BANCA D'ITALIA
EUROSISTEMA

Questioni di Economia e Finanza

(Occasional Papers)

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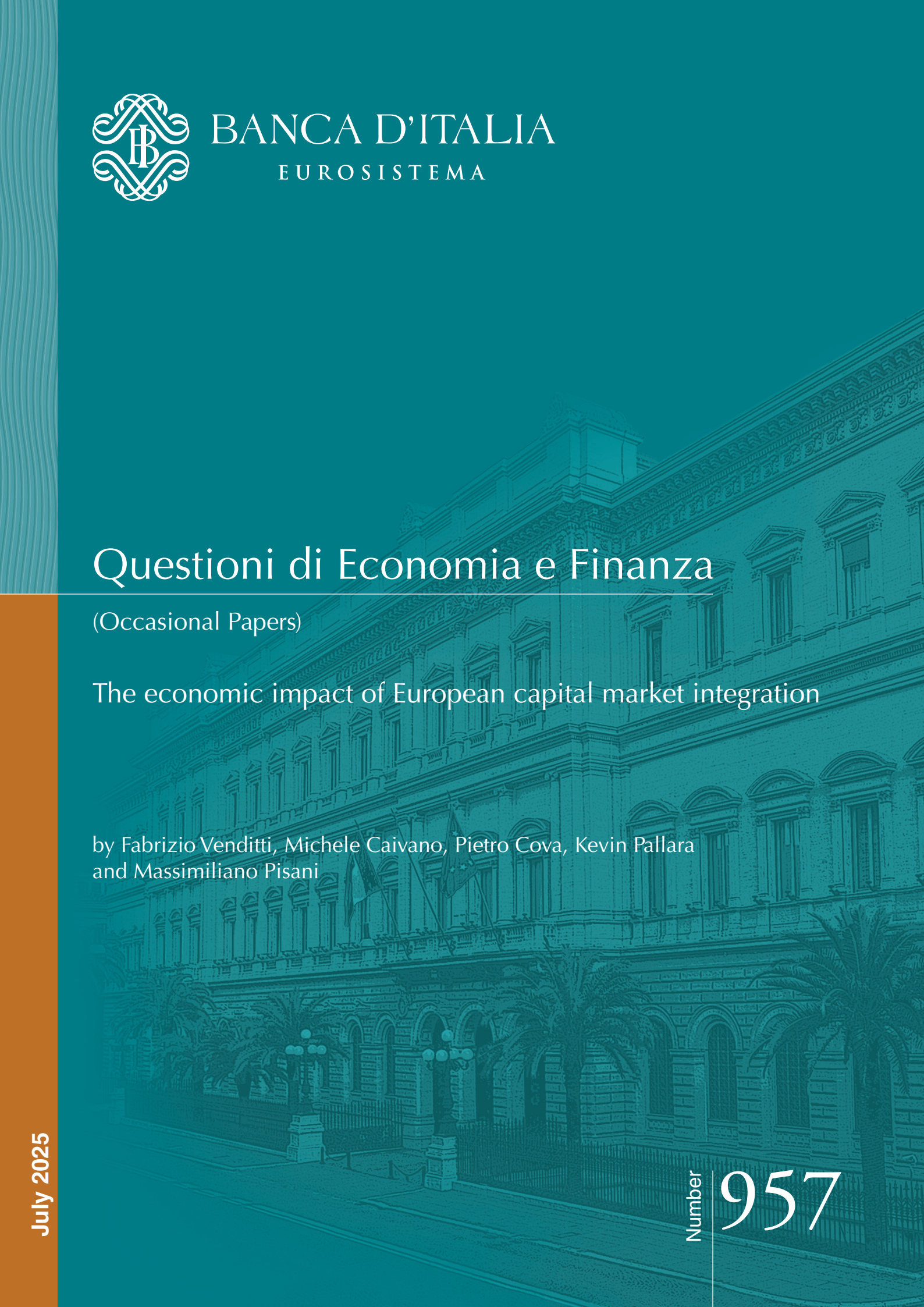
by Fabrizio Venditti, Michele Caivano, Pietro Cova, Kevin Pallara and Massimiliano Pisani



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THE ECONOMIC IMPACT OF EUROPEAN CAPITAL MARKET INTEGRATION

by Fabrizio Venditti*, Michele Caivano*, Pietro Cova*, Kevin Pallara* and Massimiliano Pisani*

Abstract

Enhancing innovation and productivity is a primary challenge for the European economy. To achieve this goal, it is essential to step up investment in innovative projects. Advancing the integration of capital markets, a key objective of the Savings and Investment Union, can be pivotal in this effort by reducing financing costs and strengthening the investment ecosystem. We argue that the integration of European capital markets – including the introduction of a common European safe asset – could raise investment levels by approximately 1 per cent of GDP. Over a ten-year horizon this would raise GDP by 1.5 per cent. If additional investment were focused on R&D spending, the impact would be three times as great.

JEL Classification: E22, F36, G20, O16.

Keywords: Capital Market Union, Savings and Investment Union, capital market integration, safe asset, investment, R&D.

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1. Introduction

Growth in Europe lags behind that in the United States, mainly due to slower productivity growth. A key factor behind this gap is Europe's comparatively weak investment in sectors with high innovation potential, such as Information and Communication Technology (ICT). For instance, in 2023, industrial R&D spending in the ICT software sector was under €20 billion in the EU, compared to over 180€bn in the US (Nindl et al., 2024).

While enhancing innovation and productivity in Europe is essential to jumpstart growth, funding needs are daunting. Just to finance the dual (digital and green) transition and to strengthen the European defence, around 800€bn per year in 2025-2030 are required. Panetta (2022), for example, places the need at about 500€bn per year for climate and energy security, 75€bn for the digital transition, 42€bn for education, upskilling and reskilling of the labour force, and 70€bn in defence spending, for a total of around 700€bn per year. Bouabdallah et al. (2024) reach a similar conclusion calling for 5.4€trn investment in seven years (770€bn per year) for the energy and digital transition, as well as for defence spending. Estimates in Draghi (2024) are in the same ballpark.

Given limited fiscal space in Europe, substantial financing should be provided by the private sector, in a ratio of the order of 5:1 according to some studies (Darvas and Wolff, 2021).

Not only private capital needs to be mobilized, but it also needs to be directed towards more innovative projects. In the EU, the saving rate is high (around 14.5% of disposable income), but about a third of households' financial assets are held in cash and bank deposits.[1] Banks, in turn, have limited risk bearing capacity and tend to finance more conservative investment projects of companies that already have tangible capital that can be used as collateral. Channelling savings to venture capital funds, for instance via institutional investors such as insurances and pension funds, could unlock resources for innovative firms.[2]

A major hurdle to productivity-enhancing investment in Europe is insufficient capital market integration.[3] Since the launch in 2015 of the Capital Market Union (CMU) initiative, progress has been slow and the European financial market remains fragmented. In January, the European Commission has launched the Competitiveness Compass (European Commission, 2025a), a strategic framework that aims at strengthening the European economy by pursuing three goals: closing the innovation gap, decarbonizing the economy and increasing security by reducing

[1] "According to ECB data, household financial assets in the EU amounted to approximately EUR 34.5 trillion at the end of 2023, with approximately one-third (around EUR 11.5 trillion) held in cash and deposits.", see Arampatzi et al. (2025).

[2] *"In the United States, the top six companies by market capitalization, each valued at more than $1 trillion, were initially financed by these investors and are now global players in the digital revolution."* Panetta, F. (2024), Final remarks, Banca d'Italia.

[3] Many policymakers have advocated completing the Banking Union and Capital Markets Union as essential steps toward a fully integrated Economic and Monetary Union in Europe (Rossi, 2015; Visco, 2015; Constancio, 2018).

dependency in strategic sectors. To achieve these goals, the Compass recognizes that a boost to productive investment is needed and that the lack of sufficient market integration contributes (among other factors) to stifling investment opportunities. In particular, the Compass states that:

"The EU's financial sector does not channel [savings] efficiently to productive investment or allocate sufficient capital to innovation in the EU economy. As a result, citizens do not get adequate returns on their savings." It concludes that "*The EU must integrate and have deeper and more liquid capital markets as a necessary step to mobilize private sector resources and direct them towards future oriented growth sectors.*"

In order to give new impetus to the process of capital market integration, the European Commission has launched a new initiative, the Savings and Investment Union (SIU). Building on the Letta report (Letta, 2024) the SIU embodies the EU's ambition to connect savings with investment opportunities, encompassing the whole financial system (i.e. including capital markets and the banking sector).

The analysis in the European Commission on the relationship between capital market integration and investment opportunities echoes the conclusions in Panetta (2024).[4] Concretely, the steps highlighted by the Commission to achieve an integrated European capital market blend initiatives contained in the Draghi, Letta and Noyer (Noyer et al. 2024) reports, such as granting the European Investment Bank a central role in crowding in private investment, simplifying and promoting securitization, integrating market infrastructure and developing European savings products to increase flows into European capital markets. A subset of these steps should be implemented by 2026.[5] Sweden, where households gain exposure to equities via either pensions funds or accounts that enjoy tax advantages, is often quoted as a virtuous example, whereby higher participation in riskier financial market segments has fostered the growth of large investment groups that provide the type of patient capital needed by innovative firms to thrive.[6]

Capital market integration would also greatly benefit from the availability of a common European safe asset for several reasons[7]. First, such an asset would provide a clear reference for the pricing of financial instruments across Europe. Second, it would ease transactions in repo and derivatives markets by serving as high-quality collateral. Third, it would foster an ecosystem of specialized financial intermediaries and lay the groundwork for a deep and liquid European bond market.

[4] Also Letta (2024) advocates for a Savings and Investments Union to channel European savings towards growth and strategic autonomy.
[5] See the Commission's communication on the SIU (European Commission, 2025b). Similar policy proposals have been recently put forward by the Kaskarelis et al. (2025) and Arampatzi et al. (2025).
[6] See box 2 "Sweden's retail market" in Draghi (2024).
[7] For the relationship between a safe asset and market integration see Constancio (2018) and Panetta (2024). In March 2025, the European Parliament's Economic and Monetary Affairs Committee published a draft report on facilitating the financing of investments and reforms to boost European competitiveness and creating a Capital Markets Union that "highlights the importance of issuing a common safe asset at the EU level to facilitate the achievement of capital market integration" (European Parliament, 2025). See also Panetta (2023, 2024a, 2024b).

Finally, it would contribute to the stability of the whole financial system by mitigating the home bias in banks' sovereign bond holdings, hence weakening the feedback loop between national banks and public finances.

While the benefits of higher integrating for the functioning of the financial markets are clear, a quantification of its macroeconomic impact is lacking. Equally important, the channels through which these effects would unfold have not been clearly spelled out. This paper is a first step towards filling this gap.

We identify two distinct channels. The first (a price effect) is a fall in the cost of capital for European companies, due to lower risk and liquidity premia and, should a European safe asset become available, to a reduction of the risk-free rates. We argue that the cost of capital could fall by around 50 basis points, half of which due to the availability of a safe asset. Using a general equilibrium model calibrated for the euro area, we find that this translates into a yearly stimulus to investment of about 1% of GDP and a boost to economic activity that ranges from 1.5% to 4.5% of GDP, depending on whether investment is in physical capital or R&D expenditure.

Second, higher integration could increase the appetite for investing in the EU of both domestic and foreign investors with higher risk propensity (a quality effect). Insofar as these investors are more skilled at finding investment opportunities, their entrance would shift the investment demand curve much like a positive TFP shock. A back-of-the-envelope calculation suggests that, under reasonable assumptions, this could generate additional investments for 0.35% of GDP per year, boosting GDP by a further 1.6%.

In all scenarios, growth would be partly funded by capital inflows into Europe.

The rest of the paper is organized as follows. Section 2 discusses more formally the channels. Section 3 describes the model and the results. Section 4 concludes.

2. The channels

Capital market integration is expected to influence portfolio choices of households and financial intermediaries, reshape market infrastructure, and broaden the investor base available to finance productive investment. While these transmission channels are conceptually clear, their actual impact on economic growth is less straightforward.

Consider a simple partial equilibrium example: a household reallocates €1 from a bank deposit to an investment fund, taking advantage of deeper market integration. The expectation is that the fund channels this capital toward more productive uses. However, if the original bank deposit was backing a loan to a firm undertaking an investment, the net economic gain depends on the relative productivity—or "multiplier"—of the old and new investments. In other words, growth depends not just on reallocating capital, but on improving its allocation.

Moreover, such a reallocation is often incentivized through fiscal measures like tax incentives. If these incentives are budget-neutral, they imply a reallocation of resources from other parts of the economy.

Despite these nuances, economic theory suggests that the overall impact should be positive. Banks tend to lend to established firms with sufficient collateral, often overlooking younger, more innovative companies, which turn out to receive less financing than needed. Because of its reliance on standardized and easily-scalable activities, such as mortgage issuance, an overreaching banking sector could also tilt the economy towards relatively unproductive types of investment like residential real estate (Pagano et al., 2014). Developed capital markets can relieve this financial constraint by supporting firms with higher growth potential, thus leading to more efficient outcomes.

Quantifying the net effects is, however, a complex task, requiring some simplifying assumptions. Our approach begins by distinguishing between two broad channels: price effects and quality effects. The former includes the effects on the cost of capital, while the latter captures the benefits from the additional investment opportunities. We first draw on findings from the economic literature to estimate the impact of capital market integration via price effects, which we interpret as a conservative, lower-bound estimate of its potential benefits. As for the quality effects, the literature offers less guidance. However, by considering a range of plausible scenarios, we argue that substantially greater economic gains than those suggested by price effects alone could materialize.

The price effect. The price effect arises from higher risk diversification opportunities, higher market liquidity and the availability of a safe asset, which would lower cost of capital and stimulate the economy much like a favourable credit supply shock would do.

Just to clarify how we approach the issue, take a company that issues a corporate bond in an environment of extreme case of market segmentation, such that this bond is only bought by domestic investors. The bond pays an interest *R* that can be split in three components:

$$R = risk\ premium + liquidity\ premium + riskless\ rate$$

Now, suppose that markets become more integrated, so that a foreign investor can also purchase this bond, and also that a safe asset becomes available. All the three components of R are expected to fall.

Risk premium. Integration increases risk diversification opportunities: the default risk of the bond is likely to be less correlated with the foreign business cycle than with the domestic one. This reduces the risk premium required by foreign investors. A similar effect could arise from the change in the pool of investors. For instance, the increased presence of less risk averse investors (foreign

venture capitalists) would also reduce the risk premium[8]. Risk compensation required by investors would fall, and funds would be directed towards riskier projects.

Liquidity premium. Integration increases market liquidity. The harmonization of rules regarding issuance, disclosure, and taxation would facilitate cross-border access to instruments, increasing investor participation (European Commission, 2024). Also, better integration of market infrastructures would make transactions easier and strengthen the functioning of secondary markets. Greater informational transparency and product standardization would also encourage innovation and the diversification of portfolio strategies. These effects would be particularly significant for the corporate bond market, which is currently hindered by regulatory and operational fragmentation. The facilitation of securitization would help too, as explained in the proposals in the Letta, Draghi, and Noyer reports (Chen et al., 2007).[9] By improving market liquidity, capital market integration would lower the liquidity premium that investors require to lock their funds in more sophisticated financial instruments than bank deposits.

Risk-free rate. A European safe asset would enhance the liquidity of sovereign bond markets and serve as a benchmark risk-free rate for the pricing of financial instruments throughout the Union. It could also play a stabilising role, reducing the fragmentation of funding conditions and mitigating the feedback loop between sovereigns and banks. A safe asset would improve the liquidity of the secondary market for government bonds and could benefit from a convenience yield currently exploited by the Bund at the euro area level, therefore reducing the risk-free rate against which other financial instruments are priced. Indirectly, a safe asset would contribute to improving the liquidity of private financial instruments by fostering the emergence of large market players. For example, in the US the existence of a large market for US treasuries contributed to increasing the liquidity of other instruments, like certificate deposits (D'Amico and Alekseev, 2025).

Quantifying the price effects. We assume that capital market integration decreases financing costs for firms by 20 to 30 basis points by lowering risk and liquidity premia. To see how we reach this estimate, let us start from the effect of improved risk sharing on risk premia. Although empirical studies on the effect of *cross-sectional* risk sharing on investment via financial markets are lacking, a recent paper on the US economy (Schneider, 2022) estimates the effect of a fall in *inter-temporal* risk. The two concepts are different but closely related. Intertemporal risk sharing connects the same economic agent at two different points in time, while cross-sectional sharing connects two different economic agents at the same point in time. Schneider (2022) finds that eliminating intertemporal

[8] Technically speaking, in the first case what changes is the quantity of risk, i.e. the covariance between investors' discount factors and the payoffs of the bond. In the latter case it is the price of risk, i.e. the compensation required by less risk-averse investors to hold the bond.

[9] The paper analyzes the impact of liquidity on corporate bond yield spreads, highlighting how less liquid instruments carry significantly higher premiums. The authors emphasize that an improvement in liquidity conditions is associated with a substantial reduction in spreads, all else being equal in terms of credit risk.

risk in the US economy would lead to a sizeable fall of the term premium, by about 40 basis points.[10] This is a large number, as the complete elimination of risk is unrealistic, but provides a benchmark estimate. As for liquidity premia, Chen et al. (2007) show that a small euro-area country would experience a reduction in average corporate debt financing costs of 48 basis points if the regulatory framework on insolvency were improved. Again, this is a large effect that probably overstates the reduction in the cost of financing that capital market integration could generate. Aiming for conservative assumptions, we assume that this could amount to one fourth of the effects outlined above, so about a 25 basis points reduction putting together lower risk and liquidity premia. As for the risk-free component of R, estimates by Pallara et al. (2025) suggest that by capturing liquidity and convenience premia currently reflected in Bund yields, a European safe asset could reduce risk-free rates by 20 to 30 basis points.

Putting together these numbers, our working assumption is that capital market integration could lead to a fall in the cost of capital for the European economy by about 50 basis points.

The quality effects. Investment could also increase due to a change in the pool of investors and stronger foreign direct investment (FDI). An easier-to-navigate financial ecosystem would attract, for example, venture capital funds, fostering new investment opportunities in high-productivity projects. Kortum and Lerner (2000) find that "a dollar of venture capital appears to be about three times as potent in stimulating patents than a dollar of traditional corporate R&D investment[11]." Moreover, both venture capital and FDIs generate significant positive spillovers for other domestic firms. Venture capital funds increase the propensity to innovate of existing mature firms and foster the creation of new businesses (Schnitzer and Watzinger, 2022). FDIs enhance the productivity of local firms (Keller and Yeaple, 2021), especially that of direct suppliers to the foreign firm (Blalock and Gertler, 2008).

Quantifying the quality effects is particularly hard due to the lack of empirical evidence. In section 4 we simply consider a scenario the current gap in venture capital investments between Europe and the US directed to R&D is halved.

Two remarks are important. First, price and quality effects are distinct but not independent. They are distinct because the former assumes the production frontier is fixed and unchanged, and only

[10] The exercise uses a calibrated macro-finance model to quantify the fall of term premia that would follow from a reduction of the intertemporal elasticity of substitution (IES) of risk averse agents. In the model real bonds are risky assets, i.e. their value goes down in bad states, and therefore risk-averse investors require a premium to hold them. A lower IES implies that agents are less averse to consumption fluctuations over time, hence require a lower premium to hold long-term bonds (i.e. the price of risk falls), leading to lower long-term rates. A fall in inter-temporal physical risk would affect long-term rates in the same direction. The fall of 40 basis points estimated in the model is likely to be an upper bound, as it would imply a flat yield curve. An important caveat is that financial markets integration may also act as a source of foreign spillovers, with an opposite effect on consumption volatility and risk premia.

[11] The study uses variation in American legislation that allowed pension funds to invest in venture capital to generate an exogenous change in venture capital investment.

captures the effect of a reduction in the cost of financing available to firms. The latter assumes that the frontier is endogenous (both at the firm level and in aggregate) and that it expands thanks to a change in the investors' ecosystem and opportunities. They are, however interrelated in many ways. For example, the increase in financial market liquidity implied by capital market integration not only lowers the cost of funding but also facilitates the entry of venture capitalists. Since the goal of these funds is to liquidate investments after a certain period, limited exit opportunities can hinder ex-ante the presence of such funds. Second, the effects could be larger, through some of the channels mentioned at the beginning of the section and that we have not explicitly considered and quantified. For instance, most proposals for improving financial integration suggest using tax incentives to develop private pension schemes. This would channel retail investors towards security markets. Securitization is also an area of development that would foster risk diversification and the participation of a broader investors' base[12]. Considering these additional channels, the economic effects could therefore be larger than here estimated.

3. Model description and calibration

We evaluate the macroeconomic effects of capital market integration on the economy by simulating a (quarterly) dynamic equilibrium model calibrated to the euro area. The economy exchanges one good and a one-period bond with the rest of the world. The good is used for consumption and investment purposes. The bond is representative of the overall net foreign asset (NFA) position and pays an interest rate which, for the sake of simplicity, is kept constant. The rest of the world is taken as exogenous.

In the domestic economy there is one representative household and one representative firm. Both household and firm act under perfect competition; thus, all prices are fully flexible (the only exception is the interest rate on the bond, which is constant) and taken as given.

The household consumes, supplies labor, and invests in the physical capital, the R&D stock, and the internationally traded bond[13]. The accumulation laws of physical capital and R&D stocks are subject to (specific) quadratic adjustment costs on the corresponding change in investment. The position in the internationally traded bond is also subject to standard quadratic adjustment costs[14].

The firm produces the good according to a CES production function, using capital, the stock of R&D, and labor as inputs, all supplied by the domestic household.

[12] By dividing securities into tranches with varying levels of risk and return, securitization enables investors to select exposures that align with their risk tolerance. This mechanism broadens the investor base and facilitates the distribution of risk across different market participants.
[13] Household's consumption is also subject to external habit. This assumption mitigates the volatility of the macroeconomic responses following a shock.
[14] This is a common assumption in this class of (incomplete market) models to guarantee the model's stationarity.

Crucially, the stock of R&D, differently from physical capital, positively affects the level of the firm's total factor productivity (TFP). Thus, investing in R&D has positive supply-side effects on EA production through both the accumulation of the R&D stock and the resulting higher TFP level.

The model is stylized but has all the necessary ingredients to study the macroeconomic effects of the channels described in Section 2.

In the model the so-called 'great-ratios' (e.g., long-run, steady-state values of consumption-to-GDP ratio, investment in physical capital-to-GDP, investment in R&D-to-GDP ratio) and parameters are set in line with the existing literature.

Given this calibration, the relationship between the cost of capital and investment matches that of the European Commission model used in Draghi (2024)[15].

Finally, we take particular care in matching the elasticity of TFP to investment in R&D, as this provides an upper bound of the economic effects of higher investment. A vast literature has documented the positive effect of R&D investment on productivity and output growth but empirical estimates of the elasticity of output with respect to R&D vary across methodologies, data sources, and levels of aggregation. However, they all consistently point to substantial private and social returns. At the micro level, firm-level studies generally estimate output elasticities in the range of 0.1 to 0.3 (and some as high as 0.6, OECD, 2015, et al., 2010, Nadiri, 1993, Wieser, 2005). These elasticities typically reflect the direct returns firms obtain from their own R&D activities. Industry- and macro-level studies find lower elasticities, with central tendencies between 0.05 and 0.2 (CBO, 2005, Blanco et al., 2016, Hall & Mairesse, 1995). A similar range is obtained in cross-country studies (Van Elk et al., 2019, Guellec & van Pottelsberghe, 2004). When spillovers are explicitly considered, elasticity estimates rise markedly, supporting the hypothesis of underinvestment in R&D from a social efficiency perspective[16].

We calibrate the TFP multiplier of R&D spending based on the results in Bertolotti et al. (2024). Using a structural production function model estimated on firm-level data, Bertolotti et al. (2024) find that a one-off 1% increase in private R&D investment generates a 0.016% increase after eight years in the level of TFP of firms undertaking the investment. In the Appendix, we show that (i) assuming that the TFP follows a simple autoregressive process, (ii) accounting for the share of firms undertaking R&D and for spillovers to other firms and sectors, the long-run elasticity of TFP to

[15] In particular, according to Draghi (2024) "*To unlock private investment in the order of magnitude of 4% of GDP through market financing alone would require a reduction in the private cost of capital – by approximately 250 basis points in the European Commission model*". See also, box 3 "Macroeconomic effects", Draghi (2024).

[16] While the private rate of return to R&D investment is commonly estimated between 20% and 30%, social returns – which incorporate knowledge spillovers to other firms and sectors – can reach 50% or more. For example, Lucking et al. (2019) estimate a marginal private return of 17% and a corresponding social return of 67%, implying substantial externalities from R&D spending.

R&D spending could be in the order of 0.1. Considering that R&D spending amounts to around 2.5% of GDP, this elasticity can be transformed into a multiplier by using the formula:

$$\frac{dY}{dI_{R\&D}} = \frac{dY/Y}{dI_{R\&D}/I_{R\&D}} * \frac{Y}{I_{R\&D}} = \epsilon_{Y/I_{R\&D}} * \frac{Y}{I_{R\&D}} = \frac{0.1}{0.025} = 4$$

Own estimates, obtained using local projections, yield comparable results, as we document in the Appendix.[17]

4. Results

We start by simulating the price effects by reducing the cost of capital used as inputs by firms by around 50 basis points. All else equal, this raises the (net) return on capital by the same amount and stimulates investment up to the point where the marginal productivity of capital matches the lower cost of capital. Given the model calibration, investment increases by 1% of GDP (i.e. 150bn euros for the euro area).

Since physical and R&D capital have different effects on the economy, we study two polar cases in which the increase in the return on capital occurs only for, respectively, physical or R&D capital. Feeding the model with these shocks to physical capital investments or, alternatively, R&D investments for 20-year yields the results in Table 1.

If higher investment is only directed to physical capital, the effect on GDP is relatively contained. Additional investment (amounting to about 1% of pre-shock euro area GDP) translates into an increase in output in this scenario by 1.5% after ten years (Table 1, column 1).

Figure 1 shows the evolution of the economy in this simulation. Under the assumption that the (ex-ante) return increases only for physical capital, investment in physical capital greatly expands. Investment in R&D, on the other hand, falls because firms have an incentive to substitute R&D with physical capital, whose return has risen[18]. Given adjustment costs on investment, output rises only slowly at the beginning, but then accelerates, as new capital is installed. Higher demand for physical capital is, therefore, initially satisfied with imports from abroad, leading to an initial deterioration of the current account and of the net foreign asset position[19]. At the beginning, consumption contracts slightly, as saving becomes relatively more attractive, but then picks up as permanent income increases. TFP is assumed to remain constant in this exercise.

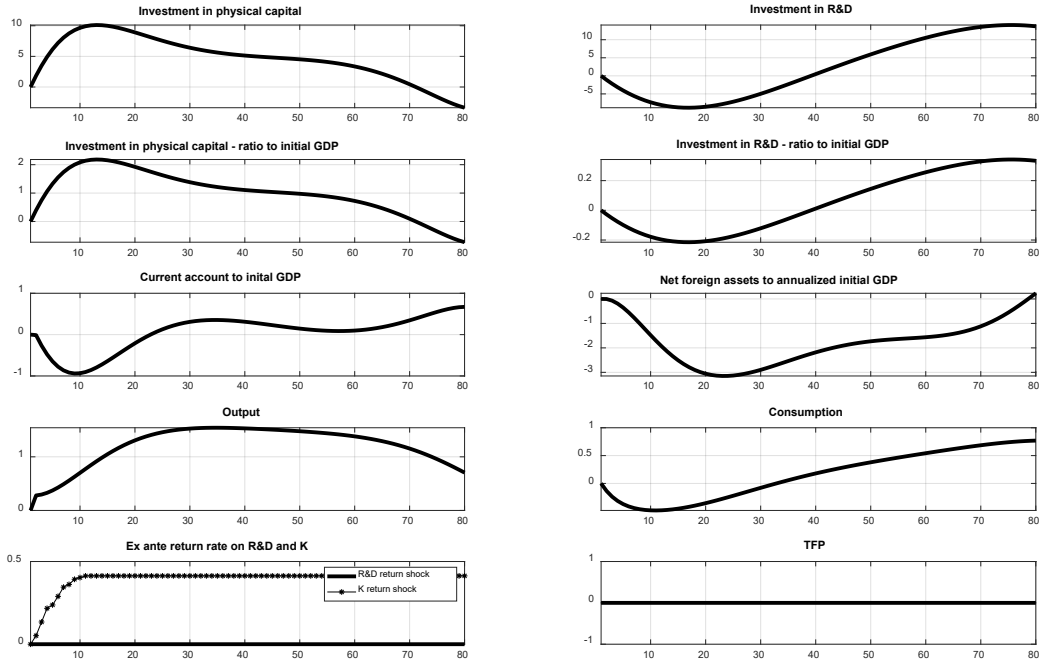
[17] See the Appendix for further details.
[18] We assume that following the shock to the ex-ante return on physical capital investments, TFP remains unaffected by changes in the R&D stock. If we allowed instead TFP to endogenously change, it would persistently decrease.
[19] Complementarity between capital and labor results in an increase in employment and in the real wage (not shown for brevity).

Table 1 – Macroeconomic effects of higher investment generated by capital market integration

		SCENARIOS	
		(1)	(2)
Additional I (% of pre shock GDP)		1%	1%
Additional I (bn EUR)		150	150
in R&D		*0*	*150*
in physical K		*150*	*0*
		IMPACTS	
	HORIZON		
GDP change from baseline level	at year 10	1.5	4.5
	20-year average	1.2	3.8
TFP change from baseline level	at year 10	0	3.4
	at year 20	0	4.1
	20-year average	0	2.9

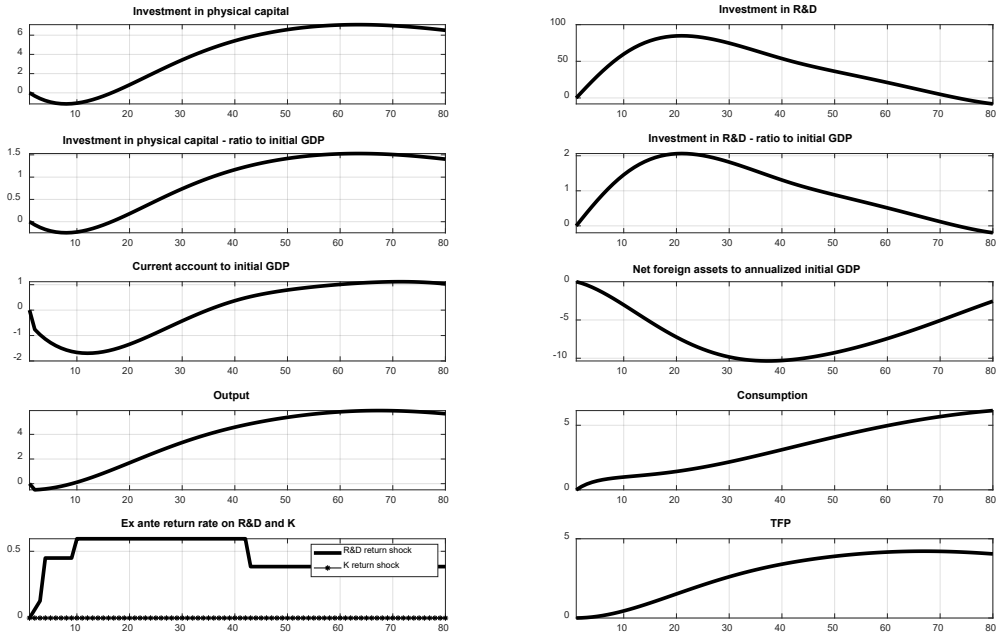
If investment is directed to R&D (Table 1, col. 2) the impact on economic activity would be much larger. In this case, the additional R&D stock leads to a very persistent increase in TFP. After ten and twenty years TFP is, respectively, 3% and 4% higher than the initial baseline level. GDP is higher by 4% after ten years and by 6% after twenty years (3.6% on average over twenty years).

Figure 1 – Macroeconomic impacts of a shock to the ex-ante returns on physical capital investments



In particular, following the positive shock to ex-ante returns firms gradually increase R&D investments (Figure 2). Knowledge accumulation favors TFP, which persistently rises over time. Higher TFP induces firms to gradually increase physical capital and labor. Households' consumption increases as well, given that households anticipate a persistently higher income. Again, the current account deteriorates at the beginning, inducing a reduction in the net foreign asset position (at the trough by around 10% of GDP). Thus, the higher aggregate demand, associated with the higher permanent income, is financed also by (net) capital inflows. Households borrow (in net terms) from abroad to finance the higher (domestic) investment without sacrificing their consumption. Capital inflows thus contribute to sustaining the increase in demand for R&D investment. The current account-to-GDP ratio deteriorates at the trough, after 2-3 years, by around 1% of GDP. Over time it improves again and brings back the NFA to equilibrium.[20]

Figure 2 – Macroeconomic impacts of a shock to the ex-ante returns on R&D investments



[20] In the model, size and speed of adjustment of the NFA, and hence the changes in the current account needed to restore equilibrium of the NFA in the long run, depend crucially on the calibration of the adjustment costs that govern the dynamics of international bond positions. Specifically, the lower the adjustment costs that govern the NFA, the more households can borrow and, thus, increase consumption. This in turn further favors EA economic activity and, through general equilibrium effects, further strengthens the accumulation of R&D and physical capital in the short run.

Assuming no issuance of the safe asset, the macroeconomic effects are halved relative to these scenarios.

Our modeling framework can also offer some guidance over the outcome that could be achieved if capital market integration also spurred an inflow of capital in the form of Venture Capital or FDIs, therefore activating 'quality effects'. In a scenario in which the gap in the share of venture capital investments between the US and Europe is halved (about 0.7 percentage points on average between 2021 and 2023[21]), additional investment for 0.35% of GDP would become available, which would finance high-productivity projects (R&D). Given that R&D investments have a multiplier of about 4.5 after ten years, this would produce, through this channel, an additional effect of 0.35 × 4.5 = 1.6% of GDP.

Before concluding, it is useful to dispel the notion that capital market integration alone can fill the investment gap in the euro area. Funding constraints and financial frictions are just one of the hurdles to investment and growth. Complex and fragmented insolvency procedures and regulation, lack of human capital to complement physical capital, insufficient public investment in areas with strong externalities, are perhaps the main factors holding back the European economy. As pointed out in the Draghi report, other barriers that currently limit innovation and dimensional growth of European firms need to be removed in order to take full advantage of the opportunities provided by a well-functioning capital market.

Importantly, additional benefits, like increased resilience to external shocks or lower financial stability risks are not directly considered in our estimates.

5. Conclusions

Completing capital market integration in Europe is an essential step towards the path to higher productivity and growth. It would reduce the cost of financing for firms and mobilize private capital, also from abroad, directed towards riskier projects with potentially high returns. The availability of a European safe asset would be crucial, to increase market liquidity and to provide a common benchmark for the entire financial system.

In this paper we spell out some of the mechanisms through which an integrated European capital market would spur investment. These include a reduction in the cost of capital (price effects) as well as increased participation, also from abroad, to market segments that finance high productivity projects (quality effects).

Using a general equilibrium model, we find that an integrated capital market centred around a common European security would reduce financing costs for businesses, triggering additional

[21] See Chart 7 in Angelini, P. (2025).

investments worth €150 billion per year and increasing output by 1.5 percent. The impact on GDP could be up to three times greater if the new investments were directed toward high-tech projects. Quality effects could add as much as 1.5% of GDP, should they reduce by half the gap in investment financed by venture capital between the US and Europe.

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Appendix

A – The long run impact of R&D spending based on microeconometric studies

We assume that TFP follows a simple autoregressive process allowing for direct effects of expenditures in R&D, as follows:

$$a_t = \alpha + \beta x_{t-1} + \rho a_{t-1} \qquad (1)$$

where a denotes TFP and x the level of R&D expenditures (all variables are in logarithms).

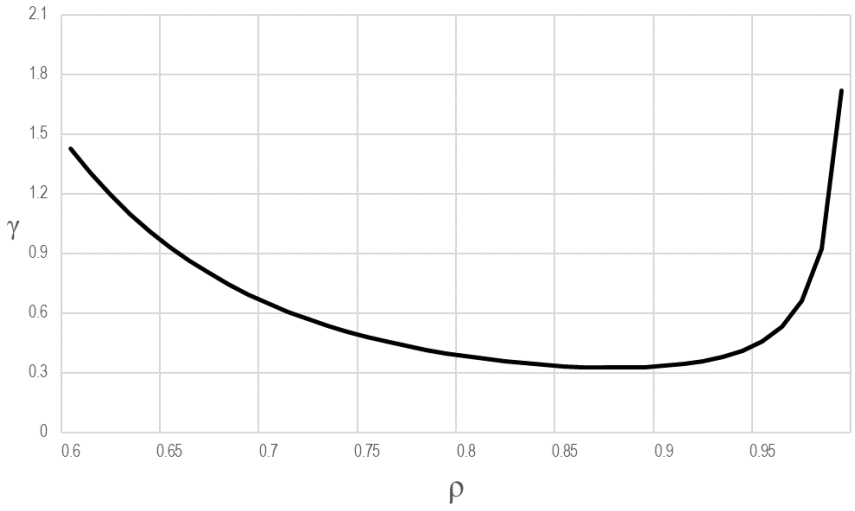
Assuming that the process is stationary, a one-off 1% increase in R&D expenditures in period t has an impact on TFP after h periods of $\gamma_h = \beta\rho^h$. The impact of a permanent increase is $\gamma = \frac{\beta}{(1-\rho)}$.

Using the results in Bertolotti et al. (2024), for firms with positive R&D expenditure a 1% increase in R&D in period 0 has the following impact in period 8:

$$\beta\rho^7 = 0.016\% \qquad (2)$$

From this result we cannot separately identify β and ρ. However, using (2) we can show how the long run impact would change for alternative values of the autoregressive coefficient. This is reported in the graph below.

Figure A1. Long run impact of permanent R&D shocks for different degrees of persistence of the TFP process



Adopting a conservative approach, we select the autoregressive coefficient that, given (2), implies the minimum long run elasticity, which is around 0.3. This elasticity is achieved for values of the autoregressive coefficient between 0.85 and 0.9. Specifically, choosing $\rho = 0.87$ would imply $\beta = 0.04$ and $\gamma = 0.33$.

In order to translate this elasticity into a multiplier, we need two additional steps. First, consistently with Bertolotti et al. (2024), the elasticity γ measures the impact on TFP for firms with positive

R&D expenditures, which account for a share θ of the value added produced by all firms. Therefore, assuming that no direct impact occurs for firms that do not undertake any R&D investment, the impact on aggregate TFP will be $\theta\gamma$. Based on data for Italy analyzed in Bertolotti et al. (2024) we calibrate $\theta = 0.15$.

Second, increases in R&D expenditures generate positive spillovers over the rest of the economy. The social return *m* of private R&D expenditure is estimated to be a multiple of the private return $\theta\gamma$. For instance, Lucking et al. (2019) estimate for the US a social return of approximately 4. In this paper we adopt a more conservative estimate *m=2*.

With these additional assumptions, we can calibrate an aggregate long run impact $\Gamma = m\theta\gamma = 0.098$. In order to obtain a multiplier we need to divide this impact of a 1% increase in R&D expenditures by the R&D intensity in Europe, which is approximately between 2.2 and 2.5%. The implied long-run multiplier would be between 4 and 4.5.

B – The long run impact of R&D spending based on time series models

As an alternative approach to have an empirical quantification of the output multiplier out of an increase in R&D investment, we estimate a set of impulse response functions using the local projections (LP) method introduced by Jordà (2005). LPs offer a flexible framework for tracking the dynamic response of output to R&D shocks without imposing a full system structure as in VARs. The estimation is based on a panel of 11 euro-area countries – Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain – over the period 1993–2021, for which consistent data on private R&D investment are available. As we are interested in the effect on output of private R&D investment, we take the latter as our shock variable. Lags of output, inflation (GDP deflator and HICP), gross fixed capital formation, the short-term interest rate as well as private R&D investment itself are used as controls. Data are sourced from the OECD, Eurostat, and LSEG Refinitiv. The estimation follows a standard fixed-effects panel structure, with country and time fixed effects and Driscoll-Kraay standard errors to account for serial and cross-sectional correlation.

Formally, for each forecast horizon h, the estimated equation is:

$$y_{i,t+h} = \alpha_{i,h} + \beta_h R\&D_{i,t} + \psi_h(L)X_{i,t-1} + \epsilon_{i,t+h}, \qquad h = 0,1,2,\dots,H \quad \text{(iii)}$$

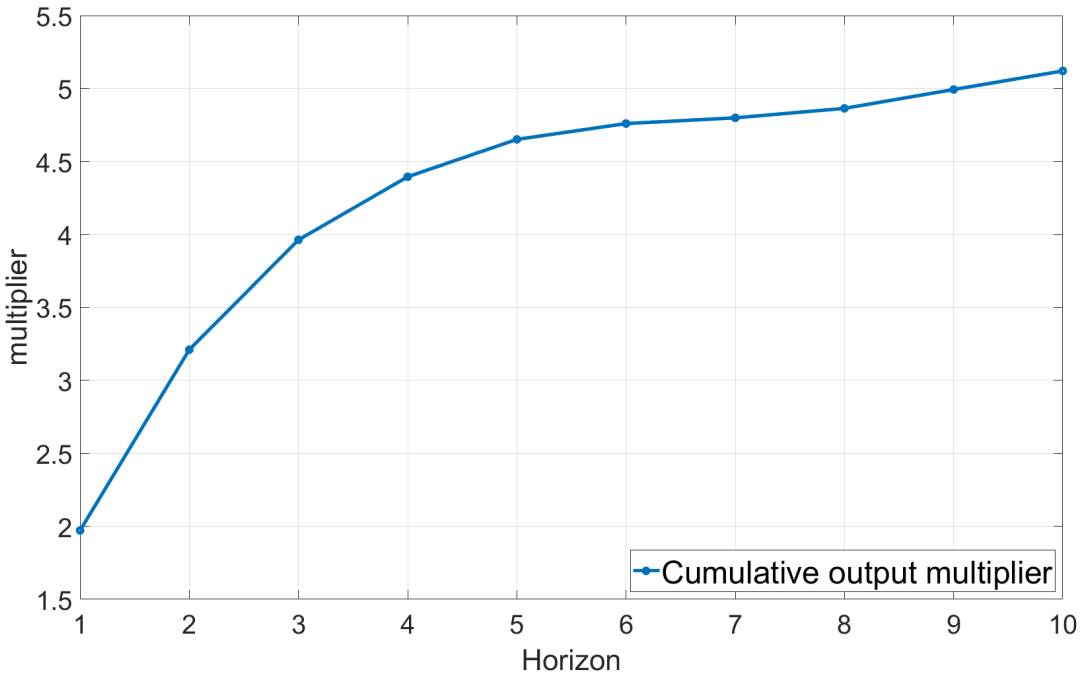
where $y_{i,t}$ is the variable whose dynamic response we want to track, $R\&D_{i,t}$ is the variable we want to shock, namely R&D private investment, and $X_{i,t}$ is a vector of control variables.[22] Estimation is performed separately for each horizon. Generally speaking, IRFs are defined by the sequence β_h, and inference is performed with Driscoll-Kraay standard errors that account for spatial correlation.

We employ the approach of Ramey and Zubairy (2018) to compute the multipliers. According to this approach, variables must be expressed in real terms and scaled by trend GDP. This allows for direct interpretation of the ratio of cumulated responses: the cumulative sum of the IRFs of output over the horizon is divided by the cumulative IRFs of R&D, yielding a euro-for-euro multiplier. Using this method, the estimated cumulative output multiplier is approximately 4.5 (Figure B1),

[22] The vector of controls includes the lags of output and R&D private investment in the baseline specification. In the robustness, which leads to similar findings, we also include lags of gross fixed capital formation, short-term rate and CPI inflation.

consistent with the amplification mechanism operating through productivity channels and in line with values obtained in the corresponding DSGE simulation discussed in the main text where R&D raises total factor productivity.

Figure B1. Output multiplier (private R&D investment): local projections



Source: Eurostat, LSEG, own elaboration.