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CEPR

March 2025

How large is the investment gap in the EU and how to close it?

Marco Buti,[a] Marcello Messori,[a] Debora Revoltella[b] and Diego Vila[a1]

[a]European University Institute; [b]European Investment Bank

1 INTRODUCTION

President Ursula von der Leyer has dubbed the College of Commissioners for the years 2024-2029 the "Investment Commission". To answer the call of Mario Draghi's report on European competitiveness (Draghi, 2024), the European Commission's Competitiveness Compass has laid out a strategy to close the European technology gap vis-à-vis the US and China (European Commission, 2025).

Considering that total investment as a percentage of GDP has long been higher in the EU than in the US, various commentators have argued that the most efficient goal would be to boost private innovative investment as a replacement for traditional investment. If this goal were to be achieved in the short to medium term, the additional annual funding estimated in the Draghi Report (€750–800 billion until 2030) would be substantially reduced and the technological transition would be made much easier. In this Policy Insight, we offer evidence that calls this conclusion into question (see also Buti and Messori, 2024).

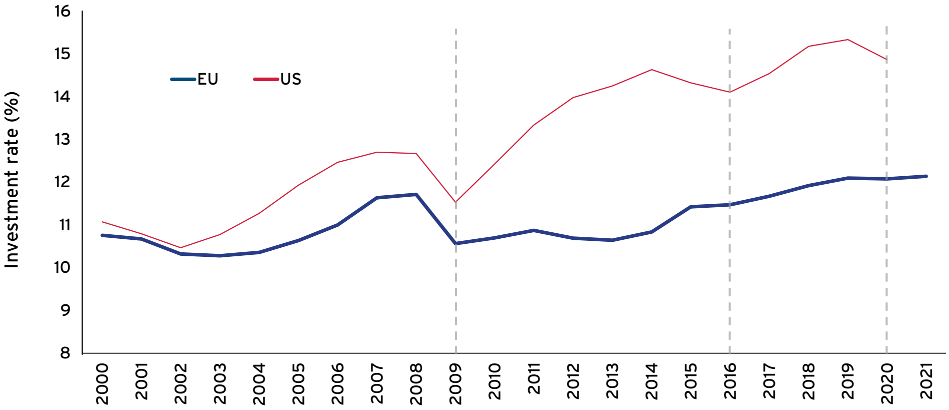
The Policy Insight is organised as follows. In Section 2, we discuss the investment gap between the EU and the US as well as within the EU across typologies of investment, time and country groups. Section 3 asks whether investment in innovative technologies and in traditional technologies are complements or substitutes. Section 4 provides a conceptual discussion of why complementarity between the two types of investment tends to dominate in the short to medium term. Section 5 explores the roles of financial market depth and the composition of public subsidies in boosting innovative investment. Section 6 concludes.

2 PRODUCTIVE INVESTMENT: HOW LARGE ARE THE GAPS?

Draghi (2024) underlines that, since 2020, the ratio of investment excluding the real estate sector (what Draghi calls "productive investment") to GDP has always been lower in the EU than in the US. Figure 1 shows the dynamics of this ratio for both during the initial two decades of the new century, divided in four subperiods: (1) the first ten years of the euro, (2) the Global Financial Crisis (GFC), (2) the recovery years, (3) the pandemic, and (4) the post-pandemic period (Buti and Corsetti, 2024). The figure shows that, from the early 2000s, European productive investment has recorded a negative gap relative to the US which has widened since the outset of the GFC.

1 The authors benefitted from the comments at a workshop organised by the EUI's EMU Lab and the Bocconi's IEP, where an initial version of the paper was presented. The usual caveats apply.

Figure 1 'Productive' investment (traditional + innovative technologies)



Source: Authors' elaboration based on EIB data.

A breakdown of total investment across different typologies for the EU and the US is shown in Table 1. Let us first focus on the difference between the intensity of investment in *innovative* technologies (ICT equipment, research and development, IT software and databases, intellectual property products) in the US and the EU during the first decade of the euro and the years 2009-2015. In the two subperiods, the difference rose from 2.2 to 3.0 percentage points of GDP. In the following years, the gap increased further. While innovative investment ratios increased in both the EU and the US, the acceleration in the latter was much stronger.

Conversely, investment in *mature* technologies (transport equipment, IT hardware and other machinery, various equipment) remained stable and relatively similar in the two economies. Hence, *prima facie*, a substitution effect between investment in innovative technologies and investment in traditional technologies has not been at work at the aggregate level in the US or the EU.

Table 1 Real investment across periods and types of technology: EU vs US (%)

		2000-2008	2009-2015	2016-2019	2020-2021
EU	Total investment	24.3	22.4	22.9	24.0
	Construction	13.4	11.5	11.1	11.9
	Traditional technologies	7.1	6.6	7.1	6.9
	Innovative technologies	3.7	4.2	4.6	5.1
US	Total investment	22.3	20.6	22.6	-
	Construction	10.7	7.1	7.8	-
	Traditional technologies	5.9	6.4	6.7	-
	Innovative technologies	5.9	7.2	8.3	-

Source: Authors' elaboration based on EIB data.

It is worth noting that the EU is not a homogeneous area. To assess the investment gaps within the EU, it is important to look at how the member states differ. We assign the EU countries into four groups: Continental Europe (Belgium, Germany, France, Luxembourg, the Netherlands and Austria); Eastern Europe (Bulgaria, Czechia, Hungary, Poland, Estonia, Croatia, Latvia, Lithuania, Slovenia and Slovakia); the Mediterranean countries (Greece, Spain, Italy, Cyprus, Malta and Portugal); and the Nordic countries (Denmark, Finland and Sweden). Table 2 presents the dynamics of the different typologies of investment for the four groups.

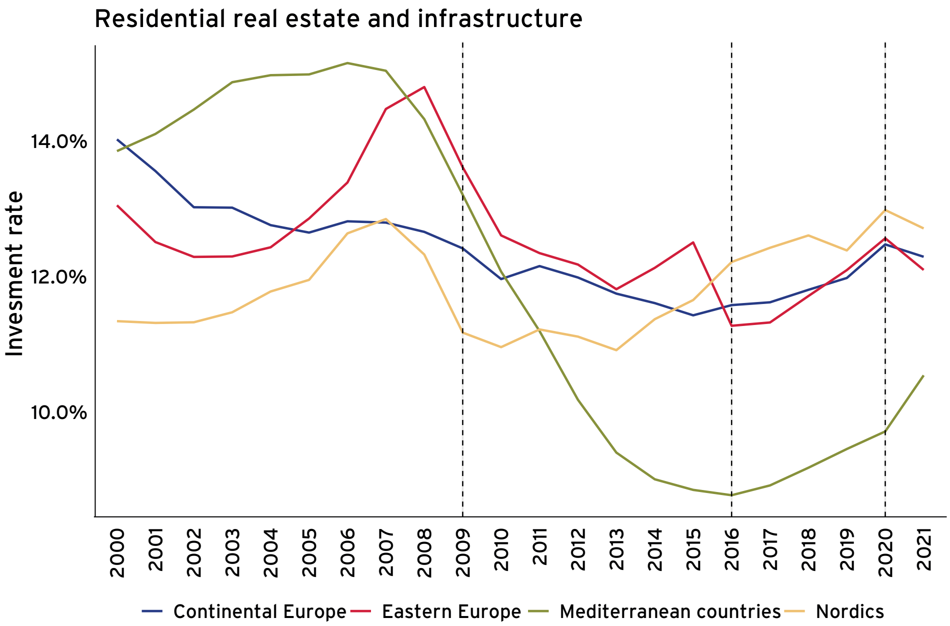
Table 2 EU real investment across periods, types of technology and country groups (%)

		2000-2008	2009-2015	2016-2019	2020-2021	2000-2021
Continental Europe	Total investment	23.6	22.7	23.5	24.3	22.7
	Construction	13.0	11.9	11.7	12.4	12.0
	Trad. technologies	6.7	6.3	6.8	6.5	6.4
	Innov. technologies	3.9	4.5	5.0	5.4	4.4
Eastern Europe	Total investment	24.9	24.2	23.8	24.8	23.2
	Construction	13.1	12.5	11.6	12.3	11.9
	Trad. technologies	9.4	9.3	9.5	9.2	8.9
	Innov. technologies	2.4	2.5	2.7	3.2	2.5
Mediterranean countries	Total investment	25.0	20.1	19.8	21.3	21.5
	Construction	14.6	10.6	9.1	10.1	11.5
	Trad. technologies	7.5	6.2	6.8	6.9	6.7
	Innov. technologies	2.9	3.4	3.9	4.3	3.3
Nordic countries	Total investment	24.9	23.4	26.6	27.5	24.1
	Construction	11.9	11.2	12.4	12.8	11.4
	Trad. technologies	6.7	6.5	7.2	6.8	6.4
	Innov. technologies	6.3	6.8	7.0	7.9	6.4

Source: Authors' elaboration based on EIB data.

Figures 2 to 4 provide further detail. Figure 2 shows that, in the years 2009 to 2016, investment ratios in real estate and construction suffered strong negative adjustments in Eastern Europe and the Mediterranean countries following the housing bubble that preceded the GFC in these two groups of countries. Adjustments also occurred in Continental Europe and the Nordic countries, albeit at a more moderate pace. Investment in real estate recovered moderately since 2016, with the exception of the Nordic countries, where a stabilisation had already begun at the end of 2010 and led to a stronger recovery since 2013.

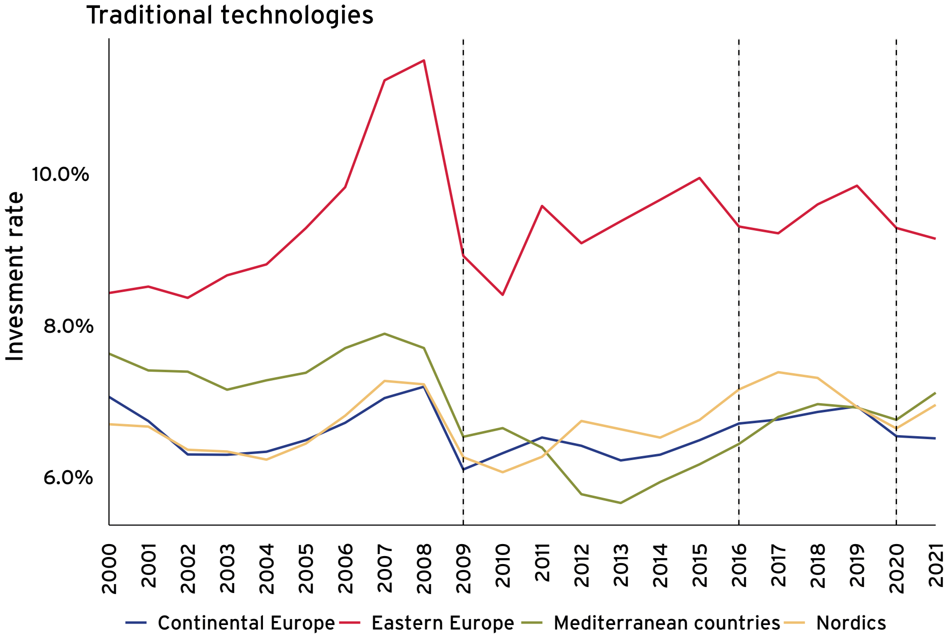
Figure 2 Non-productive investment within the EU



Source: Authors' elaboration based on EIB data.

Trends and cyclical changes in investment in traditional technologies were quite aligned during the 20-year period under review, with the exception of Eastern Europe which, due to its catching-up process, has been more reliant on investment in these technologies (see Figure 3).

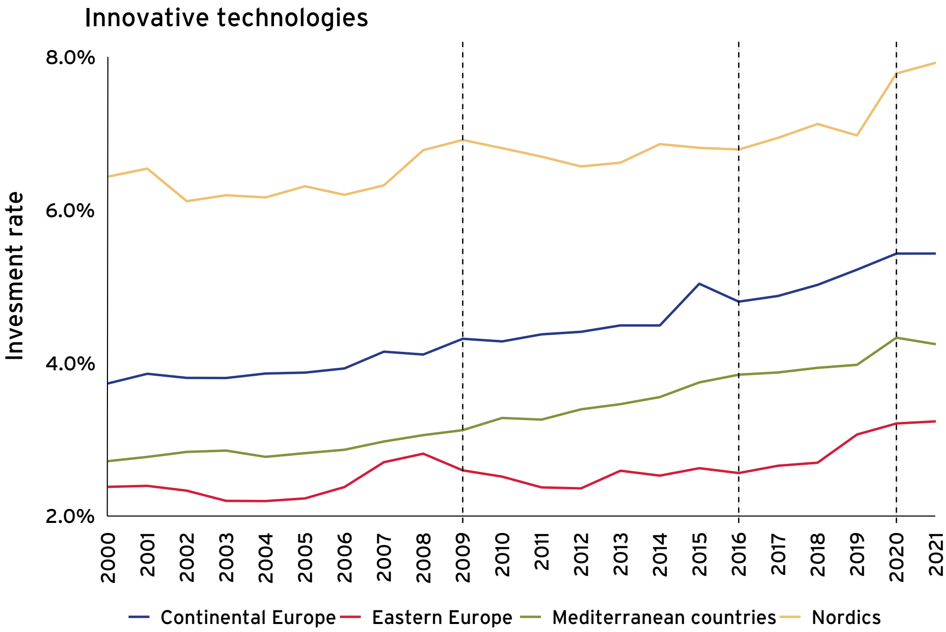
Figure 3 Traditional investment within the EU



Source: Authors' elaboration based on EIB data.

It is worth noting that investment ratios in innovative technologies in the Nordic countries were 2½ to 3 percentage points higher than those achieved in Continental Europe (Figure 4), even though the latter did not have a substantially lower per capita income. Unsurprisingly, the gap in innovative investment between the Nordic countries the Mediterranean countries – and, *a fortiori*, with Eastern Europe – was even more pronounced.

Figure 4 Innovative investment within the EU



Source: Authors' elaboration based on EIB data.

In sum, the evidence shows that, in contrast to the Nordic countries, Continental Europe and the Mediterranean countries seem to be trapped in a 'curse of mature technology'. The evidence, however, offers an additional insight. Similarly to the comparison between the US and the EU as a whole, the gaps in innovative investment *within* the EU and the relative uniformity of traditional investment point to no significant substitution between the two types of investment.

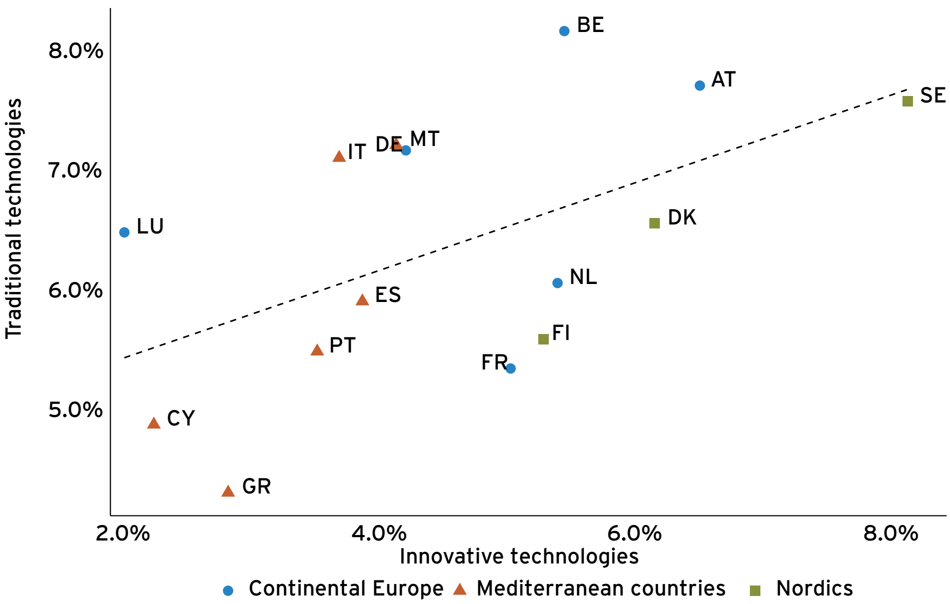
3 TRADITIONAL AND INNOVATIVE INVESTMENTS: COMPLEMENTARITY OR SUBSTITUTABILITY?

The conclusion of the previous section is consistent with Draghi (2024).[2] Conversely, various commentators (e.g., Gros et al., 2024; Zettelmeyer, 2025) suggest that the crucial goal is not an *increase* in overall European investment but its *composition*. In the view of these scholars, the issue at stake is mainly the substitution of innovative investments for traditional ones. We share the *incipit* of their view: unless the EU economy embarks on a path of 'creative destruction', reducing its reliance on robust but traditional technologies, it will remain stuck in the current 'mature technology trap' (see Fuest et al., 2024). However, the *sequitur* of their argument – that creative destruction can occur in the short run via a shift to innovative technologies that crowd out traditional technologies – is questionable. This 'substitution' approach would imply a much lower level of additional financial resources than the yearly €800 billion put forward by Draghi (2024).

As shown in the previous section, the comparison between different subsets of investment in the Nordic and in the Continental countries during the last two decades points to higher innovative investment being accompanied by a relative uniformity in traditional investment.

One could ask, however, whether higher investment in innovative technologies could be a forerunner for lower investment in traditional technologies. In this case, one should observe a negative correlation between innovative investment at time t and traditional investment at time *t*+i (where i ≥ 1). However, as shown in Figure 5, such a negative correlation does not appear. This result would not change if different time lags were used. Hence, our first conclusion is that complementary outweighs substitutability.

Figure 5 Average investment rate in innovative technologies (2001-2011) vs changes in average investment rate in traditional technologies (2011-2021)



Source: Authors' elaboration based on EIB data.

2 See also Letta (2024) and Buti and Messori (2023).

4 DOES SCHUMPETER SUPPORT INVESTMENT SUBSTITUTION?

The descriptive evidence presented in the previous section is only suggestive, because we do not control for the possible impact of other variables. However, it is interesting to note that 'complementarity' is actually coherent with a line of theoretical reasoning often referred to by supporters of the 'substitutability' view.

As already recalled, supporters of the substitution approach often refer to the Schumpeterian analysis of the dynamics of economic development triggered by the process of 'creative destruction' in market economies (Schumpeter, 1912, Chapter 2; 1939, Chapters III and IV). Referring to Schumpeter's distinction between traditional firms and innovators, they maintain that the entry of the latter immediately put the former out of the market. However, this reading of Schumpeter's approach is ill-founded (Messori, 2004).

We show in the Annex that, as long as innovative investments are not completed and have not translated into a more efficient supply of goods and services, old production activities maintain or even improve their profitability, so that it would be economically inefficient to eliminate or reduce their traditional investment. Processes of 'creative destruction' thus require new actors carrying out innovative and risky investments that are added to the traditional ones. Innovative investments can succeed or fail over time; in the meantime, however, market signals play against the substitution of investments with uncertain outcomes for profitable investments in more traditional activities. Therefore, there will be replacement only when innovative activities are eventually validated by the market and thus become more profitable than traditional ones.

The indication, offered by the process of 'creative destruction', is clear cut: in the short to medium term, there is complementarity rather than substitution between traditional and innovative activities. This result depends on the specific features of the Schumpeterian scheme, such as the assumptions of a lengthening of the innovative production process and full employment. However, these traits mirror (in simplified forms) typical aspects of international value chains and the shortage of human resources with qualifications to match innovations. Read with this perspective, Schumpeter's analysis seems to capture well the case of the European automotive supply chain.

Our conclusion is that, in order to redirect production activities towards high-tech sectors, it is necessary to activate processes that will take time. During the transition, overall investment must therefore increase. This conclusion does not imply that markets or policies cannot affect the speed and efficiency of the reallocation of resources from more traditional to more innovative activities. In the following section we argue that, in this respect, financial markets and public spending play a crucial role.

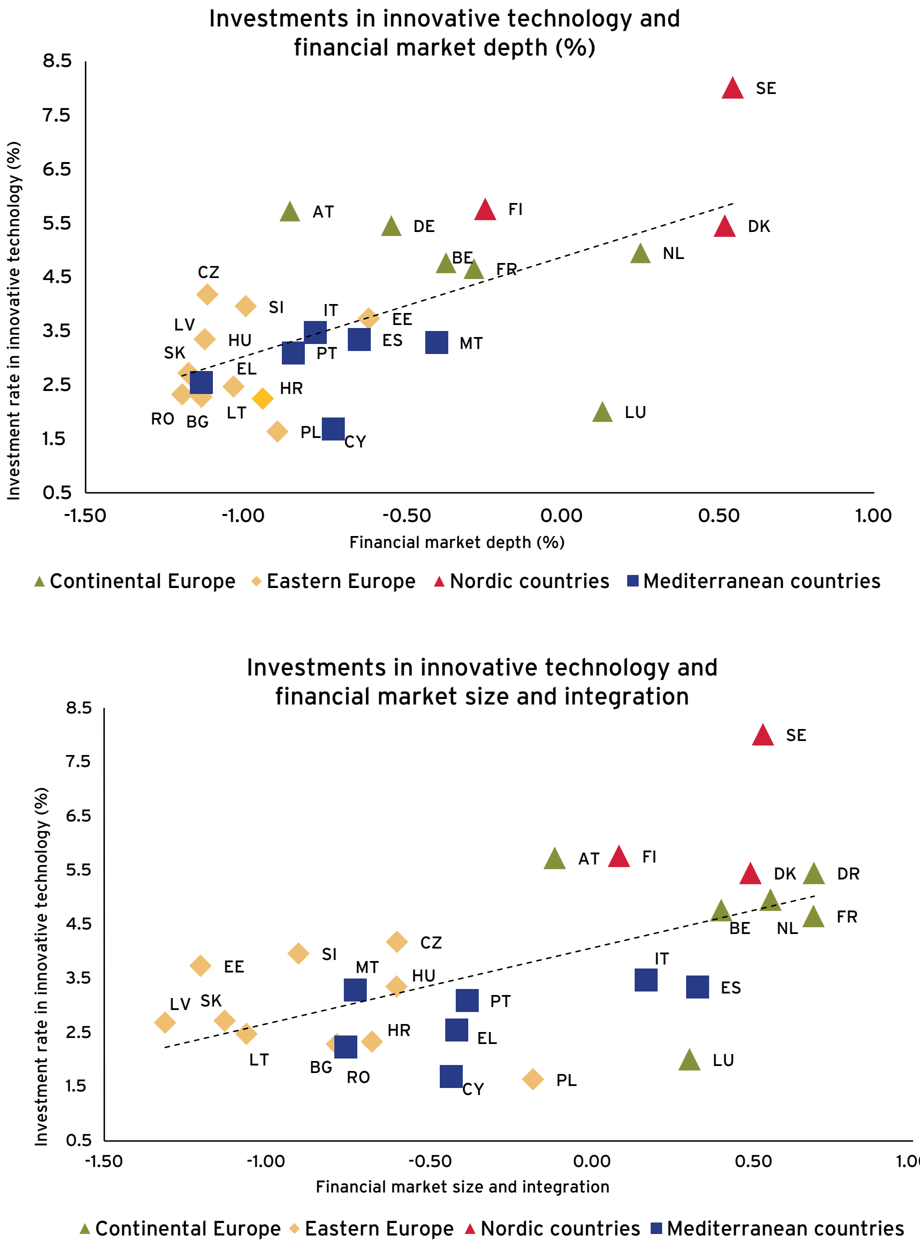
5 CAPITAL MARKETS INTEGRATION AND TARGETED POLICY SUPPORT MATTER

The functioning of financial markets is important in fostering investment in innovation. European financial markets are largely bank-based. In most EU countries, households' financial wealth is held in cash and bank deposits, with only a small share invested in equity. Moreover, institutional intermediaries (pension funds and the life branch of insurance companies) tend be small and to have limited appetite for equity and risk, so that even the small portion of their resources allocated to equity tends to be invested either in global portfolios or in a small set of domestic companies, but rarely cross-border within the EU.

This does not lend itself to a swift reallocation of resources towards innovative technologies that are typically characterised by high risk and high return and, notably when they emerge from spin-offs of fundamental research, are backed by weak collateral. Therefore, their financing cannot be based on the banking channel but requires funding via capital markets (shares) or via non-market forms of equity (such as private equity or venture capital). The underdevelopment of these financial instruments in many EU countries contributes to keeping innovative investment low. The exceptions, at least in relative terms, are the Nordic countries and the Netherlands.

Although less advanced than the US, the Nordic countries have deeper financial markets. It therefore does not come as a surprise that equity finance for innovation plays a more important role in these countries than in the rest of the EU. As shown in Figure 6, there is a positive correlation between the degree of integration and the depth of financial markets, on the one hand, and innovative investments on the other hand.

Figure 6 Innovative investment and the structure of financial markets in EU countries



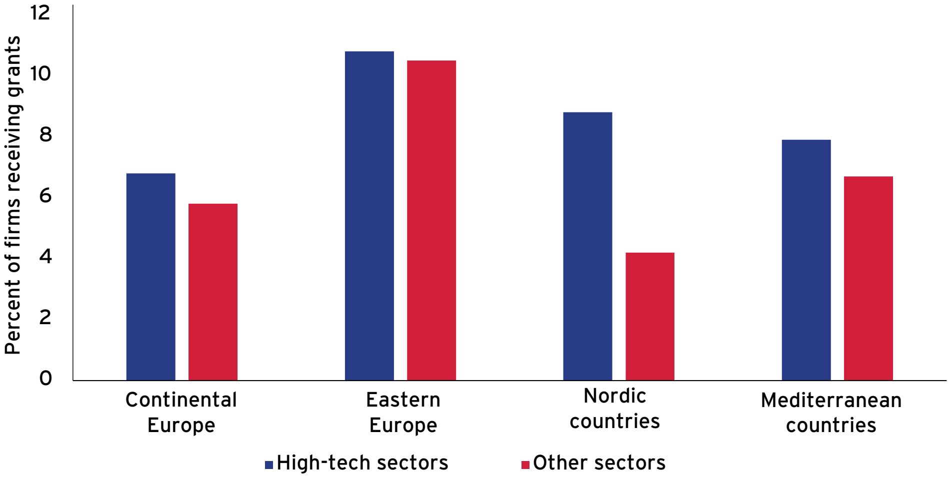
Source: Authors' elaboration based on EIB data.

A stronger appetite for equity would potentially bring upsides for EU wealth-owners as well as for EU firms; the European Investment Bank's *Investment Report 2024/2025* (EIB, 2025) shows that households could secure higher long-term returns on their financial portfolios and firms could utilise larger capital availability to improve their growth rates. In this last respect, firms issuing equity as a source of financing are 7 percentage points more likely to invest and 12 percentage points more likely to innovate.

Public spending also affects the quantity and quality of investment. Most governments in the EU support investment in the private sector via public subsidies.

A survey of EU firms conducted by the European Investment Bank shows that 16% of these firms has received financial support in 2024 (EIB, 2025). What is striking is the different allocation of such policy support in the different groups of EU countries. As illustrated by Figure 7, there is a positive correlation between the concentration of national public interventions in support of innovative firms and investment in high-tech sectors. Unlike the rest of the EU, the Nordic countries are characterised by a highly concentrated allocation of public subsidies in support of firms operating in high-tech sectors.

Figure 7 Share of firms receiving grants in the high-tech sector and other sectors



Source: Authors' elaboration based on EIB data.

6 CONCLUSIONS

To thrive in the new geoeconomic reality, the EU must build a dynamic economy based on an effective integration of manufacturing and advanced services and significant increases in labour productivity. This requires higher innovative investment financed through the mobilisation of a large amount of additional public and private resources.

In this Policy Insight, we have shown that a sizeable and persistent investment gap in innovative technologies exists between the US and the EU and, within the EU, between the Nordic countries and the other member states. We have argued that, for the EU to free itself from the 'trap of mature technologies', it is illusory to aim at directly replacing traditional with innovative investments. Therefore, the overall financing requirements – estimated in the Draghi Report at €750–800 annually until 2030 – will be considerable. If successful, in the medium to long term the European production structure will evolve, leading to a gradual substitution between the two types of investment. This replacement will tend to be faster in those sectors directly linked to the 'green transition'.

We have also argued that the functioning of financial markets and the targeting of public expenditure support are important in easing the EU's financing constraints, and thus in accelerating the deployment of innovative investment. These can be achieved via the effective construction of integrated capital markets at the EU level (Capital Markets Union, lately dubbed Saving and Investment Union) and the intelligent application of the new fiscal rules. These policy reforms need to be embedded in a policy strategy based on the production of European public goods in the green, digital and social transitions, as well as in defence and security. In this regard, the forthcoming reform of the European budget is key, as is the role of the European Investment Bank.

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ANNEX: SUBSTITUTABILITY AND COMPLEMENTARITY: A SCHUMPETERIAN MODEL

Let us start by referring to Schumpeter's stationary state.[3] A given set of m firms reiterates its production processes at an invariant scale through time by implementing a positive amount of traditional gross investments (net investments are, by construction, equal to 0) and by obtaining a 'normal' rate of return (also equal to 0). We have:

$$R_s = \sum_{j=1}^{m} R_{jt-1} = \sum_{j=1}^{m} R_{jt};\ M = \sum_{j=1}^{m} M_{jt-1} = \sum_{j=1}^{m} M_{jt};\ N = \sum_{j=1}^{m} N_{jt};\ w_s = w_t \quad (1)$$

where R_s denotes the unchanging aggregate monetary proceeds achieved by the m firms in each period of the stationary state; R_{jt-1} and R_j the monetary proceeds got by firm j (j = 1,2,..., m), respectively, at the beginning of the previous period (t-1) and of the current period t, and stored until the beginning of the following period; M the unchanging amount of legal tender in the economic system; M_{jt-1} and M_{jt} the quantity of legal tender that firm j carried over, respectively, from t-1 and t; N the level of full employment; N_{jt} the amount of labour services hired by firm j at the beginning of period t by utilising its available amount of legal tender (M_{jt-1}); and w_t the money wage rate in period t which equalises the aggregate demand (M) for and the aggregate supply (N) of labour, and which is unchanging over each period of the stationary state (w_s).

Equation (1) shows that the advance of money income to labour transfers the existing quantity of legal tender to workers who fully utilise it (i.e., propensity to consume equal to 1) to carry out their unchanging purchase of the available amount of the final good. The aggregate supply of this good in period t is given by the total sum of the output produced by each of the firms at the end of the previous period and held in stock (O_{st-1}). This means that there is an unchanging level of output (O_s) in the stationary state. We have:

$$w_s N = \sum_{j=1}^{m} p_{jt}\, O_{jt-1} = p_s O_s = M = R_s \quad (2)$$

where $\sum_{j=1}^{m} O_{jt-1} = O_s$; and the equilibrium market price of the final good, produced by firm j in period t –1 and exchanged in period t (p_{jt} ∀ j = 1,2, ..., m), is unchanging over the stationary state ($p_{jt} = p_{js} = p_s$).

According to Schumpeter, at the beginning of period t+1, (n-m) new firms enter the market and obtain new purchasing power through financial markets to start (n-m) innovative production processes. The previous m firms have an unchanged budget constraint, given by the monetary proceeds that arose in the previous stationary state. It follows that, at the beginning of period t+1, the aggregate monetary demand for labour becomes:

$$R_s + \sum_{k=m+1}^{n} F_k = M + F_I \quad (3)$$

where F_k denotes the amount of financing obtained by the innovative firm k (k = m+1, ..., n) and the related F_I denotes the total amount of financing obtained by the set of innovators.

Given equations (1) and (2), equation (3) implies that the beginning of period t+1 is characterised by the following exchanges:

$$M + F_I = w_{t+1} N = p_{t+1} O_s, \quad (4)$$

where $w_{t+1} > w_s$ and $p_{t+1} > p_s$.

Equation (4) has three important implications for the working of the economy during period t+1. First, the set of the old m firms can hire an amount of labour lower than N due to its unchanged monetary demand for labour and the increase in money wages, that is, $\sum_{j=1}^{m} N_{jt+1} < N$. As a consequence, there is a decrease in the output of the traditional productions that will be sold at the beginning of the following period (t+2),

3 In the following, we refer to Messori (2004).

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that is, $\sum_{j=1}^{m} O_{jt+1} < O_s$. Second, despite the increase in monetary wages, the purchasing power of workers in t+1 does not increase because of the unchanged amount of the final good available in the market ($\sum_{j=1}^{m} O_{jt} = O_s$); hence, there is an increase in the price level which is proportional to that of money wages ($w_{t+1}/p_{t+1} = w_s/p_s$). Third, being the only suppliers of the final good, the old m firms obtain aggregate monetary proceeds ($M + F_I$) higher than their unchanged total production costs (M), thus reaching unexpected profits ρ_{t+1}. We have:

$$\rho_{t+1} = p_{t+1} O_s - w_{t+1} \sum_{j=1}^{m} N_{jt+1} = (M + F_I) - M \tag{5}$$

In the vertically integrated production process typical of the 'Austrian School', each new firm cannot withdraw the investments required for its innovative process from the m firms (Schumpeter, 1939, p. 93). Hence, new firms must produce their innovative investments as intermediate goods. The easiest assumption is that the production of these intermediate goods takes just one period, and that an additional period is needed to produce the final good in an innovative way by combining the new intermediate goods with labour.[4] Innovative firms are thus able to supply the final good on the market at the beginning of the third period after their entry in the market, that is, at the beginning of period t+3. It follows that, at the beginning of t+2, the equilibrium in the labour market and the monetary demand for the final good do not substantially change. Hence, the m firms continue to obtain an invariant amount of profits; conversely, workers suffer a decrease in their real wages (i.e., they undergo 'forced savings') due to the decrease in the supply of the final good ($\sum_{j=1}^{m} O_{jt+1} < O_s$).

At the beginning of period t+3, the innovative output is supplied in the market of the final good. If expectations are met, this additional output will more than compensate for the negative difference between the current output and that offered by the old m firms in the stationary state. Therefore, at the aggregate level, the price of the final good decreases, the set of the m firms suffer losses, the innovative firms attain their expected profits, and the unchanged amount of money wages leads to real wages higher than those in force in the stationary state and in t+1. Only at this point (i.e., in the medium to long term) does the market signal that the old firms unable to imitate the innovators (i.e., those unable to replace their traditional investments with the innovative ones) will go bankrupt.

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4 It is worth noting that any further lengthening of the production processes would make Schumpeter's model more complex, but it would strengthen the implications of our analysis.

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ABOUT THE AUTHORS

Marco Buti holds the Tommaso Padoa-Schioppa Chair of Economic and Monetary Integration at the European University Institute. Until May 2023, he was Head of Cabinet of Commissioner Paolo Gentiloni, who is responsible in the European Commission for economic affairs and taxation. From December 2008 until November 2019, he was Director General for Economic and Financial Affairs at the European Commission. He was educated at the Universities of Florence and Oxford. Since 1987, when he joined the European Commission, he held various positions including that of economic advisor to the Commission President. He has been visiting professor at the Universitè Libre de Bruxelles, the University of Florence and at the European University Institute. He has published extensively on EMU, macroeconomic policies, structural reforms, welfare state, and unemployment.

Marcello Messori is a part-time Professor at the Schuman Centre, European University Institute, where he is also a member of the EMU-Lab. He is a non-resident Fellow at the Institute for European Policy Making, Bocconi University, and co-coordinator of the 'Gruppo Europa' at the Astrid Foundation. He has been the coordinator of a group of advisers for the European Parliament, a Professor of Economics at LUISS and University of Rome 'Tor Vergata', Visiting Professor at various European universities, and Visiting Scholar at several US, Irish, and Australian universities. He has published about 300 works in Italian, English, French, and German. In recent years, his field of work has focused on the economic governance of the EU, and mainly on financial and economic policy problems. He has been the coordinator of national and international research groups, and has been involved in various institutional activities. In this last respect, he was president of the Italian Railways company and president of the Italian Association of Asset Management (Assogestioni). Currently, he is president of Allianz Bank.

Debora Revoltella is the Chief Economist and Director of the Economics Department of the European Investment Bank and has held this position since April 2011. She holds a degree in Economics and a Master in Economics from Bocconi University as well as a PhD in Economics from the University of Ancona in Italy. After working as as an adjunct Professor in Macroeconomics at Bocconi University, Debora joined the research department of Banca Commerciale Italiana. In 2001, she joined UniCredit as the Chief Economist for Central and Eastern Europe. She is a member of the Steering Committees of the Vienna Initiative and the CompNet, an alternate member of the Board of the Joint Vienna Institute, and a member of the Boards of the SUERF and the Euro 50 Group.

Diego Vila is a PhD candidate in Economics at the European University Institute and holds an MSc in Econometrics from the University of Amsterdam. His research interests lie in the fields of Macroeconomics, Monetary Economics, Fiscal Policy and Financial Stability. Diego has worked as a Research Assistant at the Economic and Monetary Union Lab at the Robert Schuman Center of the EUI and at the DG of Macroprudential Policy and Financial Stability European Central Bank.

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