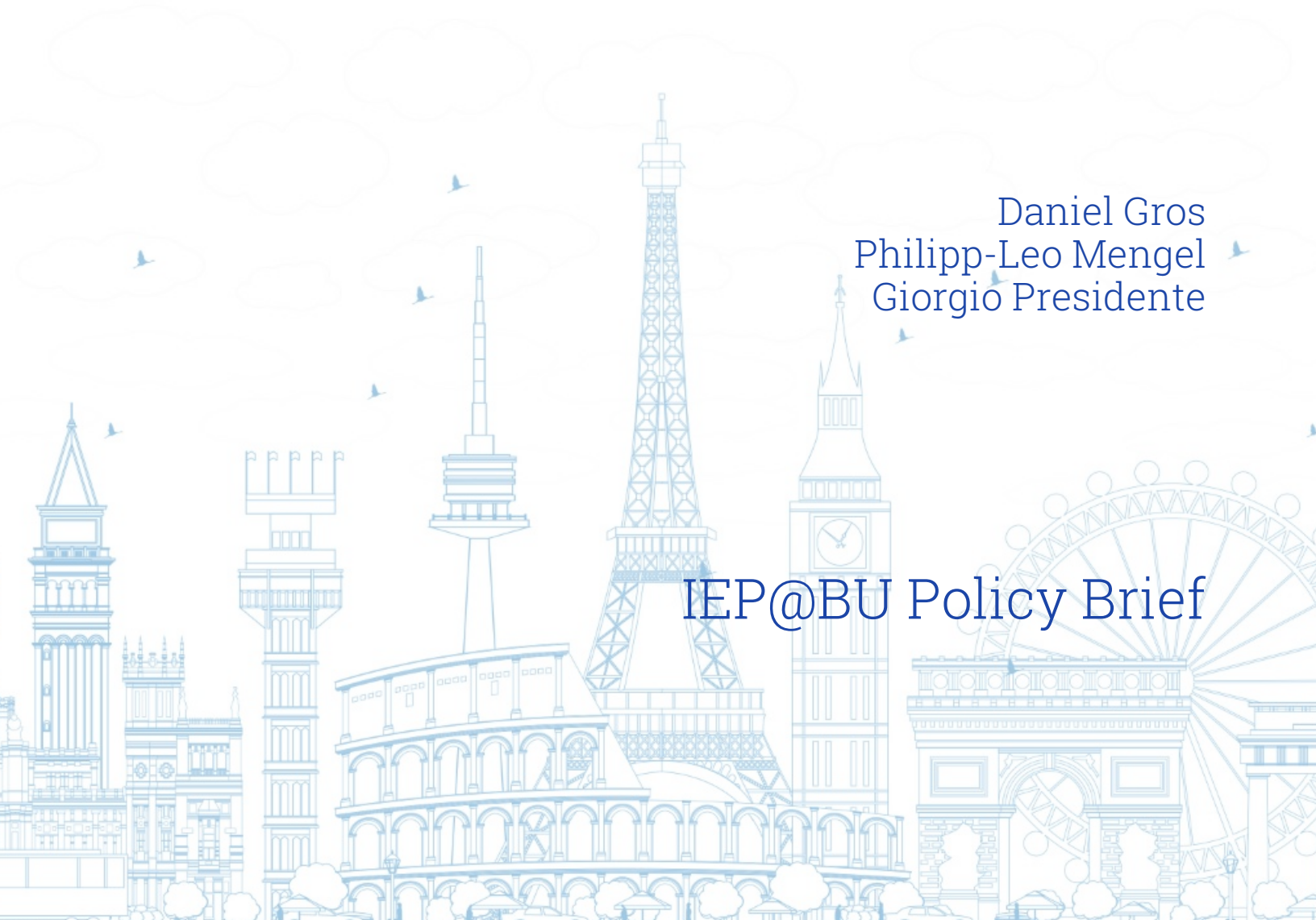


## WHAT INVESTMENT GAP? QUALITY INSTEAD OF QUANTITY

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## Executive Summary

A popular thesis in policy circles is that there is an “investment gap” that Europe needs to fill to face the great challenges of our times, such as the digital and green transitions [1, 8, 7, 9]. However, the notion of “investment gap” used by policymakers is often vague and therefore it risks to legitimate a wasteful allocation of public resources.

This policy brief examines investment data from different sources at varying levels of aggregation and reaches three main conclusions.

First, as a portion of of GDP, investment is higher in the EU than in the US. This is true for aggregate investment, as well as for three of its four components: dwellings, buildings & structures, and industrial machinery. The only category where the EU lags behind the US is in intangibles, mostly R&D and software development, where the gap is very large.

Second, this holds as well when focusing on investment levels in the business sector. Firms headquartered in the EU and in the US spend about the same on tangible capital. However, EU firms spend only 1/3 as much on R&D relative to firms in the US.

Third, the “R&D gap” is due to the high-tech industry in the EU being small compared to the US. The EU corporate sector specializes in mid-tech industries, such as automotive, with a lower propensity to invest in R&D [3].

Public guarantee programs like the 2014 Juncker Plan, or more recently InvestEU, finance mostly large-scale tangible investment of the sort Europe already does abundantly. Instead, more support for intangible investment is what Europe needs to compete strategically with other geopolitical blocks. If the objective of EU policymakers is technological leadership in digital and clean technology, then it should find ways to boost private R&D spending, which is much lower in the EU than in the US. This cannot simply be done by spending more on publicly-funded R&D, which is similar on both sides of the Atlantic.

What the EU needs is structural change, i.e. the development of high-tech industries. To do so, policy-makers should create incentives for companies to invest in high-risk, high-reward projects outside of their current areas of specialization. There are a number of concrete, well-known areas for improvement in fiscal, corporate, labor law and the education system. The creation of a capital markets union—in particular reducing disincentives to invest in equity and start-up—combined with structural reform, would be much more effective in boosting innovation and long-run growth in the EU [3] than increased spending on infrastructure.

## The EU Investment Gap

To start with, it is useful to clarify which gap needs to be filled and to what purpose. Investment is defined in national accounts as expenditure that creates tangible or intangible assets yielding returns



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for more than one year. In official statistics this is called “gross fixed capital formation” (GFCF). Figure 1 presents total investment (GFCF plus inventories) as a share of GDP between 2000 and 2024, in the EU27 and the US. The series includes projections up to 2029 by the International Monetary Fund.<sup>1</sup> It is apparent that up to 2024 and beyond, investment is generally higher in the EU than in the US, implying that there is no investment gap with respect to the US, at least according to this metric. Clearly, the investment rate fluctuates over time and the two series follow similar cycles. In the EU, investment dropped after the dotcom bubble and the Great Financial Crisis, to reach 23% in the years preceding the pandemic. After the COVID-19 crisis, investment in Europe spikes to 25% and in 2023—the last year for which actual observations are available—goes back to 23%, remaining stable thereafter according to the projections. Thus, one can say that today investment in the EU is in line with its long-run average value, at any rate above the US.

Clearly, the investment rate fluctuates over time. In the EU, it dropped after the dotcom bubble and the Great Financial Crisis, to reach 23% in the years preceding the pandemic. During the COVID-19 crisis, investment in Europe spikes to 25% and in 2023—the last year for which actual observations are available—goes back to 23%, remaining stable thereafter according to the projections. Thus, one can conclude that today’s investment in the EU aligns with its long-run value.

### More is Less?

One might object that more investment is always better because it increases the capital stock and thus output. However, this view is incorrect. Standard economic theory posits that the optimal level of (domestic) investment is at the point in which the marginal product of additions to the domestic capital equals the rate of return on the global market. Taking the United States as a the global benchmark, one can assess how the EU compares. A marginal product on domestic investment higher than the global benchmark would imply that there is an investment gap relative to the optimum, while a lower one would imply that investment in the EU is too high.<sup>2</sup>

At the macroeconomic level, one can measure the return on investment by dividing GDP growth by the ratio of investment to GDP ratio.<sup>3</sup>

Figure 2 shows the estimated returns on investment for the EU and the US between 2004 and 2029, averaged over 5-year intervals to remove the influence of cyclical fluctuations.<sup>4</sup>

With the exception of the year 2009, during the Great Financial Crisis, the return on domestic investment tends to be much lower in the EU than in the US. Over the years of the sample, the average returns are 9% in the US and 6% in Europe. Thus, contrary to the narrative that there is an investment gap, the evidence suggests that investment in the EU is already too high. Moreover, the rate of return of additional investment is very unlikely to be higher than the rate of return on existing investment, because investment projects that have not been undertaken so far are likely to have lower returns than those already currently undertaken. It is thus doubtful that additional investment incentivized

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<sup>1</sup> We use data from the World Economic Outlook 2024 because it covers recent years and provides projections for five years. The data can be accessed here: <https://www.imf.org/en/Publications/WEO/Issues/2024/04/16/world-economic-outlook-april-2024>. The drawback of the IMF data is that it does not allow one to remove inventories from total investment. However, OECD data on GFCF, available until 2022, yields a very similar picture.

<sup>2</sup> We are implicitly making the standard assumption of diminishing capital returns, so that its marginal product decreases with investment.

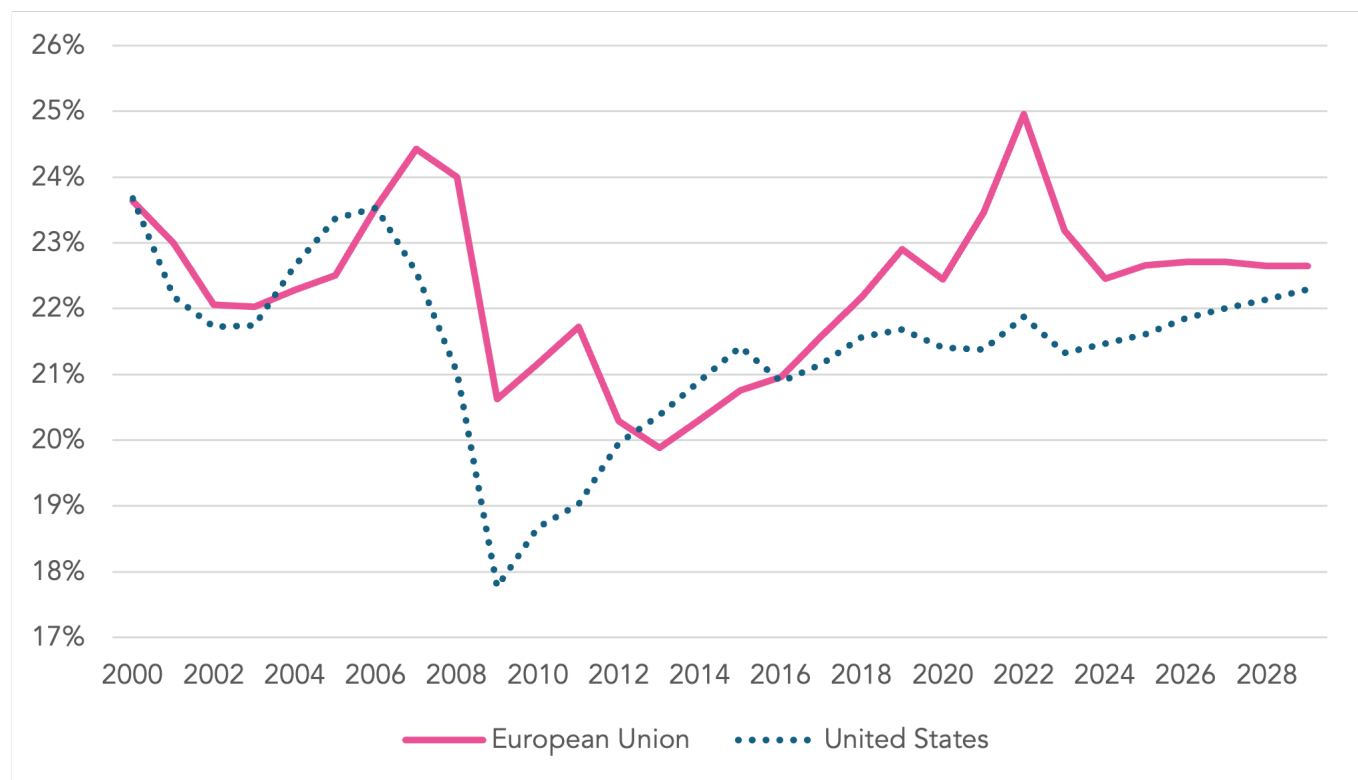
<sup>3</sup> This corresponds to the inverse Incremental Capital-Output Ratio (ICOR), which is equivalent to the the change in the inverse capital-output ratio, a measure of capital efficiency and proxy of the return on capital investment.

<sup>4</sup> Specifically, we divide GDP growth between years  $t$  and  $t + 5$  by the average value of investment-to-GDP ratio over the same period. We assume that actual GDP approximates potential GDP over the years of the sample.



**Figure 1**

Investment (in % of GDP)



Notes: World Economic Outlook 2024.

through public guarantees programs would increase growth.

### Wasted Savings?

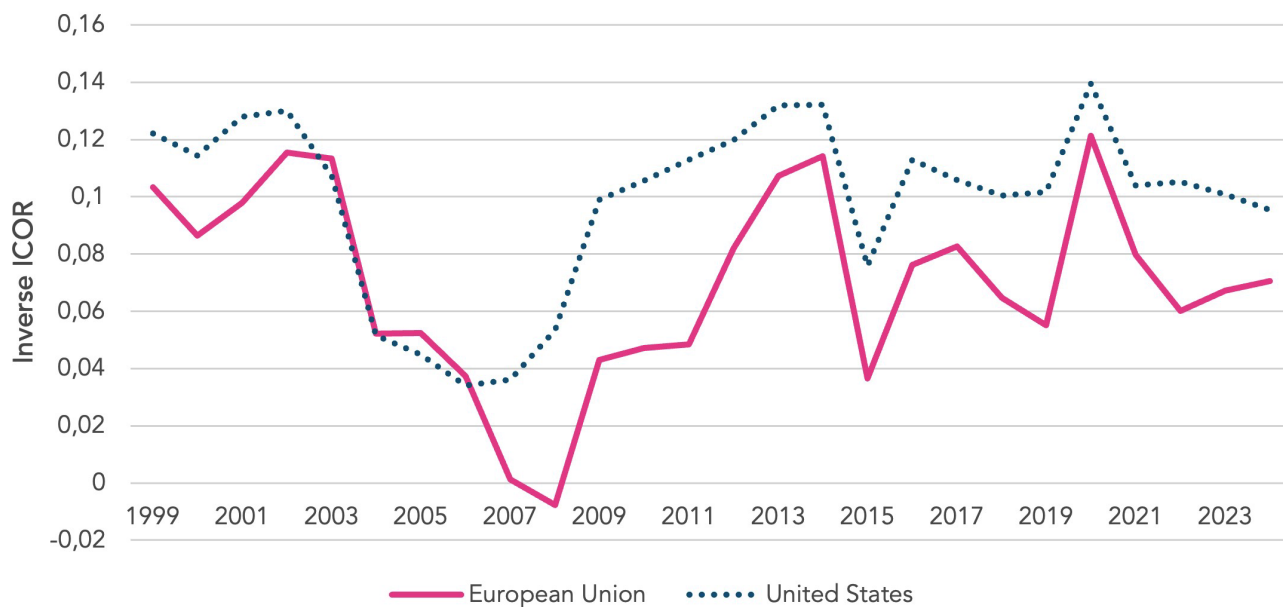
An important corollary is that the notion of EU savings being somehow “wasted” because they are invested abroad, as suggested in [7], is mistaken.

Figure 3 shows that domestic savings in the EU are higher than domestic investments, by about 2-3% of GDP. These “excess savings” are reflected in the EU external current account running at about 300 billion euros annually.<sup>5</sup> But it does not follow that EU growth would increase if only these 300 billion euros were invested in the EU, because as shown in the previous section, investment is already inefficiently high. If these 300 billion euros were invested domestically, instead of abroad, EU GDP would increase marginally (as pointed out above) but EU GNP would be lower (the loss in income from abroad would be higher than the gain in GDP). The different rates of return on investment estimated above—roughly 3 percentage points—imply an opportunity cost of investing EU savings at home of  $(300 \times 0.03)$  9 billion euro annually. If European savings are bottled up like this for ten years, the annual loss would increase to 90 billion euro—about the same amount the EU will spend on imports

<sup>5</sup> Inventories might be relevant for a comparison of investment to savings. Therefore, this figure uses GFCF data from OECD, which is limited to 2022.



**Figure 2**  
Estimated return on investment (5-years rolling average)



Notes: this figure presents the inverse of the Incremental Capital Output Ratio (ICOR), calculated as GDP growth between years  $t$  and  $t + 5$  divided the average value of investment-to-GDP ratio over the same period.

Source: Authors' calculations based on World Economic Outlook 2024.

of natural gas this year.

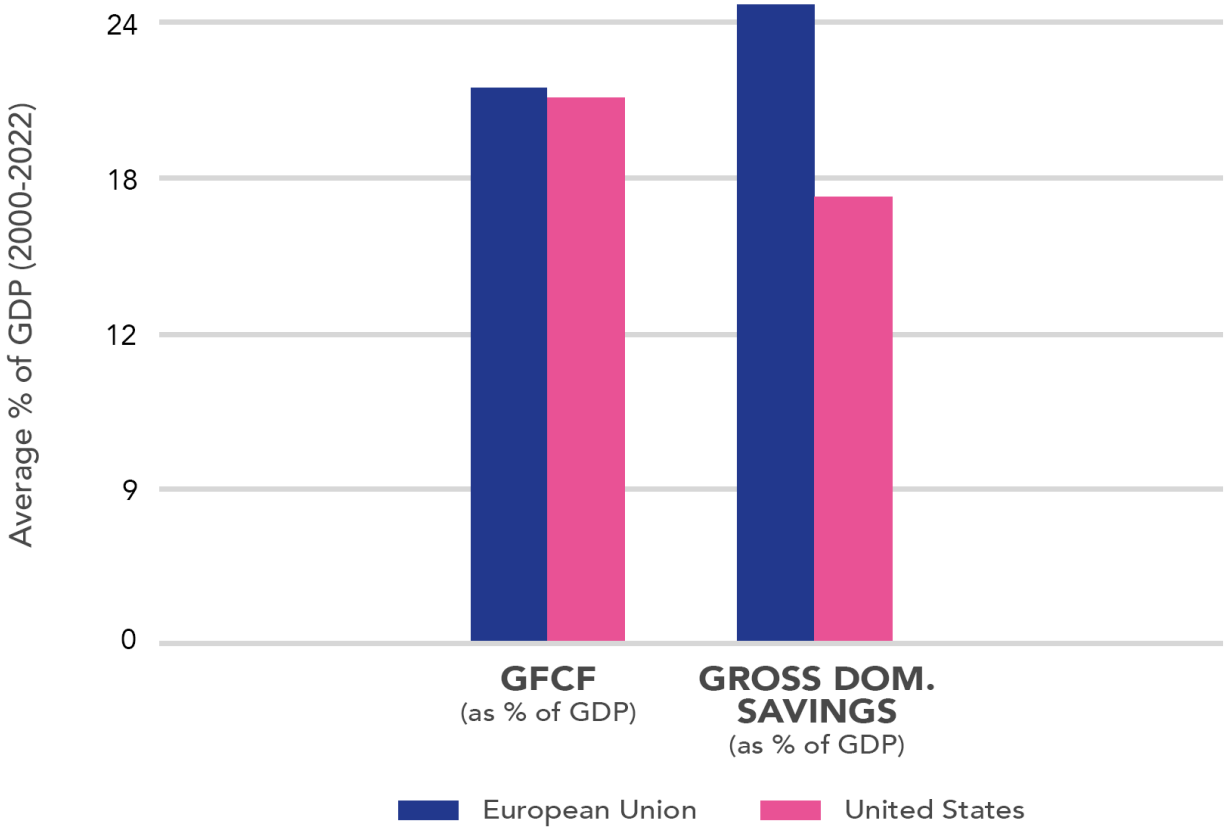
### A Rather Intangible Investment Gap

The aggregate investment figures on investment discussed so far might mask important sectoral differences. In Figure 4, we break down GFCF into its main components: dwellings, building & structures, industrial machinery and its subcategory ICT equipment, and intellectual property products (all figures are expressed in percent of GDP). The main message is that the EU invests a larger fraction of its GDP in all sectors, except ICT equipment and intellectual property products, where the US level is roughly one-half higher.

The assets included in these sectors are subject to strong complementarities, such as between RD, software development and ICT infrastructure. This kind of investment is mostly private and it receives little public support because the kind of investment that the EU intends to mobilize with its public guarantee programs—e.g. the Juncker Plan or the more recent InvestEU—is mostly devoted to large-scale infrastructures.



**Figure 3**  
Investment & savings as percent of GDP (2000-2022)

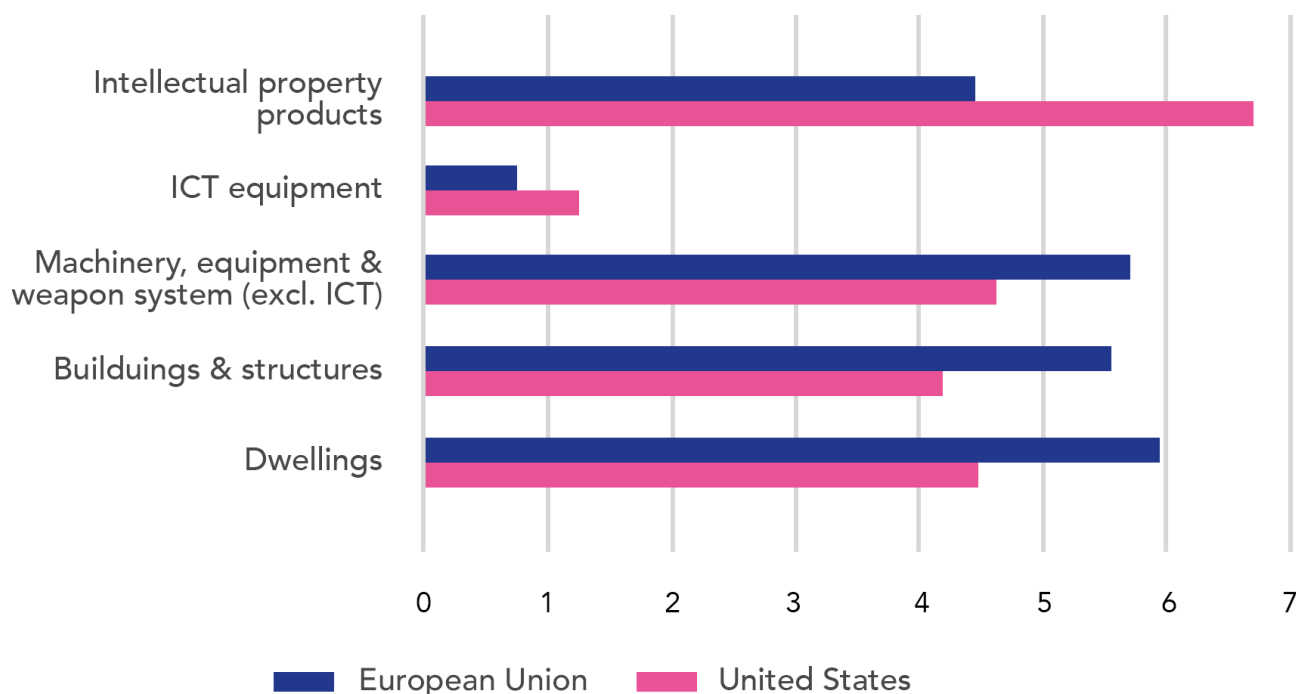


Notes: Data extracted on 16 May 2024 17:15 UTC (GMT).

Source: OECD.Stat.



**Figure 4**  
Breakdown of GFCF main components



Notes: Data extracted on 16 May 2024 17:15 UTC (GMT).

Source: OECD.Stat.

### Investment Gap or R&D Gap?

To analyze in more detail the composition of business investment, we turn to the EU Industrial R&D Scoreboard, which unlike the national accounts data used above, provides a reasonably granular industry breakdown.<sup>6</sup>

Figure 5 presents business capital expenditure (CAPEX) and business R&D spending (BERD) by EU-headquartered companies. In absolute terms one finds a gap in CAPEX—mostly tangible assets—of less than 100 billion euros. Considering that the US is roughly 50% larger in terms the GDP, one cannot really claim that there is a gap in private capital investment, which is only 30% higher in the US. On the contrary, relative to the size of the EU economy, business CAPEX is somewhat higher in the EU than in the US.

The real gap is in R&D, where the amount invested by private companies in the EU amounts to only 200 billion euros—1/3 of the amount invested by US companies. The investment gap turns out to be

<sup>6</sup> The data are based on the accounts of the 2,500 largest global companies in terms of R&D spending. A cross-check with the OECD data shows that these 2,500 companies account for 80 to 90% of the total, making the data broadly representative. The data can be found at: <https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>.



really a R&D gap.

### Why the R&D Gap?

The R&D gap is due to structural differences in industry composition [3]. Figure 5 shows that the EU corporate sector specializes in mid-tech industries with limited growth potential—mostly automotive.<sup>7</sup> Companies in mid-tech industries are substantially less R&D-intensive than in high-tech sectors, such as software and biotech, where the US is the undisputed leader. Data from the EU Industrial R&D Scoreboard suggest that companies in high-tech spend 1.5 euros for each euro of capital investment, while only 0.5 euros in mid-tech. Therefore, a policy-induced injection of the kind of tangible investment “mobilized” by the usual public guarantee programs is unlikely to generate much private R&D spending, which is what it would take to fill the investment gap documented in the previous sections.

### R&D in the EU: Why So Little?

The R&D gap can hardly be attributed to differences in public funding. In 2020, for instance, government-funded R&D spending (GERD) amounted to 110 billion euros in the EU and 150 billion in the US, accounting for a very similar percentage of GDP, around 0.7-0.8%. Moreover, there are no substantial differences in government tax support for BERD either, since, according to the OECD this amounts to about 0.1% of GDP for the EU and 0.12% of GDP for the US.<sup>8</sup> Instead, the key reason is the low business sector engagement with R&D. In the EU, the ratio of private to public GERD spending is 1.8, while in the US it is over 3. Once again, this is not surprising given the industrial composition of the EU, where the incidence of mid-tech industries that are not RD-intensive is very large.

### Why is High-Tech so Small in the EU?

A popular argument is that EU financial markets are fragmented and so there are binding financial constraints. According to this line of arguments, EU companies might struggle finding capital, as a large fraction of European household savings are diverted from European markets towards the US. However, as documented by the above analysis, the EU corporate sector as a whole invests as much as the US one.

The real problem is that the EU ecosystem does not provide the right incentives to invest in the high-

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<sup>7</sup> The classification we use is similar to the one adopted by Eurostat and the OECD:

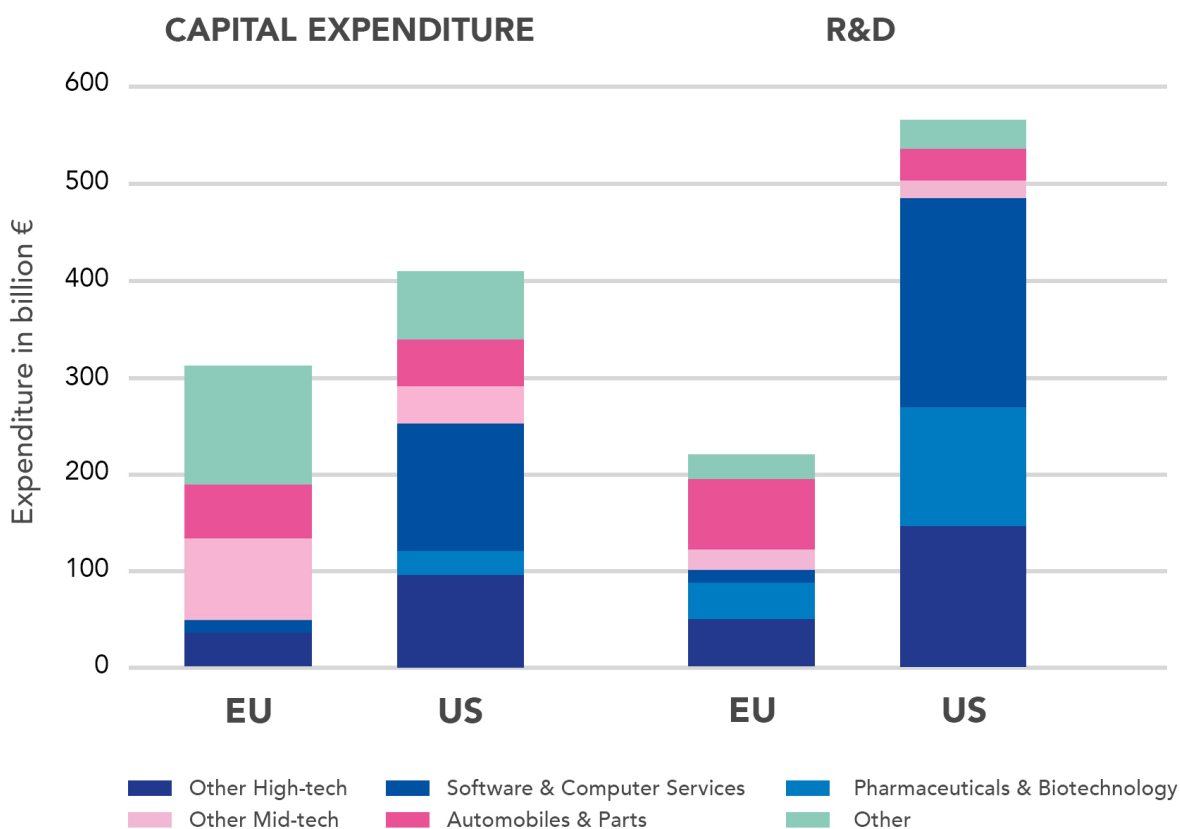
- High-tech includes aerospace & defence, alternative energy, electronic & electrical equipment, health care equipment & services, pharmaceuticals & biotechnology, software & computer services, and technology hardware & equipment.
- Mid-tech includes automobiles & parts, chemicals, financial services, fixed line telecommunications, industrial engineering, industrial metals & mining, industrial transportation, leisure goods, mobile telecommunications, and personal goods.
- Other includes banks, beverages, construction & materials, electricity, food & drug retailers, food producers, forestry & paper, gas, water & multiutilities, general industrials, general retailers, household goods & home construction, life insurance, media, mining, nonlife insurance, oil & gas producers, oil equipment, services & distribution, real estate investment & services, support services, tobacco, and travel & leisure.

<sup>8</sup> See the OECD INNOTAX portal.





**Figure 5**  
CAPEX and BERD by industry sector



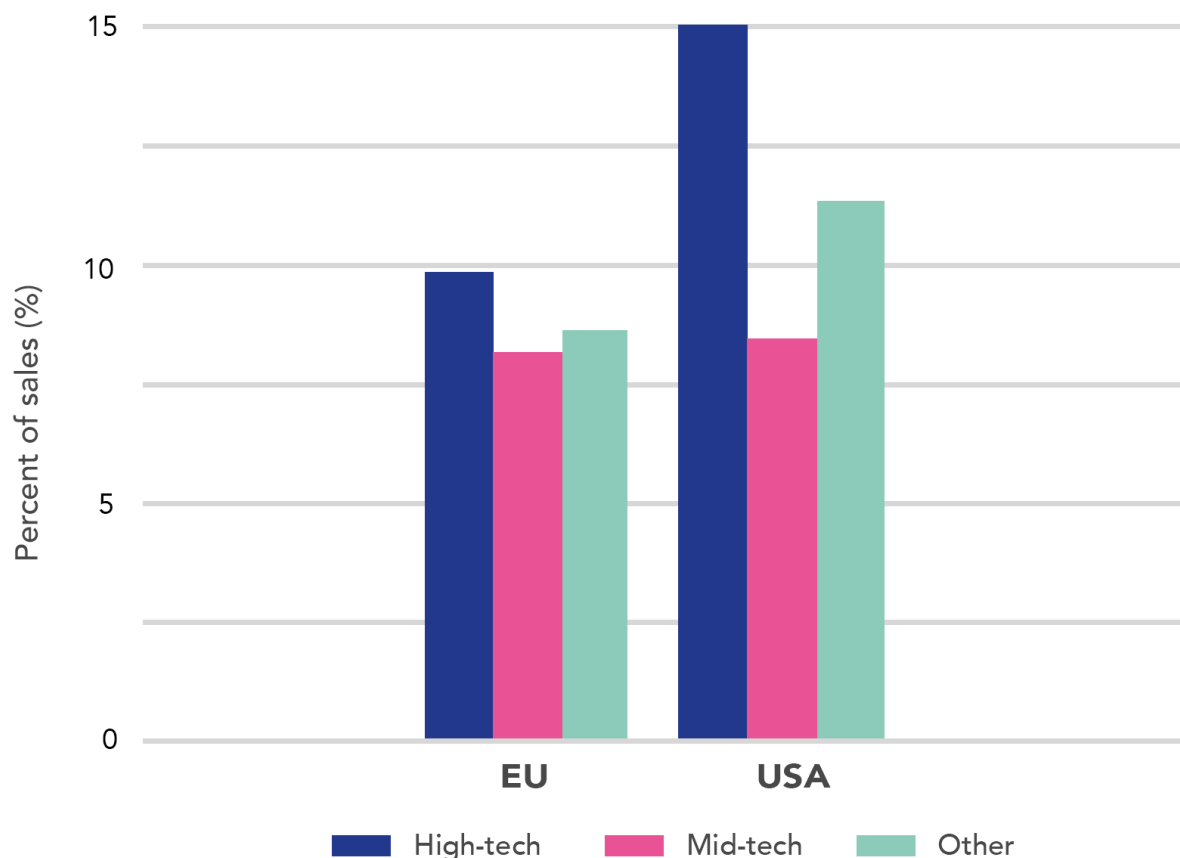
Source: author's calculations based on EU Industrial R&D Scoreboard.

risk, high-reward projects that are typically pursued in high-tech industries. We provide two key pieces of evidence. First, data from [4] suggest that over 80% of venture capital investment by EU-based large companies—which are unlikely to be financially constrained—finance US-based start-up. In light of the fact that EU companies specialize in industries such as automotive, which have a limited technological content and growth prospects, it seems thus unsurprising that EU investors interested in high-growth potential industries would find more interesting opportunities in the US. The second piece of evidence is presented in Figure 6. On average over the last twenty years, the profit margin of high-tech industries was about 2 percentage points higher than mid-tech ones, whereas in the US the difference between high-tech and mid-tech industries was about 7 percentage points. The small difference in profitability is likely to hamper the incentives to invest outside of the safer mid-tech industries in the EU.

The issue thus appears to be not only on the supply-side, but also on the demand-side of capital markets, an issue of missing opportunities.



**Figure 6**  
Average profit margin by sector (2003-2022)



Notes: profit margin is defined as profits divided by net sales.  
Source: author's calculations based on EU Industrial R&D Scoreboard.

### Potential Underlying Frictions

Clearly, the root causes of the more abundant investment opportunities for venture capital in the US are to be found at a more granular level. For instance, inefficient fiscal, corporate and labor laws, which in the EU are often inappropriate for startup formation and innovation. The university system often fails to provide incentives for researchers to participate in applied innovation, and at the undergraduate-level entrepreneurship is very rarely taught [3].

The absence of a single EU market for key high-tech technologies, such as defense, AI, energy, and healthcare, could also play an important role. [7]

Finally, the bank-centric structure of Europe's capital market favors investment in tangible assets, especially structures, that can serve as guarantees for bank credit. By contrast, the equity market—which participates in both losses and gains from entrepreneurship—is more likely to fund high-risk,



high-return projects involving intangibles and cutting-edge technologies. The US equity market is a case in point.

The importance of unifying Europe's splintered capital markets has been known for a long time. However, little has been done due to the fact that policymakers in individual Member States prefer to maintain their local capital market, which gives them some influence, rather than agree to reforms that would favor the creation of a unified market [10].

Thus, we join [7], [9] and [8] in calling for implementation of the so-called "capital markets union". While not a panacea for the structural issues the EU faces [3], without any reform of the European capital market, additional investment would yield the same low returns observed over the last decades. It is not only the splintered nature of the European capital market that limits investment in higher yielding projects, but also the widespread preference of European savers for fixed income securities and bank accounts. These deep-rooted preferences cannot be changed by official action. But it would be possible to lessen the existing disincentives for professional investors like pension funds and insurance companies to invest in equity in general and in start-ups in particular. One way to do this would be to allow pensions funds and insurance companies to invest at least a small part of their overall funds in venture capital and private equity. This was done in the US when the supervisors of retirement plans recognised that a "prudent person" could invest at least a small part of the portfolio in risky assets, like venture capital. Something similar should be done in Europe. Allowing EU pensions funds and insurance companies to invest even only a small part of their funds into venture capital would considerably strengthen the supply of capital for start-up this is presently rather low.<sup>9</sup>

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<sup>9</sup>See for example Scott Marcus 2024, Europe can produce its own tech giants – here's how, <https://www.ceps.eu/europe-can-produce-its-own-tech-giants-heres-how/>



## Conclusions

In a recent speech, former European Central Bank President Mario Draghi said that the European Union needs to invest an “enormous amount of money in a relatively short time” to deal with the deep challenges the bloc is facing [2]. Our analysis suggests that the key issue for the EU is not how to find an “enormous amount of money”, but rather how to re-direct the enormous domestic savings that are available towards more productive investment.

A recent proposal suggests to extend public guarantees to European private debt funds [7]. But guarantee programs such as in InvestEU are unlikely to yield large returns. The problem with this approach is that public guarantee programs mobilize investment in infrastructure and industrial equipment of which the EU has at least as much as the US, while the important investment gap is mostly in intangibles and R&D. To fill this gap, what is needed is creating incentives to invest in high-risk, high-return projects, incentives currently hampered by a number of institutional frictions.

For this reason, “more of the same”, i.e. just more investment without radical changes in capital markets and economic structures that hold back innovative firms, will only lead to more of the same result, i.e. low growth. Additional resources devoted to innovation would certainly be welcome, but without structural change, additional spending is unlikely to boost long-run growth in the EU and improve its geopolitical relevance.

We are not the first to notice that the notion of an investment gap is elusive [6], and that policymakers should focus on the composition of investment, rather than simply on its level [7]. We hope to reinforce these messages. The risk is that, as one of us noticed ten years ago in different circumstances [5], public spending will have a temporary boost on demand today, but at the expense of demand tomorrow.



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