Funcas Intelligence

NEW SHOCKS, OLD VULNERABILITIES

Energy Shock and Central Bank Caution

Private Credit

Trump and NATO

Issues in European Defense Spending (I)

Issues in European Defense Spending (II)

Tokenization in Europe

May 2026

funcas

Funcas Intelligence

NEW SHOCKS, OLD VULNERABILITIES

Energy Shock and Central Bank Caution

Private Credit

Trump and NATO

Issues in European Defense Spending (I)

Issues in European Defense Spending (II)

Tokenization in Europe

May 2026

Funcas Intelligence (FI) is a publication directed towards a broad base of international and Spanish readers. Funcas Intelligence´s focus is to identify and assess the game changers and relevant events of the global economy and the financial sector with potential impact for Spain.

FI is produced by the staff of Funcas under the direction and supervision of Managing Editors Ms. Alice Faibishenko and Mr. Juan Núñez-Gallego. We would like to especially thank Santiago Carbó Valverde for providing the views expressed in the article titled, *Energy Shock and Central Bank Caution.*

Contents

Energy Shock and Central Bank Caution

The Iran war tests the soft-landing narrative

→ The Iran war has shifted the early-2026 macro-financial debate from disinflation and rate cuts toward energy security, inflation risk and financial resilience.

→ The Fed and the ECB have both responded with caution, keeping rates broadly unchanged, while markets absorb higher oil prices, disrupted energy flows and uncertainty over the Strait of Hormuz.

United States: Powell's last meeting, a Fed pause, and Warsh on deck
The Federal Reserve kept the federal funds target range unchanged at 3.50%–3.75% at its late-April meeting, extending the pause that followed the rate cuts delivered in late 2025. The decision reflects a more complex policy environment. Growth remains resilient, but the Iran war has lifted energy prices and revived inflation risks.

This was also Jerome Powell's final FOMC meeting as Chair, although he also announced that he will remain as a governor at the Fed. Powell emphasized continuity, reiterating that policy would remain data-dependent and that the Fed is well-positioned to respond if risks materialize in either direction. Markets are already preparing for the arrival of Kevin Warsh, whose appointment signals a new phase in the Fed's leadership and potentially a recalibration of its communication style.

For the Fed, the key dilemma is that the energy shock is both inflationary and potentially growth-negative. Cutting rates too early could entrench inflation expectations; maintaining a restrictive stance for too long could amplify the drag from weaker real incomes and confidence.

For the Fed, the key dilemma is that the energy shock is both inflationary and potentially growth-negative

Euro Area: ECB holds again in April as energy risks reshape the outlook
The ECB also maintained its policy stance at its late-April meeting, keeping the deposit facility at 2.00%, and reinforcing its "wait-and-assess" approach. However, the tone of the meeting marked a subtle but important shift compared to earlier in the year.

While inflation remains relatively close to target, the Governing Council explicitly acknowledged that the escalation of the Iran conflict has reintroduced upside risks to inflation via energy prices, while simultaneously weakening the growth outlook. In this sense, the ECB faces a renewed stagflationary trade-off, albeit milder than in previous cycles.

For the ECB, the escalation of the Iran conflict has reintroduced upside risks to inflation via energy prices, while simultaneously weakening the growth outlook

Communication in April suggested that the ECB is now less confident about the timing of any near-term rate cuts. What had been seen as a likely easing move in Q2 has become more conditional, dependent on whether the energy shock proves temporary or persistent.

Depending on the Iran conflict developments, the next ECB meeting in June could even potentially see an increase in interest rates

The euro area's structural exposure to imported energy makes it particularly sensitive to developments in the Strait of Hormuz. Rising oil and LNG (Liquefied Natural Gas) prices are already affecting cost structures and external balances, especially in more energy-dependent economies. As a result, the ECB is likely to prioritize policy credibility and inflation anchoring, even at the cost of weaker short-term growth. For this reason, depending on the Iran conflict developments, the next ECB meeting in June could even potentially see an increase in interest rates.

Global markets: Initial shock followed by surprising resilience except in energy markets

Financial markets reacted negatively at first to the escalation in Iran and the threat to Gulf energy routes. Oil prices surged, volatility increased, and equities sold off in the immediate aftermath However, by late April and early May, stock markets have shown notable resilience. U.S. indices recovered quickly, supported by strong corporate earnings, particularly in technology, and by investor expectations that the conflict may remain contained. European equities have also stabilized, despite greater exposure to energy shocks.

Markets appear to be pricing in a scenario in which disruption to the Strait of Hormuz remains limited

This resilience is striking but fragile. Markets appear to be pricing in a scenario in which disruption to the Strait of Hormuz remains limited. That assumption is now central. A prolonged or full closure would have far more severe implications for inflation, global trade and financial stability.

Energy markets remain the primary transmission channel. Oil prices have risen significantly and remain highly sensitive to geopolitical developments, while natural gas markets are tightening again. Precious metals continue to benefit from safe-haven demand, and currency markets reflect a balance between risk aversion and shifting monetary expectations.

A soft landing under geopolitical stress

The May 2026 environment is no longer just about monetary normalization, it is about whether central banks can maintain credibility while navigating a renewed supply shock

The May 2026 environment is no longer just about monetary normalization. It is about whether central banks can maintain credibility while navigating a renewed supply shock. The Iran war has reintroduced supply-driven inflation risks at a time when growth was already moderating. Both the Fed and the ECB are therefore likely to remain cautious, delaying further easing until there is greater clarity on the persistence of energy price pressures.

Markets, for now, are betting on resilience, supported by contained disruption, stable policy, and continued earnings strength. But the equilibrium is delicate. The key uncertainty remains the Strait of Hormuz. If tensions ease and energy flows normalize, the soft-landing narrative could survive. If not, 2026 may quickly shift toward a more challenging scenario, where inflation and growth

tensions re-emerge simultaneously, testing both markets and monetary policy frameworks once again.

Private Credit

The hidden leverage behind the next credit squeeze

→ Early loan failures ("cockroaches") are likely signals of broader hidden stress in private credit, where high leverage—rather than the asset class itself—combined with opaque valuations and weak underwriting amplifies underlying vulnerabilities.

→ The most likely outcome is not a systemic crisis but a gradual credit squeeze, as these risks surface slowly and constrain lending, weighing on growth over time, particularly in Europe.

Introduction

The global private credit market has grown rapidly, becoming a core source of non-bank lending for middle-market companies, especially as banks have retreated from riskier lending segments

The global private credit market has grown rapidly, with estimates ranging from $1.75 trillion to over $3 trillion.[1,2] It has become a core source of non-bank lending for middle-market companies, especially as banks have retreated from riskier lending segments.

However, the sector remains opaque. Limited disclosure and the absence of market-based pricing make it difficult to assess the distribution and magnitude of risks, causing banks to be more cautious.

In recent months, senior market participants have revived the "cockroaches" analogy—popularized by JPMorgan CEO Jamie Dimon —to describe how isolated loan defaults in opaque credit markets may signal broader, hidden stress. The idea is that seeing one "cockroach" suggests many more are present but not yet visible, particularly in segments such as private credit where transparency is limited.[3]

From boom to emerging stress

Private credit expanded rapidly after the Global Financial Crisis of 2008. In a low-rate environment, capital flooded into direct lending, often financing leveraged buyouts with increasingly borrower-friendly terms.[4] Competition among lenders led to higher leverage multiples, more optimistic assumptions about growth and valuations, weaker creditor protections, and structural features, such as payment-in-kind (PIK) interest.[5]

Higher interest rates, weaker growth, geopolitical volatility and structural changes are exposing vulnerabilities and could amplify cyclical risks

That environment has now shifted. Higher interest rates, weaker growth, geopolitical volatility, and structural changes, including AI disruption threatening software companies that represent 23% of private credit portfolios, are exposing vulnerabilities and could amplify cyclical risks.[6,7]

Investor redemption requests have risen sharply, with numerous non-traded funds approaching or exceeding their 5% quarterly limits, creating a pipeline of unfulfilled requests.[8] The increased use of PIK structures suggests that some borrowers are struggling to meet cash obligations, effectively deferring payments rather than servicing debt.[9]

Market-based signals reinforce these concerns: publicly traded Business Development Companies (BDCs) are trading at an average 25% discount to net asset value, their widest margin since late 2020, indicating investor skepticism about valuations.[10] Meanwhile, refinancing risks are increasing for loans originated under more favorable conditions, as higher rates and weaker growth challenge earlier assumptions.[11] Lenders, in turn, are demanding higher risk premia, reflecting a broader assessment of credit risk.[12]

Leverage and underwriting vulnerabilities

The most important vulnerability in private credit is elevated leverage combined with weakened underwriting standards during the expansion phase.

The most important vulnerability in private credit is elevated leverage combined with weakened underwriting standards during the expansion phase

While newer loans originated under tighter conditions may prove more resilient, older vintages —from 2020 to 2022— remain highly susceptible to refinancing risk.

Highly leveraged borrowers now face higher borrowing costs, lower valuations, and reduced credit availability, increasing the likelihood of restructuring or gradual deleveraging.[13]

Liquidity, valuations, and correlation risks

Liquidity mismatches, valuation opacity, and portfolio concentration amplify risks in private credit: redemption limits constrain lending as funds manage illiquid assets, delayed loss recognition obscures true valuations, and concentrated exposure—particularly to software and private equity-backed firms—heightens vulnerability to sector-specific shocks.

These dynamics suggest that risks may materialize slowly but broadly, particularly if refinancing conditions continue to tighten.

Current dynamics suggest that risks may materialize slowly but broadly, particularly if refinancing conditions continue to tighten

Transmission to the real economy

As funds face rising redemption requests, valuation uncertainty, and weaker borrower performance, they are likely to reduce new lending and adopt more selective underwriting standards. This contraction in credit supply directly affects mid-sized firms, which have limited access to alternative financing.

For these firms, tighter credit conditions translate into higher borrowing costs or reduced access to funding altogether. In response, they are likely to scale back investment and, in some cases, employment.

The result is a gradual, persistent drag on economic activity, consistent with a slow credit squeeze rather than a sudden shock.

The result is a gradual and persistent drag on activity, consistent with a credit squeeze rather than a shock

Europe *versus* the United States

The private credit market is heavily concentrated in the United States. U.S. assets under management total roughly $1.3-1.4 trillion, around three to four times larger than Europe's €430 billion market.[14] Fundraising and fund domicile are similarly skewed.

Despite its smaller size, the adjustment is likely to be more challenging in Europe due to structural factors. The United States benefits from a unified legal and bankruptcy framework, established restructuring frameworks such as Chapter 11, and deeper capital markets that offer alternative financing sources for firms. These features facilitate faster and more orderly resolution of distressed debt.

By contrast, Europe's market is more fragmented across national insolvency regimes, judicial systems, tax structures, and creditor-rights frameworks.[15] Cross-border restructurings are slower, more uncertain, and more costly. Europe has weaker and more heterogeneous restructuring frameworks. Restructuring procedures vary widely across countries in terms of speed, court involvement, creditor hierarchy, and enforcement capacity.[16] Europe also has less developed capital markets and lower market depth, leaving middle-market firms more dependent on bank and private credit financing.[17]

While the U.S. system can partially absorb the adjustment through alternative funding sources, European firms face tighter constraints, increasing the likelihood of prolonged deleveraging and weaker investment.

In this context, a contraction in private credit supply would have a more pronounced impact in Europe, leading to slower adjustments, longer restructuring processes, and potentially stronger effects on investment and growth.

Systemic risk or contained adjustment

There is an ongoing debate about the systemic importance of private credit.

Some policymakers emphasize risks related to opacity, leverage, and liquidity mismatches as a threat to financial stability.[18] Others argue that the sector does not currently pose a systemic threat and, as it has, so far, acted as a counter-cyclical backstop, expanding when leveraged loan markets tighten and helping stabilize credit supply.[19]

In practice, these positions reflect different interpretations of the same underlying issue: whether current "cockroaches" are isolated or indicative of broader hidden leverage across the system.

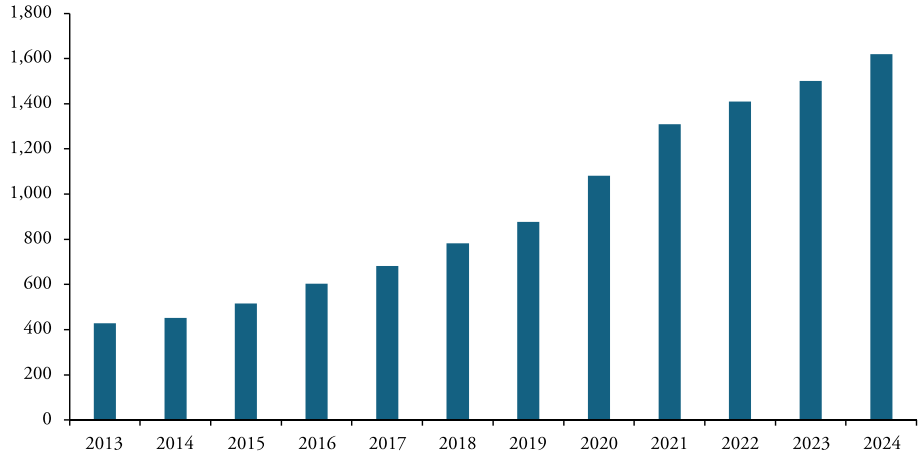
Conclusion

The private credit sector is unlikely to collapse in a systemic event, though it would be economically meaningful. Private credit remains relatively contained within the larger financial system, with less reliance on short-term funding.[20] Moreover, risks are expected to emerge slowly and indirectly.

The most plausible scenario is a gradual tightening of credit conditions. Lending will slow as funds manage redemptions and reassess risk. Refinancing becomes more difficult for leveraged borrowers. There will likely be a heightened focus on certain sectors, software, other AI-exposed sectors, and insurance. The cumulative effect could weigh on investment and employment over multiple years, especially in Europe, where structural features may amplify adjustment dynamics.

Even if the "cockroaches" remain contained, their presence may still matter. The cumulative effect could be a sustained headwind to growth, especially in Europe, where structural features may amplify adjustment dynamics.

EXHIBIT 1.0 – GROWTH IN THE PRIVATE CREDIT MARKET, 2014-2024 (USD BILLIONS)



Source: UBS Asset Management.

Notes

[1] https://flow.db.com/topics/trust-and-securities-services/private-credit-a-rising-asset-class-explained#:~:text=Private%20credit%20is%20non%2Dbank,of%20lenders%2C%20and%20the%20borrower.

[2] https://www.goldmansachs.com/pdfs/insights/goldman-sachs-research/cracks-in-private-credit/TOM_private%20credit_Redacted.pdf

[3] https://www.nytimes.com/2026/03/14/business/private-credit-jamie-dimon-cockroaches.html

[4] https://www.ft.com/content/520dd246-89a6-4902-9a76-26b54adc91e9

[5] *Ibid.*

[6] https://www.funcas.es/wp-content/uploads/2026/02/8-Cuadros-15-1-1.pdf

[7] https://www.goldmansachs.com/pdfs/insights/goldman-sachs-research/cracks-in-private-credit/TOM_private%20credit_Redacted.pdf

[8] https://www.bloomberg.com/news/articles/2026-03-26/trapped-in-private-credit-investors-wait-to-pull-out-5-billion

[9] https://www.ft.com/content/520dd246-89a6-4902-9a76-26b54adc91e9

[10] https://www.reuters.com/legal/transactional/private-credit-funds-shares-trade-steep-discounts-concerns-grow-2026-04-22/

[11] https://www.ft.com/content/520dd246-89a6-4902-9a76-26b54adc91e9

[12] https://www.ft.com/content/47606fe2-108e-4a71-ba2b-9e1b779edda8?syn-25a6b1a6=1

[13] https://www.ft.com/content/520dd246-89a6-4902-9a76-26b54adc91e9

[14] https://www.morganstanley.com/im/es-es/intermediary-investor/insights/articles/investing-in-european-private-credit.html#:~:text=European%20private%20credit%20AUM%2C%202013%2D2023%20($%20billion),-DISPLAY%201&text=DISPLAY%201-,Source:%20Preqin%20data.,Private%20Credit%20to%20their%20portfolios.

[15] https://www.europarl.europa.eu/RegData/etudes/STUD/2025/775947/IUST_STU(2025)775947_EN.pdf

[16] *Ibid.*

[17] https://finance.ec.europa.eu/regulation-and-supervision/savings-and-investments-union/factsheet-breaking-down-barriers-integrate-financial-markets_en

[18] https://www.reuters.com/legal/transactional/ecb-sees-private-credit-risk-financial-stability-de-guindos-says-2026-04-21

[19] https://www.aresmgmt.com/news-views/perspectives/has-private-credit-been-tested#:~:text=Private%20credit's%20counter%2Dcyclical%20lending,financing%20evaporates%20during%20economic%20disruptions.

[20] https://www.goldmansachs.com/pdfs/insights/goldman-sachs-research/cracks-in-private-credit/TOM_private%20credit_Redacted.pdf

Trump and NATO

Low exit risk amid rising retaliation dynamics

→ U.S. President Donald J. Trump is unlikely to pull the United States out of NATO, as the war with Iran has underscored the limits of unilateral action, highlighting the continued importance of allied support.

→ Paradoxically, the same conflict has materially increased the likelihood of retaliation, as segments of Trump's support base that once defended NATO have grown more critical—particularly in response to European allies restricting U.S. access to military bases.

Under our base case scenario, U.S. President Donald J. Trump will not leave NATO. A NATO exit is legally and procedurally complicated, albeit in theory possible. Moreover, the U.S. – Iran war has shown Trump the limits of acting in isolation. According to political strategists in the United States, after a seemingly effortless victory in Venezuela, the recent conflict in Iran has shown that without allies, it is much harder to keep the Strait of Hormuz open, build coalitions, and share the burdens of war.

However, the domestic political equilibrium underpinning U.S. support for NATO is shifting, particularly within the Republican Party. Frustration toward European allies among segments of Trump's Republican base that were historically supportive of NATO has intensified, particularly in response to restrictions on U.S. access to bases and overflight rights during recent military operations targeting Iran.[1] As a result, while exit remains improbable, the risk of retaliation against allies has increased as the war has weakened the political opposition to such a move.

Strategically, the U.S.-Iran war shows Trump why the United States needs allies, which argues against exit. Politically, the war has also eroded pro-NATO support within his own party, raising the risk of retaliation, as Trump would face less opposition.

Strategically, the U.S.-Iran war shows Trump why the United States needs allies, which argues against exit, while politically, the war has also eroded pro-NATO support within his own party, raising the risk of retaliation

Feasibility of leaving NATO

Legally and procedurally, the United States can leave NATO, but it would not be simple. It is legally possible for the United States to withdraw from NATO because the alliance is treaty-based and under international law, a state can exit a treaty it has ratified. However, the process is not straightforward. The U.S. Constitution makes it clear that the U.S. Congress ratifies treaties, but it does not specify whether a president can unilaterally withdraw from treaties without Congressional consent.[2] This ambiguity creates a high likelihood of legal challenges to block a U.S. withdrawal. The Supreme Court would likely

ultimately have to decide the case, and it has never addressed this kind of treaty withdrawal case before.[3] Trump may not care about lawsuits or norms, but these frictions would prevent a fast and clean hard exit.

The United States also has binding obligations to its allies that cannot be easily unwound without diplomatic and strategic consequences. NATO is deeply integrated into U.S. defense architecture, meaning withdrawal would require renegotiating or terminating numerous agreements. Logistically, the United States maintains bases, facilities, troops, and equipment across Europe that are interoperable with NATO operations and needs and pursuant to NATO frameworks.[4] Disentangling assets and bringing U.S. troops home would be costly and time-consuming.

How the U.S.-Iran war reframed the NATO question

Trump publicly portrays NATO as "useless" to the United States in this war. He claims NATO allies are of little to no help to support U.S. military operations in Iran, even though Europe would stand to benefit if the United States won the war or secured the reopening of the Strait of Hormuz. The war demonstrates the costs of unilateralism. For example, Iran effectively shut down the Strait of Hormuz, and the United States requested support from allies for naval protection, burden sharing, and coordination.[5] This creates a core contradiction. According to Trump's narrative, NATO looks weak and ineffective. Yet for U.S. strategy, the war proves the value of allies and the difficulty of going it alone.

The U.S. – Iranian war fuels Trump's rhetorical case against NATO and simultaneously reveals why a full exit would be strategically reckless and operationally challenging

Thus, the U.S. – Iranian war fuels his rhetorical case against NATO and simultaneously reveals why a full exit would be strategically reckless and operationally challenging.

Base politics and the shift in Republican support

Historically, there were Republicans who simultaneously supported Trump and NATO. This faction was a check on any move to leave the security alliance. Now, some of these pro NATO Republicans, such as war hawk Republican Senator Lindsay Graham, are frustrated at NATO because some of its members refused or restricted U.S. access to bases for this war, arguing they have effectively constrained the United States.[6] Perceptions in Washington of limited cooperation from key allies stem from concrete operational constraints: Spain refused to allow U.S. forces to use its Rota and Morón bases and closed its airspace to U.S. aircraft, while the UK initially delayed or restricted the use of its bases for offensive operations, framing its support more narrowly around defensive and maritime security roles. According to media sources, discussions within the Pentagon indicate that retaliation could take targeted political and operational forms, differentiated by country. In the case of Spain, options reportedly discussed within the Pentagon include suspending "difficult" allies from key NATO roles or influence. For the United Kingdom, pressure would likely be more geopolitical and symbolic—such as reviewing the U.S. position on British sovereignty over the Falkland Islands—signaling that even close allies are not immune from conditional support. More broadly, such measures could be complemented by reduced access to NATO decision-making forums,

increased public criticism, and a more transactional approach to security guarantees, without altering formal alliance structures.

Thus, while Trump is unlikely to pull the United States out of the security alliance, the pro-NATO firewall in the Republican Party has been weakened and thus raises the prospects for retaliation. However, the firewall has not been destroyed. Roger Wicker and Mike Rogers, Republicans who chair the Senate and House Armed Services Committees, respectively, expressed their concern with Trump's recent decision to withdraw 5,000 U.S. troops stationed in Germany to punish Germany and, more broadly, Europe for Chancellor Friedrich Merz's comment that the United States had been "humiliated" by Iranian negotiators.[7]

While Trump is unlikely to pull the United States out of the security alliance, the pro-NATO firewall in the Republican Party has been weakened, raising the prospects for retaliation

Nevertheless, retaliation will be constrained by NATO's structure. Expelling members would be extremely difficult. The case of Turkey is instructive: despite serious disputes—including Ankara's purchase of the Russian S-400 system, tensions over Syria, and broader governance concerns—there has been no mechanism to suspend or expel it.[8] Instead, responses have been indirect, such as sanctions outside NATO, limits on intelligence-sharing, and political pressure, while membership remained unchanged. This suggests that any action against allies like Spain or the United Kingdom would likely follow a similar pattern, including informal and selective measures such as reduced cooperation, loss of influence within NATO structures, or geopolitical signaling, rather than formal exclusion.

Conclusion

Despite frustration with the alliance, exacerbated by the current conflict with Iran, the base case is that the United States will not leave NATO. That said, current political support within the U.S. towards NATO is waning, particularly among former Republican supporters, making alliance weakening and retaliation, albeit within limits, a higher probability event.

Notes

[1] https://thehill.com/homenews/senate/5794447-graham-trump-iran-us-bases-middle-east/

[2] https://www.reuters.com/business/aerospace-defense/can-trump-pull-us-out-nato-2026-04-01/

[3] https://www.congress.gov/crs-product/R48868

[4] https://english.elpais.com/international/2026-04-11/the-united-states-needs-europe-and-nato-despite-trumps-onslaught.html#:~:text=In%20total%2C%20the%20U.S.%20has,is%20headquartered%20in%20Stuttgart%2C%20Germany.

[5] https://www.nytimes.com/2026/03/17/world/europe/operation-aspides-strait-hormuz.html

[6] https://thehill.com/homenews/senate/5794447-graham-trump-iran-us-bases-middle-east/

[7] https://www.bbc.com/news/articles/cewpx5yvwyxo

[8] https://www.aei.org/op-eds/turkey-humiliated-nato-if-nato-cant-expel-it-heres-plan-b/#:~:text=Turkey's%20blackmail%20of%20the%20North%20Atlantic%20Treaty,his%20own%20image%20during%20his%2021%2Dyear%20dictatorship

[9] https://federalnewsnetwork.com/budget/2026/04/trumps-budget-director-defends-white-house-plan-for-massive-boost-in-military-spending/

Issues in European Defense Spending (I)

New defense technologies: The shift from platforms to software

→ Europe's move toward software-driven defense systems has raised long-term costs and deepened reliance on U.S. technology.

→ Europe's challenge is no longer the size of its defense budget, but in building domestic digital capacity and institutional structures that can turn software investment into tangible military power.

Introduction

Europe's growing investment in defense technologies is not translating into proportional gains in deployable military capability. The shift away from traditional hardware platforms toward AI, digital systems, and data integration has redefined the cost structure of defense and deepened reliance on U.S. technology.[1]

The surge in defense spending is not translating into proportional gains in deployable military capability

The new cost structure of defense

The shift toward software-intensive defense fundamentally alters defense cost structures. Traditional platforms involve high upfront procurement costs followed by relatively predictable lifecycle expenses. By contrast, AI-driven and digital systems require continuous investment.

Highly specialized talent in AI, cybersecurity, and data science is scarce and expensive. Computer infrastructure, particularly cloud services and high-performance processing, must be constantly maintained and upgraded. Data acquisition, storage, and management are ongoing requirements, while system integration across complex networks introduces additional layers of cost and technical risk. Digital integration and software capabilities are becoming dominant cost drivers in modern militaries.

Digital integration and software capabilities are becoming dominant cost drivers in modern militaries

These are not one-time expenditures. They are recurring financial commitments that scale with operational use. As a result, defense budgets are increasingly absorbed by maintenance, updates, and integration rather than the acquisition of new hardware. Digital integration and software capabilities are becoming dominant cost drivers in modern militaries. And rising European defense spending has not consistently translated into equivalent capability gains, in part due to these structural shifts.

Rising dependence on U.S. technology

This transformation deepens Europe's dependence on external suppliers, capabilities, and ecosystems, particularly the United States, reinforcing both

cost pressures and strategic constraints.[2] Critical components of AI-enabled defense systems, including cloud infrastructure, advanced semiconductors, and key software platforms, are dominated by U.S. firms. There is no European substitute today for Palantir-class targeting and ontology software, Starlink-grade resilient communications, NVIDIA-class AI computing, or hyperscale sovereign cloud (AWS, Microsoft Azure, Google Cloud). This reliance increases long-term costs through proprietary ecosystems while limiting Europe's control over data governance, cybersecurity, and system resilience.

Ukraine benefits significantly from access to U.S. tech infrastructure, including cloud computing, data storage, and data transmission infrastructure.[3] Ukraine's drone armies are successfully pushing back against Russia, even though Russia has a decisive advantage in terms of expensive kit (fighters, bombers, missiles, etc.)[4]. It would suffer significantly if it lost access. Europe is in a similar boat. Building comparable infrastructure would require large amounts of chips, energy, and technology that neither Ukraine nor the EU has.

The relevant policy question is therefore not whether to buy from the United States, but on what terms. Framed honestly, autonomy is not a binary state but a negotiated dependency – one that Europe has, so far, negotiated weakly. Duplication across national programs and limited coordination continue to undermine efficiency. The result is a structural mismatch: increased spending flows into a system that is not optimized to convert resources into scalable, integrated capabilities.

Conclusion

Without reforms to procurement, industrial coordination, and technological integration, higher spending alone will not resolve the capability gap

The constraint on European defense is no longer primarily financial but institutional. Without reforms to procurement, industrial coordination, and technological integration, higher spending alone will not resolve the capability gap.

Policymakers will need to adapt institutions to the realities of software-driven defense to ensure that rising budgets translate into effective, deployable military power. Concretely, that means three things: shifting a meaningful share of national procurement budgets into joint, software-led programs run through the European Defense Agency or NATO frameworks; building EU-level reference architectures for command-and-control, data, and AI on which national systems must interoperate; and treating software, data, and digital talent as core defense assets – budgeted, audited, and reported alongside platforms.

Unless there are institutional reforms, more spending will continue to mean more opacity, not more capability.

Notes

[1] https://acquinox.capital/insights/space-and-defense-tech/the-economics-of-modern-defense-how-tech-innovation-is-remapping-global-military-spending

[2] https://www.kielinstitut.de/publications/news/despite-billions-in-spending-europes-military-build-up-risks-falling-short/#:~:text=In%20addition%20to%20joint%20procurement,systems%20into%20operation%20more%20rapidly.

[3] https://www.atlanticcouncil.org/content-series/the-big-story/the-coming-compute-war-in-ukraine/

[4] https://www.atlanticcouncil.org/blogs/ukrainealert/ukraine-is-winning-the-drone-war-with-strike-campaign-behind-russian-lines/

Issues in European Defense Spending (II)

Price inflation: Not enough capacity to cover the surge in demand

→ A surge in defense demand following Russia's invasion of Ukraine collided with limited industrial capacity, driving inflation and preventing increased spending from translating into proportional gains in deployable power.

→ Supply constraints, coupled with increased armament costs, have turned financial efforts into diminishing returns.

Introduction

Russia's invasion of Ukraine in 2022 triggered a demand surge for defense material.[1] The sharp rise in European defense budgets exposed a critical weakness: the continent lacks sufficient industrial capacity to absorb a rapid surge in demand. Inflationary pressures and supply bottlenecks have undermined the translation of increased defense spending into usable military capability.[2]

Demand shock

After the Russia-Ukraine war started, European governments moved quickly to replenish depleted stockpiles, particularly in ammunition, air defense systems, and precision-guided munitions.[3] However, this surge occurred after decades of underinvestment in defense manufacturing capacity.[4] Production systems were unable to scale at the required pace, leading countries to compete for limited output rather than to benefit from coordinated procurement.

Industrial limitations – not funding – have become one of the primary obstacles to strengthening European military capabilities

Industrial limitations – not funding – have become one of the primary obstacles to strengthening European military capabilities. Scaling up production requires long-term investment, workforce expansion, and supply chain restructuring, none of which can be achieved quickly.

Supply constraints

Structural bottlenecks have led to significantly longer lead times, with some major systems facing delivery delays of several years

The EU's effort to supply Ukraine with artillery shells revealed severe production capacity constraints, with output initially falling far short of targets.[5] But supply-side constraints extend beyond ammunition. Missile production is limited by complex, multi-tiered supply chains that rely on thousands of scarce components.[6] Advanced electronics depend heavily on global semiconductor markets, leaving European defense firms exposed to external disruptions. At the same time, labor shortages, particularly in specialized engineering and technical roles, further restrict output. These structural bottlenecks have led to significantly longer lead times, with some major systems facing delivery delays of several years.[7]

Increased armament costs

Europe is transitioning toward technologically sophisticated military systems, including drones, cyber capabilities, AI-enabled platforms, and precision-guided munitions. These systems depend on scarce high-end components and highly specialized labor embedded in vulnerable global supply chains, creating persistent upward pressure on costs.[8]

Defense inflation dynamics

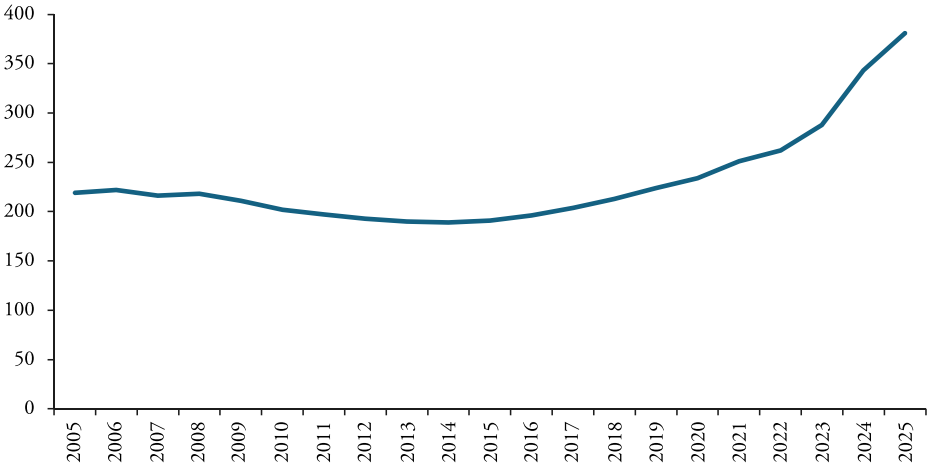
The result has been a form of defense inflation, where increased spending does not translate proportionally into increased capability. Rising unit costs reduce the quantity of equipment that governments can procure, while delays undermine operational readiness. Heightened demand combined with constrained supply has driven price increases across multiple categories of military equipment. In practical terms, this means that even historically large budget increases are partially absorbed by higher costs rather than generating new capabilities.[9]

The result has been a form of defense inflation, where increased spending does not translate proportionally into increased capability

Conclusion

Addressing these challenges requires institutional reform. Greater coordination at the EU-level, targeted investment in industrial capacity to expand production and shorten lead times, and a balanced focus on both high-end systems and scalable technologies can convert growing defense budgets into real military capability. Without such changes, Europe risks entrenching a system in which higher spending continues to yield diminishing returns.

EXHIBIT 2.0 – EU DEFENSE EXPENDITURE, 2005-2025 (EXPENDITURE IN BILLIONS OF EUROS)



Source: The Council of the EU.

EXHIBIT 3.0 – TOP 10 EUROPEAN DEFENSE COMPANIES BY REVENUE, 2024
(MILLIONS OF U.S. DOLLARS)

Company	Country	Revenue	Global Ranking
BAE Systems	United Kingdom	32,260	6
Thales	France	15,901	10
Leonardo	Italy	13,823	13
Airbus	European	12,705	14
Rheinmetall AG	Germany	8,245	18
Rolls-Royce	United Kingdom	5,698	25
Saab	Sweden	5,542	26
MBDA	European	5,305	27
Safran	France	5,198	29
Naval Group	France	4,761	32

Note: Currency values reported in non-U.S. denominations were converted to U.S. dollars using the IRS annual average exchange rates for 2024.

Source: Defense News.

Notes

[1] https://sjms.nu/articles/303/files/678f8f1f86df6.pdf

[2] https://carnegieendowment.org/research/2025/12/rebalancing-the-transatlantic-defense-industrial-relationship-regional-pragmatism-in-northeastern-europe#footnote-17

[3] https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20for%20Europe.pdf

[4] https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/immediate-steps-that-europe-can-take-to-enhance-its-role-in-nato-defense/

[5] *Ibid.*

[6] https://www.csis.org/analysis/europe-needs-asap-program-air-defense

[7] https://www.europarl.europa.eu/RegData/etudes/BRIE/2024/762320/EPRS_BRI(2024)762320_EN.pdf

[8] https://www.nationaldefensemagazine.org/articles/2026/2/9/defense-sector-inflation-threatens-to-eat-away-at-budget-plus-ups#:~:text=The%20big%20boosts%20in%20defense%20spending%20will,both%20create%20what%20is%20taught%20in%20every

[9] https://www.ntsa.org/news-and-archives/2026/2/9/defense-sector-inflation-threatens-to-eat-away-at-budget-plus-ups#:~:text=Defense%20Sector%20Inflation%20Threatens%20to%20Eat%20Away%20at%20Budget%20Plus%2DUps

Tokenization in Europe

Between strategic hesitation and systemic risk

→ Europe has built one of the world's most advanced regulatory frameworks for tokenized finance, but the real obstacles lie in entrenched financial infrastructures and the hidden systemic risks of digital liquidity.

→ Tokenization could strengthen Europe's capital markets, or trigger instability, depending on whether policymakers address fragmentation, information asymmetries, and the dangers of rapid adoption in illiquid asset classes.

Introduction

The development of tokenization in Europe is not only a technological challenge but is also shaped by political economy and financial risk. The regulatory framework is well-designed, but the ecosystem it seeks to transform remains driven by incumbent institutions that move cautiously to preserve their position. At the same time, the enthusiastic narrative that tokenization will "unlock liquidity" risks underestimating how quickly artificial liquidity can turn into systemic instability.[1]

Europe's challenge is twofold: to align entrenched institutional incentives with the goals of innovation, and to manage the financial risks that tokenization itself may amplify.

Europe's challenge is twofold: to align entrenched institutional incentives with the goals of innovation, and to manage the financial risks that tokenization itself may amplify

Europe's regulatory framework and fragmented market

The Distributed Ledger Technology (DLT) Pilot Regime gives market participants a controlled environment to test blockchain-based trading and settlement platforms.[2] In parallel, Markets in Crypto-Assets (MiCA) establishes a harmonized system for the issuance, custody, and exchange of crypto-assets.[3] Together, they aim to be a serious attempt to bridge regulation and experimentation.

Europe's market remains fragmented not just by technology, but by the incentive structures of its central securities depositories, notably Euroclear and Clearstream, which anchor the European post-trade system. Their role as custodians, clearinghouses, and settlement providers has long been underpinned by centralized infrastructure and steady fee income.[4] Tokenization challenges that model by making near-instant settlement and direct asset ownership possible.[5]

Europe's market remains fragmented not just by technology, but by the incentive structures of its central securities depositories, which anchor the European post-trade system

To manage this shift, both institutions have chosen strategic adaptation over disruption. Clearstream's DLT Securities Connectivity pilot, for example,

allows tokenized issuances to be recorded on a distributed ledger but finalized within the existing Clearstream banking infrastructure.[6] Similarly, Euroclear's Digital Financial Market Infrastructure platform in the DLT Pilot framework keeps central bank money settlement off-chain.[7] These designs demonstrate the cautious model: innovation that coexists with, rather than supplants, legacy architecture.

In this light, what policymakers label as fragmentation is really a by-product of strategic hesitation by actors that benefit from the current system. European incumbents are ensuring that new distributed systems remain interoperable with the old ones, preserving control, limiting disruption, and slowing the pace of transformation.[8] The result is a steady, careful evolution, not a disruptive transformation.

The liquidity illusion

The common policy assumption is that tokenization will improve efficiency by reducing transaction costs, broadening participation, and democratizing ownership, yet these benefits obscure a deeper risk: the illusion of liquidity.

The common policy assumption is that tokenization will improve efficiency by reducing transaction costs, broadening participation, and democratizing ownership, yet these benefits obscure a deeper risk: the illusion of liquidity

Tokenization is most attractive for illiquid asset classes, such as private credit, real estate, or infrastructure, where fractional tokens make high-value assets more accessible to investors.[9] Yet these assets are illiquid for structural reasons: they lack deep secondary markets, involve complex valuations, and often require long holding periods. Converting them into digital tokens does not change those fundamentals; it merely allows more frequent trading of claims on assets that remain hard to sell.[10]

Under normal conditions, this can foster an appearance of market depth. Under stress, however, it can magnify volatility. If investors try to liquidate holdings simultaneously, token markets will reprice sharply, because the underlying assets cannot be sold at the same speed. What appears as seamless digital liquidity may be a fragile interface hiding structural illiquidity.

Information asymmetries and exposure

Tokenization also reshapes information dynamics, heightening retail exposure. In traditional markets, trading hours, fund gates, and regulatory disclosures impose a rhythm that moderates panic. Tokenized markets, by contrast, operate 24/7, allowing instantaneous reaction to sentiment changes, sometimes triggered automatically by smart controls or programmatic redemptions.[11]

Tokenized markets operate 24/7, allowing instantaneous reaction to sentiment changes, sometimes triggered automatically by smart controls or programmatic redemptions

Retail investors entering tokenized private markets thus face an environment of real-time reflexivity: price declines trigger withdrawals, which execute automatically on-chain, further pushing prices down. Unlike traditional funds, there are few circuit breakers or supervised liquidity buffers to absorb shocks.[12] Fractional ownership also blurs accountability — many small holders acting simultaneously amplify volatility in ways institutional concentration historically mitigated.

Episodes, such as the "10/10 Flash Crash" in 2025, reflect how these technological and behavioral features combine.[13] Although the crisis occurred in the crypto sphere, it revealed how automated mechanisms, continuous trading, and fragmented disclosure can foster herd behavior and turn localized stress into widespread market contagion.

When success becomes systemic risk

Europe's greatest vulnerability may arise if tokenization succeeds too quickly, especially in illiquid asset classes that are unsuited to high-frequency trading. Widespread adoption could lead to large capital reallocations from regulated funds and deposits into tokenized vehicles promising higher yields. Rising inflows might inflate valuations, compress risk premiums, and ultimately form asset bubbles whose apparent liquidity disappears under pressure.

The technological layer adds further uncertainty: interoperability between blockchains, smart contract flaws, and cybersecurity vulnerabilities all compound systemic fragility in ways that are poorly understood today. Tokenization could thus shift risks from intermediaries to market infrastructure.

Conclusion

Europe stands at the frontier of digital finance, combining regulatory foresight with institutional depth. Yet its leadership will not be measured by how quickly it legalizes tokenization, but by how well it anticipates its consequences. The continent's established market infrastructures are pragmatic, proceeding with deliberation.

The real danger is not that tokenization will fail, but that it will succeed in the wrong areas, too fast, and without sufficient guardrails

The real danger is not that tokenization will fail, but that it will succeed in the wrong areas.

EXHIBIT 4.0 – COMPARISON OF THE DLT PILOT REGIME AND MICA FRAMEWORK

Dimension	MiCA	DLT Pilot Regime
Adoption Date	Adopted 2023; fully applicable from December 2024	Effective March 2023; extended through 2026
Policy Objective	Establish a single EU rulebook for issuance, custody, and trading of crypto-assets and service providers	Test the use of distributed ledger technology in trading and post-trade infrastructure under controlled conditions
Main Participants	Issuers of crypto-assets, stablecoins, and crypto-assets service providers	Regulated trading venues and central securities depositories experimenting with blockchain-based systems
Scope of Assets	Unbacked crypto-assets, asset-referenced tokens, and e-money tokens	Tokenized traditional financial instruments: shares, bonds, Undertakings for Collective Investment in Transferrable Securities
Duration and Limits	Permanent framework with binding requirements across all EU member states	Temporary (6 years, extendable); limited transaction volumes; sandbox under regulatory supervision
Limitations	Excludes tokenized securities and deposits (covered under other EU financial laws)	Restricted market participants; no retail investors; limited cross-border interoperability
Strategic Role	A harmonized regulatory backbone for Europe's crypto-asset and digital finance ecosystem	A controlled testbed bridging traditional finance and future digital infrastructures

Source: Funcas.

Notes

[1] https://www.garp.org/risk-intelligence/technology/tokenization-momentum-spreads-260123

[2] https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/dlt-pilot-regime

[3] https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/markets-crypto-assets-regulation-mica

[4] https://www.afme.eu/media/w42la5dt/afmetheroleofthecustodyindustry2025.pdf#:~:text=Custodians%20provide%20a%20means%20for,in%20order%20to%20facilitate%20settlement.

[5] https://www.bis.org/cpmi/publ/d225.pdf

[6] https://www.clearstream.com/clearstream-en/newsroom/251104-4757900

[7] https://www.euroclear.com/services/en/primary-issuance/digital-financial-market-infrastructure.html#:~:text=D%2DFMI%20is%20connected%20to,venues%20and%20liquidity%20management%20facilities.

[8] https://clearstream.com/caas/v1/media/4972364/data/f8479edfc9253e19a48a4f2ad9b27698/wp-building-the-path-towards-digital-asset-securities-operability.pdf

[9] https://www.sec.gov/files/ctf-written-antonio-lanotte-global-blockchain-business-council-051425.pdf

[10] https://www.fsb.org/uploads/P221024-2.pdf

[11] https://www.elibrary.imf.org/view/journals/068/2026/001/article-A001-en.xml#:~:text=Tokenization%20departs%20from%20this%20model,executed%20automatically%20without%20human%20intervention.

[12] *Ibid*.

[13] https://www.forbes.com/sites/greatspeculations/2026/02/17/why-the-1010-crypto-crash-still-haunts-bitcoin/

Notes

Funcas
Caballero de Gracia, 28
28013 Madrid
Spain
Phone: 91 596 54 81

publica@funcas.es
www.funcas.es

Funcas
Caballero de Gracia, 28
28013 Madrid
Spain
Phone: 91 596 54 81
publica@funcas.es
www.funcas.es

ISSN: 3045-7653
Depósito Legal: M-28731-2015