ANALYSIS

Is the euro area investing enough?

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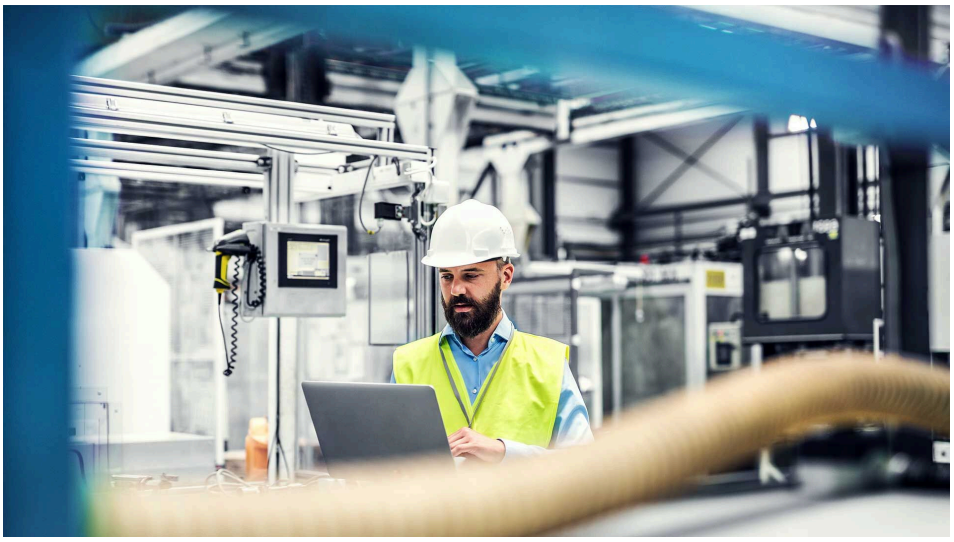
Since the global financial crisis, investment growth in the euro area has been modest compared with peer economies. It has also been heterogeneous in terms of both investment components and sectors, and has been increasingly focused on intangible assets. Investment in research and development, which is important for productivity, has grown more slowly than in peer economies. The sluggish investment growth in the euro area cannot be attributed to a lack of savings, as there is a substantial structural surplus in the current account. It instead appears that the euro area has a shortage of sufficiently attractive opportunities to invest.



Investment growth lower in euro area than peer economies

Since the global financial crisis, investment has grown much more slowly in the euro area than in the United States or the United Kingdom. During the period 2007–2024, non-residential investment grew[1] by around 75% in the US and by around 35% in the UK, while in the euro area the corresponding figure was just over 20% (Chart 1).[2] For almost the past two decades, non-residential investment has grown, on average, by 2.5 percentage points less per year in the euro area than in the US. Cumulatively, the difference has widened to more than 50 percentage points.

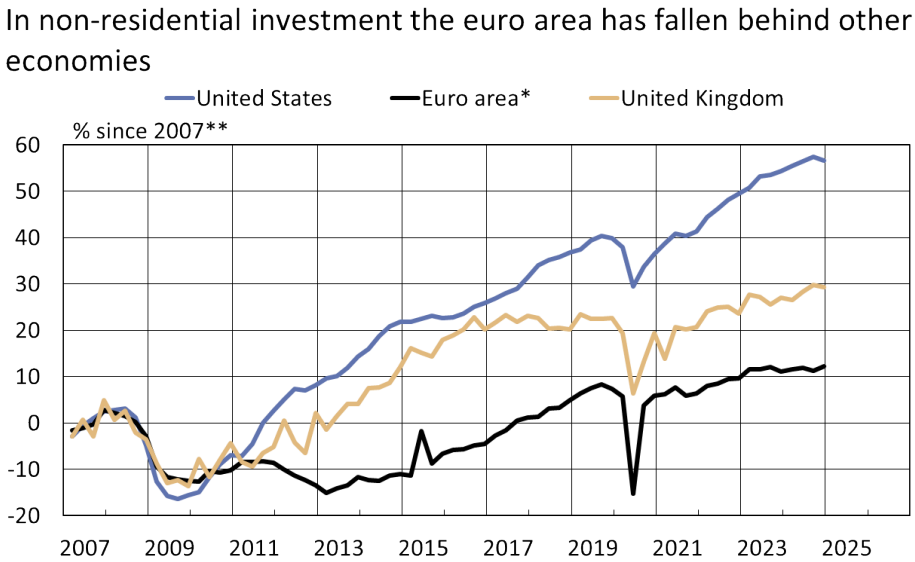
Investment in the euro area has also grown more slowly than economic activity (Chart 2). Between the global financial crisis and 2024, the growth in total investment, i.e. residential and non-residential investment combined, was nearly 10 percentage points below the growth in gross domestic product (GDP). The sluggish growth was attributable particularly to residential investment, which contracted strongly during the financial crisis and the euro area sovereign debt crisis, and which, in 2024, was still nearly 10% lower than in 2007.

For a long period prior to 2017, non-residential investment in the euro area was below the level preceding the financial crisis, whereas in other economies it surpassed the 2007 level already after 2012. Non-residential investment in the euro area started to grow

1. As a log percentage (Chart 1), the growth was approximately 55% in the United States, 30% in the United Kingdom and 10% in the euro area. The log percentage takes account of growth within a specific period, which is useful for comparing growth rates.
2. In the assessment contained in this article, the impact of Ireland's intangible (intellectual property products) investments has been removed from the investment statistics for the euro area. The impact of this investment component on the variation in investment for the entire euro area is considerable. However, Ireland's intangible investments consist mostly of capital movements of multinational enterprises and do not reflect actual investment as such. For more details, see Andersson et al. (2024).

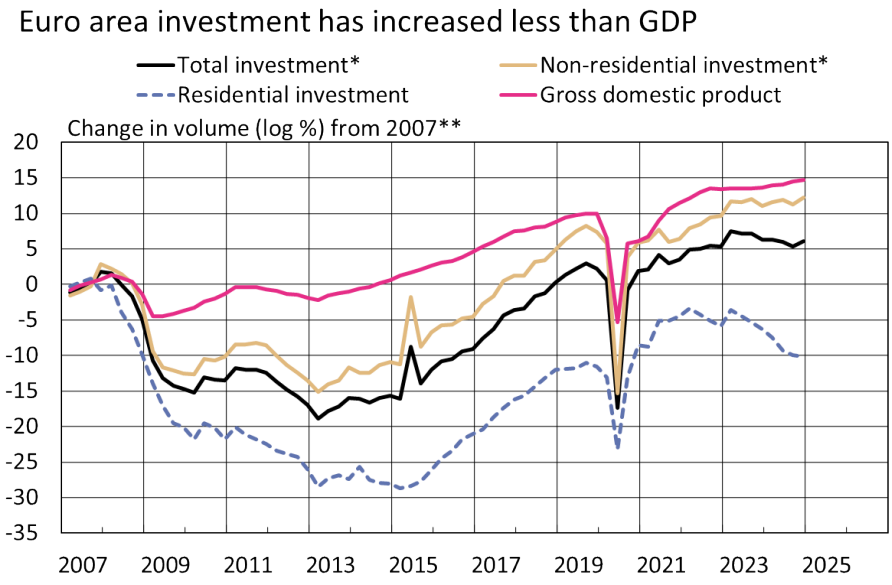
more quickly again after 2013 (Chart 2). Excluding the contraction during the pandemic, the growth in non-residential investment continued until 2022. Since then, this growth has halted and residential investment has contracted by over 5%.

Chart 1.



*Excl. Ireland's intangible investments. **Change in volume (log %).
Sources: US Bureau of Economic Analysis (BEA), Eurostat, Office for National Statistics (ONS) and calculations by the Bank of Finland. 42860@TuotInvVert

Chart 2.



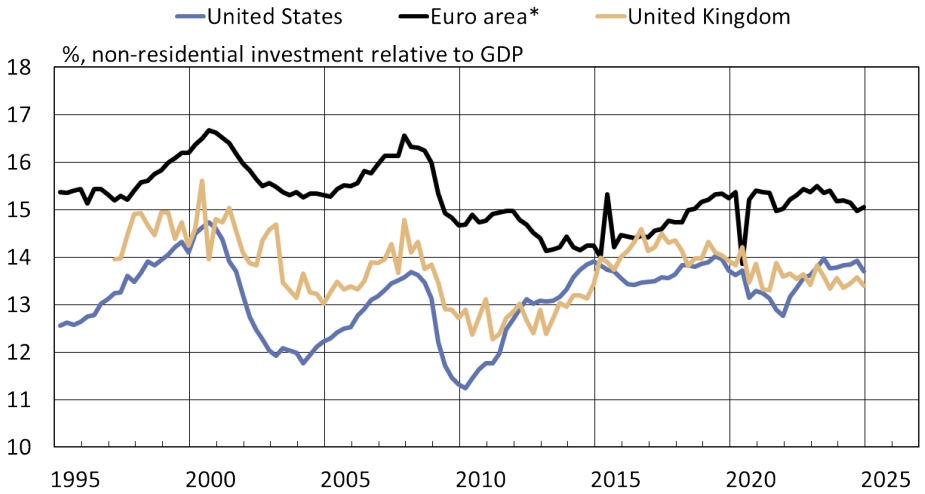
*Excl. Ireland's intellectual property products. **Change in volume (log %).
Sources: Eurostat and calculations by the Bank of Finland. 42860@InvBKT_vol

Although investment growth has been slower than economic growth and has fallen behind international peers, investment is still higher in the euro area in relation to the

economy's size than in other economies (Chart 3). The ratio of non-residential investment to GDP in the euro area was around 15% in 2024, which is more than one percentage point higher than in peer economies, but substantially lower than before the financial crisis. With GDP growth having been significantly lower in the euro area than in other economies, however, the pace of investment has slowed. In the United States, on the other hand, the economy has grown faster and the investment-to-GDP ratio has remained above its pre-financial crisis level for over a decade.[3]

Chart 3.

Euro area's non-residential investment-to-GDP ratio has declined in the longer term



*Excl. Ireland's intangible investments.
Sources: US Bureau of Economic Analysis (BEA), Eurostat and calculations by the Bank of Finland.
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The weak trend in euro area investment is the result of a decline in both private and public investment. In the 2010s, the investment rates of the public sector and businesses declined to 0.5–1 percentage points below the pre-financial crisis level, where they remained for around 10 years. The business investment rate then returned to about 12% by 2022 but has since declined again and was approximately 11.5% in 2024. The public investment-to-GDP ratio has also picked up and was around 3.4% in 2024. Public investment may have been accelerated recently by the financial support granted via the EU's recovery package (Next Generation EU). In the future, rising defence expenditure may also increase public investment.

With investment having been subdued for a long time, much less new capital has accumulated in the euro area economy over the past 15 years than in other economies. More capital means more production capacity in an economy. A larger capital stock also leads to higher labour productivity if the same output can be obtained with the same labour input.

3. In a sectoral comparison, rates of investment have declined in the euro area, especially in the household sector. The business investment rate was at approximately the same level in 2023 as before the financial crisis. The household investment rate, which mainly consists of residential investment, has clearly declined compared with the pre-financial crisis period.

Low capital stock growth may partly explain the weak productivity growth in the euro area (see: Euro area economy needs higher productivity growth (in Finnish), Euro & talous 1/2024). On the other hand, it is difficult to say which follows which – the weak investment growth of the past two decades could be a consequence of low productivity growth. With a low expected return on investment, companies lack the incentive to invest in the euro area.

In the longer term, sluggish investment is explained by structural factors such as population growth and the subdued growth outlook in an ageing Europe. Between 2007 and 2024, the population of the euro area grew by slightly under 5%, while in the United States and the United Kingdom the population grew by 12%. On a per capita basis, the investment gap between the United States and the euro area for this period narrowed slightly but remains wide.

Since 2022, investment has also been curbed by tighter monetary policy, higher energy prices and an increase in economic, political and geopolitical uncertainty. Based on the European Commission's business survey, both service and manufacturing companies have plenty of available capacity and production is currently limited by low demand, and so they do not necessarily see a current need for further investment.[4] The steep decline in residential investment may also be explained by the decline in purchasing power caused by high inflation.

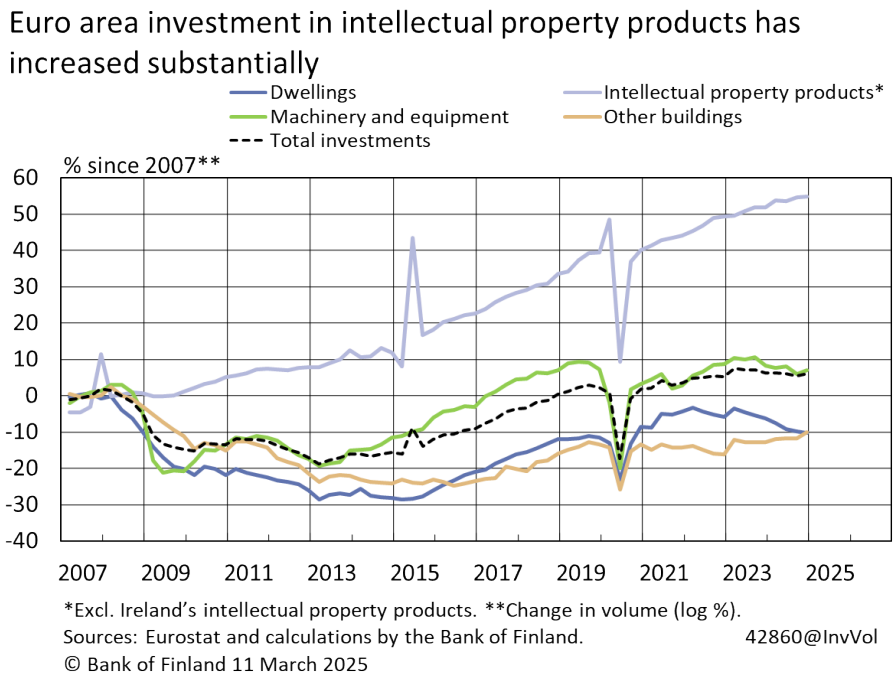
Structure of investment has changed in recent decades

Total investment is divided into non-residential and residential investment. Non-residential investment consists of investment in machinery and equipment and investment in intellectual property products, cultivated assets and other buildings and structures. In the euro area in 2024, around 25% of non-residential investment was in intellectual property products, 40% in machinery and equipment, and 35% in other buildings and structures.[5]

The different components of investment have developed in noticeably different ways over time (Chart 4). The volume of intangible investments (intellectual property products) has grown since 2007 by over 70%, while investment in machinery and equipment has increased by around 5% during the same period.[6] The volume of construction investment, on the other hand, is still lower than before the global financial crisis.

4. According to the half-yearly investment survey of the European Commission, companies' investment intentions have declined substantially since 2024. Manufacturing companies, in particular, reported low intentions to invest in capacity expansion. See Jarvis and Schirato (2024).
5. Investment in cultivated assets accounted for 0.3% in 2024. Ireland's investment in intellectual property products (intangible investments) has been excluded from the analysis in this article.
6. In log percentage terms (Chart 4), the growth in intellectual property products was 55%. In this article, intellectual property products are treated as intangible investments. In some definitions, intangible investments have also included other items, such as marketing expenditure. See also Huovari and Maliranta (2023).

Chart 4.



Intangible investments were the component least affected by the fact that investment was for many years persistently below its pre-financial crisis level. Instead, intangible investments recovered quickly from the global financial crisis and continued to grow during the euro area sovereign debt crisis. Intangible investments are made broadly across many sectors. In 2022, around 35% of investment in intellectual property products originated in manufacturing companies, and just under half in the service sectors.

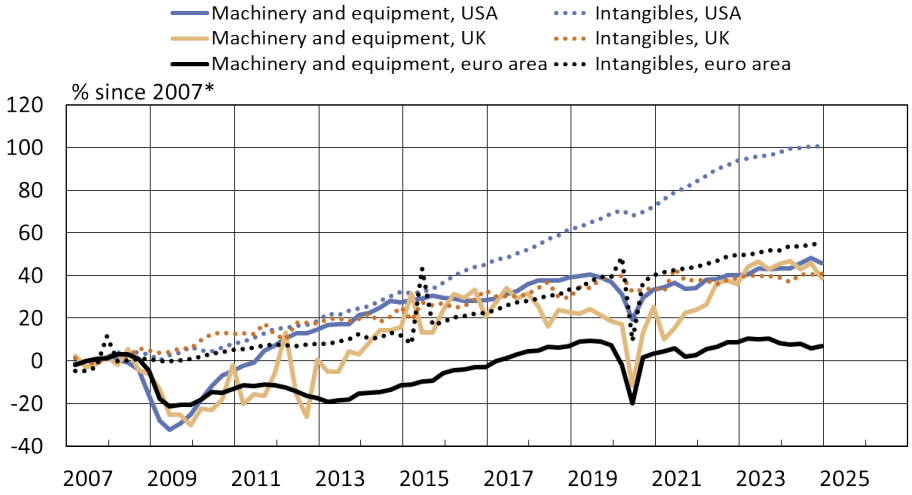
However, by international comparison, the growth in intangible investments and investment in machinery and equipment in the euro area has been slow (Chart 5). While intangible investments in the euro area grew by about 70% between 2007 and 2024, in the United States they increased by a factor of more than 2.5 in the same period. The capital stock of intellectual property products in the US therefore grew substantially in this period, if amortisation and depreciation are not taken into account.[7]

Achieving growth in machinery and equipment investment has also been more difficult in the euro area than in peer economies. In the United States and the United Kingdom, this component of investment grew by around 50% during 2007–2024, while in the euro area, the corresponding figure was about 5%. Therefore, for over two decades the largest industrial investments have been located outside the euro area.

7. In practice, the amortisation of intangible capital stock can be even more substantial than the depreciation of machinery and equipment. If the level of the capital stock is to be maintained, a substantially greater amount of intangible investments may therefore be required. This implies that growth in the capital stock of intellectual property products in the euro area has been substantially slower than the investment rate. See also Le Roux (2021).

Chart 5.

Growth of machinery, equipment and intangible investments in the euro area slow in comparison with other economies



*Change in volume (log %).

Sources: US Bureau of Economic Analysis (BEA), Eurostat, Office for National Statistics (ONS) and calculations by the Bank of Finland. 42860@InvVert2_USUKEA

Investment in research and development is essential for productivity growth – efforts in the EU have fallen behind competitors

Investment in research and development (R&D) is one of the most important areas of investment for promoting technological development, competitiveness and long-term economic growth.[8] R&D expenditure creates a basis for innovations that can improve productivity, create new jobs and improve companies' ability to adapt to a changing market environment. R&D investment also produces broader benefits for society. In other words, in addition to improving the competitiveness of the companies that make investments, innovations and knowledge also become available for use by other actors.

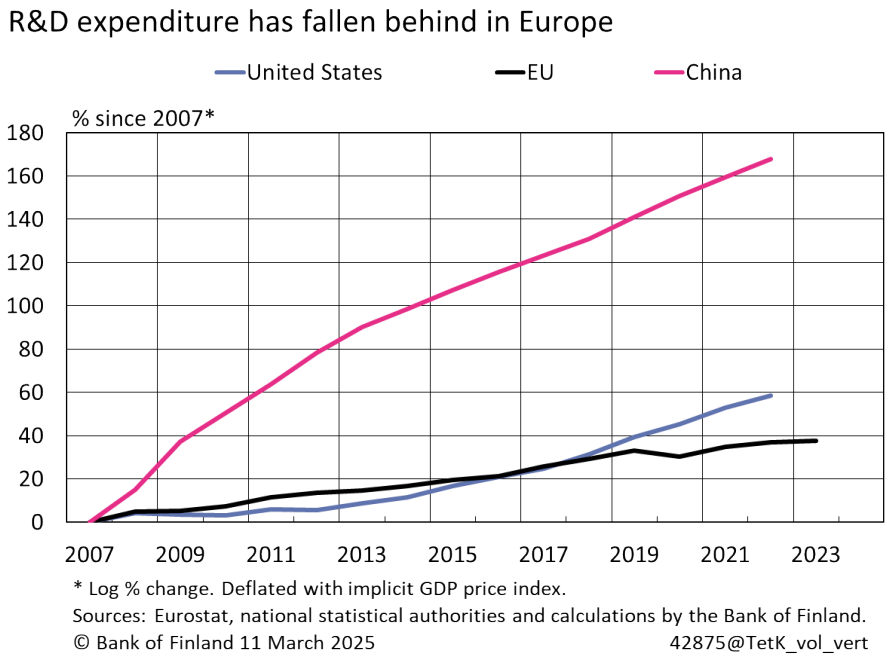
Although R&D expenditure grew by over 45% in the EU in real terms during 2007–2023, it has fallen behind the main competitor countries (Chart 6). In the United States, R&D expenditure grew by around 80%, and in China it increased more than fivefold.[9] In the same period, labour productivity per working hour (in which improvements are sought through R&D) grew by just 6% in the euro area, while in the US it grew by over 25%.[10]

8. In traditional neoclassical growth theory (Solow 1956), technological change is an important yet external factor for economic growth. In endogenous growth theory (Romer 1990; Lucas 1988), technological change, innovation and accrual of knowledge are internal factors within the economic system and are drivers of growth. In this case, technological development can also be influenced via investment and economic policy.

9. Expressed as log percentages, which take account of internal growth, the growth figures for the EU, the United States and China during the period were approximately 40%, 60% and 160%, respectively. Annual R&D expenditure growth in the EU has therefore been, on average, about 1.2 percentage points lower than in the US, and as much as 7 percentage points lower than in China.

10. Also in the same period, the number of patent applications in Europe grew by just 20%, i.e. significantly less

Chart 6.



Slower R&D expenditure growth and low productivity growth may together reflect that the EU is falling behind in cutting edge technological development. The report by Draghi (2024) provides several examples of this. The EU has not been able to generate major technology enterprises in the same manner as the US, and the diffusion of technology into the economy has been slower. Most of the artificial intelligence (AI) models developed in recent years originated in the US. Moreover, Europe's cloud services market is dominated by US companies.

A key objective of the Lisbon strategy launched in 2000 was to raise the proportion of R&D expenditure (R&D intensity) to 3% of GDP in the EU. However, this objective has not been met: in 2023, R&D intensity in the EU was just 2.2%. In the US, on the other hand, R&D expenditure as a proportion of GDP has grown in two decades by more than 1 percentage point, to 3.5%. There are also significant regional differences in Europe: Northern and Western European countries, such as Germany and Sweden, are near the target level, while Southern and Eastern Europe are clearly below it.

Unlike the EU, R&D intensity has grown strongly in competitor countries over the past two decades. Particularly companies invest in R&D less in the EU than in other major economies (Chart 7). The R&D intensity of European companies was slightly under 1.5% in 2023, compared with 2.8% in the US during the same period. The R&D intensity of Chinese companies is also currently higher than in the EU, at 2.0%.

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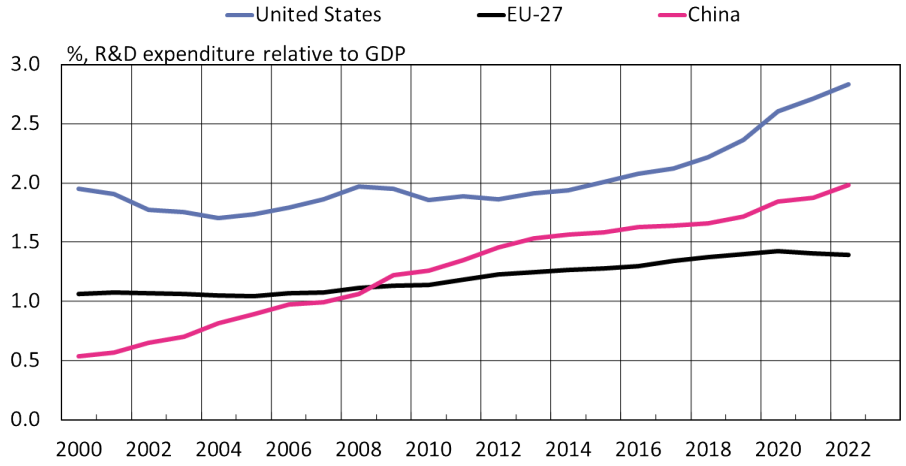
than R&D expenditure. On the other hand, the perceived low effectiveness of R&D may be attributable to its effects often becoming apparent only in the long term. It takes time for knowledge to spread, and R&D does not necessarily immediately lead to commercial innovations, but instead creates a foundation for later technological development and applications. According to academic research, research and R&D expenditure may also lead to diminishing marginal returns especially at the cutting edge of technologies (Boeing et al. 2020; Bloom et al. 2020).

Chart 7.

Corporate R&D expenditure in EU relative to GDP is currently significantly lower than in the United States



Source: Organisation for Economic Co-operation and Development (OECD).
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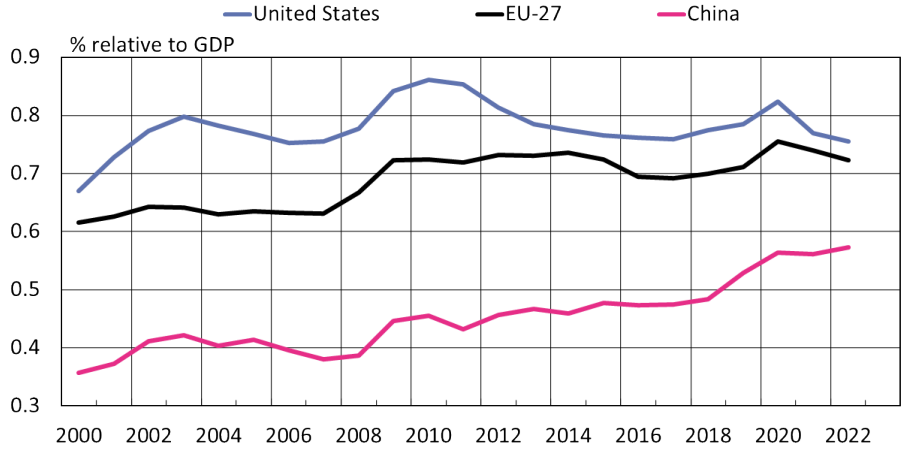
The lower R&D expenditure growth in the EU than in other major economies does not appear to be a result, at least directly, of low public investment. In the EU, investment by government, universities and non-profit entities in R&D activities has remained relatively steady or even grown slightly in relation to GDP (Chart 8).[11] Their share of GDP in EU countries is also on a par with the US and higher than in the UK and China.

Chart 8.

Relative to GDP the EU continues to invest heavily in research and development



* Expenditure by public administration, universities and non-profit institutions.
Source: Organisation for Economic Co-operation and Development (OECD).
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11. However, the differences between countries are substantial. In 2023, the ratio of public R&D expenditure to GDP was just over 1.0% in Germany, while in Spain and France it was approximately 0.7% and in Italy less than 0.6%.

Euro area a capital-exporting economy

Based on the figures presented above, investment growth in the euro area and the EU has fallen behind the main peer and competitor countries. Growth in intangible investments and in investment in machinery and equipment has been more subdued in Europe. In general, the low investment growth can be explained in terms of access to finance and a lack of profitable investment opportunities.

Investments can be financed either through savings or debt. The savings-to-GDP ratio for the euro area economy as a whole was approximately 25% in 2024, which was significantly higher than, for example, in the United States (18%). Also, the euro area's current account (Chart 9) has been strongly in surplus for a long time. Therefore, at the aggregate level, an insufficiency of savings should not limit euro area investments. The euro area is actually a capital-exporting economy that finances economies with current account deficits, such as the United States.

A large current account surplus may reflect a lack of quality investment opportunities for savings within the euro area and the consequent movement of accumulated 'excess' capital abroad.[12] Estimates of the euro area's subdued growth potential, weakened by factors such as Europe's ageing population and modest productivity growth, support this view. These estimates are also in line with the low estimates of the natural rate of interest in the euro area found by several studies (see e.g. Kortelainen and Vilmi, 2024; Brand et al., 2025; Obstfeld, 2023). In other words, the real expected returns on investment in the euro area are, on average, low.

Chart 9.

The lack of appealing investment opportunities may also be explained by structural factors concerning capital mobility and the EU regulatory environment. Cross-border

12. See also Maria Demertzis' blog post on the Bruegel website.

channelling of capital may not be optimal in the EU. The capital markets in the euro area and, more broadly, the EU, are relatively thin and fragmented among Member States. These issues have recently been addressed in reports by Draghi (2024) and Letta (2024). A wide range of national regulations and practices are still in place in different parts of the euro area, which means that savings are not moving smoothly between banks, households and companies in the Member States. For example, bankruptcy legislation is still national and has not been harmonised. Banks in the euro area typically still operate within national borders, and very few major European enterprises have emerged in the services sector.

Different regulatory practices in Member States may reduce incentives for investment (IMF, 2024b) if they create an additional administrative burden for companies and research organisations. Especially in cross-border projects, regulation may be complicated by the existence of both national and EU regulations. Simplifying and harmonising the regulatory processes at EU level could speed up the commercialisation and diffusion of innovations and increase the attractiveness of investment. This would, however, require closer cooperation and policy coordination between Member States (see IMF, 2024a).

The European capital markets' insufficient ability to channel savings into European investments may also be the result of EU countries lacking the type of institutions found in the US that can match up expanding start-ups in need of finance with risk-tolerant venture capitalists. Arnold et al. (2024) estimate that venture capital investments have averaged 0.7% of GDP in the US in recent years, compared to 0.2% in the euro area.[13] Cumulatively, the gap between the US and Europe has grown considerably over the years. This undoubtedly has an impact on the extent of investment by young companies and on how growth-oriented they are.

Boosting R&D could improve the investment environment

One way of improving the EU's investment environment is to promote R&D. Companies will not necessarily invest in R&D optimally for the national economy as a whole, as they do not internalise the full benefits of their investments. Due to spillover effects, the aggregate benefit from R&D expenditure may be significantly larger than the private gains to individual companies (see e.g. Grossman and Helpman, 1991).

Academic research clearly indicates that the public sector has a role to play in promoting R&D (see e.g. Bloom et al., 2019). There are also benefits of agglomeration associated with research and innovation, which government authorities can seek to facilitate. For instance, Bloom et al. (2025) estimate that more than 50% of US economic innovations emerge from research clusters on the east and west coasts.

13. Venture capital finance emerged to meet a financing need for which traditional bank loans were ill-suited. Venture capital finance is widely used for technology investment in the United States and China. Technology sector start-ups invest primarily in intellectual capital, such as innovative ideas and human capital. In the US, venture capital funds' largest group of investors is pension funds, but in EU countries the role of pension funds and other institutional investors in financing venture capital funds is limited (Arnold et al., 2024; European Investment Bank, 2024).

The public sector can boost R&D with direct grants, tax incentives, loans, infrastructure investments and training, which will reduce companies' risks and increase incentives for research.[14] Research funding can also be allocated to strategically important projects or sectors, which may prove to be optimal for society. Public support is particularly important in basic research and in high-risk innovation projects that would not otherwise attract enough private funding.

Although public support is essential for promoting R&D there are also problems related to its effectiveness. According to the statistics (Chart 8), the ratio of EU public research expenditure to GDP is already relatively high by international standards. Current direct public investment in research in the EU is therefore not necessarily insufficient.

However, public R&D expenditure and subsidies are not necessarily targeted optimally at the moment. Support mechanisms may be administratively complicated and fragmented, which makes them less appealing. Moreover, the policy coordination at national and EU level is often insufficient, which may result in overlapping programmes and ineffective use of resources (see e.g. Draghi's report). Furthermore, any Europe-wide R&D subsidy should be aimed at the most competitive projects with pan-European benefits (see also Lehmus et al., 2025). It may also be optimal to focus public investment on basic research (Akcigit et al., 2021).

It would, above all, be essential to promote incentives for companies to increase their R&D activities, the intensity of which is currently lower in the EU than in competitor countries (Chart 7). Several reports have indicated that without extensive reforms to the regulatory environment and without the mobility of capital, services and goods, Europe will not be able to achieve its R&D targets and remain globally competitive (e.g. Draghi, 2024; Pfeiffer et al., 2023; IMF, 2024a; European Commission, 2024).

However, growth in R&D may ultimately be limited by a shortage of appropriately trained and educated individuals. Since 2007, the size of the R&D workforce in the EU has increased by almost 70%. The proportion of the population with a higher education degree has also grown, but to a lesser extent, by 60%. A shortage of skills may therefore limit the ability of companies and research institutes to carry out R&D projects efficiently and develop new technologies.[15]

European investments can be promoted through policy measures

Investment growth in the euro area has been only fairly modest since the global financial crisis – investment has not returned to its pre-crisis level. Growth in non-residential investment has been weaker than in peer economies, although the investment-to-GDP ratio in the euro area is still reasonably high. On the other hand, intangible investments, including R&D expenditure, have increased faster than other components. Changes in

14. Many EU Member States have introduced R&D tax credits, but their effectiveness varies significantly between countries (e.g. Draghi, 2024; IMF, 2024a; IMF, 2024b; Galindo-Rueda et al., 2020; Appelt et al., 2023). The EU's Horizon Europe programme is funding applied and basic research.

15. For more on the importance of human capital for growth, see e.g. Obstbaum et al. (2025).

the channelling of investments may have positive effects on long-term growth.

Despite growth in the euro area's intangible investments, essential for productivity, this has not matched the intangible investment growth in the euro area's main peers. Investment in R&D by companies, in particular, is lower in the EU than in other major economies.

The low investment growth in the euro area has not been due to inadequate savings, as the euro area is a net exporter of capital, as indicated by the current account surplus. Instead, the subdued investment growth in the euro area may reflect the area's weak growth potential. The current balance of investment may therefore be of a permanent nature.

Accumulated savings would be channelled more effectively to investments in the EU if there were better functioning, liquid and sufficiently deep capital markets. This would require determined steps towards a genuine single market for capital – an EU capital markets union (a savings and investment union).[16] In order for this to work smoothly, a complete banking union would also be necessary. With these measures Europe could get closer to the depth of US capital markets (see e.g. Martinez et al., 2022).

Hindrances and direct barriers to investment in EU countries are discussed in, for instance, the Draghi (2024) report. Removing barriers would require extensive policy measures to streamline regulation, improve the availability and channelling of risk financing and increase the diffusion of innovations. Realising the growth potential would also require improving the availability of appropriately skilled labour to ensure that companies which are expanding and using new technologies have sufficient experts.

The European Commission's work programme, which started in 2025, sets out a number of guidelines to help Europe achieve its competitiveness and innovation objectives. The Commission's aim to simplify regulation is justified – if such changes are implemented well, this could help mobilise European investment.

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16. See also Ville Pikkarainen's (2024) article 'New impetus for the EU's capital markets union' (in Finnish) in Euro & talous.

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