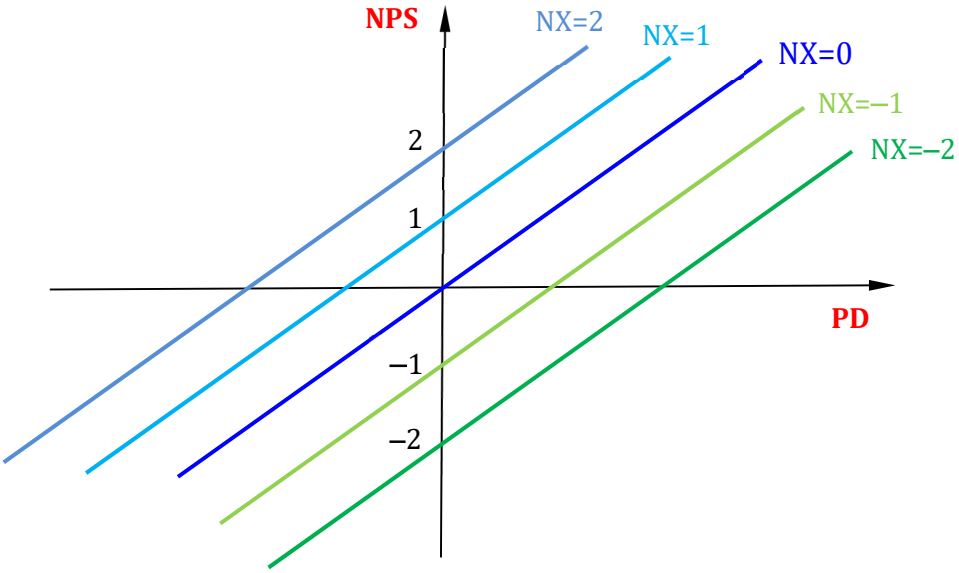

Fig. 1c. Representing graphically the sectoral identity

Accumulation and deaccumulation of financial assets

When **NPS** takes positive values, the private sector is in surplus and, as a result, accumulates financial assets (or deaccumulates financial liabilities). When **PD** takes positive values, the public sector is in deficit, so it accumulates financial liabilities (or deaccumulates financial assets). When **NX** takes positive values, the foreign sector is in surplus from the domestic perspective; this means that the foreign sector (from the foreign perspective) accumulates financial liabilities (or deaccumulates financial assets), since the foreign economy pays the domestic economy more than it receives from it.

Fig. 2 summarizes this information, specifying at each point in the space which sectors accumulate, and which deaccumulate, financial assets.

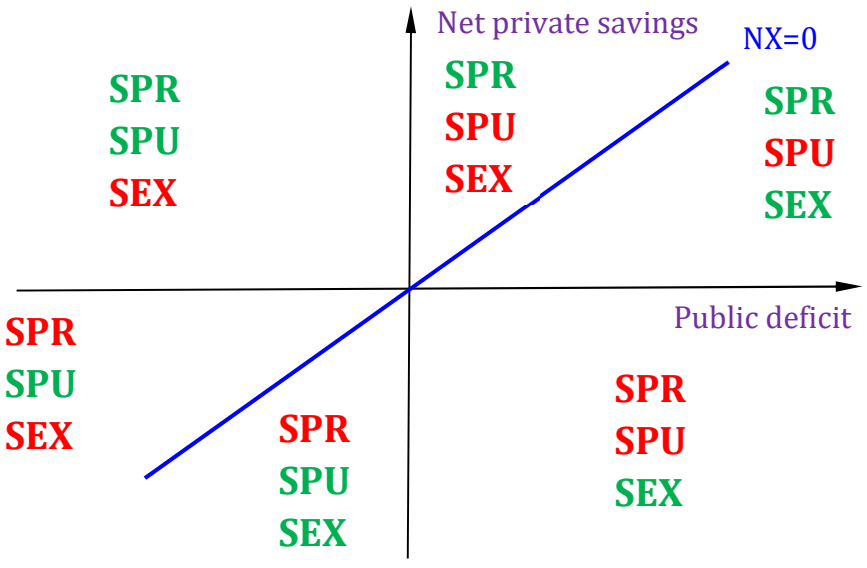

Fig. 2. Accumulation and deaccumulation of financial assets

The green colour means that the sector accumulates financial assets and the red colour that the sector deaccumulates financial assets (takes on debt). For example, **SPR** stands for "positive savings of the private sector" (private net financial wealth rises) and **SEX**, "negative savings of the external sector" (foreign net financial wealth declines). By the sectoral identity, it is impossible for all sectors to accumulate or for all to deaccumulate.

For example, the entire lower right quadrant represents states of the economy where: the private sector deaccumulates assets or accumulates liabilities (since in this quadrant $\mathbf{NPS} < 0$); the public sector deaccumulates assets or accumulates liabilities (given that in this quadrant $\mathbf{PD} > 0$); and the foreign sector accumulates assets or deaccumulates liabilities (insofar as in this quadrant $\mathbf{NX} < 0$, which means a surplus of the rest of the world and, as a consequence, the rest of the world accumulates assets or reduces liabilities relative to the domestic economy).

2. Fiscal policy and fiscal rules

Fiscal policy

The expression 'fiscal policy' refers to all government decisions that affect the public (or fiscal) deficit $G - T$. Strictly speaking, a fiscal policy measure is the combination of a fiscal policy instrument and the associated intended policy goal (lowering the unemployment rate, increasing GDP growth, reduce some economic inequality measure…). Commonly, fiscal policy measures are simply identified with fiscal policy instruments: tax rates and public spending **G**, which by definition includes transfers (pensions, unemployment benefits, scholarships, subsidies to companies…).

An expansionary fiscal policy is one that, at least initially, would increase the public deficit (more public spending and/or lower tax rates or fewer taxes). A contractionary fiscal policy does the opposite. The expressions 'fiscal austerity' or 'tight budget' is synonymous with contractionary fiscal policy. Orthodox macroeconomics supports fiscal austerity with the argument that an initial contractionary fiscal policy eventually, economagically, produces in the economy the effects of an expansionary one.

There is a debate on whether discretional fiscal policy is preferable to rule-based fiscal policy. Orthodox macroeconomics recommends subjecting fiscal policy to rules. Eurozone members, for instance, are required to respect several fiscal rules: deficit-to-GDP ratio at most 3%; debt-to-GDP ratio at most 60%; and, prior to the preparation of the public budget, determination of the public expenditure ceiling (the upper limit of non-financial spending by the central administration).

How fiscal rules shape the policy space

After dividing by GDP the identity $\mathbf{SPN \equiv DP + XN}$ another identity emerges:

$$\mathbf{SPN/GDP \equiv DP/GDP + XN/GDP}\,.$$

The new identity, represented in Fig. 3, is more useful for showing the consequences of fiscal rules based on the deficit-to-GDP ratio **DP/GDP**.

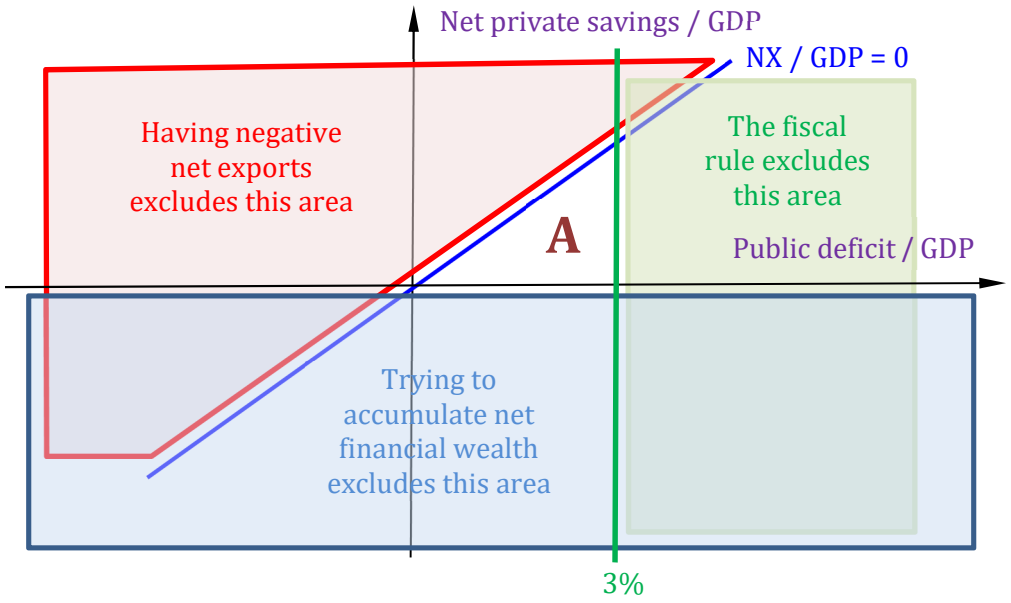

Fig. 3. Implications of fiscal rules

By way of example, consider an economy with a structural external deficit (Spain in the years before the 2008 financial crisis). This implies that the economy is outside the area marked in red. Suppose, in addition, that the private sector wants to accumulate net financial assets (Spain after the 2008 financial crisis). This desire of the private sector means that the economy must be outside the lower blue rectangle. Finally, suppose that a fiscal policy rule must be respected (Spain as a eurozone): public deficit no higher than 3% of GDP. The fiscal rule excludes the green rectangle on the right.

In short, an economy with a structural external deficit, where the private sector wants to reduce debts and the public sector has a debt limit, can only be located in the white triangle of the graph (labelled '**A**'). The only permissible values of the balances are inside the triangle.

In this case, the region of compatibility of constraints and characteristics of the economy is limited but not empty. On the other hand, if the fiscal rule were to achieve zero public deficit (or a slight surplus), the constraints would be incompatible: an economy with an external deficit and a private sector surplus cannot have a balanced public budget (or a fiscal surplus).

On the face of it, it can be inferred from the above that an economy with a foreign surplus (Germany) has an easier time adopting and complying with fiscal rules than an economy with a foreign deficit (Spain). It then should come as no surprise that German politicians, economists and leaders support the adoption of fiscal rules… During the eurozone crisis, from the northern eurozone countries came criticisms against the southern eurozone countries for not having achieved what for the northern countries was easily done: to meet the fiscal rules; failure to comply was sanctioned with accusations of not wanting to comply: by northern standards, the southerners were lazy and untrustworthy.

Fiscal rules and foreign sector

The following example illustrates again the possible inconvenience of adopting fiscal rules (setting absolute or relative limits on the public deficit), in this case when the external sector is subject to a significant disruption.

Point a in Fig. 4 represents the initial state of the economy. First, there is a fiscal rule that requires not to exceed the public deficit level y. Second, the aggregate plan of the private sector amounts to achieving a surplus of x. Under these circumstances, the government exploits the deficit margin to the limit and incurs a public deficit equal to y. The result of the balance identity is that there is an external surplus equal to z and the economy is located at point a .

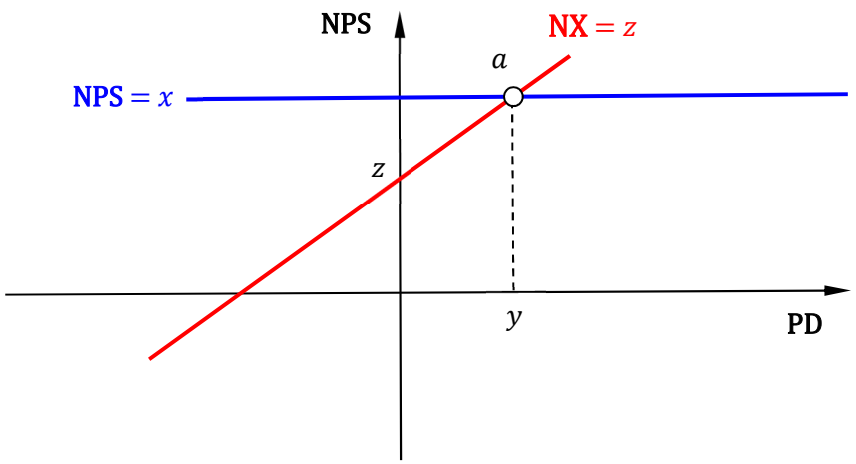

Fig. 4. Initial state of the economy: private surplus, foreign surplus, public deficit

Then there is a shock to the external sector. Specifically, to reduce its external deficit, the rest of the world (the Trump administration) establishes tariffs on goods coming from the economy.

The tariff measure is so successful that the rest of the world's external deficit now becomes a surplus. Fig. 5 shows the situation from the perspective of the economy: the tariff effect is to shift the net exports line to the right until it reaches a negative value, such as $-v$. The green line represents the new relevant net exports line.

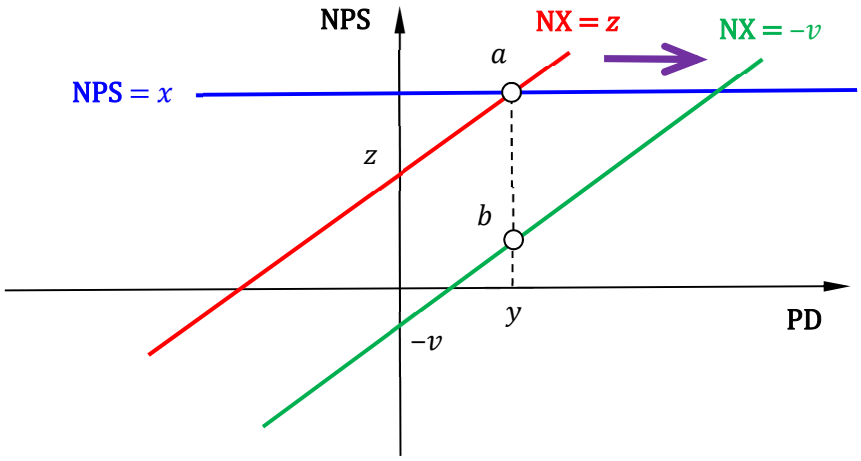

Fig. 5. Subsequent state of the economy if the fiscal rule is respected

The external shock creates a dilemma: accept more private borrowing or accept more public borrowing. On the one hand, if compliance with the fiscal rule takes priority, the economy would end up at point *b* in Fig. 5, where the private sector, in net terms, has had to de-accumulate financial assets and, most importantly, has not achieved the desired surplus x. Therefore, meeting the public deficit limit has forced the private sector to obtain a surplus lower than planned.

On the other hand, the socio-economic doctrine (neoliberalism) that defends the adoption of fiscal rules endorses their adoption on the ideological basis that the public sector should not interfere in the economic plans of the private sector. Consequently, the ultimate principle that endorses fiscal rules would require allowing the private sector to achieve the surplus x. In this case, if respect for the private sector plans takes priority, the economy would be located at point *c* in Fig. 6, where the public sector violates the fiscal rule of not exceeding the volume of deficit y.

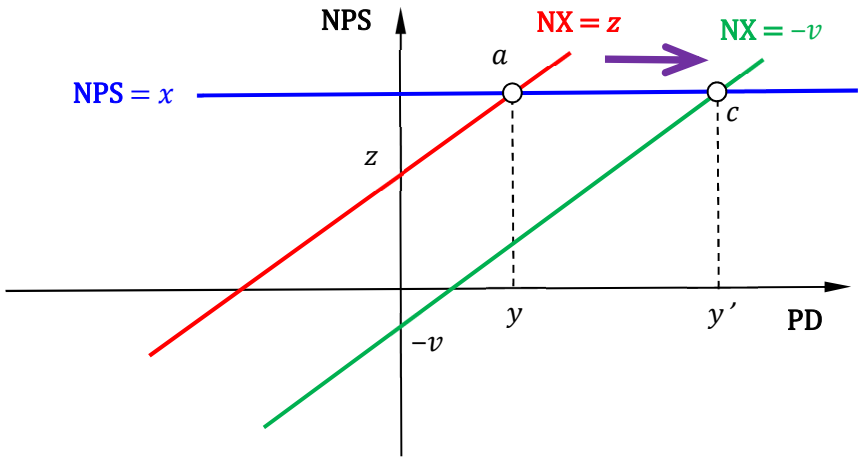

Fig. 6. Subsequent state of the economy if the private sector surplus goal is respected

At point c in Fig. 6 the public deficit is $y' > y$, so the dilemma is plain: the external disturbance (which has translated into a reduction in the initial external surplus) no longer allows both the private and public sectors to fulfill their plans. Respecting the private sector's plan to achieve a surplus entails violating the fiscal rule; respecting the fiscal rule implies preventing the private sector from achieving its goal.

From the orthodox perspective (the one that defends fiscal rules) it seems that the lesser evil is to break the fiscal rule. But then the question is why adopt it in the first place if exogenous reasons can so easily lead to its non-compliance. Is it smart to impose rules whose compliance does not depend on oneself?

More on fiscal rules and foreign sector

The next example revisits the previous analysis in a dynamic setting: the external shock is continuous or structural. To be specific, consider an economy that has an external deficit that increases with time. In graphical terms, the **NX** line would be moving downwards. In this case, as shown in Fig. 7, the visual representation makes clear the implications of this trend: if the **NX** line moves downwards continuously, the value of **SPN** must fall, the value of **PD** must fall, or both must fall.

To sum up, if an economy experiences a growing external deficit, then the private sector, the public sector, or both need to increase their borrowing.

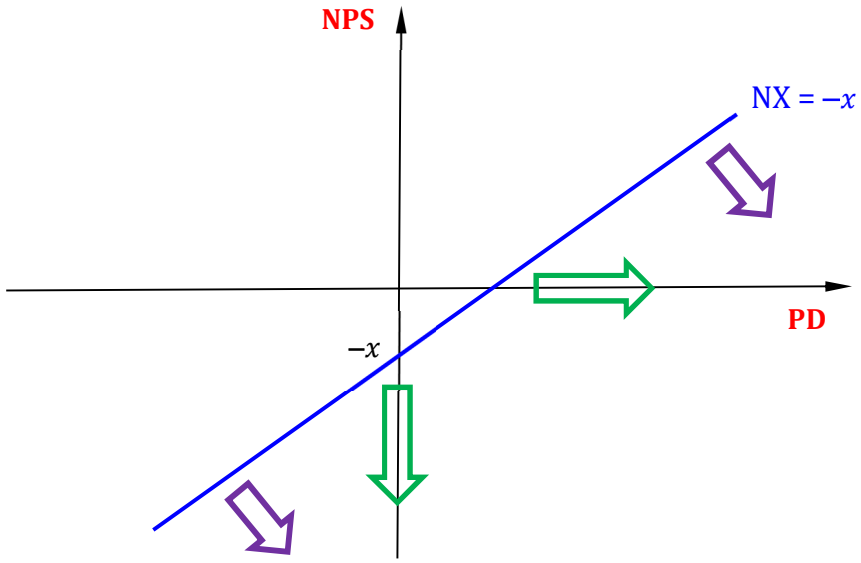

Fig. 7. Consequences of an increasing foreign deficit

The most severe recessions seem to have been preceded by periods when private sector debt reaches historically high levels (very negative and increasingly negative **NPS**). When the growth of private debt is perceived as unsustainable (Hyman Minsky's financial instability hypothesis), the increase in debt moderates or even stops, which reduces aggregate demand for goods and services and causes the contraction of economic activity. In this case, the private sector's response is to reduce debt and increase **NPS**. When **NPS** increases, it must be that **PD** increases, **NX** increases or both.

Interpretation: the way out of a crisis caused by excessive or unsustainable private debt involves increasing the public deficit (the public sector compensates for the fall in private aggregate demand associated with the increase in **NPS**), improving the external balance (external demand compensates for the decline in domestic demand) or a combination of the two.

From the above it can be deduced that the adoption of fiscal rules that place arbitrary limits on the volume of the public deficit may make it more difficult to overcome the crisis. To begin with, raising **NX** is not easy or quick. It is also not clear that net exports can increase by the volume necessary to make the increase in **NPS** possible. Furthermore, the solution that involves increasing **NX** is not universally valid: for one economy to increase **NX**, at least another must reduce it, since it is not possible for all economies to improve their external balance simultaneously.

On the contrary, **PD** can grow easily, quickly, voluminously and in all economies at the same time. The US recovered faster than the eurozone from the initial impact of the 2008 financial crisis by approving, in 2009, expansionary fiscal policy measures: The American Recovery and Reinvestment Act. The law established tax cuts, tax breaks for individuals and companies, adjustments for the unemployed and low-income people, investment in infrastructure, spending on health and education... The amount of the set of measures was initially estimated at $787 billion (later recalculated to $831 billion). The US GDP in 2009 was around 14,478 billion, so the expansionary fiscal policy represented 5.5% of GDP.
https://en.wikipedia.org/wiki/American_Recovery_and_Reinvestment_Act_of_2009

The initial response to the 2008 financial crisis in the eurozone was different, since eurozone members were not free to increase public deficits and debt at will (remind that eurozone membership requires compliance with at least two fiscal rules: a public deficit to GDP ratio of no more than 3% and a public debt to GDP ratio of no more than 60%). For the economically weaker countries in the eurozone (the so-called PIGS: Portugal, Ireland, Greece and Spain) the outbreak of the 2008 financial crisis led them to a dead end.

On the one hand, if governments did not adopt significant expansionary fiscal policy measures (because they gave priority to compliance with the fiscal rules), the financial crisis would be extended to an economic crisis (contraction of economic activity, closure of companies, increase in the number of unemployed people…). One consequence of the contraction of economic activity is the decline in tax revenue. As a consequence, not neutralizing the economic impact of the financial crisis would itself lead to breaching fiscal rules (the 'excessive' public deficit was not achieved by increasing public spending but by reducing revenues; in Spain, the collapse of the real estate sector caused the financial collapse of many city councils, with losses of 90% of revenues).
https://www.expansion.com/2010/07/04/economia/1278271013.html

But, on the other hand, if governments increased the public deficit to cushion the impact of the crisis on economic activity, the uncertainty about the severity and duration of the crisis led to the belief that the deficit increases would not be one-off or temporary but would be foreseeable and continuous. The fact of demanding higher returns to finance public deficits made a future increase in the deficit more likely, since interest payments would increase (Spain had to pay around 30 billion euros in interests alone each year). This created a snowball effect, characteristic of financial

and economic crises: a context characterized by increasing interest rates on public debt made non-compliance with fiscal rules more likely, which reinforced the upward trend in these rates.

In the eurozone case, this snowball stopped growing with a speech by the president of the European Central Bank on July 26, 2012. The speech (summarized in the sentence that the ECB would do 'whatever it takes' to preserve the euro) meant that governments could skip fiscal rules (that the ECB would end up financing deficits), because a point had been reached where the euro and fiscal rules could not coexist. It can be interpreted that the euro was one step away from disappearing because someone did not understand (or did not want to understand) the identity $\mathbf{NPS \equiv PD + NX}$.[1]

Two types of government

The most important relationship between money and government is whether the government can create money or not. Or, to be more accurate, whether the government has its own central bank or not.

On the one hand, there are monetarily sovereign governments. Being a monetary sovereign (MS) government means being able to create the currency that is used in the economy over which the government has authority. This kind of government has its own central bank which, ultimately, can be used to finance public spending. The vast majority of governments fall into this category: the governments of the USA, Canada, the UK, Japan, Australia, China, Turkey, Brazil…

On the other hand, there are monetarily non-sovereign governments. This sort of government does not have the power to create the currency used in its economy. An MS government is a money issuer (or money creator); a non-MS government is, like individuals, merely a money user.

In some cases, the government has transferred the power to create currency to a supranational authority, in which case it has a say and vote along with other governments. An example is the governments of the eurozone countries, which have transferred their monetary sovereignty to the Eurosystem (the European Central Bank plus the central banks of the eurozone members). Each government of a eurozone country is a non-MS government.

Another way to become a non-MS government is by renouncing monetary sovereignty without transferring it to anyone. The governments of sufficiently small countries (Andorra, for example) or with a tradition of monetary tensions and problems (Ecuador) are non-MS: exercising monetary sovereignty is considered so costly that it is preferable to use the currency of another country. But using the currency of another country does not give you a voice or vote in its creation: a non-MS government of this type is again just like another individual.

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[1] Orthodox economists adduced at the time that no one had anticipated the Great Recession that began in 2007-08. But some did. Wynne Godley (1996-2010) warned, using models based on the sectoral balance identity, that the unprecedented expansion of the US in the 1990s was coming to an end. He observed that the private sector deficit relative to GDP was five times larger than any previous period and that it was being sustained for longer than any previous period. Continuing economic expansion would increase the public surplus and the external deficit. By the balance identity, the private deficit should worsen to unsustainable levels. GDP would stop growing once private spending could no longer grow faster than income. Then the public surplus would become a deficit and the private deficit a surplus, which is what happened.

Wynne Godley; Alex Izurieta (2002): "The case for a severe recession", *Challenge* 45(2), 27-51.

Wynne Godley; L. Randall Wray (2000): "Is Goldilocks Doomed?", *Journal of Economic Issues* 34(1), 201-206.

Are there limits to a government spending capacity?

The answer depends on whether the government is monetarily sovereign. An MS government is always able to pay in currency that it itself can create and hence cannot be insolvent. Thus, an MS government has no financial limit to its spending capacity: by definition, an MS government cannot 'run out of money' [2]. Ultimately, an MS government will never become insolvent because a central bank cannot run out of reserves [3].

On the contrary, a non-MS government is, monetarily speaking, like an individual: its spending capacity is limited by its capacity to raise money or borrow, because both (individual and non-MS government) are money users. The conventional view considers all governments as non-MS government and, consequently, applies to governments restrictions that are typical of individuals.

The advantage of a non-MS government over an individual, in relation to spending capacity, is the ability of governments to impose payments on the private sector through taxes and the derived advantage that this can imply when borrowing.

A disadvantage of a non-MS government over an MS government is that all MS governments have an insolvency risk. In some (few) cases, the risk can be considered null in practice (Germany?); in the rest, a risk premium will measure the lenders' perception of this risk.

The downside of being a non-MS government

In the eurozone, each country's public debt has an associated risk premium that measures the risk of default on the country's public debt relative to German public debt. Fig. 1 shows Spain's risk premium before and just after the start of the 2008 financial crisis.

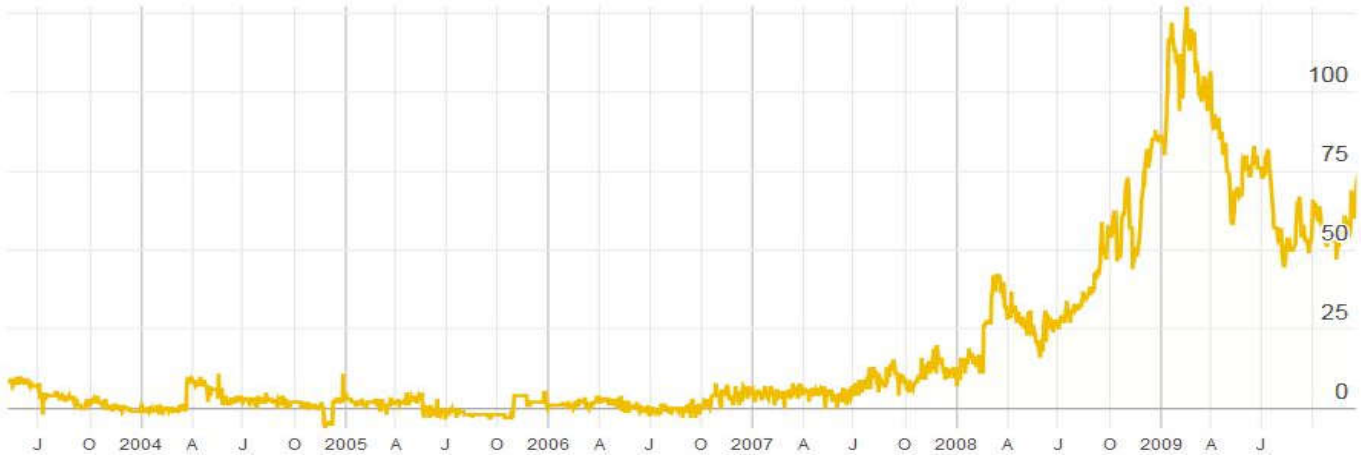

Fig. 8. Spain's risk premium (2004-2009)
https://datosmacro.expansion.com/prima-riesgo/espana

[2] This is the view of Modern Monetary Theory; see Warren Mosler (2014): *The Seven Deadly Innocent Frauds of Economic Policy,* freely available at http://moslereconomics.com/wp-content/powerpoints/7DIF.pdf.

[3] An analogy. In tennis, players get points during a match: 15, 30, 40. They also win games (1, 2, … , 7) and sets (1, 2, 3). Does anyone wonder where these points, games and sets (numbers) come from? Or whether the chair umpire may run out of points? Or if they should worry about them being stolen? Or where do the points previously assigned go when a game, set or match ends? Or what happens to the third point that could be won with a victory in a football match that is not assigned to any team when the match ends in a draw? So why worry about the origin of the points that an MS government allocates when it spends if the government itself can create the points at its convenience through its central bank?

Fig. 8 shows that at times in 2005, 2006 and 2007 the risk of default on German debt was considered higher than Spanish risk. Following the outbreak of the 2008 crisis (mid-September 2008), the perception was of an increasing risk of default on Spanish debt compared to the German risk. In 2009, the 100 basis points mark (representing an additional 1% on interest rates) was reached: the yield on Spanish public debt had to be one percent point higher than the yield on German debt to compensate debt buyers for the perception of the higher risk of default (real or presumed) in the Spanish case.

In July 2012, the Spanish debt premium exceeded six percent points (more than 600 basis points). This value of the risk premium showed that, despite sharing a currency and a central bank, debt buyers regarded the German and the Spanish enormously different goverments. It was firmly believed that the Spanish government's capacity to control its deficit/debt was much lower than that of the German government and hence the Spanish government had to pay for the difference. The paradox of the case is that the belief in a higher risk of Spanish insolvency caused an increase in the Spanish risk premium which increased the risk of insolvency (given that the Spanish government was forced to pay an interest rate higher than the German debt, despite sharing a central bank). Fig. 9 illustrates the magnitude of the problem.

Fig. 9. Spain's risk premium (2006-2024)
https://datosmacro.expansion.com/prima-riesgo/espana

In an expanding economy and with sufficiently low interest rates, it may not make much difference in practice whether a government is monetarily sovereign or not. The confidence of debt buyers in the ability of a non-MS to repay loans means that a non-MS has a relatively wide margin of maneuver when deciding the volume of spending, deficit and public debt.

In a contracting economy (or one that is growing 'insufficiently') the room for maneuver of a non-MS is reduced, mainly because debt buyers believe that it is reduced (and by demanding a higher return, they themselves contribute to reducing it).

An MS government has its own central bank to bail it out, if necessary. In practice, there is no need for the central bank to bail out the government, because purchasers of government debt from an MS government know that the government has the backing of some central bank.

A non-MS government does not have a central bank that can rescue it: the government must rescue itself , largely by convincing debt buyers that it will do whatever it takes to self-rescue itself (reduce spending, increase tax rates, change fujndamental laws to prioritize the payment of public debt…). The sharp rise in the Spanish risk premium between early 2010 and mid-2012 is a symptom that the Spanish government was not persuasive enough (it is not ruled out that nothing could have been done to be persuasive enough).

The risk premium problem was not limited to Spain: Portugal, Ireland, Italy, Greece… suffered higher premiums (Fig. 10 shows the annual average of the Greek risk premium). This was Spain's salvation: many countries in the eurozone ('the eurozone south') were facing high and increasing risk premiums compared to the rest of the members ('the eurozone north': Germany, Austria, the Netherlands…), so it was necessary to provide a global solution (namely, involving the whole eurozone) to the problem and not trust that each country could get by on its own.

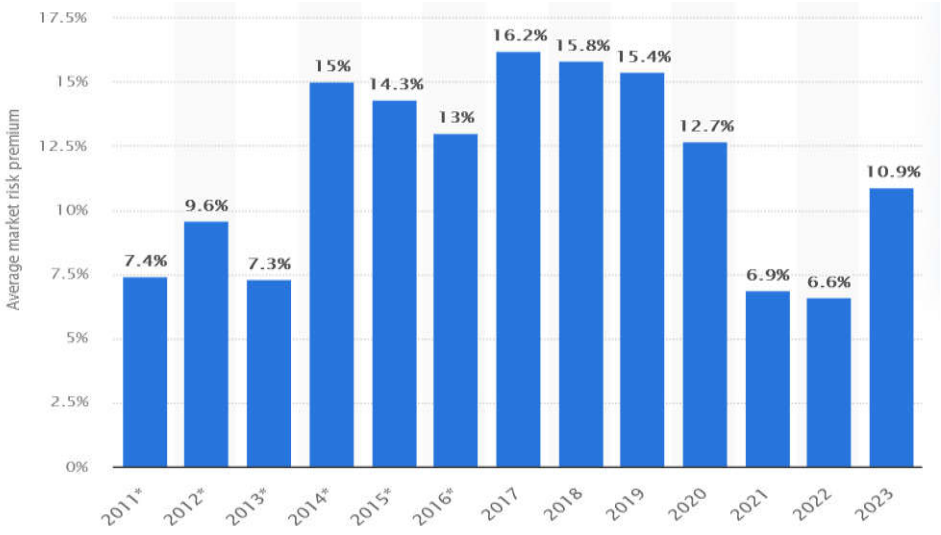

Fig. 10. Greece's risk premium (2011-2023, annual average)
https://www.statista.com/statistics/664934/average-market-risk-premium-greece-europe/

The cost (financial, economic, reputational) generated by a high and growing risk premium led some governments (the Greek one) to consider becoming an MS government again by reintroducing their own currency and abandoning the euro. Proposing what was considered unthinkable finally made those responsible for the European Central Bank aware that governments needed to be rescued, despite the fact that the laws regulating the bank prohibited bailing out governments.

An MS government has a central bank that, in case of need, will act as the government's bank. The eurozone experiment created a central bank that did not act as the bank of any government. Perhaps there were governments (German, French) that could do without a central bank (although the powerful always fall through pride[4]). But what the dynamics of the risk premium of certain

[4]In 2025, the 'sick' economy was Germany, not Spain. The popularizer of Modern Monetary Theory William Mitchell, in his blog, criticizes the monetary and fiscal architecture of the eurozone. With regard to Germany, he points out that the limits of the orthodox vision that its rulers have applied in fiscal policy are now evident: "The blog posts cited above trace the way in which Germany's obsession with fiscal surpluses and reducing government debt, coupled with its suppression of domestic spending capacity (through the real wage suppression etc), was slowly undermining the viability of the common currency, but also steadily undermining its own economic model. In recent years, it is becoming clear that the German industrial powerhouse is now compromised after years of poor government policy and hubris among the industrial leaders."

countries made clear is that not all governments were equally strong or, at least, not for long. The end of the troubles came when the European Central Bank finally acted as the central bank of the eurozone governments. And it only took a speech to convince everyone that the eurozone governments, de facto, became MS governments.

On July 26, 2012, at the height of the euro crisis and risk premiums, the President of the European Central Bank, Mario Draghi, publicly stated the following:

> "The first message I would like to send, is that the euro is much, much stronger (…) than people acknowledge today. Not only if you look over the last 10 years but also if you look at it now, you see that as far as inflation, employment, productivity, the euro area has done either like or better than US or Japan (…)
>
> When people talk about the fragility of the euro and the increasing fragility of the euro, and perhaps the crisis of the euro, very often non-euro area member states or leaders, underestimate the amount of political capital that is being invested in the euro.
>
> And so (…) we think the euro is irreversible. And it's not an empty word now, because I preceded saying exactly what actions have been done, are being done to make it irreversible.
>
> But there is another message I want to tell you. Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough."

The last words meant that the European Central Bank was prepared to bail out governments, buying their debt and thus lowering the risk premium[5] (more purchases of a financial assets tends to raise its price and lower its rate of return). That is what happened: the premium went down and the euro crisis vanished. A lesson from this traumatic experience: for the medium to long run, it seems a bad idea to separate a government from its central bank. It is a mirage to think that each can do indepen-

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(https://billmitchell.org/blog/?p=62339) In 2025, the sick economy is again the German, not the Spanish: in Q2 2025 German GDP contracted by 0.3% and, in 2024, German GDP contracted for the second consecutive year (−0.2% in 2024 and −0.3% in 2023; see https://tradingeconomics.com/germany/gdp-growth). By contrast, in Q2 2025 Spanish GDP expanded by 0.8%, in 2023 it grew by 2.5% and in 2024 by 3.5% (https://tradingeconomics.com/spain/gdp-growth).

Regarding the financing of public debt in the Eurozone generated by the response to the pandemic, Mitchell says: "There are repeating episodes in world macroeconomics that demonstrate the absurdity of the mainstream way of thinking . One, obviously is the recurring debt ceiling charade in the US, where over a period of months, the various parties make threats and pretend they will close the government down by failing to pass the bill (...) Another example is the European Union 'budget' deliberations which involve excruciating, drawn out negotiations (...) is the rather significant quantity of joint EU debt that was issued during the pandemic to help nations through the crisis. How that is repaid is causing grief and leading to rather ridiculous suggestions of further austerity cuts and more issued because the Member States were pursuing irresponsibility and profligate fiscal strategies." (https://billmitchell.org/blog/?p=62355)

[5]The expression that has become a household name is 'whatever it takes'. Draghi's speech is known as the 'whatever-it-takes speech'. It took almost 4 years from the beginning of the financial crisis for the president of the ECB to publicly state what seems obvious: that a central bank will do whatever it takes to preserve the existence of the currency that the central bank creates and manages. That it had to be said publicly suggests that the institutional architecture of the eurozone was deficient, creating a central bank so independent that it had no government to serve. Another conclusion that can be drawn from the euro crisis is that currencies do not exist for their own sake, but rather because they serve the needs of governments. Currencies are instruments serving goals established by governments and not an authority to which governments must pay homage and be subordinated.

dently of the other: a government not backed by a central bank is like a car without fuel. You may not need fuel when the road goes downhill, but it is naïve to believe that roads never go uphill.

The health emergency caused by Covid-19 and the 2022 Russian invasion of Ukraine are examples of high mountain roads. Apparently, lessons learned during the euro crisis were applied in both cases: Figs. 11 and 12 show the non-severe impact of the two events on Spain's risk premium.

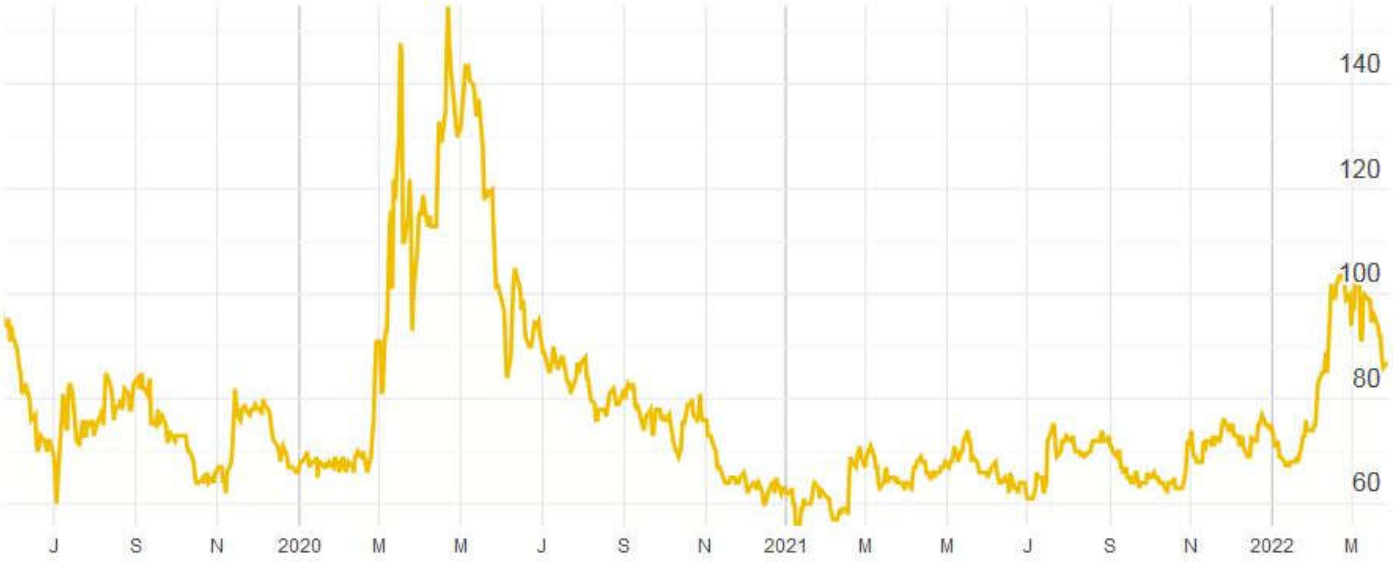


Fig. 11. Spain's risk premium before and after the Covid-19 emergency (March 2020)
https://datosmacro.expansion.com/prima-riesgo/espana

Fig. 12. Spain's risk premium before and after the Russian invasion of Ukraine (February 2022)
https://datosmacro.expansion.com/prima-riesgo/espana
(see also https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html)

What goals should a government's spending capacity serve?

The traditional, orthodox view is that public spending has the primary mission of reaching where private spending does not, whether in quantitative or qualitative terms. When private spending is insufficient

(in periods of contraction in economic activity), public spending can temporarily serve to cover the volume of private spending considered insufficient.

On the other hand, public spending can cover qualitative deficiencies in private spending, that is, certain types of spending that the private sector does not carry out or does so in a way that is considered insufficient: healthcare spending, education and vocational training, social assistance, infrastructure…

When it comes to compensating for quantitatively insufficient private spending, it can be interpreted that the ultimate objective of public spending is to maintain the results that would be obtained if private spending were sufficient. Among the main results to be maintained are general employment in the economy and, more specifically, the economic activity of economic sectors whose viability is considered desirable from a global point of view (for example, because they are sectors on which the viability of many other sectors depends).

The objectives of qualitatively complementing private spending are essentially twofold.

One of efficiency: executing this type of public spending facilitates and enhances private economic activity (for example, creating and maintaining basic infrastructures such as roads, railway lines, electricity networks, airports, courts, police stations… [6]).

And another of equity (distributive justice): that public spending contributes to reducing economic inequalities derived from private sector activity (for instance, providing free education services, providing universal healthcare, paying subsidies to disadvantaged groups or those deserving of special protection…).

The conventional view is that the overriding commandment for public spending is not to harm private spending: public spending must be subordinated to private interests. From this point of view, the less public spending, the better.

At the other extreme is Modern Monetary Theory which, adopting the standpoint of an MS government, maintains that public spending must be functional (destined primarily to achieve the objectives that motivate it) and that the only brake on the volume of spending is that the impact of public spending on the evolution of inflation is considered excessive or undesirable. The ultimate limit to the government's spending capacity is the productive capacity of the economy. In general, the evolution of inflation is taken as an indicator of how close the aggregate demand in the economy is to its capacity to serve this demand.

On the contrary, a non-MS government may be forced to give priority to compliance with certain fiscal rules[7] and, even if they comply with them, they may be forced by circumstances to assume as

[6]The German economy no longer seems to be the ideal to copy. The German ordoliberal model (the social market economy) shows signs, at least with respect to the state of infrastructure: "Aging, clapped-out infrastructure and badly planned projects are among some of the most visible problems facing Europe's top economy, whose malaise has become a key issue in the February 23 parliamentary election. Germany's reputation for efficiency no longer holds true , critics contend — trains do not run on time, internet and mobile phone coverage is often patchy, and roads and bridges are in a state of disrepair." (https://www.france24.com/en/live-news/20250216-late-trains-old-bridges-no-signal-germany-s-infrastructure-woes)

[7] To repeat once more: the governments of eurozone countries have a number of mandatory fiscal rules. Among them: public deficit not exceeding 3% of GDP; public debt not exceeding 60% of GDP; and, prior to the preparation of the public budget, determination of the public expenditure ceiling. This ceiling establishes the upper limit of non-financial expenditure of the

a priority fiscal policy goal reducing the public deficit and/or public debt (an objective that is usually associated with the reduction of public spending, however necessary it may be functionally: case of Spain for a few years after 2010).

According to Modern Monetary Theory, the function of taxes is to regulate the state of the economy (avoid excessive aggregate spending in relation to productive capacity) and serve redistributive purposes (reduce excessive inequalities of wealth or income) and not to finance public spending (which actually does not need taxes to finance itself if the government is MS).

Heterodox view of fiscal policy, public deficit and public debt

Modern Monetary Theory (MMT) defends a view that is broadly opposite to the orthodox or conventional. The MMT view applies to countries that have their own central bank and, therefore, currency: the US, Canada, Australia, the UK, Japan, India, Brazil, Russia, China, Mexico, Argentina... Spain, and the rest of the eurzone countries, have neither their own central bank nor their own currency: they are not monetarily sovereign countries. According to the MMT, the following is valid for monetarily sovereign countries[8].

- A government does not need to collect taxes to make public spending. The orthodox view considers a government to be like an individual, who cannot spend unless income is first received: taxes are collected first and next spending is made. The heterodox view maintains that an MS government is different: since it ultimately has control over its currency, it can create it at will to finance public spending; in this case, spending is done first and then, if considered necessary, taxes will be collected.
- The function of taxes is not to finance public spending, but to regulate aggregate demand (when it is regarded excessive and inflationary pressures are created, an increase in taxes reduces the pressure). In the orthodox view, monetary policy is the most effective way to control inflation; in the heterodox view, it is fiscal policy.
- Public deficits and debt are not in themselves an economic problem, in view of the fact that an MS government can never go bankrupt (unlike a person or a company). The reason is that this type of government has the power to create the medium that liquidates its own debts: a government borrows in its own currency and, if necessary, can create it to pay off the debt. [One may ask: what if a government borrows in foreign currency? Reply: why do that when it can borrow in currency that it can create itself?]

Central Administration (local administrations, autonomous communities, Social Security and payment of public debt are excluded). For Spain, the 2024 ceiling was 199,120 MEUR , 0.5% higher than the 2023 ceiling. The 2025 ceiling awas 199,171 MEUR (European funds included; without them, 195,353 MEUR). The 2026 ceiling has not been approved yet due to the unwillingness of the Spanish government to submit to Parliament a draft bugdet for approval.
https://www.hacienda.gob.es/es-ES/Prensa/En%20Portada/2023/Paginas/20231212-MONTERO-CM-TECHO-GASTO.aspx
https://www.servimedia.es/noticias/gobierno-aprueba-techo-gasto-199171-millones-para-2025-identico-julio/1410249890

[8] See Warren Mosler (2010): *The Seven Capital Innocent Frauds of Economic Policy*, http://mosler economics.com/wp-content/uploads/2021/06/7-Fraudes-inocentes-capitales-1.pdf, and/or Bill Mitchell's Modern Monetary Theory website, http://bilbo.economicoutlook.net/blog/, and/or Stephanie Kelton (2021): *The Deficit Myth: Modern Monetary Theory and the Birth of the People's Economy*, PublicAffairs.

- The public deficit is an instrument to achieve an objective, not an end in itself. The relevant question is not whether the public deficit (or public debt) is 'too high', but whether it reaches the goal that justifies it: maintaining or boosting economic activity and maintaining or boosting employment. The heterodox view speaks of 'functional public expenditure': what is important about public expenditure is not its volume but whether it serves to achieve socially desirable objectives.
- What makes a level of deficit or debt problematic is not its level (whatever it may be) but whether it causes excessive inflatio . For this reason, it is not argued that public deficit or debt are always irrelevant. But, unlike the orthodox view, the idea that they are always relevant is not accepted.
- The public deficit creates net financial wealth for the private sector (the orthodox view says it does not). By the identity of balances (and, for simplicity, assuming that the external balance is zero),

  $$\text{private sector balance} + \text{public sector balance} \equiv 0 \, .$$

  Consequently, if the private sector wants to have a surplus (it intends to accumulate financial assets), it is necessary for the public sector to run a deficit (by means of which financial assets for the private sector are created). So the public deficit does not take savings from the private sector, but rather it creates the savings.
- There is no crowding-out effect of an increase in public spending financed by public debt. When the government borrows, it does not borrow money from the private sector: since, to a large extent, banks buy government debt securities, they pay for it with new money. As with a private loan, banks create money (deposits, bank money) when they lend to the government. This, if anything, does not push the interest rate up, but rather down (see the example in section §3 illustrating the link between public expenditure, money creation and government debt).
- Public spending creates money. If public spending is financed by issuing public debt securities and if these securities are purchased by banks by creating new deposits, these deposits pass to the non-bank private sector when the government makes public spending (it buys goods and services and pays with the deposits that the banks have created by purchasing public debt). This makes fiscal policy a more agile and effective monetary policy than the central bank's own monetary policy: when the government pays for purchases or makes transfers, it sends the new bank money directly to the private sector and, if so intended, to a specific part of the private sector; on the other hand, the central bank needs the collaboration of intermediaries: the banks[9].
- Taxation destroys money. In practice, a government operates like a bank (with the only difference that it does not create bank money). Thus, when taxpayers order their banks to pay

[9] If the non-bank private sector is considered, the net effect of the public deficit is to create deposits (here the creation of net financial wealth for the non-bank private sector occurs: more deposits). If rather the entire private sector (banking and non-banking) is considered, then deposits are cancelled (they are an asset for the non-bank private sector but a liability for the banking private sector). However, the creation of net financial wealth persists (now for the entire private sector) because the banks hold the public debt securities (which are an asset of the private sector and a liability of another sector, the public sector).

a tax on their deposits, the bank liquidates part of the deposits but the form of money it sends to the government is not a deposit (the bank's own deposit) but reserves (of the central bank). One reason is operational: banks do not accept deposits from other banks, but they do accept reserves (which is a sort of universal money in the banking sector). If the government accepted the bank's deposit as tax payment, it would have limited ability to use this form of money to pay other banks. Reserves, not deposits, are the 'natural' interbank form of money. That tax payment destroys bank money reinforces the effectiveness of fiscal policy as monetary policy.

- Fiscal policy as a countercyclical policy. MMT sees fiscal policy as a tool to stabilize the economic cycle. The business cycle is associated with fluctuations in aggregate private spending . Fiscal policy is countercyclical if:

  (i) it implies an increase in public spending (and, complementary, a reduction in taxes) during the contractionary phase of the cycle (when private spending decreases); and

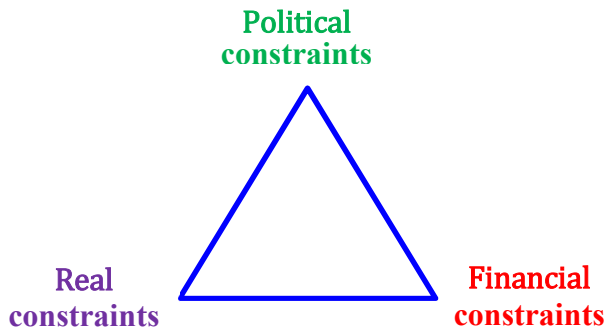
  (ii) it involves a reduction in public spending (and, in addition, an increase in taxes) during the expansionary phase of the cycle.

- A parallel objective of fiscal policy is to facilitate the expansion of private spending, that is, to 'make space' for (and lay the foundations for) sustained and sustainable growth in private spending.

[Fiscal austerity expresses a procyclical fiscal policy: public spending is cut during a recession (raising unemployment) and increased during an expansion (stimulating inflation). A procyclical fiscal policy could be justified at the start of the expansionary phase of the business cycle: a temporary surge in public spending could help consolidate expectations of recovery, so that as the expansion is consolidated by the progressive rise in private spending, public spending is reduced to 'make room' for more private spending; see http://bilbo.economicoutlook.net/blog/?p=18780.]

A trinity of economic policy constraints

Fiscal policy (and, in general, economic policy) faces at least three constraints.



• **Financial constraints.** Fiscal policy is said to be subject to financial constraints if all government spending must be financed by raising taxes or issuing government debt. MMT holds that a monetary sovereign government is not intrinsically subject to financial constraints .

- This does not mean that the government cannot establish rules, conventions or procedures that represent some type of restriction. For example, the government can self-impose the condition of not spending without having previously issued debt to finance it or that a certain percentage of spending be financed with taxes (the Bristish government self-imposes fiscal rules more or less precisely defined). But these restrictions are voluntary and could be eliminated or modified at convenience. In no case do they represent intrinsic or insurmountable restrictions.

- The conventional view holds that fiscal policy is necessarily and inevitably limited by financial constraints. According to this view, just as a household cannot spend without first earning income, a government is considered unable to spend unless it collects the necessary taxes or borrows from the private sector. The conventional view claims that every government is limited in its action by an intertemporal budget constraint: if in the present it spends more than it receives in taxes (and the difference must be covered by public debt), in the future it will have to spend less than it receives in taxes.
- According to the MMT, a government faces an intertemporal budget constraint only if it voluntarily decides to do so. This is the case for the governments of the eurozone countries: by giving up their monetary sovereignty, governments face the financial constraint of having to subordinate public spending to obtaining financing from the private sector (via taxes or via loans).

• **Political constraints.** Political constraints on fiscal policy are associated with the acceptability of fiscal policy measures among the population (and, mainly, among the most powerful or influential groups). The acceptability of a fiscal policy measure is related to the measure's alignment with ideological positions or with collective interests.

- For example, for ideological reasons, part of the population may oppose tax cuts for the wealthiest; this opposition would represent a political constraint on the implementation of the measure. Similarly, business organizations may oppose an increase in corporate taxes because the measure negatively affects their economic interests.
- The MMT alleges that the conventional view presents as financial restrictions (that the government does not spend before receiving money from the private sector) what is really a political restriction (for ideological reasons, it is intended to minimize the intervention of the public sector in the economy or to make people believe that the government is less capable than it actually is, while spreading the opinion that a monetarily sovereign government can run out of money). For MMT a function of taxes is redistribution: taxes help transfer spending capacity from some groups in the private sector (which are considered to have excessive capacity) to other groups (which are considered to have insufficient capacity).

• **Real constraints.** Real constraints are defined by the availability of resources : fiscal policy that involves purchasing goods and services is physically limited by the existence of resources that allow the goods and services to be created. The government cannot buy what the economy cannot produce, because there are not enough resources to make its production possible. Real constraints on fiscal policy are the limits on the productive capacity of the economy .

- MMT claims that real restrictions are the only effective restrictions on fiscal policy. The ultimate guide for fiscal policy is to not lead the economy beyond its sustainable productive capacity.
- According to MMT, the lack of effective financial constraints on fiscal policy, and the willingness to overcome any political constraints, means that the real limitation of fiscal policy is to avoid the inflationary pressures that occur when the economy's total spending approaches the limit of what the economy can produce. For MMT taxes serve to regulate private spending: when it is excessive and risks generating excessive inflation, an increase in taxes helps to control inflation.

- For this reason, the ultimate check on fiscal policy discretion is excessive inflation: public spending must be curbed when inflation reaches levels considered excessive or costly to control, that is, when public spending strains the productive capacity of the economy. The sustainable productive limit of the economy marks the limit of the expansiveness of fiscal policy.

Can restrictions be removed? Financial restrictions do not apply to a monetarily sovereign government. Becoming a dictatorship is a way to get rid of political restrictions, since the government is not accountable to anyone for its decisions. Finally, the government of a sufficiently small economy (Andorra, Luxembourg) could in practice make real restrictions ineffective, because in principle it could turn to the rest of the world to satisfy any demand for goods or services that exceeds domestic production capacity.

In the latter case, it is essential to meet one condition: that the small economy is integrated into the rest of the world (is globalized). North Korea is a small economy, not subject to financial or domestic political restrictions; but because it is not integrated with the rest of the world, the real restrictions are even stricter. One manifestation of these restrictions is starvation. Between 1994 and 1998, it is estimated that between 0.24 million and 3.5 million North Koreans, out of a population of about 22 million, died of starvation. The COVID-19 pandemic exacerbated the food shortage.

https://en.wikipedia.org/wiki/North_Korean_famine
https://asiasociety.org/famine-north-korea https://www.bbc.com/news/world-asia-59144712

Neoliberalism

Neoliberalism is the doctrine that the best economic policy is to 'leave everything to the market' and eliminate public intervention in the economy. Recent decades have witnessed a reorientation of economic policy towards neoliberalism. Changes associated with the neoliberal reorientation of economic policy include:

- discard fiscal policy in favor of monetary policy;
- policy objectives are not focused on unemployment and growth but on inflation and price stability;
- attributing the causes of unemployment to the functioning of the labor market and, specifically, to its 'inflexibility' (resistance to wage cuts, difficulties in firing workers…);
- the problem of unemployment can only be solved through 'reforms' of the labour market and the elimination of its 'rigidities', associated with the power of unions, long-term employment contracts and minimum wage regulations;
- the solution to the unemployment problem does not derive from demand policies or industrial or regional policies designed to confront the problem of structural unemployment;
- the liberalization and deregulation of markets (in particular, financial markets) and the elimination of capital controls that regulate the flow of capital between countries.

Classical liberalism

Classical liberalism defended, above all, individual freedom and autonomy. As a result, it advocated economic policies that:

- favored market freedom and economic freedom;
- were respectful of individual rights;
- implied limited intervention by public authorities in the economy;
- deregulated economic activity;
- minimized the use of taxes (including tariffs);
- were not social in nature (there was no need for them in a welfare state).

https://en.wikipedia.org/wiki/Classical_liberalism

Neoliberalism is 'classical liberalism on steroids'. "Neoliberalism is characterized by the privatization of virtually every industry and the complete commercialization of culture. It is responsible for the rapidly increasing cost of healthcare, higher education, and hospitality (...) Instead of being reinvested to stimulate the economy, neoliberal profits are concentrated among executives."

"Neoliberalism is an economic philosophy turned into a social ideology; money comes first. Classical liberalism, on the other hand, began as a social philosophy and then turned into an economic framework. Classical liberal philosophers were writing about individual liberty during the era of monarchies; personal self-determination came first. Yet neoliberal sophists use this classical liberal language to justify economic policies that overwhelmingly infringe on individual liberties for the majority of the population."

https://medium.com/share-the-wealth/neoliberalism-vs-classical-liberalism-c1c061de04ae

Ordooliberalism

Ordoliberalism is the German variant of economic liberalism. In the ordoliberal economic vision, public powers are subordinated to the interests and needs of the private sector: the main economic task of the government is to guarantee the conditions for the enjoyment of market freedom and competition between private economic agents. The government is an arbitrator and facilitator, not a protagonist. The economic mission of the government is to avoid concentration in the market: monopolies and oligopolies distort the smooth functioning of a market economy and, through political capture, undermine good governance.

Ordoliberalism applies the division of functions to economic policy. On the one hand, monetary policy is assigned to the central bank, which is charged with the mission of guaranteeing financial and price stability and, to this end, is isolated from political confrontation by turning it into a 'technical' body. On the other hand, fiscal policy is attributed to the government, which has the responsibility of balancing income and expenditure. In parallel, dialogue between unions and employers is institutionalized as an instrument of macroeconomic stabilization.

With respect to the welfare state, ordoliberalism does not have a favorable or unfavorable position. Ordoliberalism defends the social market economy as a socioeconomic model. The foundation of the model is a capitalist free market economy where appropriate social policies and regulation ensure the proper functioning of the economy (mainly, ensuring free competition). How extensive and deep the social policies (the welfare state) are remains undetermined and depends on the particular economy or economic situation. https://en.wikipedia.org/wiki/Ordoliberalism

Socialism

In the economic relations between the public and private sectors, classical liberalism and neoliberalism are at the extreme where the role of the public sector is residual or minimal. Ordoliberalism increases the weight of the public sector, but maintains it in a subordinate position with respect to the private sector. Socialism crosses to the other side of the scale and places the public sector in a dominant position with respect to the private sector.

The different socio-economic models called socialist attribute a fundamental role to public or collective ownership of the means of production and defend the importance of regulating private economic activity (due to numerous and serious externalities of private economic activity). In the 'central' version of socialism, the private and public sectors coexist. As a result of coexistence and collaboration, market socialism emerges as a socio-economic model. Between market socialism and liberal capitalism, there would be the third way of the social market economy of ordoliberalism (which seeks to reconcile social justice and classical liberalism).

Marxism and the most extreme visions of socialism go to the other extreme, advocating that the private sector should be residual or minimal. By eliminating market capitalism, the aim is to avoid all the negative externalities that are spontaneously and inevitably generated in the private sector, expressed in economic crises with high social and economic costs and in immorally unequal distributions of wealth.

https://en.wikipedia.org/wiki/Socialism https://en.wikipedia.org/wiki/Market_socialism

Mixed economy socioeconomic model mixes institutions of capitalism (market economy, private enterprises) and market socialism (public enterprises, regulation of private economic activity).

https://en.wikipedia.org/wiki/Mixed_economy

3. Links between fiscal and monetary policies

Public spending and private financial wealth: an example

The example below is based on Stephanie Kelton's analysis developed at http://neweconomicperspectives.org/2010/11/yes-deficit-spending-adds-to-private.html. The purpose of the example is to provide accounting evidence of how public spending financed (totally or partially) with public debt generates, in net terms, financial assets for the private sector.

The orthodox view is the opposite: public deficits do not add financial wealth to the private sector. This view says that the sale of public debt securities by the government to the private sector takes away liquidity ('money') from the private sector (there is no net injection of assets into the private sector: what is given on one side, debt securities, is withdrawn on the other, cash or bank money).

This notwithstanding, an implication of the identity $NPS \equiv PD + NX$ is that, if $NX = 0$, then the private sector cannot accumulate net financial wealth if the public sector does not borrow. With $NX = 0$, $NPS > 0$ is not possible without $PD > 0$. Similarly, with $NX = 0$, for NPS to rise, PD rise as well: if the private sector increases its net financial wealth, the public sector must have increased indebtedness.

If $NX < 0$ the previous messages are reinforced. Now an even larger value of PD (or a higher increase) is needed for the private sector to be able to fulfill its net financial wealth accumulation plans.

If $NX > 0$, the foreign sector supplies part of the net financial wealth that the private sector wants to accumulate. If NX is large enough, the public sector is freed from the need to provide financial wealth to the private sector. If it is not, the public sector will have to complement the contribution of financial wealth made by the foreign sector.

• **Example: a government spends, partly financing with taxes, partly with debt.** The government makes public spending of 10 (by purchasing goods from domestic companies), finances 40% with taxes collected at the time the expenditure is made (families and companies are paying taxes) and finances the remaining 60% with the issuance of Treasury bills (the issuance anticipates the deficit of the fiscal operation and is made before the expenditure is executed).

• **Stage 1.** The government receives a payment of 4 in taxes from the non-bank private sector (the non-bank private sector is the aggregation of households and businesses).

In Table 1A next non-bank private sector taxpayers use their deposits in private banking sector banks to cancel tax debt.

1A. Non-banking private sector

Deposits –4	Taxes payable –4

1B. Private banking sector

Reserves –4	Deposits –4

In Table 1B above banks reduce the deposits of taxpayers who make the payment. The offsetting entry in the bank balance sheet is the same when deposits are transferred between banks: the bank making the payment effective by lowering the customer's deposits also lowers its own reserves.

1C. Government

Taxes received –4	
Reserves +4	

1D. Central bank

	Banks reserves –4
	Government reserves +4

In Table 1C above the government replaces the rights on taxpayers with reserves. Reserves are the way in which the payment that taxpayers make through the banks reaches the government. It is as if the government were a bank, in the sense that it can operate with reserves.

In Table 1D above the central bank records the transfer of reserves from the banking system to the government.

• **Remark 1.** Personal tax payments destroy bank money: in Table 1B, the banking system reduces deposits. It will be shown below that public spending contributes to create bank money.

• **Remark 2.** If the government and central bank balance sheets are consolidated, then the payment of taxes by individuals also destroys central bank money (reserves): if tables 1C and 1D are merged, the reserves held by the government are canceled.

• **Remark 3.** What if the government had accounts open in banks? The same end result would be achieved this way. First, there is no movement of reserves.

1A'. Non-banking private sector

Deposits –4	Taxes payable –4

1B'. Private banking sector

	Deposits –4
	Government deposits +4

1C'. Government

Taxes receivable –4	
Deposits in banks +4	

1D'. Central bank

Secondly, the government exchanges deposits (bank money) and reserves (central bank money) with the banks.

1E'. Government

Reserves +4	
Deposits in banks –4	

1F'. Private banking sector

Reserves –4	Government deposits –4

Finally, the central bank's balance sheet changes in the same way as in Table 1D .

• **Stage 2.** The government sells Treasury bills worth 6 to the banks. It is assumed that the government has checking accounts with banks reserved for transactions related to the management of the public debt. In the US, these accounts are called *Treasury Tax & Loan Accounts* and facilitate financial transactions between the government and banks.

Table 2A : The government sells bills in exchange for an increase in the value of deposits in banks.

2A. Government

Deposits in banks +6	T-bills +6

T-bills➔
➔Deposits

2B. Private banking sector

T-bills +6	Government deposits +6

Table 2B : Banks record the acquisition of bills as an asset and their payment as a liability in the form of deposits.

• **Remark 4.** Tables 2A and 2B show that the purchase of bills by banks (which is like granting a loan to the government) is accountingly equivalent to lending to an individual: the bank increases the value of the government's current account at the bank and records the loan (in the form of a Treasury bill) as an asset, and for the other party to the transaction (the government) the accounting record is the reverse (a deposit as an asset and the loan as a liability).

• Stage 3. The government requests a transfer to its account at the central nank.

Table 3A : The government receives reserves and liquidates deposits.

3A. Government

Deposits in banks −6	
Reserves +6	

Deposits➔
➔Reserves

3B. Private banking sector

Reserves −6	Government deposits −6

3C. Central bank

	Bank reserves −6
	Government reserves +6

Table 3B : Banks release reserves and cancel deposits.

Table 3C : The central bank moves reserves from banks to the government.

• Stage 4. The government executes public spending by purchasing goods from the non-bank private sector worth 10.

Table 4A : Sellers of goods deliver them in exchange for payment in the form of deposits.

4A. Non-banking private sector

Goods −10	
Deposits +10	

4B. Private banking sector

Reserves +10	Deposits +10

Table 4B : Table analogous to 1B , with banks increasing deposits from sellers of goods and offsetting this increase with additional reserves. As in the purchase and sale paid for with deposits, in parallel with the actual transaction between buyer and seller (which involves a transfer of deposits) there is a financial transaction where reserves are transferred (in this case, it is as if the government were its own bank: the government can operate with reserves).

4C. Government

Goods +10	
Reserves –10	

4D. Central bank

	Banks reserves +10
	Government reserves –10

Table 4C : The government records the purchase of goods as an asset and the transfer of reserves to banks.

Table 4D : The central bank moves reserves from the government account to the banks' accounts.

• **Remark 5.** The net financial result for the non-banking private sector is an increase in deposits of 6 (the value of the issuance of bills and, in this case, the value of the deficit of the fiscal operation: expenditure of 10 less taxes of 4). The net result for the banking private sector is an increase in deposits of 6 and an increase in T-bills of 6 . In consequence, the consolidation of the non-banking private sector with the banking sector cancels the deposits and implies a net accumulation of financial assets (T-bills) worth 6. This means that the private sector has increased the balance by 6 (increase in surplus in the private sector).

• **Remark 6.** The net financial result for the public sector (the government) is that reserves do not change (the values written in red) and there is an increase in financial liabilities (T-bills) equal to 6. Thus, the public sector experiences a net accumulation of financial liabilities worth 6 (increase in the public sector deficit). In short, deficit public spending (financed by issuing debt securities) has increased the private sector's net holding of financial assets.

• **Remark 7.** The coincidence between the additional deficit of the public sector (increase in public debt) and the extra surplus of the private sector (net increase in financial assets) is maintained if the public sector consolidates the government with the central bank.

• **Remark 8.** The tax collection in stage 1 destroyed money (4 units). The public purchase in stage 4 increased it again (10). The net increase in money (6) corresponds to the increase in deposits in the non-bank private sector (and to the value of the deficit of the operation: expenditure of 10 that is partially financed by tax collection of 4).

• **Remark 9.** Another lesson from the example is that government spending adds reserves to the banking sector (Tables 4B and 4D). These additional reserves put downward pressure on the interest rate in the interbank market (in the eurozone it is the Euribor, the Euro Interbank Offered Rate). If the central bank intends to maintain the target interest rate, it should sell financial assets. If the central bank coordinates with the government, the government (as part of its fiscal policy) could issue financial assets with which to withdraw excess reserves.

• **Remark 10.** It is left as an exercise to show that the main result of the example (the private sector accumulates net financial wealth equal to the public sector deaccumulation of net financial wealth in the form of public debt) holds if the T-bills are purchased by the: (i) foreign sector by borrowing from domestic banks; (ii) non-bank private sector with or without bank loans; (iii) central bank.

The next table summarizes the previous discussion and results.

Summary of the example: public spending creates net financial wealth for the private sector

Non-banking private sector		Private banking sector		Government			Central Bank
1. Payment of taxes							
Deposits –4	Taxes –4	Reserves –4	Deposits –4	Taxes –4			Bank reserves –4
				Reserves + 4			Government reserves +4
2. Issuance of T-bills							
		T-bills +6	Government deposits +6	Deposits to banks +6	T-bills +6		
3. Deposits to reserves							
		Reserves –6	Government deposits –6	Deposits to banks –6			Bank reserves –6
				Reserves +6			Government reserves +6
4. Public expenditure							
Goods –10				Goods +10			Bank reserves +10
Deposits +10		**Reserves +10**	Deposits +10	Reserves –10			Government reserves –10

Aggregate result

Private sector				Government			
Deposits +6		**T-bills +6**	**Deposits +6**		**T-bills +6**		
Net accumulation of financial assets = 6				**Net deaccumulation of financial assets = 6**			

Conclusions

- Paying taxes destroys bank money.
- Public spending creates bank money.
- Public spending creates reserves for the banking sector.
- Public spending financed with public debt creates net financial wealth for the private sector.

- Like granting a loan to an individual, the purchase of government bonds by the banking sector creates bank money: the banking sector records a financial asset (the loan to an individual or government) and simultaneously generates a bank deposit as its liability. The difference is that the loan to the government is a tradable asset (there is a secondary market).
- Can debt be said to create a burden for the future if it can be sold at any time?

Monetary and fiscal policy in normal situations

Under normal conditions (absence of economic, financial or banking crisis), central bank officials choose a short-term target interest rate that they understand capable of achieving their ultimate objectives (such as price stability, generally specified in terms of a value of the inflation rate).

Central bankers also choose a benchmark market interest rate, such as some very short-term (daily) interest rate in the interbank market, which is a (central bank) reserve market.

The monetary policy actions of central bank officials (liquidity management operations) aim to align the reference interest rate with the target interest rate.

The central bank's liquidity management operations are closely linked to the government's public spending and tax collection operations.

When the government carries out public spending, it pays for the acquisition of goods or services by generating a credit in the sellers' current accounts, that is, the sellers' deposits in banks increase (if the government pays with a check or in cash, generally the check and cash end up in the banking system again increasing the volume of deposits).

This creation of deposits in favour of sellers means transferring a liability to the banks. In return, the government must transfer an asset to the banks: central bank reserves. Thus, when the government purchases goods, pays for services or executes transfers, the volume of banks' reserves goes up.

Conversely, tax collection implies that the government generates a debit in the checking accounts of taxpayers. In this case, whether taxes are paid with deposits or when they are paid with checks or cash, the result for banks is a reduction in reserves.

As result, transactions between the public sector and the non-bank private sector create or destroy reserves (which are a form of liquidity).

Corollary: a public deficit (public spending greater than tax revenue) increases bank reserves and a public surplus reduces them (revisit the previous example and the summary table).

That fiscal policy is susceptible to alter the volume of reserves in the banking sector creates the potential for conflict with monetary policy, since the variation in reserves is likely to modify the reference interest rate that central bank officials are interested in controlling (the reason is that this rate is determined in an interbank market for reserves).

Specifically, a public deficit, by generating reserves, creates the possibility of banks holding excess reserves (relative to the volume of reserves they would voluntarily want to hold). By wanting to get

rid of excess reserves, the supply of reserves in the interbank market would increase and downward pressure would be created on the central bank's benchmark interest rate.

In these circumstances, the central bank must intervene in the interbank market to absorb the excess reserves caused by the deviation of the reference rate from the target rate. To make the sale of reserves to the central bank attractive, the latter must offer the banks in exchange some asset with a higher return than the reference rate and that is as liquid as the reserves themselves. Treasury bills and bonds (generally, public debt securities) have become the assets commonly used as substitutes for reserves that pay a sufficiently attractive interest.

The conclusion is that, for MS governments, public debt is an instrument of the central bank to achieve its target interest rate (through control of the reference interest rate) and not (as presented in the orthodox, conventional view), or not primarily, a tool for financing the public deficit. The issuance of public debt is not so much a financial operation linked to fiscal policy but rather an operation of liquidity regulation.

The issuance of public debt does not respond to the need to finance public deficits (an MS government does not need to finance its spending) but is part of the central bank's liquidity regulation operations.

Moreover, against orthodoxy, the public deficit does not, by itself, put upward pressure on interest rates (the government does not pay for public spending by withdrawing liquidity from the private sector). If there is any increase in interest rates, it is due to the intervention of the central bank, which tries to neutralize the downward pressure caused by the deficit (in increasing reserves).

The policy of quantitative easing (QE)

'Quantitative easing' (or expansion) means massive purchases of financial assets by the central bank from the private sector, not only of public debt but also of other financial assets not usually purchased by the central bank in open market operations, such as corporate bonds with high credit quality. The range of assets that the central bank is willing to purchase with quantitative expansion is wider than in open market operations: the central bank accepts assets of higher risk, of lower 'quality' or from more sellers than in open market operations.

QE is an extraordinary policy measure. It is evidence that circumsntances are 'far from normal'. A global financial crisis. A global pandemic. War in Europe. Since the 2008 global financial crisis have engaged, more than once, in unprecedented QE programmes.

Fig. 13a shows the impact on the US Federal Reserve's balance sheet of the two most recent episodes of quantitative easing: those associated with the 2008 global financial crisis and the 2020 health crisis (COVID- 19 pandemic). Figs. 14-16 present information on the European Central Bank QE.

A lesson of the central banks' involvement with QE is that the orthodox prediction regarding the effect of such abnormal central bank behaviour on the inflation rate proved wrong. The orthodox view reduces to the motto 'more money, higher inflation'. The massive liquidity injections by central banks did not cause hiperinflation, nor even a high inflation. In fact, deflation occurred; see Fig. 13b (the inflation rate turned negative once in the US and three times in Spain despite QE).

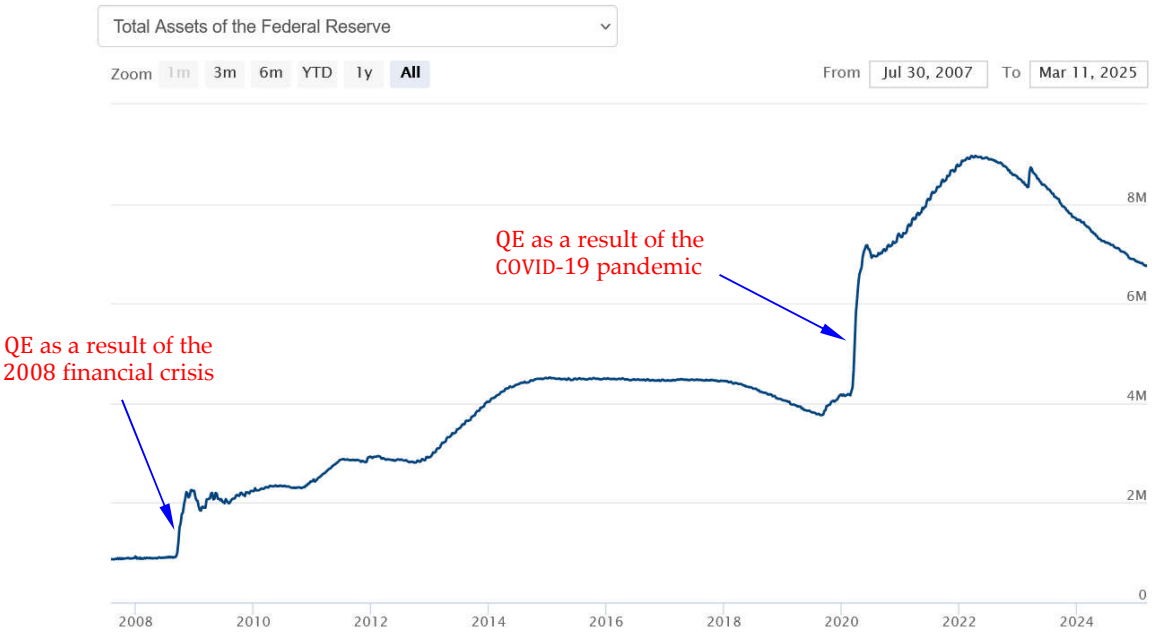


Fig. 13a. Federal Reserve quantitative easing (total volume of assets, millions of dollars)
https://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm

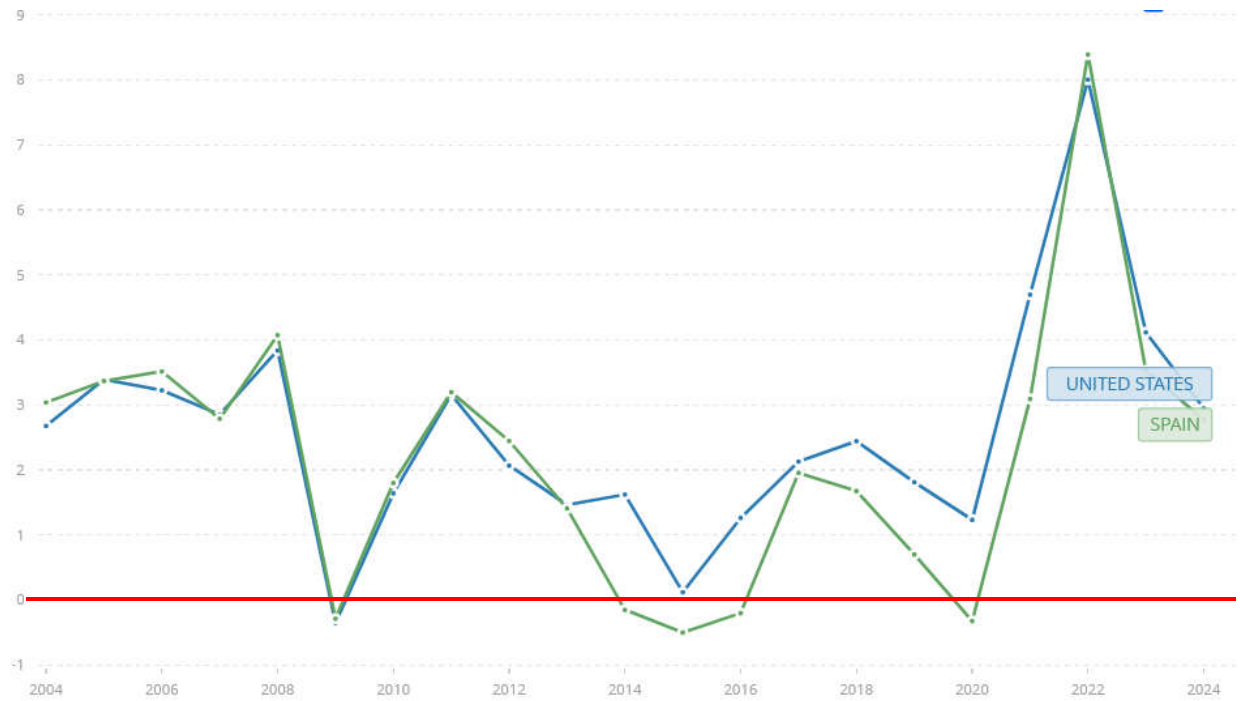


Fig. 13b. Consumer price index inflation rate, US and Spain
https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2024&locations=US-ES&name_desc=true&start=2004&view=chart

Quantitative easing takes place when the central bank's benchmark interest rate is close to zero: the massive injection of reserves that quantitative easing represents pushes the interbank interest rate towards zero. Its aim is to increase liquidity and induce banks to grant more loans and thus stimulate economic activity.

This policy is misleadingly called 'printing money' or 'printing notes', when in reality nothing is printed and the form of money (cash) that one thinks of when one hears the expressions 'printing

money' or 'printing notes' is not created. With quantitative easing, the form of money that is created is reserves: numbers on electronic balance sheets (it is a digital printout). Reserves cannot be spent directly on the purchase of goods and services, because they are money that circulates between the public sector (government and central bank) and the private banking sector, and within the private banking sector itself. The orthodox presumption is that reserves, through banks and their loans, are automatically transformed into money that does allow the purchase of goods and services. Hence the conventional view considers quantitative easing inflationary.

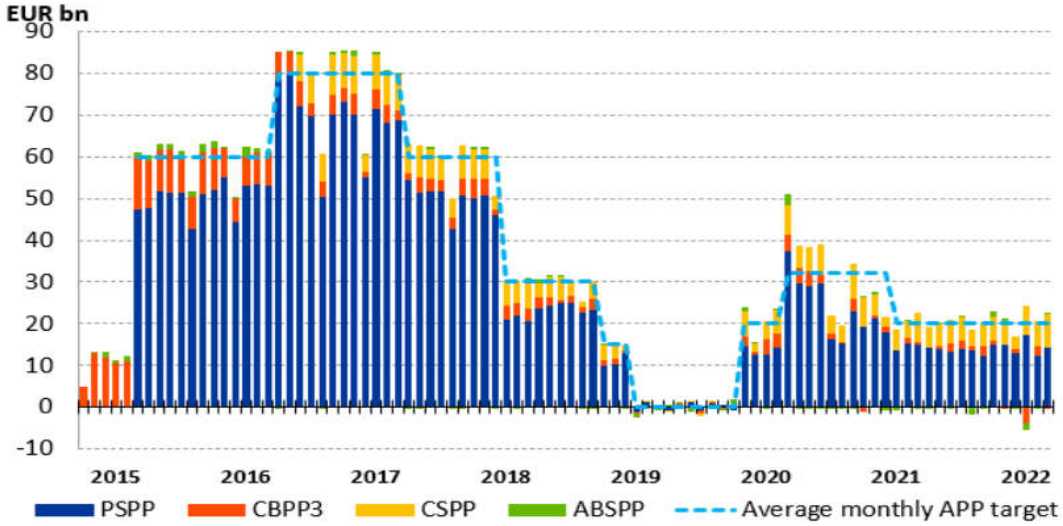


Fig. 14. European Central Bank quantitative easing (APP = asset purchase programme)
CSPP = purchases from companies (corporate sector) · PSPP = purchases from the public sector
CBPP3 = third round of covered bond purchases
https://www.ecb.europa.eu/mopo/implement/app/html/index.en.html
https://www.bbva.com/es/economia-todos-quantitative-easing/

Eurosystem holdings under the pandemic emergency purchase programme

Changes in holdings in EUR millions	Asset-backed securities	Covered bonds	Corporate bonds	Commercial paper	Public sector securities	Total
Holdings* as at end-Jan 2022	0	6,073	40,301	3,857	1,580,547	1,630,779
Net purchases Feb 22 - Mar 22	0	0	48	2,007	68,342	70,398
Quarter-end amortisation adjustment and redemptions of coupon STRIPS	0	-6	-37	-2	-4,643	-4,688
Holdings as at end-Mar 2022*	0	6,067	40,313	5,862	1,644,247	1,696,489

Fig. 15. ECB Emergency Purchase Program for the COVID-19 pandemic (PEPP), March 2022
('commercial paper' = unsecured corporate promissory notes, with an average maturity of about 30 days)
https://www.ecb.europa.eu/mopo/implement/pepp/html/index.en.html

In a somewhat fanciful way (while reproducing the conventional view), the European Central Bank's website explains how its asset purchase program or APP (the quantitative easing) works:

(1) "The European Central Bank buys bonds from banks.

(2) This increases the price of these bonds and creates money in the banking system.

(3) As a consequence, a wide range of interest rates fall and loans become cheaper.

(4) Businesses and people are able to borrow more and spend less to repay their debts.

(5) As a result, consumption and investment receive a boost.

(6) Higher consumption and more investment support economic growth and job creation.

(7) As prices rise, the ECB achieves an inflation rate of 2% over the medium term."

(8) The missing final piece: "And they all lived happily ever after."

https://www.ecb.europa.eu/ecb/educational/explainers/show-me/html/app_infographic.en.html

Central banks have injected large amounts of liquidity into the financial system

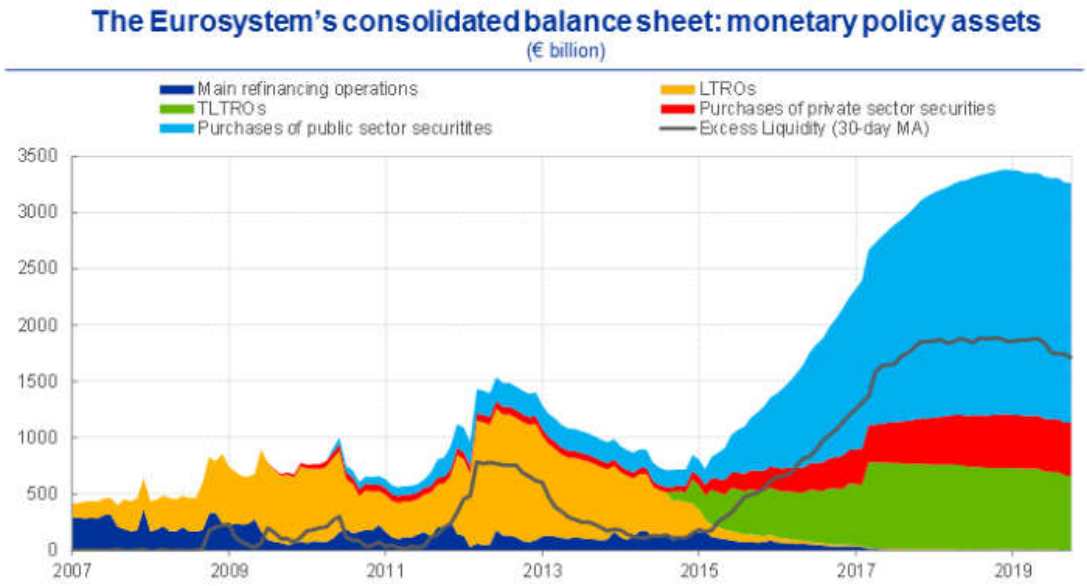


Fig. 16. Balance sheet of the Eurosystem (until October 2019)
https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp191112~5808616051.en.html

On 18 March 2020, the ECB announced the PEPP (Pandemic Emergency Purchase Programme), a temporary program of private and public sector asset purchases with an allocation of 750 billion euros to address the economic effects of COVID-19 in the eurozone.
https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200318_1~3949d6f266.en.html

Figs. 17-23 illustrate the magnitude of the Federal Reserve's quantitative easing. Following the COVID-19 health emergency, the ECB faced a crisis of its own caused by the Russian invasion of Ukraine on 24 February 24 2022. The ECB maintains a website on the monetary and economic impact of the conflict on the eurozone:
https://www.ecb.europa.eu/home/search/russia _ukraine_war/html/index.en.html.

Figs. 24 and 25 show that quantitative easing was widespread, not just by central banks in the US and the Eurozone. As a comparison of the magnitude of balance sheet expansions, Fig. 14 shows the value of world GDP in 2023 in dollars. To compare the financial magnitudes involved in QE with the value generated by the real sector, Fig. 26 displays the evolution of world GDP up to 2024 (world GDP in 2024 amounted to $111.25 trillion).

The conventional view is that quantitative easing is able to stimulate economic activity because it assumes that banks need reserves before lending and quantitative easing provides banks with a sufficient volume of reserves. In reality, banks lend when they consider that the borrower is solvent enough to repay the loan.

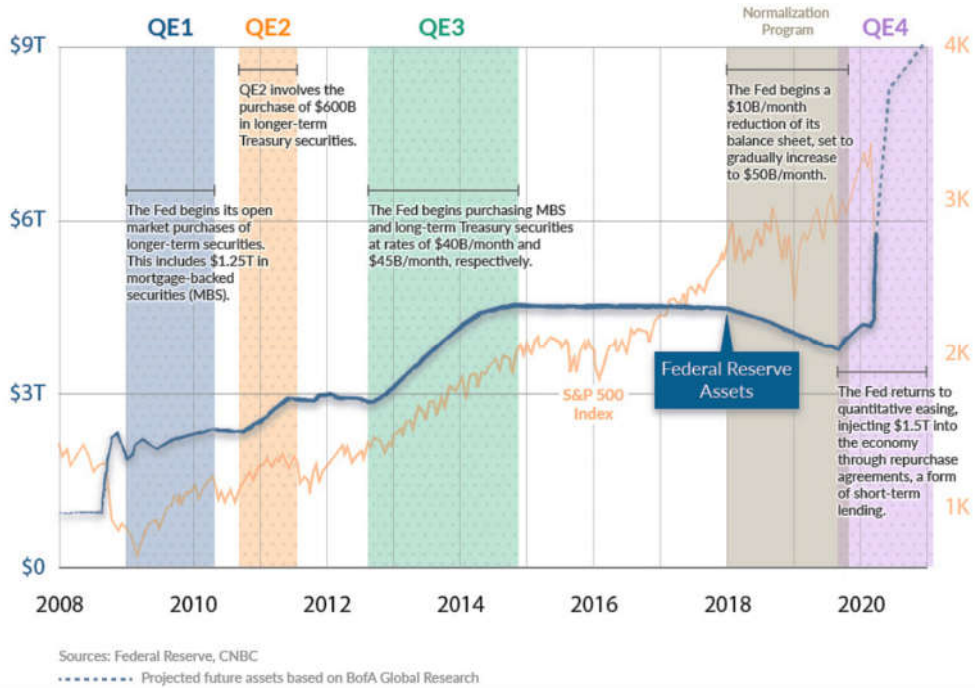
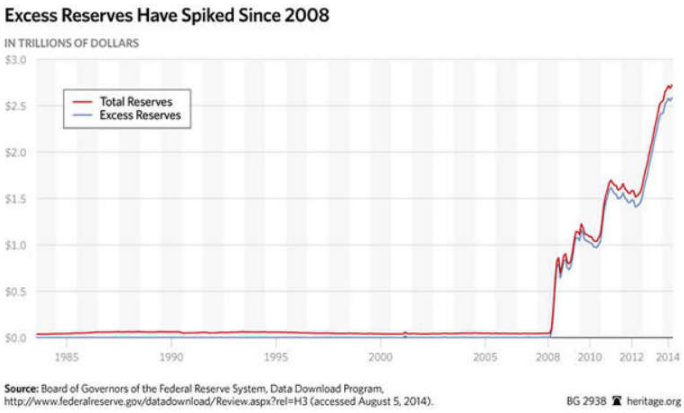
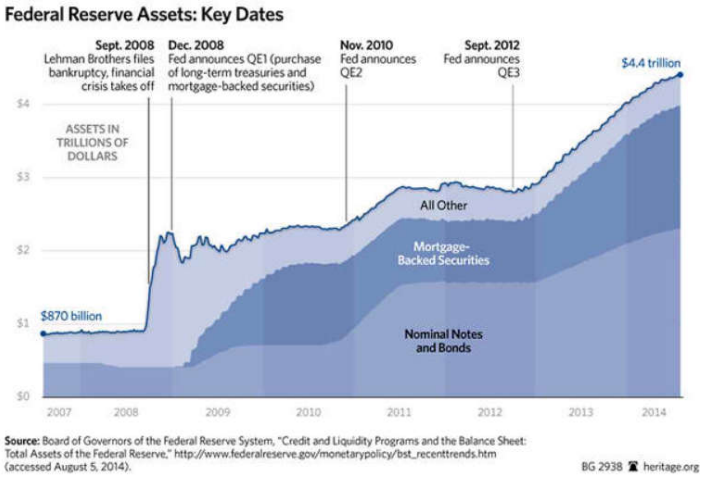


Fig. 17. Federal Reserve Assets
https://www.visualcapitalist.com/the-feds-balance-sheet-the-other-exponential-curve/





Figs. 18 and 19. Quantitative expansions of the Federal Reserve
https://www.heritage.org/monetary-policy/report/quantitative-easing-the-feds-balance-sheet-and-central-bank-insolvency

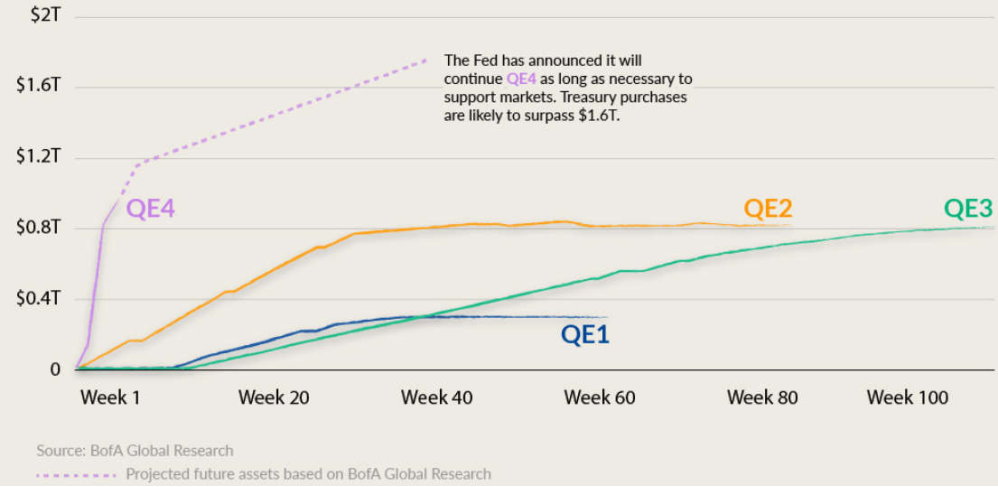


Fig. 20. Magnitude of the Federal Reserve's asset purchase programs
https://www.visualcapitalist.com/the-feds-balance-sheet-the-other-exponential-curve/

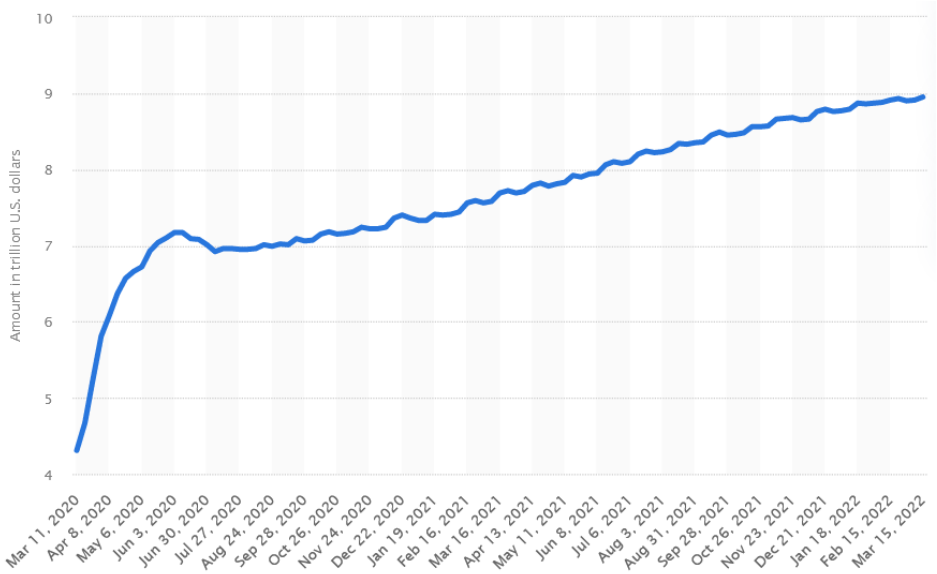


Fig. 21. The Fed quantitative easing in the wake of COVID-19 (03/2020 - 03/2022, trillions of $)
https://www.statista.com/statistics/1121416/quantitative-easing-fed-balance-sheet-coronavirus/

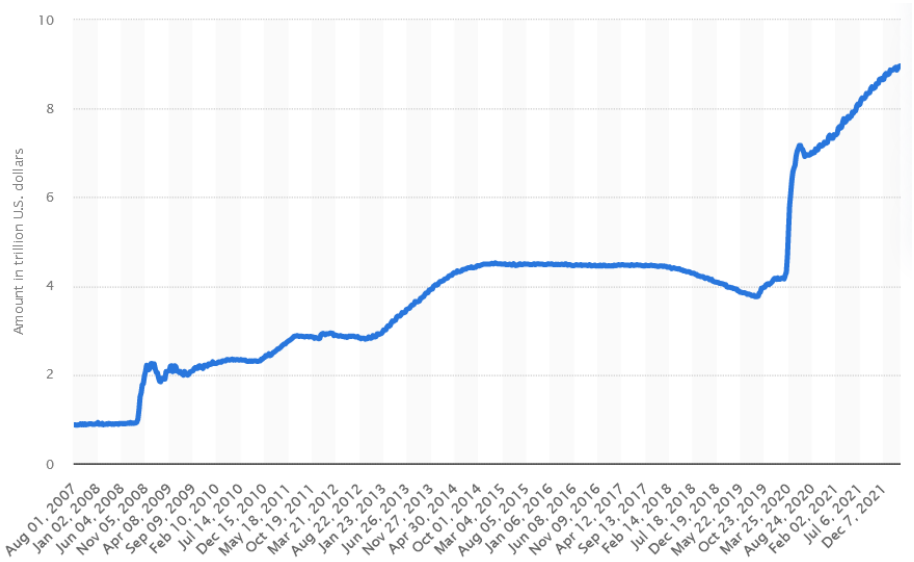


Fig. 22. Quantitative easing, Federal Reserve (August 2007 - March 2022, trillions of dollars)
https://www.statista.com/statistics/1121448/fed-balance-sheet-timeline/

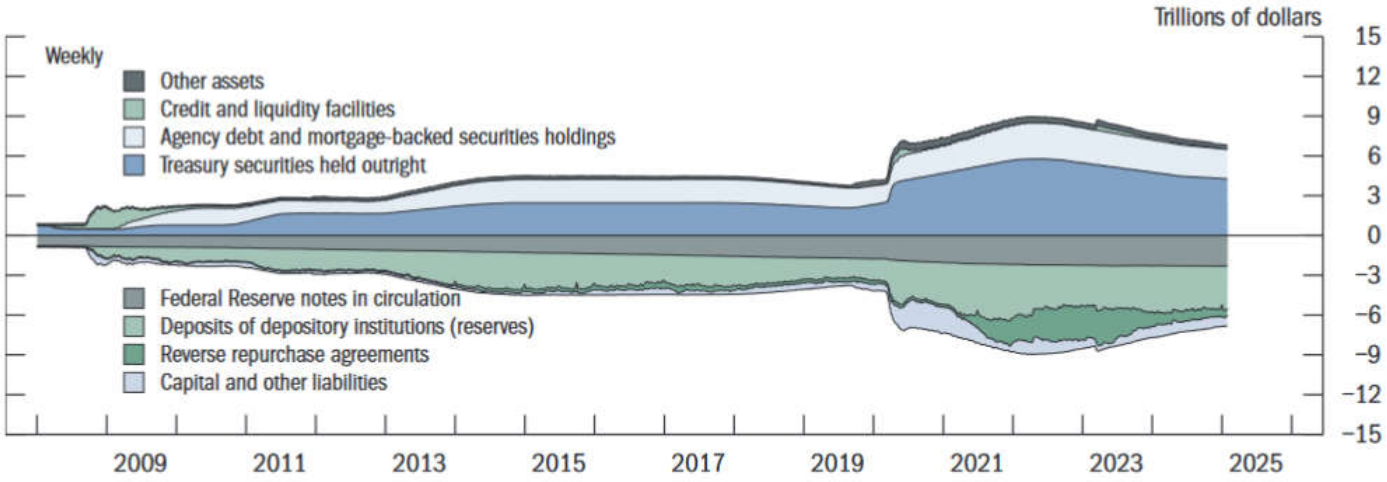


Fig. 23. Balance sheet of the Federal Reserve (trillion = 10^{12})
https://www.federalreserve.gov/publications/files/20250207_mprfullreport.pdf

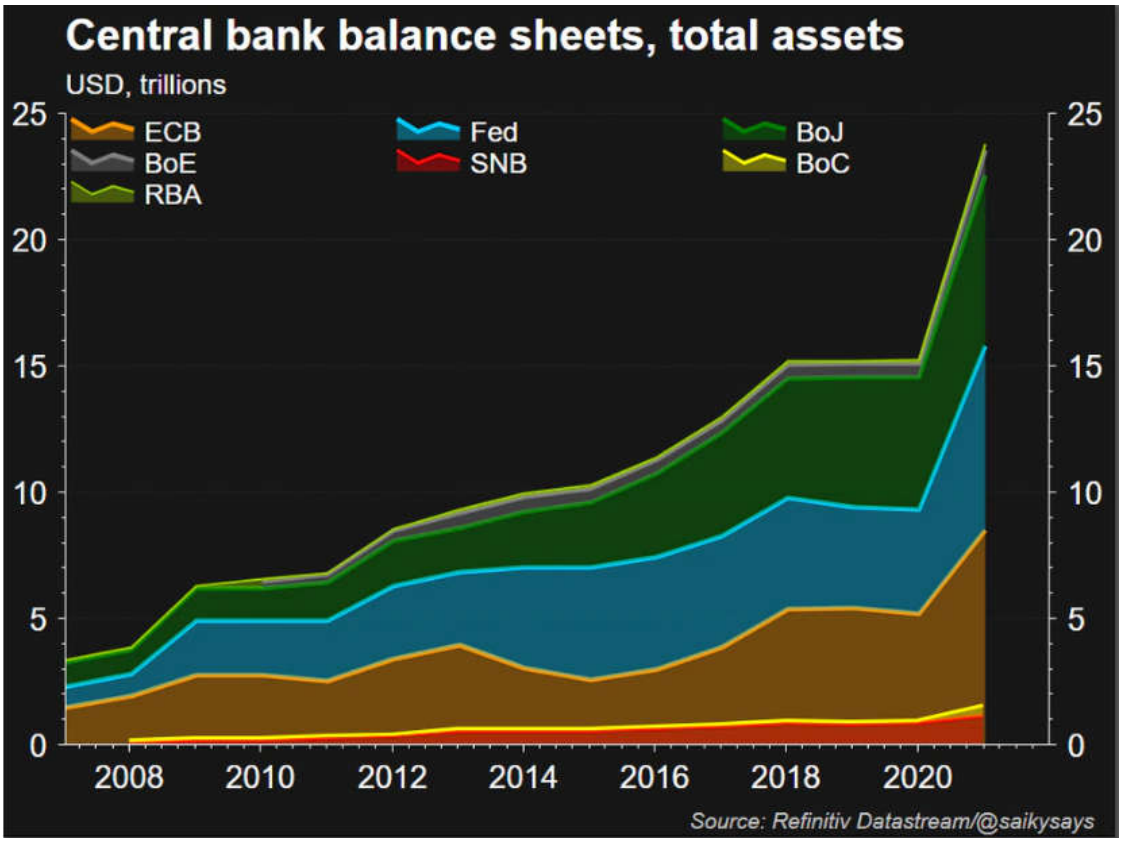


Fig. 24. Central bank balance sheets (BoE = Bank of England · RBA = Reserve Bank of Australia · BoJ = Bank of Japan · BoC = Bank of Canada · SNB = Swiss National Bank)
https://www.reuters.com/business/central-banks-start-turning-off-cash-taps-2022-01-13/

A bank lacking reserves does not need any quantitative easing: it either resorts to the interbank market and obtains reserves from other banks or, as a last resort, appeals to the central bank's credit facility (which involves paying an interest rate higher than that of the interbank market).

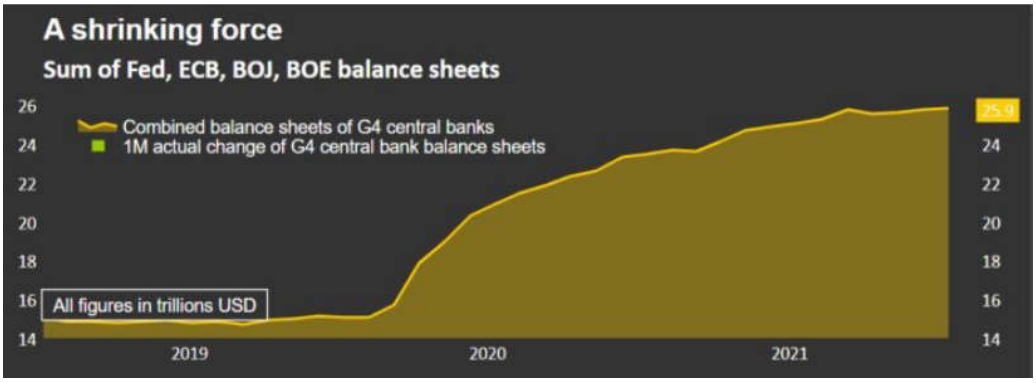


Fig. 25. Aggregate balance sheets of the G4 central banks (US, Eurozone, Japan, UK)
https://www.reuters.com/business/central-banks-start-turning-off-cash-taps-2022-01-13/

The contraction in credit that motivates quantitative easing is not resolved with more reserves, because the cause of the contraction is the loss of solvency (or the expectation of this loss) of families and companies, which is worsened by the reduced access to credit. Which worker goes into more debt if they fear losing their job? Which company goes into more debt if they fear losing customers?

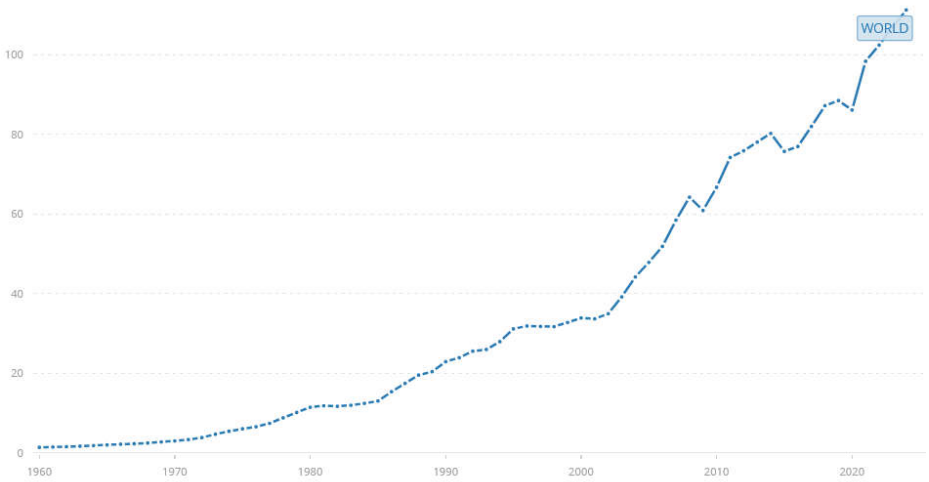


Fig. 26. World GDP, trillions of dollars (2024: World, 111.25; USA, 29.18)
https://data.worldbank.org/indicator/NY.GDP.MKTP.CD

If the central bank wanted to attack the cause of the problem, and not a symptom, it would lend directly to households and businesses, instead of delegating all the power to intervene in economic activity to the banks (when the banks themselves have little interest in sacrificing anything to stimulate economic activity by lowering the required criteria on borrowers).

Central Bank Digital Currency (CBDC) would allow direct lending by the central bank to the non-bank private sector. Meanwhile, fiscal policy is a more effective tool than monetary policy. The diagram in Fig. 27 helps to understand why.

On the one hand, the central bank can only directly provide one form of money (reserves) to the private banking sector; but, initially, the private banking sector can decide not to extend its form of money (deposits) to the non-bank private sector.

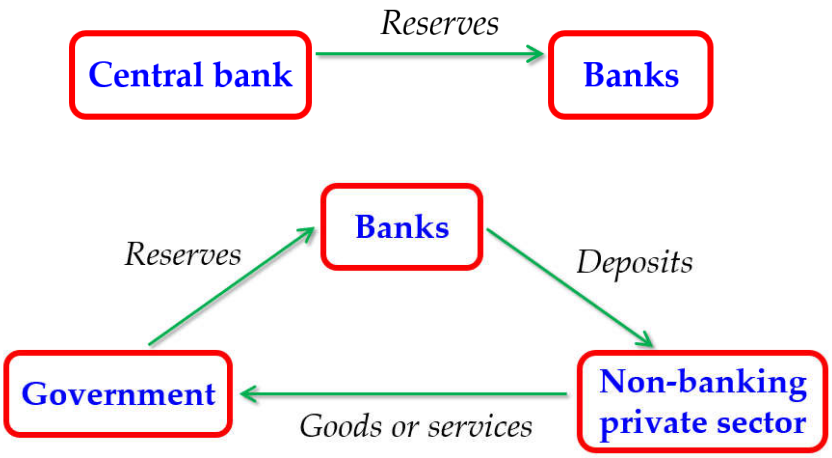


Fig. 27. Monetary policy (expansionary OMO, above) versus fiscal policy (public spending, below)

On the other hand, the government, through public spending, simultaneously achieves four objectives.

- First: public spending directly affects economic activity in the real sector (stimulating production, employment, business creation…). The central bank does not have this capacity for direct influence, as it requires the intermediation of the private banking sector.
- Second: the impact on the real sector can be selective (microeconomic). Public spending can be applied to specific economic activities or companies, because help there is more needed or because they are considered more important; on the other hand, the modification of the central bank's interest rates has a universal impact (macroeconomic), affecting everyone equally.
- Third: public spending creates reserves for the private banking sector (like an expansionary open market operation).
- Fourth: Public spending creates bankable money for the non-banking private sector.

The only significant effect of quantitative easing is to change the composition of banks' assets: they reduce their holdings of certain assets (public debt securities, corporate bonds, other collateralized assets) with relatively long maturities and increase the volume of reserves (which, as a financial asset, is safer and more liquid).

The purchase of longer-term assets by the central bank tends to raise their price and, therefore, reduce their profitability (longer-term interest rates). The presumption is that these rates are the relevant ones to stimulate investment spending.

But the decline in interest rates harms savers who will predictably reduce their consumption spending. All of this leads to the conclusion that the effects of quantitative easing on total spending are, a priori, indeterminate. This ambiguity of effects does not seem to be an argument in favour of using the instrument of quantitative easing mechanically: as an anti-recession recipe it rather seems to have very little power.

Review what the heading of Fig. 16 says: "Central banks have injected large amounts of liquidity into the finacial system". Remind as well the ECB tutorial, whose description of the effects of the central bank's purchases of bonds misses the two forms of money: in (2), by purchasing bonds from banks, the central bank "creates money in the banking system"; and later, in (4), "businesses and

people are able to borrow more". The point is that the money created in the banking system is reserves and that business and people cannot borrow reserves (but bank money, which is created by banks not the central bank).

From the above it follows that the additional reserves created by a public deficit or by QE:

(i) do not contribute to increasing bank lending to the non-bank private sector (banks do not need reserves to make loans);

(ii) they are practically equivalent to short-term public debt securities (given that the reserves at least remunerate according to the central bank's deposit facility rate); and

(iii) by not directly affecting aggregate demand, it is unlikely that they push the inflation rate upwards.

Given the apparent substitutability between reserves deposited with the central bank and government debt securities, it seems reasonable to conclude that the two forms of assets (central bank deposits and government debt securities) cause, if anything, similar pressures on the inflation rate . The conventional view argues that holding liquid assets in the form of government debt securities (in the very short term, for a few days) is more inflationary than holding liquid assets in the form of deposits with the central bank (remunerated according to the interest rate of the central bank's deposit facility).

The same would happen if the public debt were monetized, that is, if the central bank buys public debt securities directly from the government (primary market) or from previous buyers of the securities (secondary market). The conventional view once again considers the monetization of public debt as an inflationary measure. But the only difference is that in the previous case the creation of reserves was associated with an increase in public spending (and, therefore, in aggregate demand) and now the central bank creates even more reserves directly by buying the securities.

At least Japan's experience over the last three decades discredits the view that the monetization of public debt and, in general, the creation of reserves on a large scale, is necessarily inflationary: only in 2001 did the Bank of Japan implement a quantitative easing policy that led to an increase in reserves from 5 trillion (5,000,000,000,000) yen to 30 at a time when there was deflation (and falling asset prices and virtually zero economic growth).

The conventional view is that quantitative easing is able to stimulate economic activity because it assumes that banks need reserves before lending and quantitative easing provides banks with a sufficient volume of reserves. In reality, banks lend when they consider that the borrower is solvent enough to repay the loan.

A bank lacking reserves does not need any quantitative easing: it either resorts to the interbank market and obtains reserves from other banks or, as a last resort, appeals to the central bank's credit facility (which entails paying an interest rate higher than that of the interbank market).

The contraction in credit that motivates quantitative easing is not resolved with more reserves, because the cause of the contraction is the loss of solvency (or the expectation of this loss) of families and companies, which is worsened by the reduced access to credit. Which worker goes into more debt if they fear losing their job? Which company goes into more debt if they fear losing customers?

If the central bank wants to attack the cause of the problem, and not a symptom, it should lend directly to families and businesses, instead of delegating all the power to intervene in economic activity to the banks (when the banks themselves have little interest in sacrificing anything to stimulate economic activity by lowering the level of demand on borrowers).

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So why was QE conducted? Not to save 'the economy', but to save banks (but it is not popular to inform people that banks come before people). With banks in big trouble, an economy cannot be rescued from a recession (a severe contraction of economic activity, a big drop in GDP). The problem is that having healthy banks is not sufficient for economic recovery: bank lending depends crucially of favourable economic prospects. That is the simple reason why heterodox economists turn to fiscal policy to save the economy: this can be done without having to save banks first or wait for banks to feel saved and safe.

The policy of quantitative tightening (QT)

The global inflationary process of 2021-23 associated with the recovery from the pandemic and the geopolitical tensions caused by the war between Russia and Ukraine forced central banks to raise their interest rates, which required an end to and a reversal of quantitative easing.

Since then a phase of 'quantitative tightening' has been entered; the Federal Reserve, for example, between May 2022 and November 2024 , reduced the value of its assets by nearly $2 trillion.

https://en.wikipedia.org/wiki/2021%E2%80%932023_inflation_surge

https://am.jpmorgan.com/us/en/asset-management/adv/insights/market-insights/market-updates/on-the-minds-of-investors/when-might-the-fed-end-its-quantitative-tightening-qt-program/

The Bank of Canada stopped quantitative easing in October 2021 and started quantitative tightening in April 2022 , reducing the value of its assets by nearly $ 2 trillion.

As regards the ECB, Google informs that: "The European Central Bank (ECB) ended its Quantitative Easing (QE) asset purchase program in July 2022, and fully discontinued reinvestments in July 2023. The ECB is now in a phase of Quantitative Tightening (QT), allowing its bond holdings to mature without replacing them to reduce the size of its balance sheet."

Fig. 28 illustrates the general process of 'convergence towards normality'of central banks (except the Bank of Japan: its normality seems quite different, in dynamics and magnitude, from the rest of the banks).

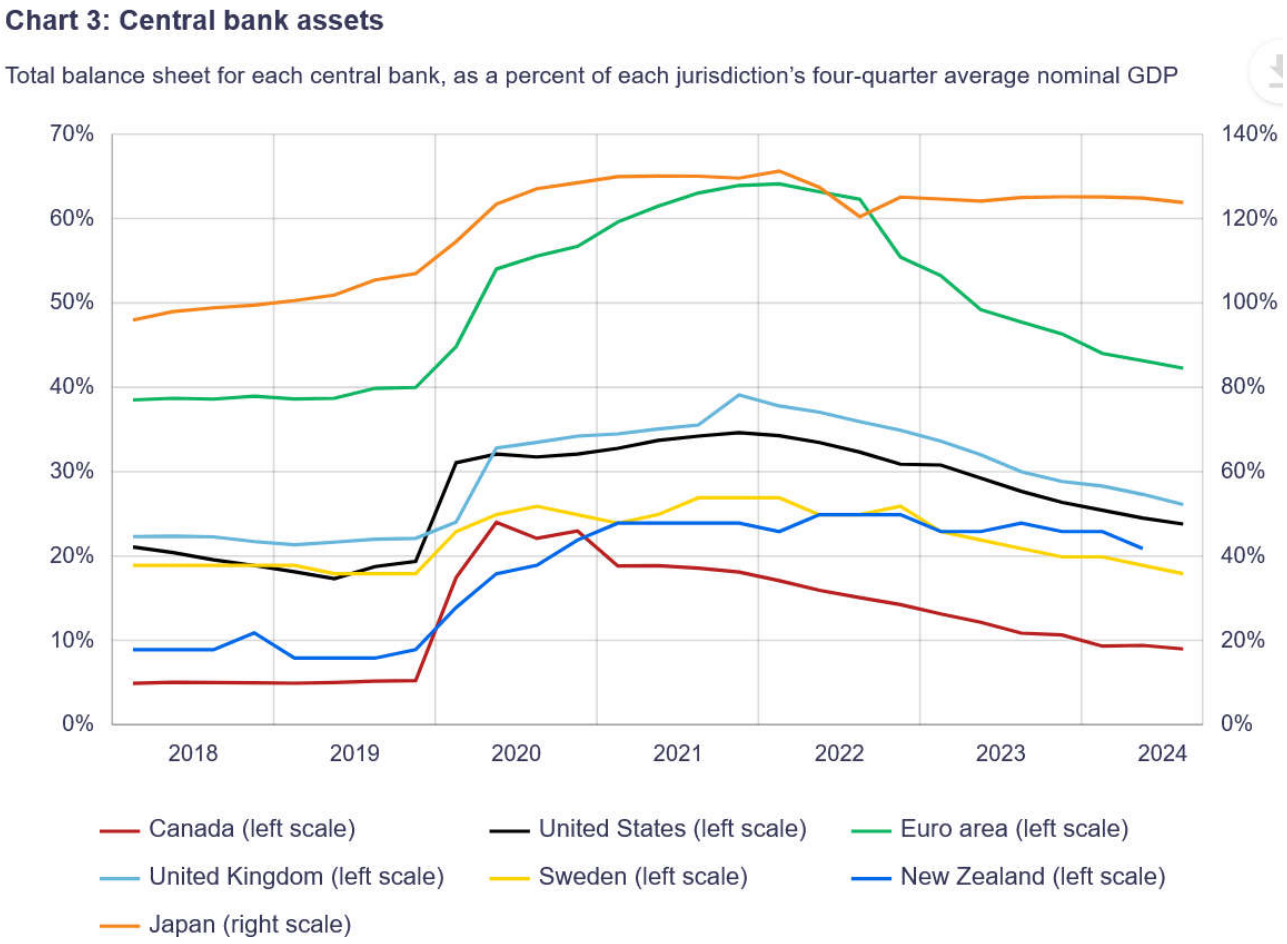

Fig. 28. The balance sheet of central banks in relation to GDP

https://www.bankofcanada.ca/2025/01/the-end-of-quantitative-tightening-and-what-comes-next/

Fiscal policy as an alternative to quantitative easing

If the objective of quantitative easing is to stimulate economic activity, there is a more direct and faster way to achieve this: expansionary fiscal policy. If private spending is insufficient to achieve economic activity or employment goals, public spending can easily cover the private sector's shortfall. If the cause of the problem is a lack of spending, the obvious solution is for the government to add the missing spending. Especially when the government does not face the budget constraints of households and businesses: an MS government can pay its debts with money that it can create itself. An orthodox idea is that, when it comes to borrowing, a government is no different from a family. A family has a limit to its borrowing: its ability to generate income. But the same does not apply to an MS government, which does not need to limit its ability to borrow (and spend) by its ability to collect taxes.

The central bank as lender of last resort

The orthodox view considers government and central bank asymmetrically. A central bank is considered the ultimate protector of the financial sector: there is no objection to attributing to the central bank the function of being a lender of last resort. That is, if liquidity needs to be provided to the banking sector

and no one else provides it, the central bank is legitimate to lend whatever is needed to virtually anyone under virtually any conditions.

The speech of Mario Draghi on 26 July 2012, as President of the European Central Bank, can be interpreted as an exercise of the central bank as lender of last resort, in this case to the eurozone governments. The key words of the speech were: "Within our mandate, the ECB is ready to do whatever it takes to preserve the euro . And believe me, it will be enough."
https://www.ecb.europa.eu/press/key/date/2012/html/sp120726.en.html

The speech is also an example of setting the path (forward guidance) of monetary policy and, in general, of the objectives and procedures of the central bank's action. Public communication by central banks is a powerful tool for redefining the expectations of members of the economy, announcing the intentions and strategies of the central bank: indicating where the central bank's action is headed and why. Announcing ends and means to facilitate adaptation to the new reality that the central bank intends to create.

The classic rule of action of the central bank as a lender of last resort establishes:

(i) lend to solvent financial institutions and let the others go bankrupt;

(ii) lend early and without limits;

(iii) apply sufficiently high interest rates on loans (as a punishment); and

(iv) require quality collateral assets in loans.

The job guarantee proposal

On the other hand, the orthodox view does not attribute to the government the task of ultimate protector of the real sector: rather, it postulates that the best thing the government can do for the real sector is not to get involved too much.

An economic policy proposal defended by Modern Monetary Theory is for the government to act as the employer of last resort: the government hires any worker who cannot find work in the private sector and is willing and able to work.

The government job offer would be unconditional, the worker would be allowed to choose the number of hours (full-time, at most), and the wage of the guaranteed job would set the minimum wage in the economy. Private sector jobs that did not pay this guaranteed wage in the public sector would lose workers, who would accept to work in one of the government-guaranteed jobs and receive a higher wage than in the private sector. This would force companies to pay at least the government-guaranteed wage to their workers.

The ultimate goal of the employer proposal is not to snatch workers from the private sector, but to offer a better alternative to workers on the lower rungs, the most vulnerable and most subject to exploitation due to lack of bargaining power.

Jobs developed in the public sector would also be an opportunity for workers to improve their training and their ability to find more attractive or better-paid work in the private sector.

A predictable implication of guaranteed public employment is that the transfer of workers from the private sector to the public sector (where the guaranteed wage is fixed) reduces inflationary pressure in the private sector. In the conventional view the price of achieving a reduction in the

inflation rate is an increase in the unemployment rate. With guaranteed public employment, no more unemployment is needed to control inflation: workers who previously lost their jobs to make the reduction in the inflation rate possible can now find work in the public sector. The consequence is that the unemployment rate can be raised or lowered without requiring a modification of the inflation rate.

The paradox of perfection

Until the start of the global financial crisis in 2008, the monetary and financial management of central banks over the previous two decades was considered apparently successful: inflation was under control and, through greater transparency in their actions, expectations in financial markets (specifically, regarding the evolution of exchange rates) were stabilized.

Macroeconomically, those two decades were characterized by a decrease in volatility. The question is whether the main cause was chance (a concatenation of fortunate factors), a structural change in economies in the direction of reducing macroeconomic volatility, or the actions of central banks.

Originating in the apparent success of central banks, the paradox of perfection (Drobny, 2006) contends that the solution to certain macroeconomic problems (excessive inflation, volatile exchange rates) creates others that are probably more serious (global trade imbalances, asset bubbles).

The paradox of perfection means that, as central banks learn (generally from previous mistakes) to be more effective in achieving their objectives (domestic monetary and financial stability, creating an economic environment with low inflation rates, reduced volatility in GDP growth and increased employment), in parallel they generate incentives for financial markets to assume more risks and imbalances are generated in areas outside the direct control of central banks (global imbalances, which arise between economies).

The perfection paradox can be interpreted as a version in the field of public action in the financial sector of Hyman Minsky's financial instability hypothesis, formulated with respect to private action in the financial sector: in both cases, stability (success) brings instability (failure).

Steve Drobny (2006): *Inside the House of Money. Top Hedge Fund Traders on Profiting in the Global Markets*, Wiley.

Orthodox view of inflation

The orthodox assumption about inflation is that it is caused by excessive aggregate spending, relative to the sustainable productive potential of the economy.

The unemployment rate and the rate of change in wages are taken as indicators of the degree to which aggregate spending puts pressure on the productive limit of the economy: the lower the unemployment rate and/or the more intensely wages increase, the more indications that spending is excessive and that it needs to be reduced to contain its impact on the inflation rate.

According to the orthodox view, the way to reduce spending (and, by extension, the inflation rate) through monetary policy is to raise interest rates controlled by the central bank (contractionary

monetary policy). The presumption, and expectation, is that the increase in these rates will be transferred to the rest of interest rates, in particular, the interest rate that banks charge for loans to consumers and businesses. Banks are also expected to tighten credit conditions: that they will make more difficult for certain groups to obtain loans by requiring additional or stricter guarantees when granting loans.

An implication of this view is that the reduction in the inflation rate occurs by forcing an increase in the unemployment rate and a dampening in the rate of wage increases.

The rise in interest rates on loans to companies causes companies to borrow less, invest less and reduce the demand for workers. More unemployed workers and higher interest rates for households reinforce the contractionary effect on spending: households consume less. Less investment spending and less consumption spending put downward pressure on the inflation rate.

A parallel route through which contractionary monetary policy tends to reduce the inflation rate is wage containment, caused by the transfer of power from workers to employers. With more unemployment, workers lose bargaining power to raise wages and are forced to accept lower wages (or smaller wage increases than previously). The wage reduction is presumably attributed to the prices of goods and services: if labor costs fall (or moderate their increase) companies may agree to reduce prices (or moderate its increase).

http://jwmason.org/slackwire/inflation - interest - rates - and - the - fed - a - dissent

Heterodox view of inflation

Several heterodox objections to the orthodox approach to reducing the inflation rate are listed next.

• The approach does not discriminate. Not all financial institutions are equally sensitive to changes in central bank interest rates. Not all businesses and consumers are equally sensitive to the availability and conditions of credit. Therefore, to the extent that monetary policy does not discriminate and treats different situations equally, it distributes the costs of a reduction in the inflation rate unequally (and most likely unfairly). The equivalent in fiscal policy would be that everyone would have to pay the same fixed-amount tax or that everyone paid the same proportion of their income.

• By not making distinctions, monetary policy does not affect different sectors of the economy equally: the contraction of production and the expansion of unemployment occur initially in the most productive sectors sensitive to credit conditions (such as construction). It also initially affects households and highly indebted companies, which will reduce spending and affect sectors where they currently do less spending. In general, in the second round of contractionary effects, sectors of the economy sensitive to changes in income or wealth will be affected (such as car manufacturers and consumer electronics).

• A more predictable effect of contractionary monetary policy is to raise financing costs. A policy that treats asymmetrical situations symmetrically may not be effective. In the case of monetary policy, the most important causes of inflationary pressures (large corporations, high-

income consumers) may not be significantly affected by the contractionary monetary policy (because their spending does not depend on credit or because banks do not pass on the central bank's rate hike to them). Hence, it is possible that the desired effects of contractionary monetary policy (spending contraction, increased unemployment, wage containment, reduction in price increases) do not occur (or not as quickly or as intensely as is believed). But an effect that does seem more immediate, certain and direct is the increase in financial costs (debt service) of companies, families and government (assuming the minimum effectiveness of monetary policy: that there is a minimum link between the rates controlled by the central bank and a large part of the interest rates in the economy).

For families, this means higher mortgage payments and reduced disposable income for consumption. For businesses, reduced profits that can finance investment. For everyone, an increased risk of default (which increases the likelihood of business closure).

- The impact on the prices of financial assets is difficult to control. The implementation of a contractionary monetary policy implies that the central bank sells financial assets. One of the presumed transmission mechanisms of monetary policy acts through the price of financial assets: when it sells them, the central bank tries to make their price fall (and, as a counterpart, raise their profitability and, therefore, their interest rate). The problem is that financial asset markets do not react continuously to changes in monetary policy: these changes may not produce effects for a while and, eventually, suddenly generate them (and almost always more intensely than desired by monetary policy changes). The reason is that most financial assets are bought and sold for speculative reasons: they are bought hoping to resell them at a higher price. A change in expectation about the evolution of the price of assets can cause an avalanche of sales, which magnifies the expected or desired effect on the price of the assets assets. In addition, contagion easily occurs: falls in the price of certain financial assets can cause falls in other financial assets, not related to the assets initially sold by the central bank. In short, a problem with monetary policy is that asset markets tend to to overreact to changes in monetary policy.

- The immediate consequence of the fall in the prices of financial assets is that their holders lose financial wealth. This limits the borrowing capacity of their holders: assets that lose value become a worse guarantee for applying for loans. The loss of net worth of families and companies that have depreciated financial assets will lead to a reduction in its spending, both direct and financed with loans.

Less spending, less GDP, more unemployment is a traumatic mechanism to reduce the inflation rate. Furthermore, it remains to be seen whether much of the investment of companies is very sensitive to the interest rate. Investment seems much more dependent on the level of indebtedness and the cost of paying off the debt (debt service).

- The increase in the inflation rate may be concentrated in a few sectors of economic activity and not be a generalized increase. Conventional monetary policy makes no difference, so it makes paying the righteous for sinners: even though inflationary tensions occur in a few sectors (for

example, certain service sectors not subject to competition in international markets), monetary policy has the potential to affect all sectors of the economy, whether they are inflationary or not.

• The effects that monetary policy can have on the inflation rate take a long time to occur. The Federal Reserve estimates that the most intense effects of a change in the central bank's target interest rate take about two years to occur. Thus, monetary policy is taken with a two-year delay: the measures decided today actually affect spending a few quarters later. What ability does a central bank have to predict the state of the economy? in a year?

The differential impact of monetary policy on the economy and the delayed impact over time make it extraordinarily difficult for the regulation of spending that the central bank can make to be gradual and controlled.

• Central banks may have the wrong model of how an economy works. Conventional models postulate gradual, small effects of gradual, small changes. An alternative view considers that an economy operates discontinuously: economic agents have mechanisms to absorb changes up to a certain magnitude and only alter their decisions when the absorption capacity is exhausted. For example, companies may not transfer to their prices cost increases up to a certain level, so that the small increase in costs that finally makes the glass overflow (exhausts the absorption capacity) leads to a substantial increase in prices. If there is this discontinuity in the functioning of an economy, the multiplier effects (expansive or contractionary) spending patterns only manifest themselves when exogenous changes are sufficiently large large; that is, the multiplier is zero, or very small, below changes of a certain magnitude and are higher than expected when this magnitude is exceeded.

Thus, a central bank can introduce small increases in the interest rate and, not observing a significant reaction in spending, can consider that the increases have been insufficient and insist on further increases. These additional increases would eventually exhaust the capacity of families and companies to absorb them, causing a contractionary reaction in spending much higher than the desired by the central bank. The result is that the alleged stabilizing action of the central bank it can really be destabilizing[10].

[10] If interested, see:
- Bill Mitchell (2009): "Building bank reserves is not inflationary", http://bilbo.economicoutlook.net/blog/?p=6624.
- Bill Mitchell (2009): "Quantitative easing 101", http://bilbo.economicoutlook.net/blog/?p=661.
- Bill Mitchell (2022): "Exploring the essence of MMT – the Job Guarantee – Part 2", http://bilbo.economicoutlook.net/blog/?p=49546.
- Reserve Bank of Australia (2021?): 'How the Reserve Bank implements monetary policy', https://www.rba.gov.au/education/resources/explainers/ https://www.rba.gov.au/education/resources/explainers/pdf/how-the-reserve-bank-implements-monetary-policy.pdf.
- Claudio Borio, Piti Disyata (2009): 'Unconventional monetary policies: an appraisal', BIS Working Papers 292, http://www.bis.org/publ/work292.pdf?noframes=1.
- Cullen Roche (2014): 'Nobody needs to understand the liquidity trap', https://seekingalpha.com/article/2542775-nobody-needs-to-understand-the-liquidity-trap.
- Paul Krugman (1998): "Japan's trap", http://web.mit.edu/krugman/www/japtrap.html.
- Steve Drobny (2006): *Inside the House of Money. Top Hedge Fund Traders on Profiting in the Global Markets*, Wiley.
- https://academic.oup.com/cje/article/33/4/741/1730234?login=true
- https://voxeu.org/article/stabilities - and - instabilities - macroeconomy
- http://jwmason.org/slackwire/inflation - interest - rates - and - the - fed - a - dissent
- https://www.federalreserve.gov/econres/notes/feds - notes/overview - of - the - changes - to - the - frb - us - model - 2018 - accessible - 20181207.htm#fig2

The fiscal policy of JM Keynes and the MMT

A government that can issue its own currency can always resort to fiscal policy to maintain a sufficiently high level of employment in the economy using public spending to compensate for a lack of private spending.

The thesis that a monetarily sovereign government is not financially constrained to employ fiscal policy and counteract fluctuations in aggregate demand implies that all unemployment above frictional unemployment is attributable to the government and, therefore, is the result of a political decision.

Fiscal policy in the eurozone

The members of the eurozone have given up their monetary sovereignty. This has imposed a financial constraint on their fiscal policy: all public spending must be financed through taxes and/or the issuance of public debt securities.

As a result, a eurozone government is forced to sacrifice the goal of full employment, given that the need to finance public spending restricts its use.

The autonomous communities in Spain are in a similar situation. The advantage with respect to the governments of the eurozone is that the existence of a central government can contribute to relaxing the financial constraint of the communities, since the central government can make transfers to the communities. In the case of the eurozone there is no supranational government that is itself monetary sovereign (and in practice eliminates the financial constraint of national governments) or that, without being monetary sovereign, relaxes the constraint through transfers.

The design of the eurozone seems deficient in two ways.

- National governments have renounced their monetary sovereignty and have not granted fiscal sovereignty to any supranational fiscal authority. Monetary sovereignty has been transferred to the European Central Bank, which cannot use it for what this sovereignty ultimately serves: financing public spending that brings the economy closer to full employment (since a Central Bank does not intervene directly in the real sector of the economy).
- They have increased the financial restriction derived from the renunciation of monetary sovereignty by imposing arbitrary fiscal rules on themselves (public deficit limit of 3% of GDP and public debt limit of 60 % of GDP).

The 2008 financial crisis, the 2010–2012 euro crisis, the 2020 COVID-19 health crisis and the geopolitical tensions resulting from the Russian invasion of Ukraine in 2022 have demonstrated how damaging the eurozone's design is to eurozone economies, based on adopting arbitrary financial constraints on fiscal policy and restricting the limited room for maneuver of fiscal policy resulting from the renunciation of fiscal rules that do not take into account the characteristics or situation of national economies[11]. The damage has been materialized in the inability of eurozone governments to neutralize the negative impact of crises on economic activity and employment, and in the fact that the eurozone's design itself has contributed to aggravating their impact. The solution

[11]The European Commission's response to the Trump Administration's tariff increase in March 2025 also appears limited and weakened by the absence in the eurozone of a supranational fiscal authority.
https://ec.europa.eu/commission/presscorner/detail/en/ip_25_740 (press release of 12 March 2025)

applied when the negative impact became intolerable has been to dismantle, in practice, this design: the fiscal rules have been violated and nothing has happened (they have been repealed de facto) and, timidly, fiscal sovereignty has been recovered (also lifting, de facto, the foundational prohibition that neither the European Central Bank nor eurozone governments could finance other eurozone governments). At the very least, it seems that some lessons have been learned: the doctrine of fiscal austerity that dominated the European Commission's reaction to the 2008 and 2010-12 crises was completely ignored when addressing the 2020 and 2022 crises.

http://bilbo.economicoutlook.net/blog/?p=18780

The balance sheet recession theory

The balance sheet recession theory was proposed by Richard Koo[12] and was inspired by the analysis of the Japanese economy, particularly since the late 1980s.

The secret to the successful recovery of the Japanese economy after World War II was the combination of abundant savings provided by households with high levels of investment by businesses. For the 45 years after World War II, the Japanese economy operated on the basis of a high rate of household savings and a high rate of investment by businesses. The large volume of savings provided by households allowed businesses to borrow at low interest rates and accumulate capital in a sustained manner. One of the results of maintaining high growth rates in the Japanese economy for almost 50 years was that it became the second largest economy in the world in the 1980s.

In the early 1990s, asset prices began to fall, followed by a sharp decline in real estate prices. These declines resulted in a loss equivalent to two years of Japanese GDP, about 1 trillion yen. The loss of wealth in proportion to the size of the economy was comparable to that of the Great Depression in the United States of the 1930s. For some real estate assets, the reduction in value represented a shift from 8 to 1.

A large part of the assets that lost value were acquired on credit. This caused a sharp decline in the net worth of a large number of families and companies. In many cases, the net worth was negative. This situation forced the bulk of the private sector to try to minimize debt above all else, and as a result, consumption and investment spending were reduced. In this way, the priority of millions of Japanese companies shifted from maximizing profits to minimizing debt. With such a high volume of companies concerned with offsetting the decline in the value of assets by reducing liabilities, the high investment rates characteristic of previous periods disappeared.

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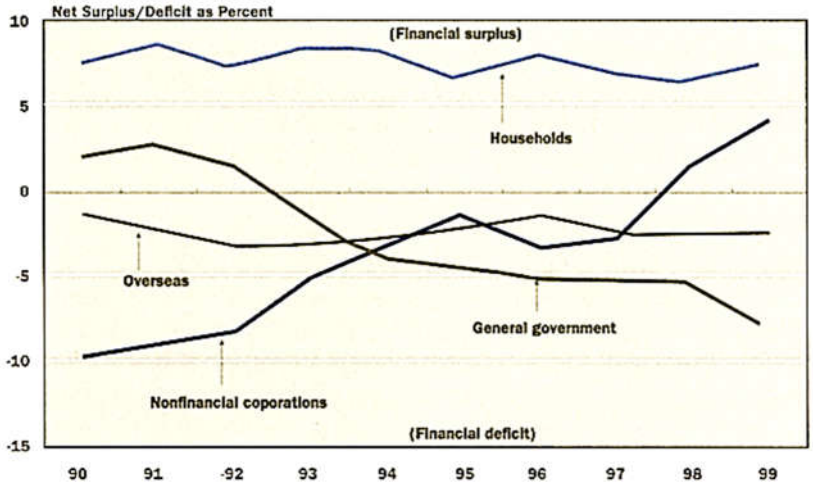
[12] See, for example:

Koo, Richard C. (2001): "The Japanese economy in balance sheet recession. The real culprit is fallacy of composition, not complacency", Business Economics 36(2), 15-23.

Koo, Richard C. (2013): "Balance sheet recession as the 'other half' of macroeconomics", European Journal of Economics and Economic Policies Intervention 10(2), 136-157.

Koo, Richard C. (2022): *Pursued Economy. Understanding and Overcoming the Challenging New Realities for Advanced Economies*, Wiley.

The graph on the right (Koo, 2001) shows that the private sector subsector consisting of businesses went from a deficit to a surplus , indicating that the subsector is a net provider of funds and not, as traditionally, a net demander. The graph shows a change in the subsector balance of 14 points of GDP over a decade: from –10 to +4. As households maintained a high savings rate (between 5 and 10%) and businesses were not interested in borrowing the saved funds, the result was a contraction in aggregate spending and immense deflationary pressures in the economy. The graph also indicates that the private sector surplus was offset by a public sector deficit.



Koo calls this situation a 'balance sheet recession': the economy suffers a recession because a sufficiently large part of the private sector, as a result of the sudden and intense loss of value of certain assets, devotes its efforts to reducing liabilities rather than expanding assets through investment and consumption.

Features of a balance sheet recession

A balance sheet recession has characteristics that differentiate it from other types of recession.

- Monetary policy becomes ineffective. With so many companies prioritizing debt repayment, there is no interest rate low enough to induce them to borrow money to invest. The same argument would apply to households: in the case of the Great Recession of 2008-12, unlike the Japanese experience of the 1990s , there was a substantial percentage of households interested in reducing debt above all else. Thus, if a sufficiently substantial part of the private sector prioritizes minimizing liabilities, even a zero interest rate would not incentivize them to borrow to increase spending, in consumption and/or investment.
- The recession is exacerbated by a fallacy of composition effect. People try to do what is best for their own interests: debtors cannot ignore the imbalances in their balance sheets and be dazzled by very low interest rates to induce them to forget about the state of their liabilities and take on more debt; and creditors, while interested in lending more, cannot irresponsibly ignore that this would imply lowering the requirement for sufficiently solid guarantees from borrowers (who face serious solvency problems). The aggregate effect of trying to do what is best for oneself is that everyone is harmed: the recession makes it difficult to pay off debts to consumers and businesses (falling wages, job losses, reduced sales) and prevents savers from obtaining a return on their savings (by not finding enough sufficiently solvent borrowers).
- Everyone's attempt to overcome the recession makes it worse: the more money is spent on paying off debt, the less is spent on stimulating economic activity and the more it contributes to the fall in the value of assets, which worsens the imbalance of balance sheets (due to an additional

decrease in the assets of the balance sheet), from which it follows that debtors have to spend more money on canceling debts. This vicious circle illustrates the effect of the fallacy of composition: one tries to do the best from one's individual perspective, but the collective result of the decisions worsens the individual situation.

- In these circumstances, it doesn't matter what the central bank intends or does. As long as the underlying problem (the imbalance of balance sheets due to the reduction in the value of assets) is not solved, no economic policy measure that does not address this problem will be effective.
- Fiscal policy is more effective. The deficit in private sector spending (which prioritizes saving to pay off debts) can only be offset by spending by the foreign sector (increased domestic exports) or by public spending (increased public deficit). In terms of the identity of balances $NPS \equiv PD + NX$ (where NX are net exports from the point of view of the domestic economy) :

$$NPS > 0 \quad \text{demands} \quad PD + NX > 0; \text{ and}$$

$$\uparrow NPS \quad \text{demands} \quad \uparrow PD \quad \text{or} \quad \uparrow NX \quad (\text{or both}).$$

  Where the external sector's compensatory action fails, the public sector will have to intervene through the public deficit. According to Koo (2001), the Japanese fiscal stimulus prevented economic collapse, despite producing economic growth of just over 0%. The conventional view interprets this lack of growth as a symptom of the failure of fiscal policy; Koo sees it as a symptom of the opposite: the increase in the public deficit of nearly 10 percentage points in a decade has saved the Japanese economy from a deep depression. Studies that follow the conventional view describe fiscal stimulus as ineffective because they baselessly assume that the economy would have grown by just over 0% without the fiscal stimulus.
- The disinflation associated with any recession can become an intense and lasting deflation. The danger of a deflationary spiral (deflation that causes more deflation) is greater than in other recessions. Both recession (of balance sheets) and deflation are effects of a common cause: the concern of the private sector for the state of its balance sheets drives them to reduce consumption and investment as much as possible in order to cancel debts, as quickly as possible. Decisions derived from this concern tend to reinforce the recession and its cause, the imbalance of balance sheets due to the massive loss of asset value. The more the recession intensifies, the less spending and the more tendency for prices to fall. The loss of asset value reinforces the priority in paying off debts, which further contracts spending and deepens the recession. Deflation itself increases the real value of debt, which still induces to attribute more weight to debt reduction as a goal.
- In the words of Koo (2001, p. 18): "A balance sheet recession is like radiation: it is devastating, but no one sees it (…) In a balance sheet recession, homes stay where they are and cars continue to circulate, although the invisible damage being done to the economy is no less real."

How harmful is Japan's public deficit and debt?

According to *Trading Economics* (https://tradingeconomics.com/), in March 2024 Japanese public debt represented 263.9% of GDP; the US, 129%; Spain, 111.6%; the eurozone, 90.9%. A year later, on 19 March 2025, the numbers had fallen to 255.2%, 122.3%, 107.7% and 87.4%, respectively. A few months

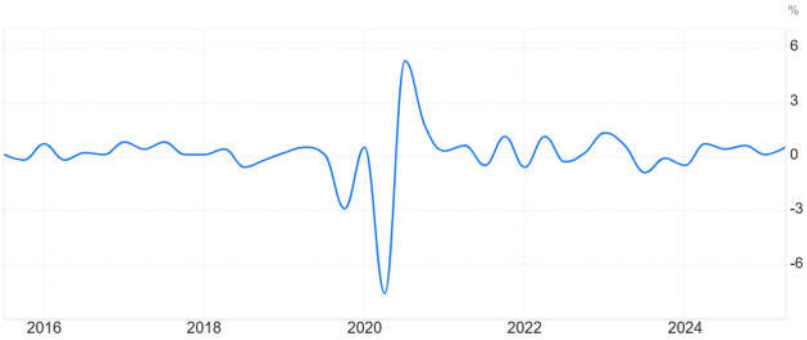
later, on 13 October 2025, the numbers are 236.7% (↓), 124.3% (↑), 101.8% (↓) and 87.4% (=), respectively.

Koo (2001), without questioning the enormous volume of Japan's deficit and debt, points out that its assessment must consider both the quantity and price aspects. Conventional analysis stops at the former and concludes that the magnitude of the deficit and debt are excessive. Koo replies that, in order to assess whether the current deficit/debt is beneficial or harmful to the economy, attention must be paid to the price of the deficit/debt in relation to its magnitude.

The price of debt is its interest rate, which in Japan remains (more than 20 years after Koo's analysis, 2001) extremely low (well below the low of 1.85% that the US debt reached in November 1941 as a result of the Great Depression)[13]. Such a low rate is justified by the excess of private sector saving: with everyone (in the context of a balance sheet recession) trying to pay off debts, the only large active borrower is the government. The conclusion is that no one seems to object to paying this price for debt. Moreover, this is the opportunity to finance pending public infrastructure projects that, in normal situations, would have to compete with private investment projects. Koo's analogy is that an economy in balance sheet recession is in an intensive care unit where the only agent that can provide care is the government through the public deficit.

The Great Recession as a balance sheet recession

The Great Recession of 2008-2012 shares many features with Japan's 'lost decades' (1990-2025?): the graph below displays Japanese GDP growth in the last ten years, https://tradingeconomics.com/japan/gdp-growth.



An explanation of the Great Recession runs as follows. Its origin is the private sector's debt binge, which creates a bubble in the financial sector in which the real sector (the real estate part, at least) participates.

When the bubble bursts (the rate of borrowing cannot be maintained), the rapid, intense and widespread fall in the values of certain assets (financial and perhaps also real) forces the private sector to change priorities: the new priority is now to minimize debt. The bursting of the bubble changes the perception of the level of debt, which is now perceived as excessive.

With the private sector primarily engaged in deleveraging, not even near-zero interest rates caused by massive injections of liquidity by central banks induce the private sector to maintain consumption and investment spending (much less to increase it).

Given the ineffectiveness of monetary policy, fiscal policy becomes more effective in avoiding the contraction of economic activity (and of the quantity of money which, being endogenous, is

[13] On March 19, 2024, the Bank of Japan announced the increase in its interest rate for the first time in 17 years (since 2007): from −0.1% to somewhere between 0% and 0.1%. As of 14 October 2025, the rate has just risen to 0.5%.
https://edition.cnn.com/2024/03/18/business/japan-boj-negative-interest-rate-ended-intl-hnk/index.html
https://tradingeconomics.com/japan/interest-rate

positively correlated with economic activity). This translates into big and growing levels of public deficit and debt. High levels of deficit and public debt coincide with very low interest rates.

- Fig. 29 shows the reaction of sectoral balances to the bursting of the housing bubble and the financial crisis in the US. In 2012, the public deficit alone had to compensate for the excess savings of the private sector ($NPS > 0$) and the foreign sector ($NX < 0$). Fig. 30 presents the evolution of balances in the eurozone; Fig. 31 in Spain; Fig. 32 in Japan; and Fig. 33 in the UK.

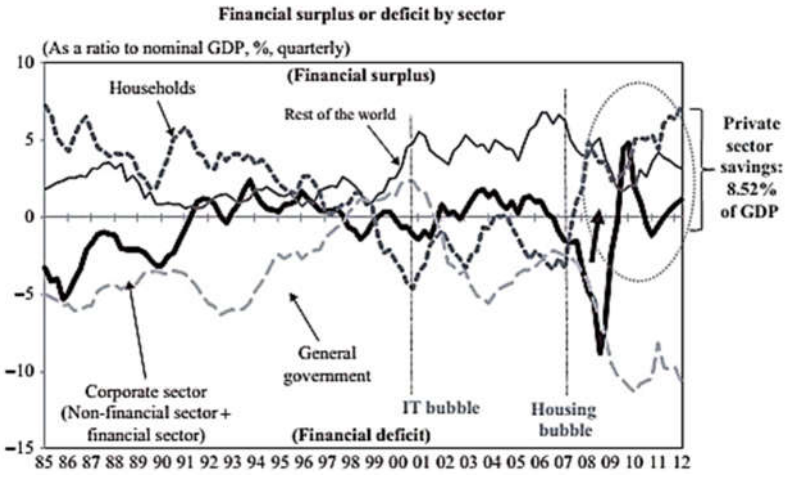


Fig. 29. Sectoral balances of the US (1985-2012) according to Koo (2013, p. 137)

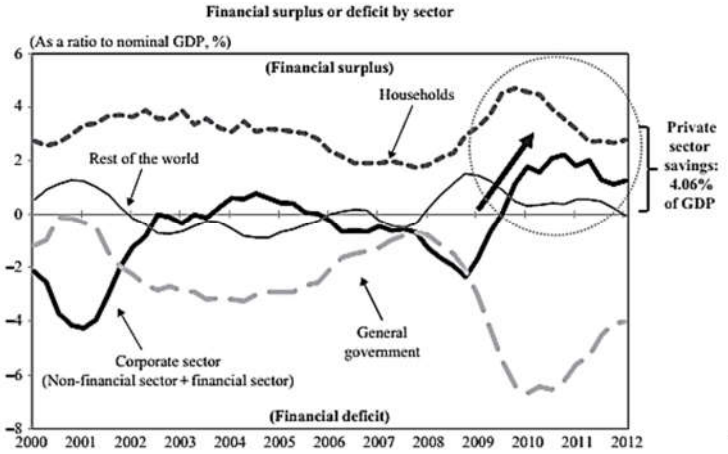


Fig. 30. Sectoral balances (eurozone)

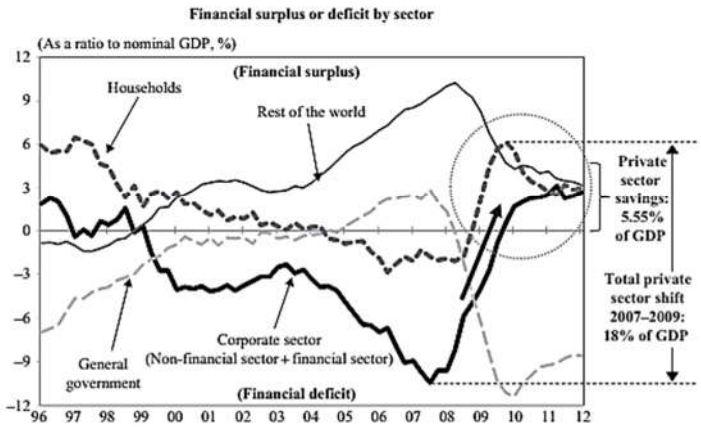


Fig. 31. Sectoral balances (Spain)

- In the eurozone, the global financial crisis triggered the same pattern of increased household and corporate savings that occurred contemporaneously in the US and in the 1990s in Japan (as a result of the balance sheet recession that the Japanese economy was then experiencing). The zero external balance in 2012 implies that the public deficit is necessary to offset the private surplus.
- The Spanish case (Fig. 31) is much more dramatic due to the magnitude of the changes in sectoral balances, comparable to the Japanese case (Fig. 32): in two years (2007-2009), witnessing the excess of private indebtedness, the private sector balance increased by 18 percentage points of GDP (at the end of 2008 Spain entered recession after around 15 years of growth). https://es.wikipedia.org/wiki/Crisis_econ%C3%B3mica_espa%C3%B1ola_(2008-2014)

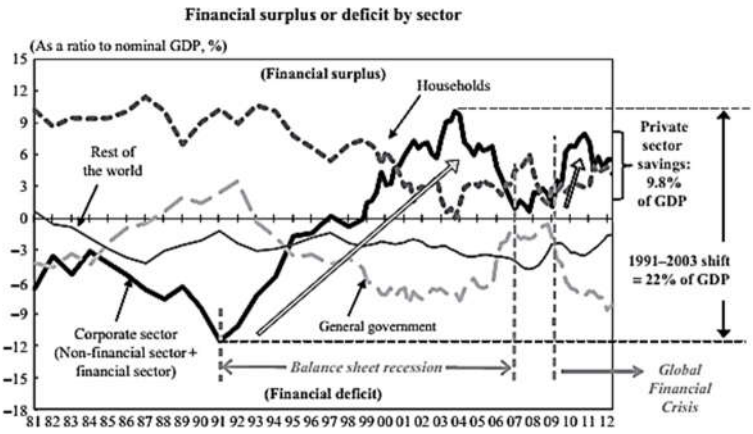


Fig. 32. Sectoral balances (Japan)

Fig. 33. Sectoral balance sheets (United Kingdom)

- The United Kingdom (Fig. 33) copies the dynamics of the balances of the US and the eurozone. And the same is observed in Japan (Fig. 32): the global financial crisis caused the same effects as the domestic balance sheet recession that Japan suffered for a decade and a half.

An interpretation consistent with the data in Figs. 29-33 is that the world's most advanced economies experienced, in the late 2000s, a global balance sheet recession: a kind of pandemic of balance sheet recessions.

The quantitative theory of credit

The arguably most famous economic equation is the quantity equation

$$M \cdot V = P \cdot Y$$

where M is 'the quantity of money', V is the velocity of circulation of money (how many times a monetary unit is used to make purchases), P is a general price level and Y is GDP. It is used to justify a monetary theory of inflation. The quantity equation leads to

$$m \cdot v \approx p \cdot y$$

where the small letters are rates of change (so p is the inflation rate based on index P). Hence, if the GDP is stagnant or very small ($y \approx 0$) and the velocity of money does not change ($v \approx 0$), then

$$m \approx p$$

that is, the inflation rate is approximately equal to the rate of change of the money stock. Many criticisms can be raised against the equation. One is that it does not distinguish between money used in the real sector and money used in the financial sector (the equation seems to presume that all money is spent purchasing goods or services).

Richard Werner[14] has suggested a reformulation that takes that difference into account. Specifically, he has proposed a quantitative theory of credit that relates the real and financial sectors of the economy through bank credit, a variable that generates flows (transactions) and alters stocks in both sectors.

[14] See, for example, Richard A. Werner (2014): "The Quantity Theory of Credit and some of its policy implications", chapter 3 in Bernhard Winkler, Ad van Riet, Peter Bull (eds.): *A flow-of-funds perspective on the financial crisis, Volume I, Money, credit and sectoral balance sheets*, Palgrave Macmillan.

Empirical evidence supports the idea that credit markets are supply-dominated: the supply of credit is always lower than the demand for it. A theoretical reason is the absence of complete information: those who grant credit are unaware of the characteristics of those who apply for it, so uncertainty leads them to be cautious and grant less credit than would be granted if the characteristics of the applicants were fully known (creditworthy applicants do not receive credit because they are not aware that they are). The implication of the fact that the short side of the market (supply in this case) dominates is that banks completely determine the volume of credit (and, hence, the quantity of money) and what part of the credit is allocated to the real sector and what to the financial sector.

- In the real sector, the total value of transactions (a price index P that multiplies a measure T of the total quantities transacted) is equal to the total money used in transactions. In a modern economy (based on a banking system that creates almost all the money in the economy as bank money), the total money is represented by bank credit C on the balance sheets of banks. This implies that the increase in transactions is equal to the change in bank credit:

$$\Delta C = \Delta(P \cdot T)$$

- The two equations that define the quantity theory of credit derive from the previous equation by separating credit, transactions, and prices into two categories:

  (i) credit C_R for real transactions;

  (ii) credit C_F for financial transactions;

  (iii) real transactions T_R (which are considered to be approximately equal to GDP Y);

  (iv) financial transactions T_F;

  (v) price index P_R of actual transactions; and

  (vi) price index P_F of financial transactions.

- Given that $\Delta C = \Delta C_R + \Delta C_F$ and $\Delta(P \cdot T) = \Delta(P_R \cdot Y) + \Delta(P_F \cdot T_F)$, the equations of the quantity theory of credit are:

$$\Delta C_R = \Delta(P_R \cdot Y)$$

$$\Delta C_F = \Delta(P_F \cdot T_F)$$

  where

  (i) $P_R \cdot Y$ represents 'nominal' GDP (the monetary value of GDP);

  (ii) Y is the sum of the part of production Y_C that is consumed and the part Y_I that is invested, so that $\Delta Y = \Delta Y_C + \Delta Y_I$; and

  (iii) P_R can be separated into a component $P_{R,C}$ that aggregates the prices of consumer goods and another $P_{R,I}$ that aggregates the prices of investment goods.

Types of credit

Werner's theory differentiates three forms of credit: financial, for consumption and for investment.

- Financial credit (credit for transactions that do not create GDP). This credit is unsustainable in the sense that it does not generate sustainable income flows (with which to repay the credit), since it

is based on capital gains (buying financial assets to sell them at a higher price). By equation $\Delta C_F = \Delta(P_F \cdot T_F)$, the expansion of credit in the financial sector fuels speculative bubbles and causes asset inflation (increase in P_F).

- A theory of banking crises. The necessary continued increase in P_F that justifies financial transactions is achieved on the basis of raising credit for financial transactions. When this credit moderates or falls ($\Delta C_F < 0$), P_F stops increasing ($\Delta(P_F \cdot T_F) < 0$). The last claimants of credit to buy financial assets can no longer obtain profits (the assets they buy do not gain value) and cannot meet the interest payments on the loans or their repayment. This forces them to sell the assets and thus their value falls. The result for the banks is an increase in unpaid loans (and, on the balance sheets, a reduction in assets if the banks own the financial assets that are losing value). All this induces the banks to cut financial credit even more, and the negative dynamic is reinforced: more asset sales, additional fall in their value and more unpaid loans. Since the capital of the banks is a small percentage of the assets (less than 10%), a fall in the value of the assets of 10% collapses the banks (according to the World Bank, in 2020 the ratio between bank capital and assets in Spain was 6.4981%).
- Credit to the real sector for consumption. This credit is also unsustainable because it does not generate sustainable income flows, as it is about financing unproductive transactions (for those who obtain the credit). The quantitative equation considers only this case: credit to consumption increases the demand for goods and services, and puts upward pressure on the prices of goods and services if there is no increase in production: $\Delta C_{R,C} > 0$ with $\Delta Y_C = 0$ implies $\Delta P_{R,C} > 0$.
- Credit to the real sector for investment. This credit is sustainable because it generates income flows through the increase in the production of goods and services. It is also a non-inflationary credit, since the additional demand it finances (investment spending) can be satisfied with an equivalent increase in production: $\Delta C_{R,I} > 0$ with $\Delta Y_I > 0$ is compatible with $\Delta P_{R,I} = 0$ and, even, with $\Delta P_{R,I} < 0$.

Implications of the quantity theory of credit

Unlike the conventional view, the new theory tells how to measure the quantity of money: it is enough to add up the credit items on the banks' balance sheets. Furthermore, it is a form of money that only banks can create (this eliminates ambiguities and confusions).

It explains the failure of the quantity theory of money, which can only account for the fact that the monetary expansion of the last 20-30 years has not translated into high inflation rates with a fall in the velocity of money (which the theory considers constant). The credit theory easily justifies this fact: since much of the monetary expansion has occurred in the financial sector and not in the real sector, the price inflation that has been observed is in financial assets and not in goods and services. The error in the quantity equation is the absence of financial transactions.

The increase in transactions that characterizes modern economies requires an increase in the quantity of money. The central bank cannot provide this increase: the electronic money (reserves) it creates does not reach the non-bank private sector and the cash money that the central bank creates is a tiny part (no more than 5%) of the money used in transactions. All this means that bank money,

being the basic form of money, determines the functioning of the economy (due to the lack of universal substitute for bank credit). This also makes the banks the masters of the economy: they provide the universal form of money at the time and in the amount they want.

The macroeconomic role of the interest rate is overestimated. According to $\Delta C_R = \Delta(P_R \cdot Y)$, it is bank credit for real transactions and not the interest rate that determines GDP growth. It is therefore not surprising that years of interest rate cuts to near zero in Japan, the eurozone, the US, Canada, the UK… have failed to grow GDP and stimulate real economic activity. Since banks are in charge of granting credit, reducing official interest rates does not force banks to increase credit if they do not want to: interest rates no longer have the capacity to stimulate bank credit.

The equation $\Delta C_F = \Delta(P_F \cdot T_F)$ provides a simple theory of banking crises: financing financial transactions (essentially Ponzi schemes) is unsustainable, as the capital gains that motivate and drive financial transactions are only possible with a continued expansion of financial credit, which is a practical impossibility. Sooner or later this credit will stop growing. At this point, the prices of financial assets will fall and drag down the solvency of some banks. The remaining banks overreact and cut all forms of credit: the excesses of the financial sector are eventually paid for by the real sector, because banks (becoming vulnerable to the fall in the values of financial assets) reduce credit to the real sector. Because $\Delta C_R = \Delta(P_R \cdot Y)$, $\Delta C_R < 0$ implies $\Delta(P_R \cdot Y) < 0$. A possibility is that $\Delta(P_R \cdot Y) < 0$ translates into $\Delta Y < 0$: contraction of real transactions, fall in production and increase in unemployment. The other possibility is $\Delta P_R < 0$, which means that companies obtain less income and their risk of closing increases and, thus, causing $\Delta Y < 0$. In short, $\Delta C_R < 0$ causes a recession: GDP decreases.

The equation $\Delta C_R = \Delta(P_R \cdot Y)$ shows the secret of the economic success of Asian economies in the late 20th and early 21st centuries (Japan 1960s - 1980s , Taiwan, South Korea, China since the 1980s). In particular, the part $\Delta C_{R,I} = \Delta(P_{R,I} \cdot Y_I)$of the equation. In these economies (if the banks had not themselves developed an aversion to financial credit, as in Germany) the government ensured that a sufficiently large part of the credit was destined for the real sector and, very especially, for the purchase of capital goods (productive investment). The main way to sustain economic growth is to channel a sufficient volume of bank credit to real transactions that involve the improvement of the productive capacity of the economy (investment that improves productivity and/or finances technological development).

The equation $\Delta C_R = \Delta(P_R \cdot Y)$ also explains when fiscal policy becomes ineffective: if public spending increases without a parallel increase in credit for real transactions ($\Delta C_R = 0$), the result is that $\Delta(P_R \cdot Y) = 0$: if real sector prices do not change, GDP does not change either. There is a crowding-out effect (for which the interest rate does not need to intervene): the increase in public spending displaces private spending so that GDP does not change. Presenting the argument in nominal terms, if $\Delta C_R = 0$ and nominal GDP is $C + I + G + NX$ (value of consumption spending, plus value of investment spending, plus value of public spending, plus value of net export spending), then $\Delta C + \Delta I + \Delta G + \Delta NX = 0$. Thus, $\Delta G > 0$ implies $\Delta C + \Delta I + \Delta NX < 0$.

Modern Monetary Theory neutralizes this argument by arguing that the mechanism of financing public spending creates the credit ($\Delta C_R > 0$) that makes it possible $\Delta(P_R \cdot Y) > 0$ and, in particular, makes it possible $\Delta Y > 0$ with just $\Delta G > 0$. The monetization of public spending (through banks) is necessary for it to have expansionary effects (the conventional view is that its monetization prevents expansionary effects).

The theory of credit also explains the ineffectiveness of supply-side policies: structural reforms of markets (such as labour), deregulation measures (which give more room for private initiative), the liberalization of productive sectors (for example, by allowing or facilitating the entry of foreign companies), the privatization of public companies, policies to stimulate competition (which reduce the market power of certain companies) ... all have failed (for example, in Japan and the countries of Eastern Europe between 1990 and 2010 , as well as in Greece and Spain following the 2008 financial crisis) to increase GDP. Following the equation $\Delta C_R = \Delta(P_R \cdot Y)$, an improvement in productive capacity does not translate into an increase in nominal GDP if there is no increase in credit for real transactions. With $\Delta C_R = 0$ a slight deflation can be observed $\Delta P_R < 0$ (Japan 1990s, episodically in the eurozone following the 2008 financial crisis), if there is a slight expansion of GDP, $\Delta Y > 0$.

The equation $\Delta C_F = \Delta(P_F \cdot T_F)$ accounts for rapid price movements in financial assets, where conventional models (which seem to be formulated for periods of 'calm' and financial stability) fail. According to the equation, periods of rapid expansion of financial credit cause rapid and intense asset price inflation, thus inflating speculative bubbles (which conventional models exclude).

Finally, the credit theory points the way to get out of a banking crisis quickly and at a very low cost: for the central bank to buy depreciated assets from banks, thus making it possible for banks to restart credit for real transactions . This strategy is not inflationary, inasmuch as it does not inject new money into the real sector. Any other measure by the central bank (such as buying all kinds of assets —including companies and governments— in the markets with the policy of quantitative easing) is an unnecessary step that increases the cost of recovery and delays the arrival of recovery. Bank bailouts by governments are an even worse option if they have to be financed with taxes.

Richard A. Werner (2014): "The Quantity Theory of Credit and some of its policy implications ", chapter 3 in Bernhard Winkler, Ad van Riet, Peter Bull (eds.): *A flow-of-funds perspective on the financial crisis, Volume I, Money, credit and sectoral balance sheets* , Palgrave Macmillan (section 3.6).

Orthodox macroeconomic analysis in a nutshell

The so-called 'new neoclassical synthesis' represents the principles accepted (according to orthodox economists themselves) by almost all modern macroeconomists. The principles are as follows.

1. Inflation is always and everywhere a monetary phenomenon and monetary policy determines the inflation rate in the long term.
2. Low and stable inflation (price stability) provides important benefits, because high inflation creates uncertainty about the future price level, making it difficult for people to identify the best decisions.

3. There is no long-run trade-off between unemployment and inflation. In the long run, there is a 'natural rate of unemployment'. Attempts to reduce the unemployment rate below the natural rate only generate more inflation.
4. Expectations play a crucial role.
5. The Taylor principle, which establishes the concept that monetary policy should raise the nominal interest rate more than the inflation rate when this rate is above the target rate.
6. The problem of temporary policy inconsistency: a discretionary monetary policy can lead to high inflation without increases in output, since politicians are short-sighted and mainly interested in winning elections.
7. An independent central bank insulates itself from political pressures to implement excessively expansionary policies due to and stimulated by the myopia of politicians. In an independent central bank the central banker is seen as more averse to inflation and more credible (in the eyes of financial markets) in the pursuit of low inflation. With a more credible policy, more moderate inflation expectations result and this contributes to achieving low inflation.
8. Committing to a nominal policy target, by stabilizing a nominal variable such as the inflation rate, the money stock, or the exchange rate, is crucial to achieving successful macroeconomic policy outcomes. This commitment: (i) makes it more difficult for the government to run large deficits; (ii) leads to policy actions that promote price stability; and (iii) helps stabilize inflation expectations.
9. Credibility is essential for the successful exercise of economic policy.

The following are some points of disagreement or debate within orthodoxy.

- The flexibility of wages and prices: are they very flexible or rigid in the short term?
- The time it takes to reach the long term: a lot or a little.
- Causes of the business cycle: aggregate supply shocks or aggregate demand shocks?
- The effectiveness of stabilization policy: do policymakers have no role in stabilizing economic activity or is a stabilization policy possible that creates benefits (self-correcting mechanisms act gradually and, therefore, activist policies can reduce the severity of the business cycle)?
- How dangerous are government deficits? Most believe they are highly dangerous: deficits reduce saving and investment, create a burden on future generations, and are inflationary. The minority who believe in Ricardian equivalence maintain that deficits resulting from tax cuts do not burden future generations, produce an increase in personal saving that does not crowd out investment, and see no inflationary dangers.

Basic contributions of John Maynard Keynes

In the book *The General Theory of Employment, Interest and Money* (1936) Keynes attempted to explain two anomalies inconsistent with orthodox theory: the persistence of unemployment despite price and

wage flexibility and the absence of an automatic mechanism that would lead market economies to full employment. He proposed three alternative ideas.

- Effects of the fallacy of composition. Orthodox microeconomic analysis cannot be automatically extrapolated to the macroeconomic level.
- Uncertainty is inevitable. The role of expectations about the future is fundamental in financial markets and the result of the different visions of the future that converge subsequently establish investment and production.
- Aggregate demand determines unemployment and is influenced by investment decisions.

According to this view, if, in the presence of involuntary unemployment, people decide to save more, aggregate demand is reduced, unemployment increases and the public deficit worsens. In this context, austerity policies aggravate the unemployment problem and the public deficit problem.

Heterodox macroeconomic analysis in a nutshell

Though heterodoxy is not homogenous, the perhaps dominant theses in heterodoxy are the following ones.

1. Demand influences economic activity in all terms (short and long).

   In the orthodox view

   (i) aggregate supply determines long-run employment;

   (ii) market forces drive aggregate demand towards equilibrium on the long-run supply side; and

   (iii) the real balance effect is a mechanism for demand to adjust to supply.

2. Investment is a component of aggregate demand and contributes to the productive potential of the economy (through the capital stock).

   Investment responds to current events and, specifically, to those determined by aggregate demand, such as capacity utilization by firms and profitability. Investment generates new productive equipment, which is how technological progress makes its way into the economy.

3. Aggregate demand depends crucially on the distribution of income.

   This trait is captured by the aphorism 'workers spend what they earn and capitalists earn what they spend'. The propensity to spend from wages is considered greater than the propensity to spend from profits.

   A distinction is made between wage-driven and profit-driven demand regimes. The distinction is relevant because in a wage-driven regime, the orthodox medicine against unemployment (wage containment) is counterproductive.

4. Aggregate demand and aggregate supply are interdependent and the dynamics of the economy are sensitive to the initial conditions and the trajectory followed (path dependent).

For example, aggregate demand determines the general level of economic activity, which, in turn, influences the rate of change of productivity.

Path dependence means that short-term shocks to the economy (accidents) can have long-term consequences (permanent effects): the path followed by the economy is the result of an evolutionary process (if the economy reaches a standstill, this depends on previous states of the economy).

The orthodox view

(i) rejects path dependence: the path of the economy is predetermined by supply;

(ii) postulates the independence between aggregate demand and aggregate supply (the OA - DA model reproduces on a macro scale the separation between supply and demand on a micro scale, where the interaction between supply and demand takes place only through the price system); and

(iii) separates the real sector of the economy from the financial sector (the classic dichotomy: at least in the long term, nominal variables do not influence real variables).

5. Money is endogenous (created by the credit system).

With endogenous money, banks and credit institutions hold the key to economic activity, since the expansion of aggregate demand depends on their decision to provide liquidity (give loans). The decision on who receives a loan affects the trajectory of the economy: banks may prefer to finance individuals from certain social classes, companies in certain sectors (traditional or new technologies) or with certain characteristics (large or small, national or international), or favor certain activities (real estate investment, infrastructure construction, public companies…).

When money is endogenous, monetary policy becomes interest rate policy. Endogenous money makes the financial sector more unstable and volatile by its very nature: speculative bubbles and financial crises become more likely.

The orthodox view defends, as an implication of the classical dichotomy, the neutrality of money: changes in the money stock do not affect economic activity, at least in the long run. If money is endogenous, money cannot be neutral: the productive potential of the economy is linked to investment, which is linked to the process of credit creation, which is what creates money.

6. There is no 'labour market' that establishes any supply-side equilibrium to which the economy eventually converges.

Firms set prices and determine production and base job offers on the conditions and expectations of aggregate demand in relation to existing productive capacity. Wages are determined directly by firms to induce workers to be productive (to discourage idleness) or through collective bargaining with workers' representatives.

The heterodox view rejects the existence of automatic mechanisms that bring aggregate demand towards a presumed long-run supply equilibrium derived from the labor market. In

particular, real wages do not adjust to balance the labor market and the real balance effect is not operative.

7. Inflation is not a monetary phenomenon.

   The orthodox view assumes a causal connection between the money stock and the inflation rate. The orthodox view considers that there are other factors that have a greater influence on the inflation rate. Inflationary pressures can come from:

   (i) changes in aggregate demand (demand-pull inflation) in relation to productive capacity;

   (ii) supply factors, such as changes in import prices and the nominal exchange rate; and

   (iii) conflicts over income distribution (salaries versus profits).

   "If all groups and classes in a society were in agreement with the existing distribution of income, then one would expect that there would be no problem of inflation: at best, the rate of inflation would be constant." Malcolm Sawyer (2009): "The central core of heterodox macroeconomics", in JP Goldstein; MG Hillard; eds.: *Heterodox Macroeconomics: Keynes, Marx and globalization*, p. 30.

8. The exchange rate does not isolate the economy from the rest of the world.

   For example, there is no purchasing power parity that ensures that inflation differentials with the rest of the world are neutralized through exchange rate changes. As a result, foreign inflation is expected to affect domestic inflation.

   Exchange rates are very volatile and their variations are mainly determined by financial transactions (not real ones). Rather than knowing what explains exchange rate movements, we know what does not explain them: interest rate parity. Furthermore, the exchange rate does not vary to balance the balance of payments.