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A Compact for European Debt Sustainability

Pier Carlo Padoan[*]

ABSTRACT (IN ITALIANO): *Le molteplici crisi che stanno colpendo il sistema globale genereranno un'enorme quantità di nuovo debito per finanziare la ricostruzione. Si pone quindi il problema della sostenibilità del debito, vecchio e nuovo, in Europa e altrove. Partendo dalla condizione di sostenibilità del debito, ovvero che il tasso di crescita sia superiore al tasso di interesse, il paper sostiene che una maggiore integrazione istituzionale dell'economia dell'UE faciliterà il raggiungimento di tale condizione, sia in termini di un tasso di crescita più elevato che di un tasso di interesse più basso. Un patto basato sui Beni Pubblici Europei, sui safe asset, sull'Unione del risparmio e degli investimenti e su una versione rivista di Next Generation EU sarebbe di grande beneficio a tal fine.*

TITOLO IN ITALIANO: *UN COMPACT PER LA SOSTENIBILITÀ DEL DEBITO EUROPEO*

ABSTRACT (IN INGLESE): *The multiple crises that are impacting the global system will generate a huge amount of new debt to finance the reconstruction. The issue arises of the sustainability of debt, old and new, in Europe and elsewhere. Starting from the debt sustainability condition of the rate of growth being higher than the interest rate the paper argues that a fuller Institutional integration of the EU economy will facilitate reaching such a condition both in terms of higher rate of growth and lower rate of interest. A compact based on European Public Goods, safe assets, saving and investment union and reviewed Next Generation EU would be greatly beneficial to this effect.*

1. Introduction

The sequence and intertwining of the various crises that the global system has been experiencing for some years now mean that, in the years to come, it will be necessary

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to issue very significant amounts of public and private debt to tackle the new challenges generated by the crisis.

One need only consider the crises in question: the climate crisis and the need to support the green transition; the technological crisis – the speed and scale of which are simultaneously accelerating obsolescence and creating new profit opportunities; the energy crisis resulting from geopolitical conflicts; but also the industrial crisis exacerbated by the US administration's fierce trade unilateralism; and, of course, the wars being waged.

As a result of these crises, the global system is undergoing a phase of fragmentation that is stifling growth in productivity and output. At the same time, each of these crises requires substantial investment to support the reallocation of capital in its various forms: technological, human, physical and intangible.

The amounts of potential requirements vary depending on objectives, time horizon and geographical scope, but in any case, the order of magnitude approaches several hundred billion euros annually. The question arises: is this a sustainable debt?

The question is particularly relevant for Europe which, compared to other global economic giants, faces obstacles in defining and implementing collective actions aimed at supporting the process of integration among member states.

The argument put forward here is that Europe will be able to rely on sustainable debt provided it reforms its financial institutions by establishing a framework for interaction between its components – a compact – that allows it to follow a path of institutional integration. This path has been underway for some time but cannot be taken for granted for the future. In particular, the compact must incorporate sustainability provisions.

This compact must be based on the institutional innovations that are being introduced or that should be introduced, such as the new impetus for security and defence spending, which has been introduced but requires adjustments such as the NGEU; which should be introduced and implemented, such as European public goods and the safe asset, as well as the Savings and Investment Union. To put it another way, we are faced with a case of vertical coordination between national and European policies. (Buti, Messori 2022). In the following pages, we will outline how such a compact could strengthen debt sustainability and provide some examples relating to the EU's strategic priorities.

2. What determines debt sustainability

A standard indicator of debt sustainability is the difference between the interest rate on debt and the growth rate. If this value is negative – that is, if the growth rate **g** is higher than the interest rate on debt **r** – the debt is sustainable because growth will be sufficient to more than offset interest payments on the debt itself. If, on the other hand, this difference is positive, debt sustainability will require a positive primary surplus **s** sufficient to offset the deficit implied by a positive value of **r-g**. The equation that stabilises the debt-to-GDP ratio is **(r-g)d+s=0,** where **d** is the debt. A decline in the debt-to-GDP ratio requires **(r-g)d+s<0.**

This assessment must, however, be placed within the context of the multiple crises facing the global economy. In particular, one must ask whether and how debt will be sustainable in a context of widespread fragmentation. Debt sustainability will depend not only on the scale of the fiscal adjustment, and thus on the value of **s**, but also on the impact on **r** and **g** of the adjustments implemented through a change in **s.** In other words, the relationship mentioned above can be considered a 'reduced form of the debt sustainability mechanism'. A number of hypotheses have been considered on this point. Bini Smaghi (2025), for example, warns of the circularity of the relationship between **r, g** and **s**. It should also be noted that the r-g difference depends on the values of the variables that affect r and g separately. Very often, however, analyses focus on the impact of **s** on the difference between **r** and **g**, treating it as a single variable rather than a combination of the two components, which implies overlooking important transmission channels within the system.

The current crisis context, all other things being equal, undermines debt sustainability. More specifically, fragmentation hampers growth and uncertainty drives up interest rates. From this perspective, the existing institutional framework has significant implications. A specific case in point is the role of the eurozone. According to Heinberger (2023), the **r-g** spread has been more detrimental to sustainability in the peripheral countries of the Monetary Union, whilst the opposite has been true for the core countries, identifying a clear division between two groups of member states, but also a debt stabilisation policy strategy as a strategy for integration and, today, for combating fragmentation.

Let us briefly review the state of the fragmentation process in Europe. Following the outbreak of the global crisis—geopolitical before it was economic—Europe has become highly fragmented, reversing the very process of integration that has traditionally driven its growth, including within its institutional model. It is difficult to

imagine that the fragmentation process can be reversed in the short term. Fragmentation, in turn, affects competitiveness and growth prospects, especially in the new global landscape. Indeed, fragmentation reduces the total volume of trade and capital flows, as well as exacerbating regionalist tendencies that may lead to a reduction in integration.

But an adequate response to the crisis is both necessary and possible. To build it, we must draw on the founding principles of the EU aimed at strengthening Europe's systemic stability, including through institutional innovation. This response also involves establishing conditions for debt sustainability, without which the system risks sinking into a state of severe uncertainty.

3. Commercial and financial fragmentation

Figures 1 and 2 illustrate the degree of uncertainty in economic policy regarding growth and global trade. In particular, Figure 2 provides a long-term assessment of the global trade regime. The level of protection has been declining, albeit with fluctuations, since the 1930s – practically a century ago. The turning point, the halting of the process of liberalisation, came with the abrupt reversal by the Trump administration.

Fig. 1 - Uncertainty regarding economic and trade policy

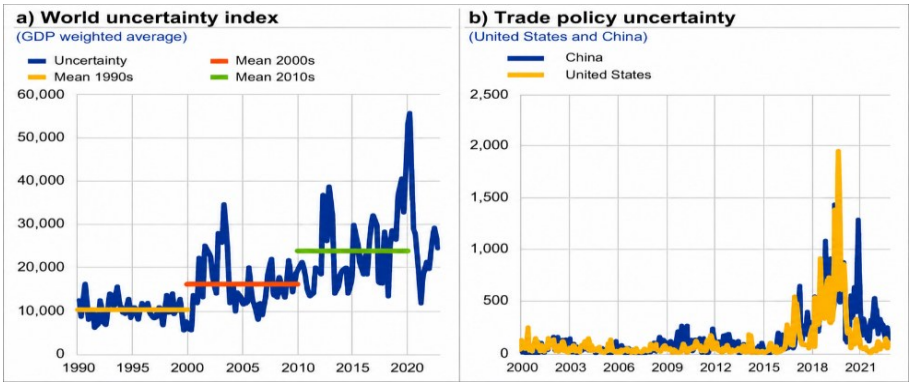


Fig. 2 - Trade protection in the long term

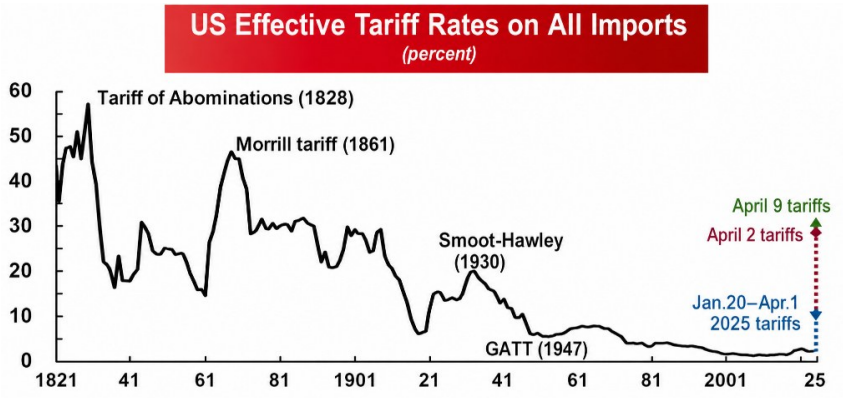
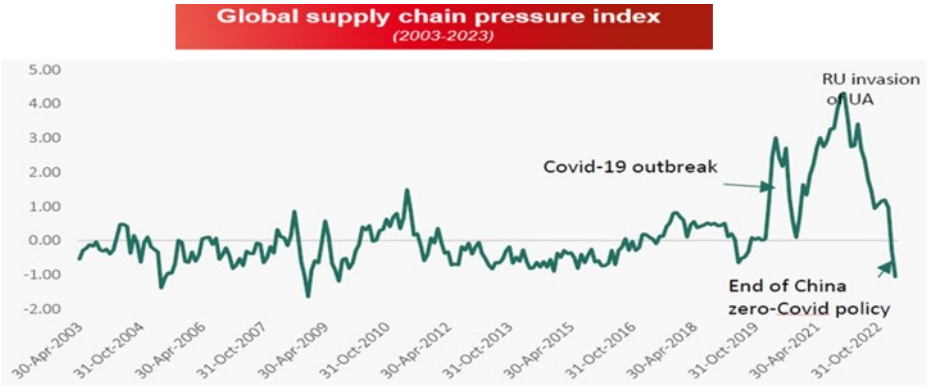


Fig. 3 - Pressure on value chains



A significant phenomenon in this context is the impact on global value chains (Fig. 3), namely a structural disintegration effect on the organisation of production. A clear example of an irreversible event.

A similar process affects the financial system. As shown in Figure 4, since the onset of fragmentation, financial transactions of various kinds have increased between politically close countries and have, conversely, decreased between politically distant countries. At the same time, military conflicts ihave increased (Fig. 5). This has accelerated the need for a reallocation of resources, which requires significant debt.

In summary: fragmentation is the result of geopolitical choices rather than structural dynamics; the consequences are a slowdown in growth, if not outright systemic stagnation. Furthermore, pressures for the regionalisation of trade in goods and capital have increased (Fig. 6).

Fig. 4 - Financial fragmentation

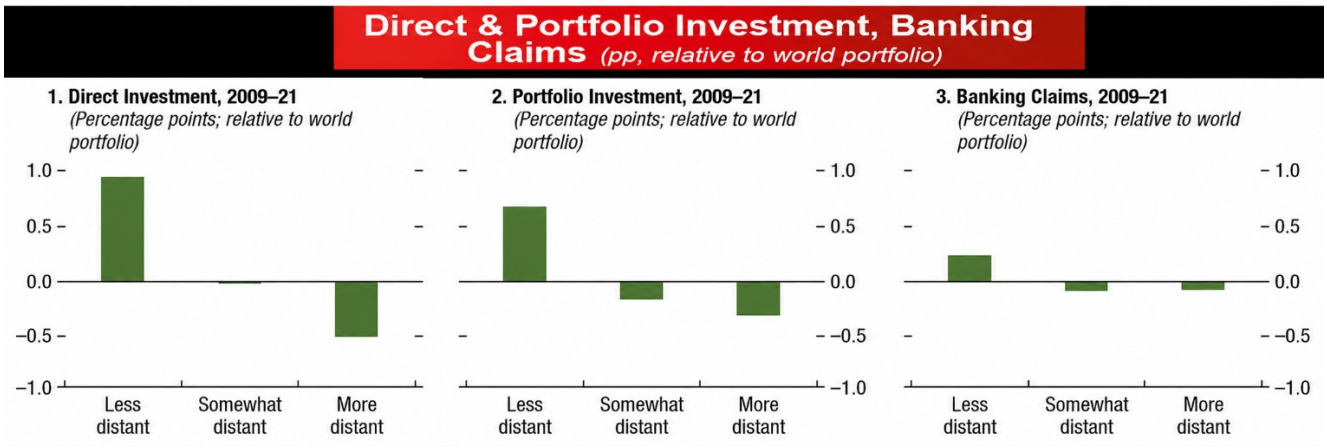
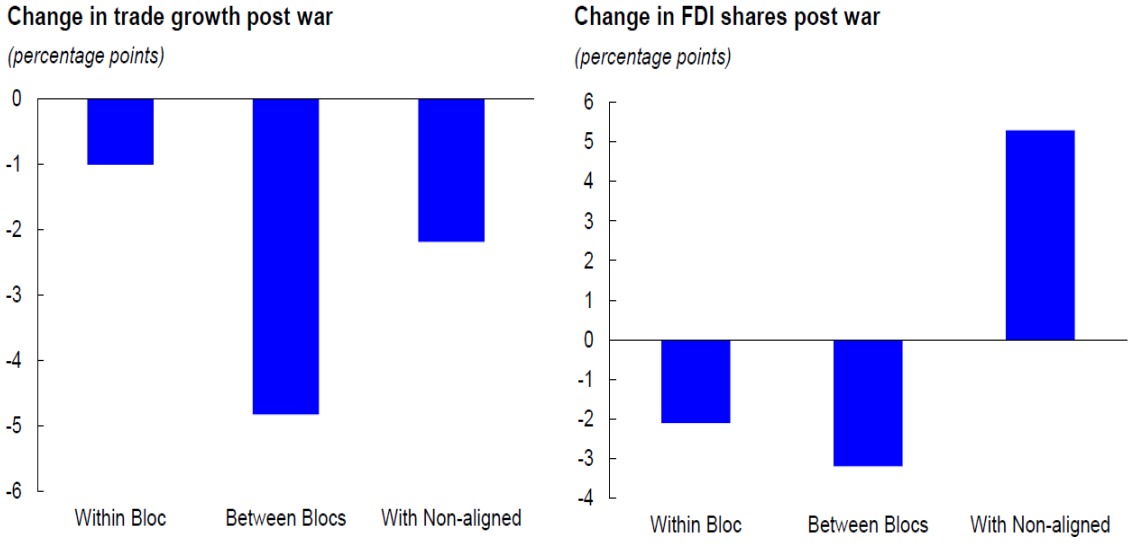


Fig. 5 - Military conflicts

Fig. 6 – Consequences of the new geopolitics

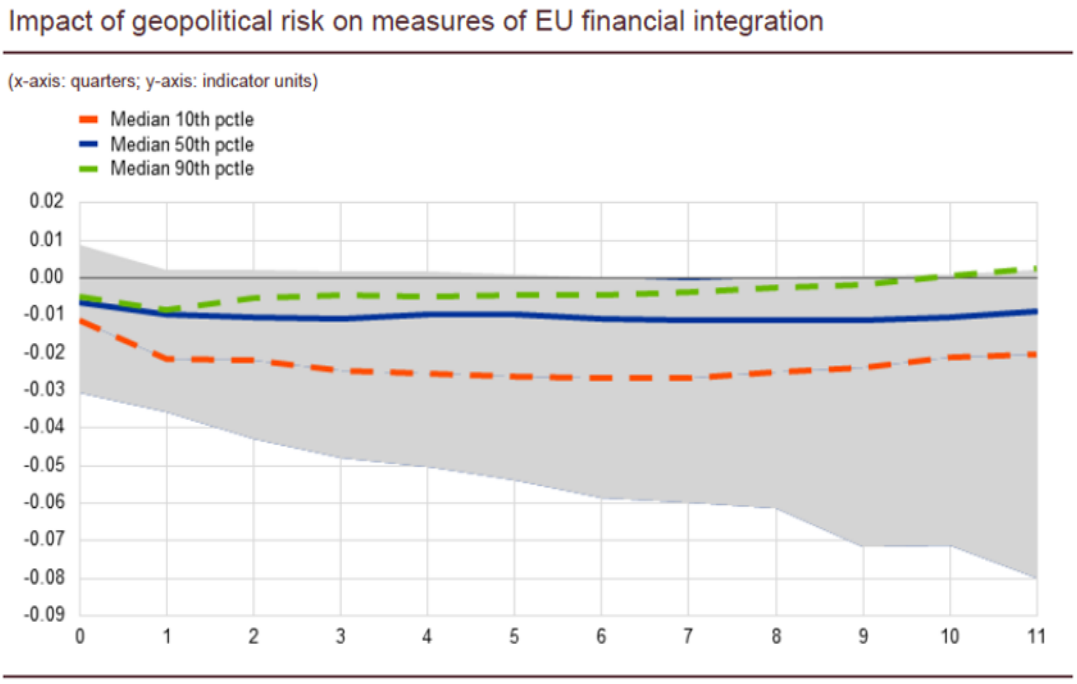


Given the extent of fragmentation, it is clear that the reconstruction of the global system should start from a different perspective to that which prevailed in the post-war decades, in particular by assigning a more prominent role to security and defence.

From this perspective too, the role of debt dynamics will be essential. In the European case, a potential virtuous circle (or its opposite) can be identified. A trend in r-g favourable to debt sustainability (i.e. r<g) requires a lower primary surplus which, in turn, creates fiscal space that can be used to increase g and reduce r.

Conversely, an unfavourable r-g trend (r>g) can trigger a vicious circle leading to debt unsustainability. case can be extended to participation in the euro. Assuming that a difference in performance persists between 'core' and 'peripheral' countries, countries belonging to the core may benefit from a favourable market assessment which will trigger, through a fall in r, a virtuous cycle. Conversely, for countries on the periphery, this would result in increasing fragility within Europe. Finally, the rise in geopolitical risk will have a negative effect on financial integration (Fig. 8). For this reason too, debt sustainability takes on significant importance

Fig 7. Geopolitical risk and financial integration



Sources: Eurostat, ECB and ECB calculations.
Notes: Pctle stands for percentile. The shaded areas represent the impact of the range of geopolitical indicators on the price-based financial integration indicator. The range of geopolitical indicators considered includes the Standard Geopolitical Risk Index, the Trade Policy Uncertainty Index, the Economic Policy Uncertainty Index, the Real Economic Uncertainty Index and the Financial Uncertainty Indicator, the World Trade Policy Uncertainty Index, the Equity Market Volatility Indicator, the COVOL Index and the Migration Fear Index.

4. Growth and debt in Europe and the US

Geopolitical risk is, among other things, leading to a reduction in financial integration. See Figure 7. In this new context, the EU must redefine its priorities: technology, decarbonisation, defence, and develop *missions* to achieve them. Each of these *missions* has different characteristics and different impacts in terms of debt creation and measures to contain it. (See Table 1 for a partial assessment of the additional debt required to complete the *missions)*

Table 1 Additional debt

EUROPE: ADDITIONAL INVESTMENT PRESSURES

Annual additional investment needs

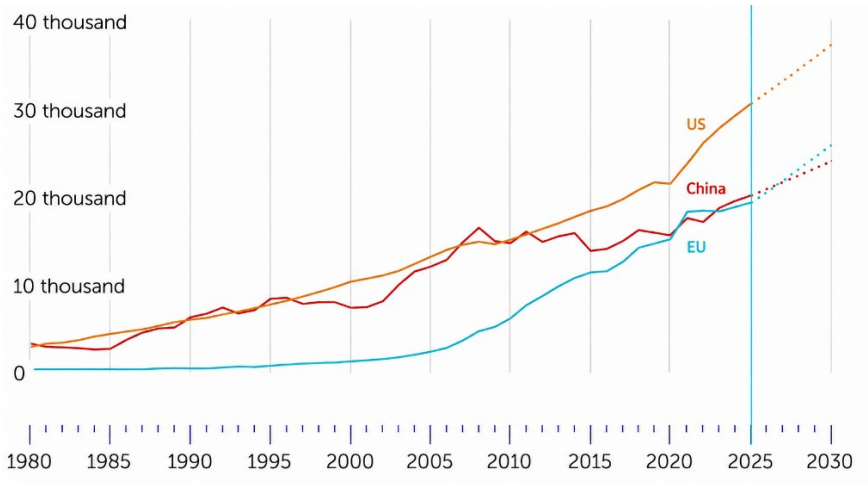
	Draghi	Bouabdallah	Felbermayr & Pekanov	Pisani-Ferry & Tagliapietra; Burilkov & Wolff
Public share of total	25%-35%	25%		Green transition 25-30%
EU share of public share		30%		
Additional annual total (private and public) investment needs (euro bn)				
	750-800	617-926		
Additional annual total (national and EU) investment needs (euro bn)				
Green transition	113-158	117-175		86-172
Digital	38-53	11-17		
Defense	13-18	21-32		
Innovation	25-53			
Additional annual EU investment needs (euro bn)				
Green transition		32-48		
Digital		11-17		
Defense		3-4	180	125
Innovation			180	
Infrastructure			180	
TOTAL PUBLIC	190-280 (1.1%-1.6% of EU GNI)	149-223 (0.8%-1.2% of EU GNI)		21--298 (1.2%-1.7% of EU GNI)
TOTAL EU		47-70 (0.3%-0.4% of EU GNI)	540 (3% of EU GNI)	

Source: Bruegel
Note: Investment needs calculated over 2020 in Draghi report

4

Europe's main problem over the last twenty years has been, and still is, a lack of growth, which in turn requires substantial investment. Following the 2007–2008 financial crisis, investment recovered rapidly in the United States and continued to expand, whilst in the EU it recovered only gradually. The gap widened further in the subsequent years

Figure 8 - Per capita growth

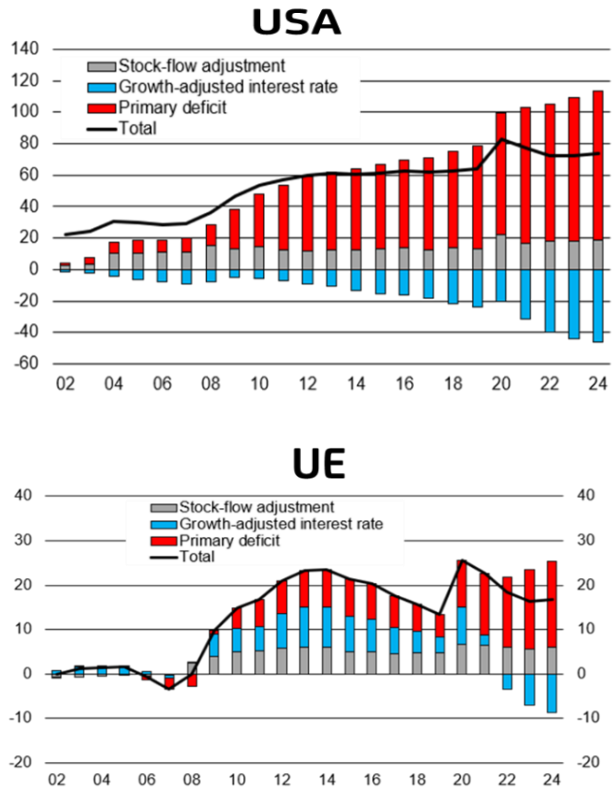


As can be seen in Figure 8, the pattern of European growth appears as a sequence of accelerations that eventually peter out; consequently, sustaining growth requires a sequence of accelerations stimulated by exogenous shocks, often induced by economic

policy. With this in mind, we can return to the issue of debt sustainability in the case of the US and the European Union.

As Figure 9 shows, the rise in debt in the United States mainly reflects the trend in the primary deficit, whilst (r-g) has been a supporting factor. The situation in the eurozone is very different, with a lower initial debt stock and a primary balance that is far less of a drag, but with a trend in (r-g) that only becomes a supporting factor after the pandemic. This trend is consistent with a more active, albeit intermittent, role for r-g. There is therefore scope to make the dynamics of r-g in the EU more stable and such as to make a more significant contribution to debt sustainability.

Fig 9 - Components of US and EU debt dynamics



This suggests that the EU can and must better define and consolidate its debt policy, particularly regarding the role of new strategic priorities, which are sources of new financing needs. This implies adopting a medium- to long-term perspective that allows for the adoption of a new institutional framework. This framework must be based on the characteristics of monetary and financial integration upon which the debt sustainability compact is founded.

5. A debt sustainability compact

As a consequence of the global pandemic crisis, the EU has identified new priorities in addition to those announced following the pandemic crisis. Achieving these priorities entails new investments and new options for financing them. The following possibilities arise.

1) Reallocating EU budget resources to the new priorities, whilst keeping the overall size of the budget largely unchanged. The main problem with this option is the differing preferences among Member States and the associated *trade-offs*;
2) Raising new own resources – the main sources of revenue for the EU budget – to increase the size and scope of the European budget. The problem, in this case, is the resistance of many countries to the use of tax instruments (own resources);
3) Raising EU loans on the financial markets to finance off-budget programmes. The problem here is resistance to debt mutualisation.

Let us examine the case of debt mutualisation in more detail. Article 122 of the Treaty on the Functioning of the European Union (TFEU), which justifies the financing of targeted and temporary economic measures in exceptional situations, would continue to provide the legal basis for new EU borrowing on capital markets. Ideally, however, the joint issuance of common debt should serve as a bridge to a new long-term framework in which new investments could be entirely planned within the EU budget. Judging by preliminary discussions on the size, composition and own resources envisaged in the EU budget for the period 2028–34, this framework still seems a long way off.

In recent years, despite the broadening of the investor base, interest in EU bonds has been limited by the following factors:

- Compared to sovereign countries, the EU has no independent capacity to raise own resources; consequently, the EU's credit risk primarily reflects the Member States' political commitment to the EU budget;
- Based on current issuance projections, the outstanding volume of EU bonds will reach EUR 1tn by 2026, a size intermediate between that of the Belgian and Spanish sovereign bond markets. Added to this is €150 billion from the Readiness 2030 programme, which could also be financed through common debt. However, even in scenarios where the rearmament programme is expanded or new programmes are added, the outstanding volume of EU bonds will remain significantly lower than that of Germany and France, which will weigh on liquidity;
- In the current context, the 'European' asset class is perceived as temporary because the EU is expected to begin repaying NGEU debt from 2028 onwards.

The rollover of maturing NGEU debt would free up around €30 billion a year to be allocated to new strategic priorities and would help shift investors' perception of the asset class's duration;

- EU government bonds are not included in the main government bond indices and therefore do not enjoy the same level of demand as other sovereign bonds.

As a first approximation, the use of European funding would not pose insurmountable technical problems. It must be considered, however, not only how much debt is needed but also under what conditions its sustainability can be strengthened. The sustainability of interest here concerns the long term, determined by the fundamental characteristics of the economic system. This requires assessing the impact on **r-g** of institutional measures and changes to them.

Some authors downplay the impact of r-g on debt (Heilen et al 2024, Heimberger 2023), but they do not fully account for the impact arising from potential institutional changes on these same variables. In other words, institutional innovation has an impact on sustainability and influences long-term behaviour. And in this way, it could strengthen r-g in terms of sustainability.

It is therefore useful to examine in greater detail the possible institutional changes within the European Union that could enhance debt sustainability through their impact on r and g. It is also important, when examining the determinants of r and g, to consider the determinants of r and those of g separately

The institutional instruments we consider are: the transformation of the NGEU programme, the creation of 'safe assets', the role of European public goods (EPG), and the Savings and Investment Union (SIU).

6. Next Generation EU: a new beginning?

One recent example of European economic policy is *Next Generation EU* (NGEU), the instrument launched to counter the negative consequences of the pandemic crisis, which is based on a combination of public and private investment, structural reforms and European-scale financing.

The results of the NGEU's implementation have been only a partial success, relating primarily to the boost to growth provided by public investment, viewed as a tool to boost demand rather than as an instrument of productivity policy.

Structural reforms have very often been conspicuously absent from European economic policy. On the other hand, it is well known that the effects of these reforms take time to

materialise. They should have a positive impact on potential output, but they must contend with the bureaucratic and administrative hurdles that slow down their implementation and weaken their macroeconomic impact. From this perspective, the strengthening of financial markets and the creation of the Savings and Investment Union (SIU) would have the same effect as the structural measures introduced in other sectors.

Initial analyses in this regard suggest that the full effect is expected after 2030. This is an even longer timeframe than initially anticipated, as mentioned, due to a lack of implementation capacity and administrative burdens.

The main limitation of the NGEU is that it is a strategy for individual countries. A European dimension is lacking, particularly in the provision of public goods. There is a risk of reproducing a growth model in which Europe's excess savings are used to finance investments outside Europe, primarily benefiting the United States. This results in a trade *surplus* at the European level, which creates deflationary pressure. This is a new version of the problem of *global imbalances* (Guerrieri and Padoan 2025), in which growth potential is determined by the availability and application of new technologies, with the consequent stimulus to investment. In this context, the US and China are at the forefront, whilst Europe is falling further behind. Furthermore, new pressures are emerging on the security front, requiring an increase in resources, whilst the ambiguities of climate policy prevent greater private-sector involvement in *the green transition*.

7. The interaction between instruments: the Saving Investment Union

The NGEU is therefore not enough. Other European instruments are needed. In many cases, these are versions of existing instruments that need to be simplified and unified. Tinbergen's principle, which calls for a *policy* instrument for each objective, no longer applies. A systemic approach is required.

EU *policy* must transcend the national level: we need to move to a European level to benefit from economies of scale (see Fig. 10) and look not only at the quantity of growth, but also at its quality, a factor that presents difficult *trade-offs*, particularly between the short and medium-to-long term, as well as between growth and sustainability.

However, the conditions exist for the relaunch of a new model that can harness new technologies (AI, *quantum computing, etc.*) – which are *'general-purpose* technologies' – whose benefits will be reaped in the medium to long term – whilst focusing in the short term on security, competitiveness and the fight against exclusion. Clarity is needed regarding *the green transition*, for which there is a risk of a halt or,

at the very least, a slowdown. The surge in global trade uncertainty is particularly damaging to the export-oriented growth model. Indeed, growing trade tensions are disrupting global trade and investment flows, leaving Europe in a vulnerable position between the United States and China.

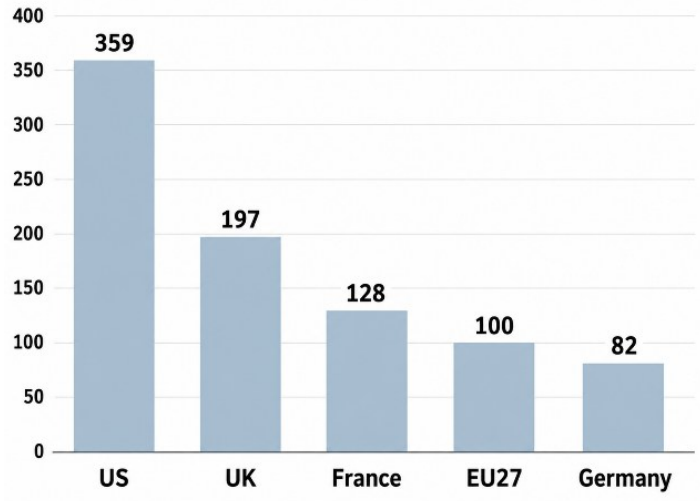
Deepening the integration of European financial markets through the SiU would support a more efficient allocation of savings and investment to finance domestic drivers of growth and make Europe more competitive globally.

The US withdrawal from multilateralism and traditional alliances is forcing Europe to become more self-sufficient. A European Savings and Investment Union would help reduce dependence on external capital and the dollar, increasing Europe's resilience to shocks and its strategic independence. Private capital could play an important role in the EU's efforts to increase defence spending as the US security umbrella fades.

This would enable Europe to channel more capital towards long-term growth opportunities that best reflect EU values, particularly when it comes to the green transition and broader environmental objectives. It would also provide a stable flow of *risk-willing* domestic capital to finance the frontier technology needed to bridge the productivity gap from which the EU suffers. More generally, cross-border capital flows would promote a better allocation of resources and improve the bloc's shock-absorbing capacity. In the context of the Eurozone, the SIU would promote economic and financial stability by reducing imbalances between Member States.

In summary, the SIU would lead to an increase in both savings channelled towards 'productive' capital uses and investment in such capital.

Fig. 10 The size of the capital market as a % of GDP



8. European Public Goods (EPG)

An expanding role for European public goods would facilitate the transition to a more sustainable and growth-oriented European fiscal policy. This is because the multiple crisis requires us to address, including from a debt perspective, new challenges that possess the characteristics of public goods. Common defence is perhaps the clearest example, both because EPGs improve efficiency through collective action and because they help to smooth out the *trade-offs*. Naturally, support for public goods is limited by the differing preferences of European countries and sectors, but in the long term, convergence of preferences is more easily achievable and would make the role of the European budget more effective.

European public goods can cover various sectors. In the current situation, as mentioned, defence is an obvious example. European defence spending fills a gap that has accumulated over time under the impetus of NATO agreements. It requires very significant efforts because it encompasses not only the organisation and management of the defence system, which must be unified, but also the development of a defence industry in Europe with standardised products, a choice that would significantly increase the benefits of integration and economies of scale

9. Safe assets

Safe assets can be important factors in supporting a sustainable debt policy if certain conditions are met. In particular, if they are issued with a clear financing purpose, they are sufficiently liquid and, therefore, present a low risk.

Safe assets can be issued to finance ‘genuine’ European projects – that is, projects that are not simply an aggregation of national projects, such as the response to Covid. This concept underpins the SURE mechanism, subsequently extended to the NGEU to promote growth and innovation and, it is hoped, security and defence.

In this way, safe assets benefit from a risk premium, with a lower risk than high-risk countries (less than full integration) but higher than high-rated borrowers. This can be explained by the experience of recent years, which, as discussed above, indicates that the markets are not yet fully convinced of future European financial integration and cannot, therefore, consider the risk premium to be definitive.

10. A new institutional framework for debt management (the compact)

The institutional pillars we have briefly examined can form a new framework, the compact, which will have positive effects on sustainability conditions. A process of

institutional innovation is emerging that can be summarised in the following sequential steps:

1) Discussions among member states define spending priorities. This leads to the definition and implementation of public goods, with their characteristics and scope determined at the European level. Consequently, **g increases**
2) Once spending priorities have been defined, this is followed by the issuance of safe assets to finance European public goods. Consequently, the unit cost of financing falls due to the exploitation of economies of scale, and **r decreases**
3) The NGEU implements the new industrial strategy defined from a European, rather than a national, perspective, which exploits economies of scale, so **g increases**
4) The effective functioning of the Saving Investment Union improves both the conditions of demand for finance (investment function) and the conditions of supply (saving function), so **r decreases and g increases**

A more rigorous procedure for describing the compact would possibly require an approach based on a general equilibrium model, also to better assess the interdependencies between variables. What has been briefly discussed here can nevertheless provide some guidance in this direction. It is reasonable to expect that if the strategy described here were applied, debt sustainability conditions, in the European case, would be strengthened and a virtuous circle could develop in which growth and sustainability, within a new institutional framework, feed into one another. The framework described here should, in addition, be linked to the Stability and Growth Pact which, in its revised version, places greater emphasis on growth dynamics.

The sustainability analysis discussed so far shows that we need to go beyond fiscal and institutional growth policies, however essential these may be. The Compact should be an 'open' framework capable of accommodating, for example, structural policies designed to address priorities such as defence, climate sustainability, competitiveness and technology.

The next step is to assess how the compact can influence debt sustainability in achieving these priorities, through its impact on growthfast and interest rates. For each *mission*, the mechanism of debt formation must be identified, along with the presence or absence of institutional conditions for its sustainability. Below, we provide some examples illustrating, for each mission, elements that form part of the compact.

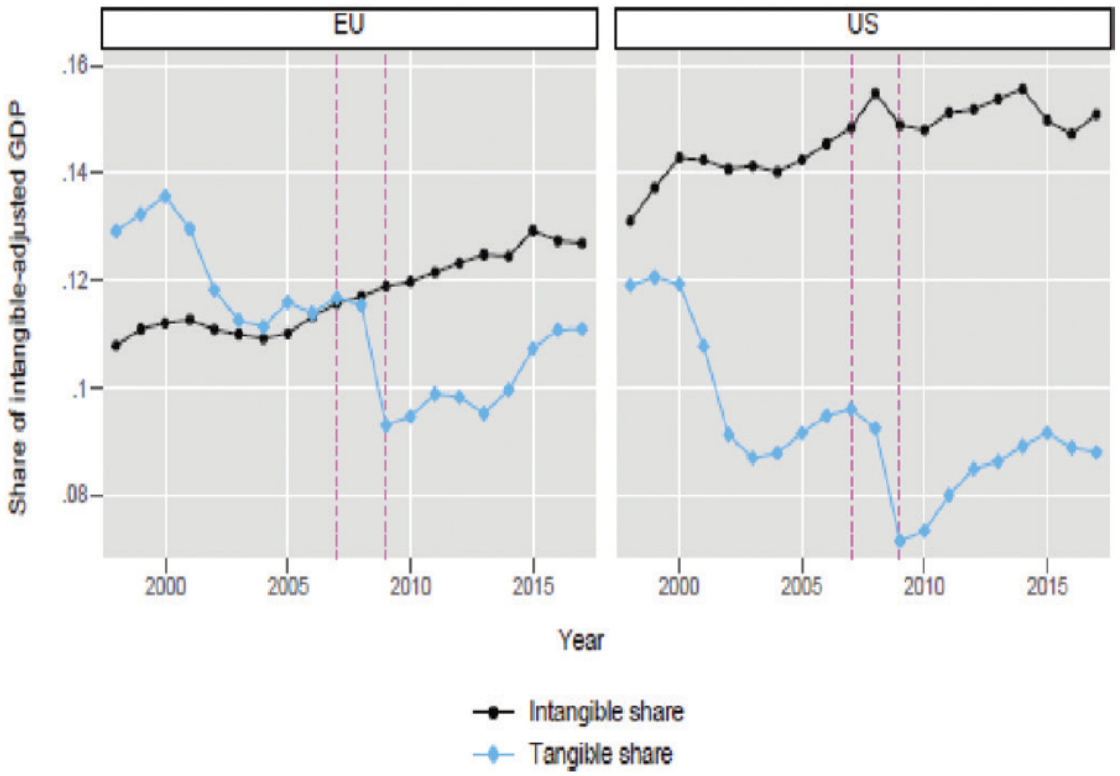
11. Strategic priorities and debt

Technology

At this stage in history, technological change is extremely fast and driven primarily by the adoption of general-purpose technologies such as AI and quantum computing. This requires the accumulation of capital in its various forms, including intangible capital (see Fig. 11) but not limited to this. Financing instruments include venture capital (Fig. 12), which in turn is fuelled by a savings and investment union.

Developments in technology investment relate, amongst other things, to intangible capital, the adoption of AI, and patents. In recent years, it has also become apparent that AI requires substantial investment in data management via data centres (Fig. 13), and thus the accumulation of physical capital. It should be noted that, in all the cases considered, the US holds a dominant position compared to the EU.

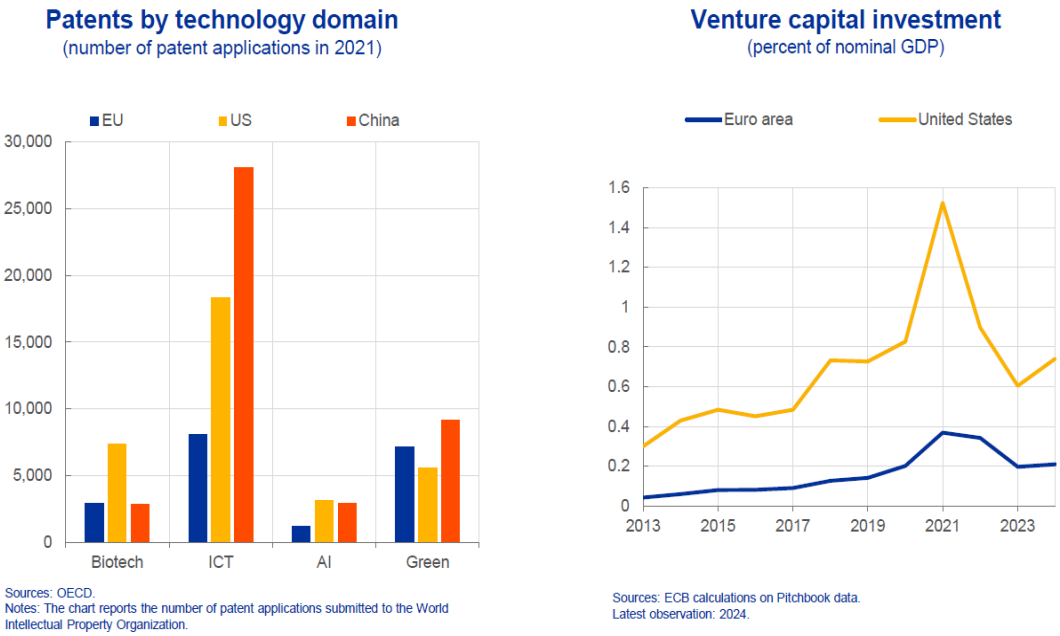
Fig. 11 Investment in tangible and intangible capital



As regards AI, the speed at which these technologies are incorporated into new production processes is crucial. Further evidence confirming the growing gap between the US and the EU. Additional insights can be drawn from the average time required for AI to have a full impact on productivity, which is one year for the US, just over a

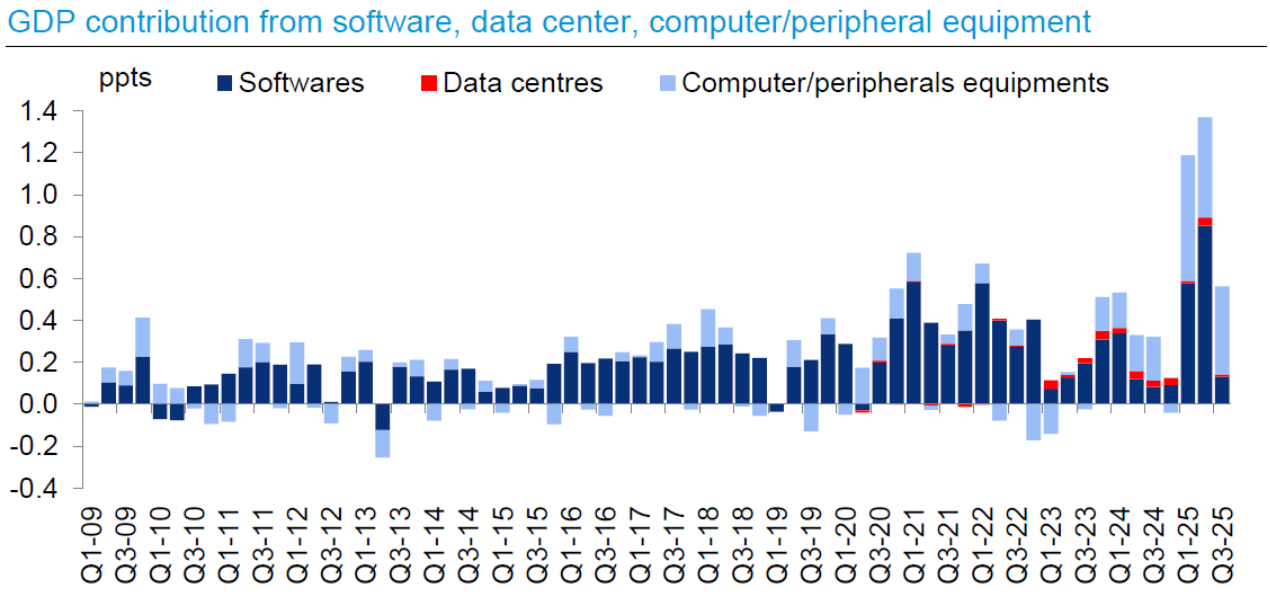
year for China and almost two and a half years for the EU (WEF 2026). US superiority is also evident in patent production and venture capital.

Fig. 12 Patents and venture capital



As mentioned, the adoption of AI requires fixed capital for data storage, with a sharp acceleration.

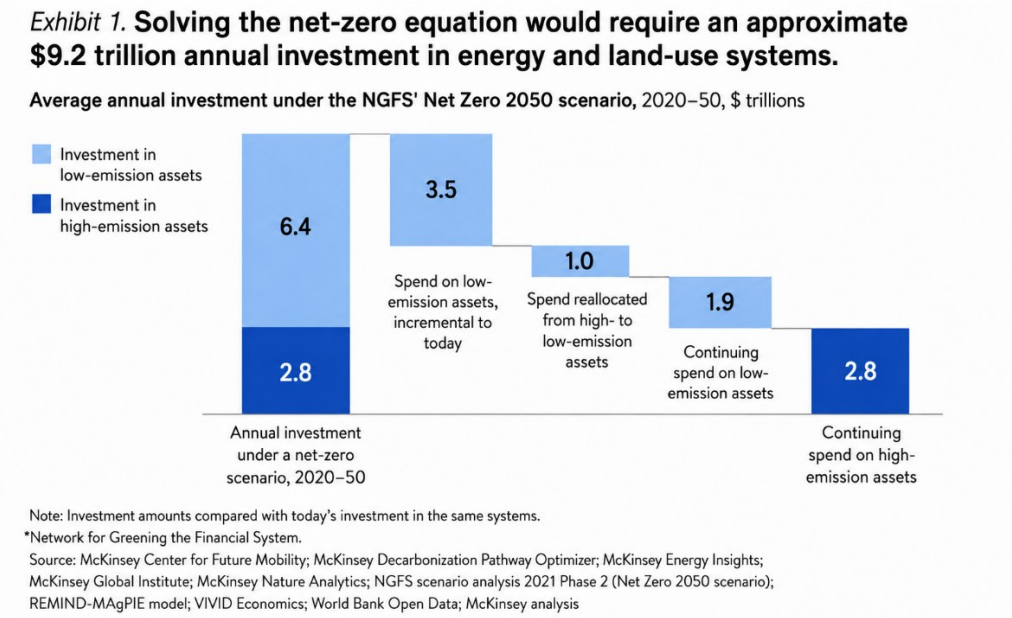
Fig. 13 AI adoption by type of capital



Decarbonisation

The shift of energy production towards clean technologies is underway. However, the capital requirement is very significant (Fig. 14)

Fig. 14 Decarbonisation requires substantial investment



The private sector's contribution to financing decarbonisation has been very significant to date. However, in the recent past, there have been slowdowns in investment, partly due to the outbreak of trade wars, as well as the backtracking – particularly on the part of the US – regarding commitments to ESG

Fig. 15 Energy investments

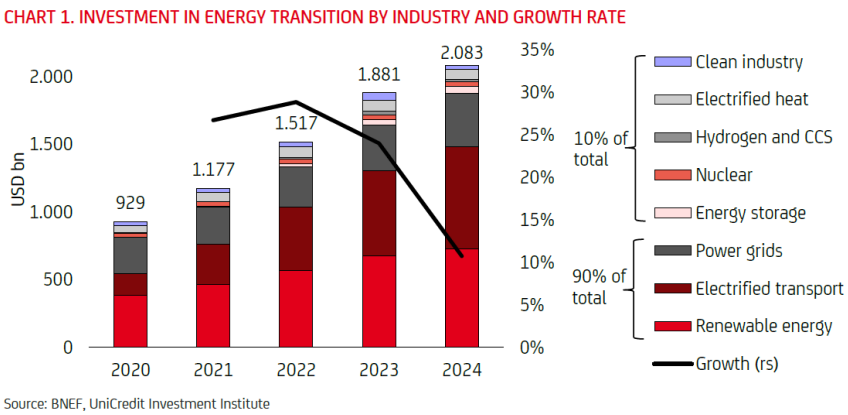
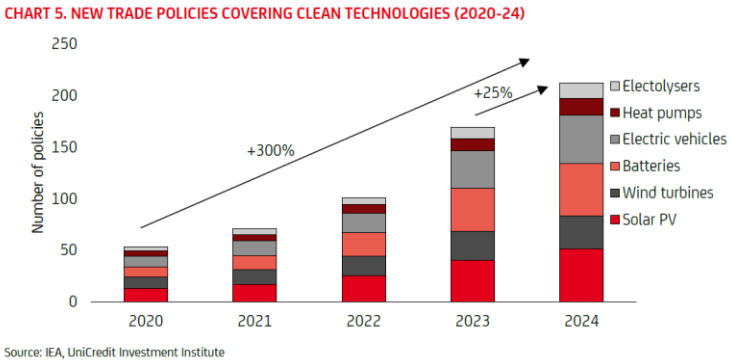


Fig. 16 Trade policies in the energy sector



As a result of the impact of trade policies, despite the strong performance of private investment, financing commitments in the climate sector are insufficient to meet capital requirements.

Fig. 17 Investments in sustainable securities

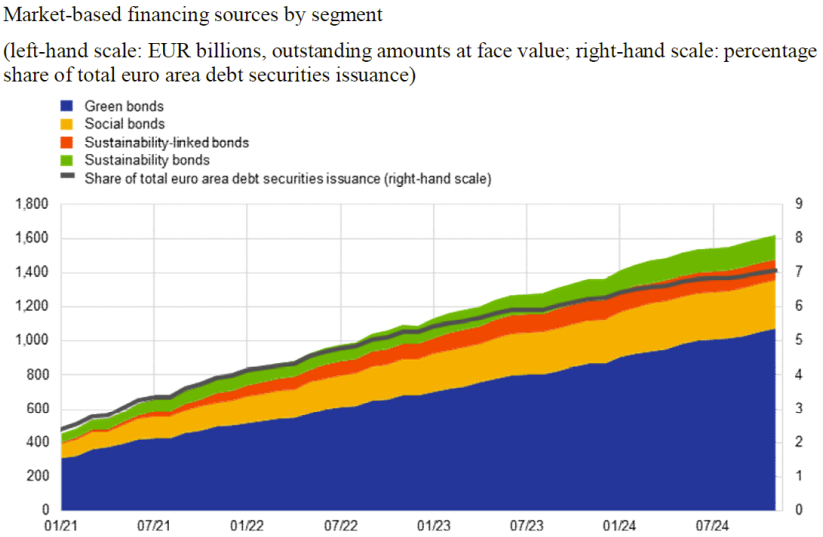


Fig. 18 Green and brown investments

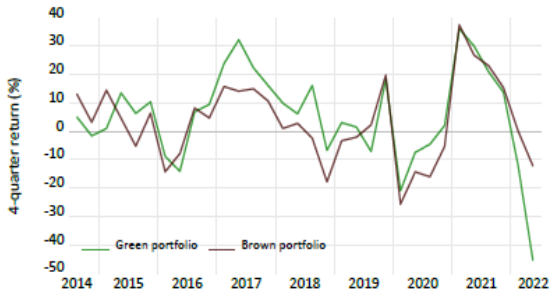
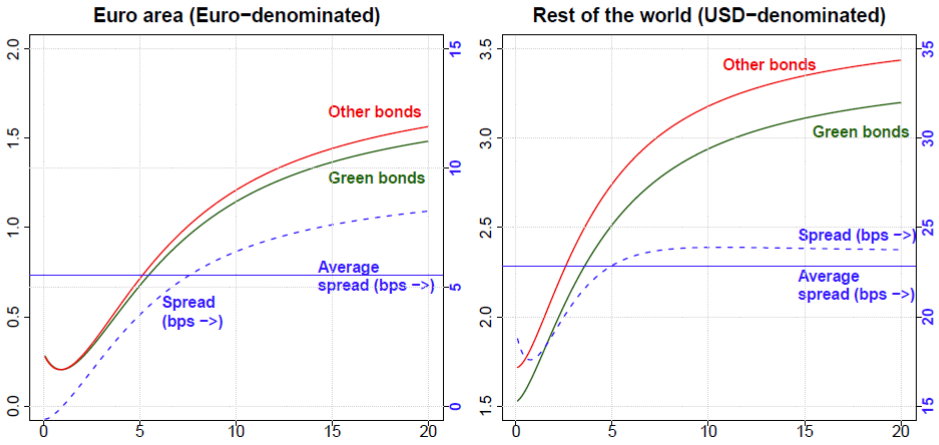


Figure 1: The 4-quarter return of green and brown companies over the last decade.

A significant outcome of the rise of green finance is that the greenium curve – that is, the yield on sustainable securities – has settled consistently below the yield on other securities (Figure 19), indicating that markets are willing to accept a lower return on green investments in order to support decarbonization.

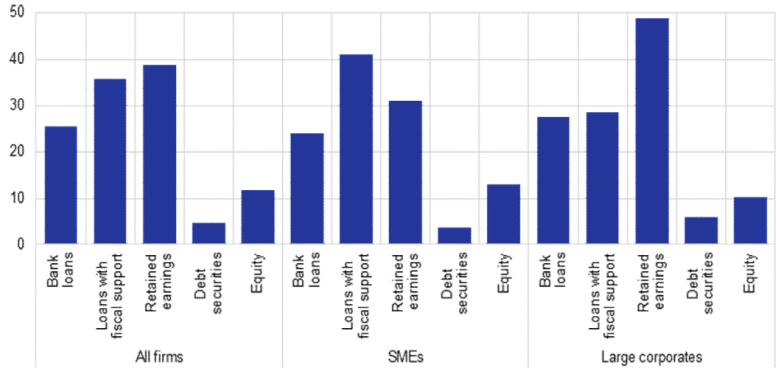
Fig. 19 Greenium and non-greenium

Figure 1: **Average yield curves between 2017 and 2022 - Non-financial corporations**
(percentage values and basis points)



The banking sector's role in financing green activities has encompassed all its main operations (Fig. 20)

Fig. 20 Bank investments in the climate sector



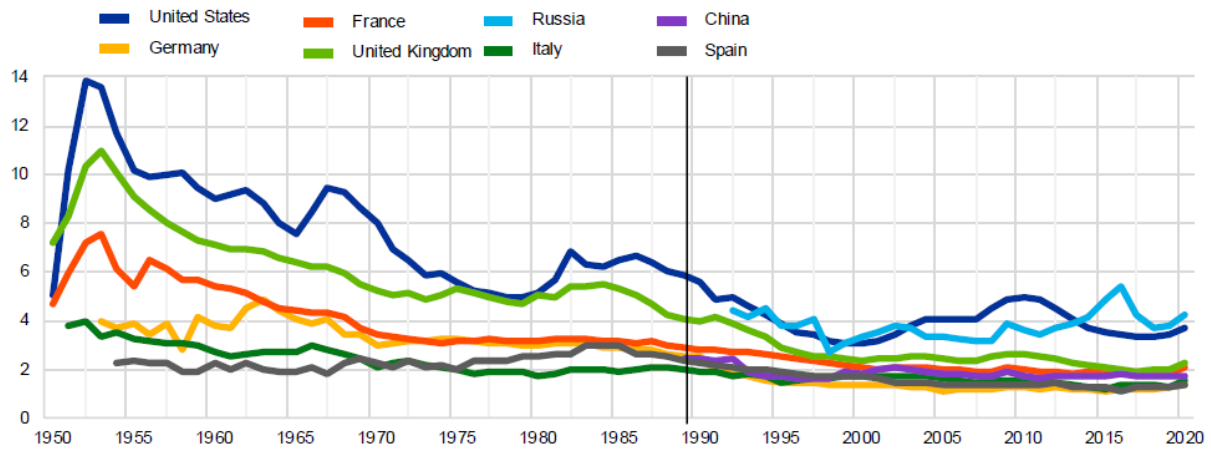
Sources: ECB and European Commission (SAFE) and ECB calculations.
Note: The bars show the share of firms that plan to use certain types of funding for investment into the green transition five years ahead.

Defence and security

Defence is a classic example of a public good. Security considerations impact trade agreements but also spending policy, both private and public, and thus also debt dynamics.

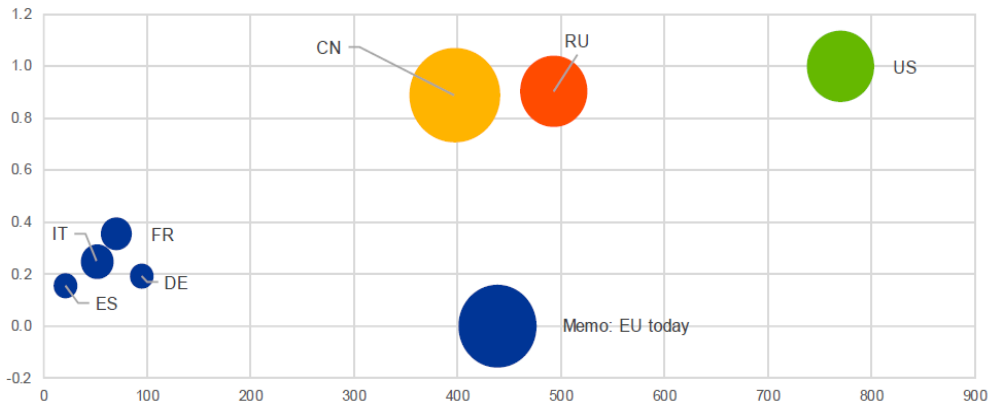
Let us put this trend into context. Figure 21 provides a snapshot of the evolution of military spending in the post-war period. The United States has consistently spent more in both relative and absolute terms. However, the Trump administration's recent policy rules out the possibility of the United States playing a permanent leadership role of the sort that emerged from the Bretton Woods agreements.

Fig. 21 Defence expenditure



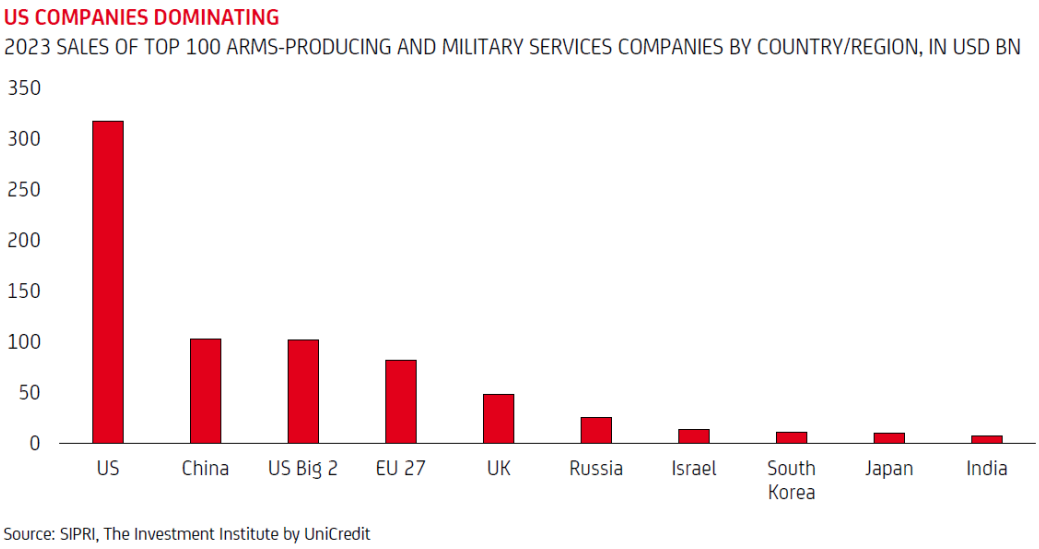
The quantity of military expenditure must be considered alongside its quality (Fig. 22), which may conceal serious inefficiencies. For example, the varying degrees of inefficiency among European countries mask the lack of integration of national defence industries and point to possible increases in debt to finance the restructuring of the industry itself.

Fig. 22 Quality of military expenditure



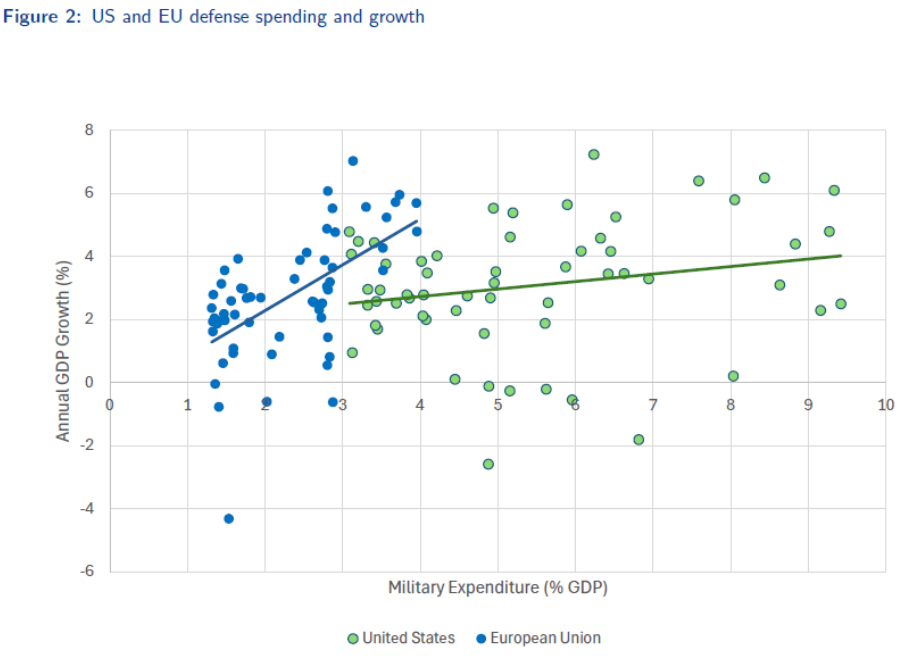
The state of EU defence spending shows the degree of dependence on the US system (Fig. 23)

Fig. 23 Defence industry and military dominance



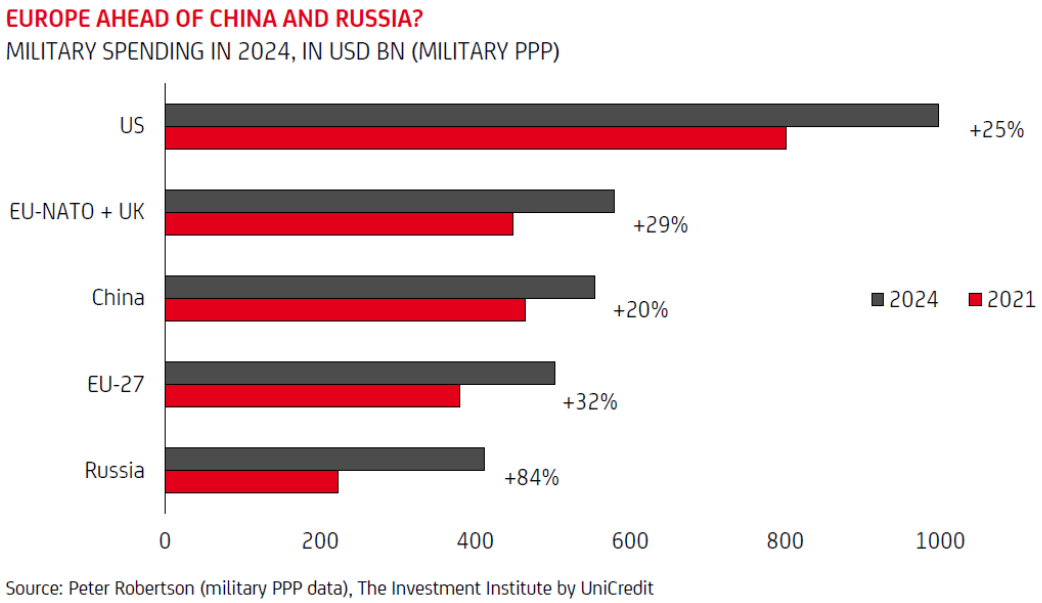
The defence industry is a driver of growth (Fig. 24).

Fig. 24 Defence spending and growth



EU military spending has recently accelerated sharply. This introduces a new source of debt creation. However, the impact of military spending on income growth can be significant.

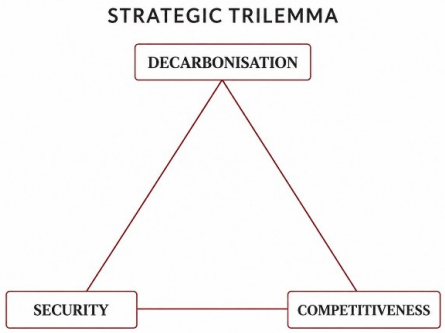
Fig. 25 Defence spending. Is Europe accelerating?



Two considerations emerge from this brief overview. Examining the status of the various *missions* Europe intends to undertake reveals elements that could form part of a sustainability compact (public goods, NGEU, Saving Investment Union, though not yet safe assets); however, moving towards a compact with the characteristics discussed previously requires further investment efforts as well as the introduction of various policies within an integrated framework

The need to act on all these missions presents the EU with a strategic trilemma**.** (see Fig. 26**)**

Fig. 26 The strategic trilemma



The trilemma indicates that the three European objectives cannot be fully pursued, but the implementation of the debt compact would make a significant contribution to this objective by improving the trade-offs.

12 Conclusions

The global system has entered a governance crisis, triggered by the unilateral decisions of two of its key players. The resulting crisis is characterised by widespread commercial, financial and geopolitical fragmentation. This has led to a decline in long-term growth, which will require substantial investment and the creation of new debt to address the new structural imbalances and to revitalise competitiveness and environmental sustainability. Furthermore, the new geopolitical landscape necessitates a significant increase in defence spending. It is legitimate to ask whether and how the resulting debt can be sustainable. The weaker the governance, the greater the pressure on debt. However, fragmentation – largely irreversible – paves the way for new governance regimes. We can envisage three scenarios, limiting ourselves to considering the role of trade and defence.

The literature on global governance systems has made it clear that a sustainable international regime – that is, a cooperative agreement – requires addressing economic and security aspects simultaneously. The nature of this interplay varies, however, depending on the parties involved. With countries with which relations are partly conflictual, and therefore subject to high uncertainty, any agreements will be complex and based on scant mutual trust. With allied countries – with whom long-standing, often bilateral relationships are established, but which also belong to 'club goods' agreements and permanent alliances – it is more productive to adopt a long-term strategic vision. With 'intermediate' countries, with whom relations are more unstable, it will be useful to adopt a pragmatic, case-by-case approach. Where bilateral relations are equal, relative economic and security dimensions will carry weight. In this case, a larger country may play a hegemonic role, or at least a leadership role. China represents a special case, given the strong momentum of its growth and its technological competitiveness.

A similar line of reasoning also applies to monetary and financial relations, particularly where a key currency (dollar, euro, yuan) is present, around which processes of aggregation may form.

Europe, which must strengthen its governance and avoid the risks of fragmentation, currently finds itself in an intermediate position between seeking and strengthening alliances (second case) and adopting a pragmatic approach (third case).

All this requires a significant increase in debt to finance the various initiatives that need to be undertaken. An initial response to these dilemmas and the ability to resolve them is provided by the trend in the r-g variable (interest rate minus growth rate), which must be negative to ensure debt sustainability.

Europe, which continues to show lower growth than the US, must, in addition to making substantial efforts to boost competitiveness, strengthen its institutional debt management framework, based on a compact comprising four pillars: NGEU, Safe Assets, European Public Goods, and the Savings and Investment Union; which, through their interaction, strengthen the conditions for sustainability by boosting income growth and reducing interest rates in the long term. These changes are driven by institutional strengthening

If implemented correctly, such a strategy would represent a response typical of the European tradition, based on institutional adjustments to tackle a crisis. In this case, however, greater leadership will be required than has been seen so far, given the complexity and scale of the shocks that will need to be addressed. In other words, the aim is to launch a positive response to a crisis of collective action – both European and global – by drawing on the willingness of EU member states to adjust their preferences and maintain a shared long-term perspective, conditions that are all the more necessary in the absence of adequate leadership within the Union.

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