European Commission

Study on Equity Investments in Europe: Mind the Gap

Independent Expert Report

Research and Innovation

STUDY ON EQUITY INVESTMENTS IN EUROPE: MIND THE GAP

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STUDY ON EQUITY INVESTMENTS IN EUROPE: MIND THE GAP

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FOREWORD

The creation of new companies with high scale-up potential is vital for the sustained competitiveness of the European economy and Europe's industrial and technological leadership. In this context, this study should provide and analyse data addressing the equity investments gap in Europe with a particular focus on innovative SMEs and small mid-cap companies[1] as well as assess existing support measures at EU level.

Concretely, the study has four key aims:

1. *Outline and discuss the characteristics of equity finance.*

2. *Deliver conclusive information on the characteristics and size of the equity investment gap, and sub-optimal investment situations for SMEs at EU, national and sectoral levels.*

3. *Assess whether EU policy intervention has been catalytic in helping fund managers raise funds.*

4. *Review the need for EU policy intervention and provide a set of independent recommendations for such interventions.*

The analysis together with the recommendations will underpin the policy rationale for the design of one or more equity products to be set up under one or more policy windows of InvestEU.

It should be noted that this report is drafted mainly throughout 2019, relying on data where 2018 is the most recent year possible. Therefore, the impact of Covid-19 on the VC/PE markets[2] in Europe is not reflected in our report.

[1] Small mid-caps are defined as entities employing up to 499 employees that are not SMEs.
[2] See, e.g., CB Insights (2020), *How Covid-19 could impact start-up funding*.

EXECUTIVE SUMMARY

Having a well-functioning risk capital[3] market is crucial for innovation, economic growth and investments. However, the need for external risk capital very much depends on the concrete business model. Credit plus retained earnings will be sufficient to address the investment needs of many SMEs and small mid-caps. This secures the creditor a predictable repayment profile and return, whereas the borrower gets to keep the entire upside from the investment. With equity finance on the other hand, the investors are not guaranteed any return, but instead they buy into the potential future earnings of the company. As such, equity finance is well-suited for the few high-risk, high-return profile companies, which are ineligible for credit. This typically characterises innovative companies where high scale-up is possible. Such companies are often found within ICT, life science and technology sectors.

The benefits to the wider economy of having a well-functioning risk capital market is well-documented in economic research. For example, one study finds that the return to society of a VC investment is around three times larger than the private return.[4] In addition, 43 per cent of all US listed companies founded between 1979 and 2013 are originally VC-backed, although VC funds only invest in around 0.20 per cent of all start-ups.[5] Examples include some of the world's largest and most innovative ICT companies such as Apple, Google and Microsoft, which originally were backed by VC.

Equity finance is more than just funding. Along with the capital investment often comes extensive coaching and value-added support from the equity investors whether they be business angels, or the investment teams and sector experts employed by the General Partners (GPs) in VC and PE constructions. The incentive here is obvious – they own part of the company and thus have a clear motivation to accelerate its development and boost its growth potential. It requires knowledgeable external partners and investors that are actively involved in an entrepreneurial eco-system, ultimately helping to bring innovative companies to the market.

Equity gap in Europe

Despite a recent and gradual increase in investment volumes, the European equity markets[6] continue to trail behind their US counterparts. For the large-cap segment, the difference appears manageable, but within the small- and

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3 We define risk capital as equity for start-ups and scale-ups, i.e. VC and growth PE. That is, excluding buyout and other PE.

4 Romain and van Pottelsberghe (2004), *The economic impact of Venture Capital.*

5 OECD (2018a), A portrait of innovative start-ups across countries.

6 Throughout the report, unless otherwise stated, we refer to equity markets as the non-listed market, i.e. business angels, Venture Capital and Private Equity.

mid-cap segment, equity markets are around four times larger in the US than in Europe (after adjustment for GDP).[7]

The size of ICT and life science sectors in Europe points towards the potential for more developed equity markets, as it is exactly these types of companies that demand high-risk capital. A simple correlation between the size of ICT/life science sectors and VC investments suggests a potential to increase the risk capital market in Europe by around one-third.[8] This gap indicates a lack of access to risk capital markets to fully utilise the potential of innovative high-growth companies, which could eventually be an obstacle for economic growth within these sectors. In addition, within the later-stage phases, the funding gap lead companies to seek funding abroad, e.g. in the US or China. To the extent this also makes companies shift their operations to outside EU, this could further hamper growth in the EU (see also recommendation 4 below).

Nevertheless, we do not interpret the difference solely as a lack of supply of equity finance: the causality also goes the other way – lack of innovative start-ups and a well-functioning eco-system leads to low demand for risk capital. Thus, the challenge is to create thriving ecosystems, where the high-quality and scalable start-ups emerge along with sufficient risk capital funding.

Looking across European countries, there are large differences in the maturity of the equity markets. For example, in Sweden, equity funds (including buyout PE) manage to raise above 1.5 per cent of GDP each year compared to an EU average of around 0.20 per cent.[9] However, it should be noted that the large fundraising volumes primarily relate to the large-cap segment and is primarily invested outside the respective countries. This highlights the very international character of the large-cap equity market (i.e. buyout PE). Risk capital (VC and growth PE) is a bit less mobile across borders due to the proximity required to access and manage investments in smaller companies, particularly in the early stages of development, which is better handled by a local presence.

Actual risk capital investments into portfolio companies also differ between European countries, although not to the same extent as for equity capital overall. France is one of the high scorers with above 0.20 per cent of GDP invested each year, corresponding to some EUR 5 billion, whereas the Czech Republic ranks lowest in the EU with some 0.01 per cent.[10]

Growth in the size of the risk capital markets has been modest but steady over the past decade. Particularly, 15 out of 21 European countries have experienced positive growth in investments, contributing to an average annual growth rate for the EU of around 6%.[11]

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7 Based on Invest Europe, Pitchbook and PwC/CB Insights MoneyTreeTM Report, see Figure 7.
8 Based on Invest Europe and OECD, see Figure 24.
9 Based on Invest Europe, see Figure 14.
10 Based on Invest Europe, see Figure 20.
11 Net of inflation. Based on Invest Europe and Pitchbook, see Figure 22.

Deep tech, fintech and green technology are trending

Examining sector trends, we find that equity investments within deep tech (investments in engineering innovation or scientific advances and discoveries), fintech (investments in financial technology) and cybersecurity are expected to rise in the future. In these sectors, the UK surpasses any other market. For example, within fintech, total investment between 2016-2019 is larger in the UK than that of the entire EU combined.[12]

Also, cleantech and green technology are becoming increasingly popular amongst funds, not least in light of the necessary transition to a low-carbon economy, which is dawning on the European economies. In this transition, equity funds have a crucial role to play since investment in green technologies is by nature high risk. In addition to the technological risks (e.g. the technology becomes outdated before it reaches the market), there is also a political risk that initiatives making CO2 emissions more costly are ultimately not implemented, thereby reducing the market incentives to develop, adopt and acquire cleantech innovation. However, the upside can be equally large with the potential of a global scale-up, if a company manages to introduce a winning technology on the market before anyone else.

The green agenda also calls for EU support; in addition to the large general societal benefit from equity investments, investments in cleantech can contribute to the transition to a carbon neutral economy. These environmental benefits are most likely not included in the private decision making of equity markets, further advancing the argument for public support.

Evaluation of EU programmes and recommendations

The EU has a long-standing commitment to improve framework conditions and increase capital availability for the European equity markets. This should be seen in the wider context of the Capital Market Union, with the objective of removing barriers to cross-border investments, lowering the cost of funding and helping companies tap into diverse sources of capital in order to finance their development and growth. Moreover, the EU has specific programmes in place that directly support European funds – these programmes are the focus of this report.

We have evaluated the InnovFin Equity, COSME - Equity Facility for Growth (EFG), SME Window of the European Fund for Strategic Investments (SMEW EFSI) and VentureEU programmes against a best-practice benchmark, established in economic research. As such, our recommendations – based on an economic assessment – should be seen as input to a coherent decision-making also including legal and political priorities that are not part of the scope of the report.

Fundamentally, from an economic point, the aim for public support is to create a well-functioning and robust eco-system, which can then allow public investors

[12] Based on Pitchbook, see Figure 34 in Appendix.

to gradually scale back their support, as the private market becomes more self-sustainable. In doing so, the most crucial aspect is that public funds must not crowd-out or outcompete private investors wanting to invest into the funds. Instead, public support should aim at crowding-in investors by taking up-front risk where needed. This implies that the effect of public support is larger than the actual invested amount.

General assessment: EU support to equity programmes is on track

In general, the EU's support to equity markets follows these principles with a clear intention to develop the European eco-system and crowd in private investors. We attribute the somewhat modest growth of risk capital markets in Europe to: 1) the fact that it takes time to create an equity market eco-system – often decades; 2) the development of risk capital markets depends on a number of structural policies, mostly at national level, thus beyond the scope and control of the evaluated EU programmes.

Despite being overall on track, our evaluation of the EU programmes currently in place has identified a number of focus areas for potential improvement. These are recommendations – from an economic perspective – for which direction the regulation, administration and execution of programmes should go. Thus, they do not present a call for revamping of the support system to European equity markets.

1) Make the objectives of the InvestEU programme simpler and allow flexibility to Implementing Partners within a general framework and pre-established principles

Going forward, the EU support to equity markets will be channelled through a single programme, the InvestEU. This is a welcomed development, as the many slightly different and sometimes overlapping objectives of the existing programmes make it rather complex to understand and administratively heavy to apply for funds.

Despite being an important step forward, we see that there is still room for further improvement in streamlining InvestEU; based on preliminary blueprints, there will be five policy windows within the InvestEU Fund – with a risk of numerous overlapping windows to remain.

Thus, we recommend continuing efforts within InvestEU to streamline and simplify the objectives, to allow the formation of a single equity product covering all InvestEU policy objectives.

In addition to streamlining the objectives of the programme, the experience of the existing programmes shows the need to review the level of detail and prescriptiveness of the terms provided to the Implementing Partners. We have noted that the programmes contain detailed specifications at transaction level, which may prevent the Implementing Partners in charge of the programme implementation to intervene effectively. Together with the high fragmentation observed across European equity markets, investments into different types of

intermediaries (e.g. first-time fund managers) with various investment strategies (stage and sector focus etc.) call for distinct parameters.

Thus, we recommend considering how the objectives and terms of the InvestEU could adhere to a more case-by-case approach, to allow for greater flexibility for the Implementing Partners.

For example, the InvestEU programme could incorporate the ability to provide larger commitments both in relative and absolute terms in given instances of high added value. This could be the case of supporting a new market, e.g. high-risk sectors such as deep tech and clean technologies or funds operating in emerging geographies as well as cross-border focused funds. As mentioned, this must be implemented with considerations to political and legal priorities.

2) Review the boundaries to risk absorption in EU programmes

In the design of the support programmes, an inherent risk aversion is built in; 1) a ceiling on provisioning rates, and 2) a pari-passu principle, which means, in particular, that the EU should take risk on equal footing with private investors (and both Implementing Partners and private investors for COSME - EFG).

This risk aversion might in some instances prevent the programmes from effectively intervening in line with the EU policy objectives and crowding in significant resources from private investors. The primary purpose of public funding for risk capital instruments is indeed to compensate for market failures associated with high-risk, high-potential investments often with large spill-overs not captured by private investors.

Therefore, we recommend allowing EU programmes to take higher risks by adhering to a non-pari-passu risk sharing principle in specified cases of high policy value.

For example, we suggest that the provisioning rate and the pari-passu principle could be deviated from when needed to effectively achieve certain high policy priorities and to crowd in private investors. As such, this approach follows our recommendation 1) on EU programmes adhering to a more principle-based approach. In addition, it builds on the risk-sharing structure of the already existing programme InnovFin Equity where EU's contribution is subordinated to the resources provided by IPs at programme level.

3) Ease the administrative burden

One of the issues most frequently raised during our stakeholder engagement is criticism of the programmes being too compliance heavy and difficult to administer. For example, several stakeholders mention that a fund needs a full-time employee to do the necessary reporting and compliance, when applying for EU funds. This is, in particular, a problem for smaller VC funds, which are often the ones the EU programmes seek to support. As such, there is a risk that the recipients of EU support are not those in most need and with the biggest potential – but those best at handling administrative processes and writing applications.

Therefore, we recommend that the administrative procedure is revisited, with the aim of easing the burden currently created by the process.

Such streamlining would need to take into consideration the legal and political space where the EU funding takes place. Hence, such a review would need to examine the trade-offs between easing compliance burdens and need to audit programmes.

4) Support emergence of large later-stage Pan-European equity funds

The prospects of European growth companies in the pre-IPO phase are constrained from the limited availability of later-stage financing in Europe. As a result, many European-born companies seek towards the US and China to get funding of a sufficient investment size – also because alternative channels of financing are not well developed in Europe.

We expect a main cause of the issue to be the small average fund size of European late-stage VC and growth PE funds, being around three times smaller than the US equivalent. More specifically, it is our assessment that emergence of funds in the range of above EUR 400 million would be necessary to sufficiently accommodate the funding need of these high-growth companies.

Funds of this magnitude have not previously emerged on pure market terms at a sufficient level, not least due to the issue of engaging large institutional investors in the later-stage equity market. Therefore, public involvement to kick-start this segment may be needed, and the support needs to be substantial enough to make it sufficiently attractive for private investors to participate.

We specifically recommend that the EU support to later-stage funds should be stepped up to allow contributing with investments of up to EUR 100 million per fund, to create momentum to attract private investors of a sufficient size. In doing so, the EU support could be made non-pari-passu in a balanced way, to further boost the crowding-in potential.

5) Continue strong support to the European VC eco-system

Although the majority of VC markets in Europe have experienced growth in the past decade, there is still a significant potential of further strengthening VC eco-systems. The European VC funding is still trailing far behind its American counterpart, and many geographies remain underserved.

The need for continued strong support is underlined by the fact that:

1. *Informational barriers preventing optimal market outcomes are, in particular, pronounced at the early stage.*

2. *If there is no funding for seed and start-up companies, few companies can make it to the later stage and thereby utilise their growth potential.*

In supporting the market, we suggest enhanced support for technology transfer funds, which can enhance translation of research and scientific knowledge into innovation and marketable products and technologies.[13] What is needed is the emergence of dedicated technology transfer and pre-seed/seed funds that are managed by professional and qualified teams with tech transfer expertise.

We therefore recommended that EU support to the European VC eco-system should be maintained and further increased through enhanced contribution to tech transfer.

[13] EIF, *Technology transfer: Converting research into products for the market.*

1 IMPORTANCE OF EQUITY MARKETS AND INNOVATIVE SMES AND SMALL MID-CAPS

In this chapter, we set the scene and explain the nature of equity finance and its importance for growth opportunities for innovative SMEs and small mid-cap companies (hereafter referred to as "SMEs" unless otherwise stated).

First, we outline that access to equity finance for new companies with a high scale-up ambition and potential is particularly vital for the sustained competitiveness of the European economy (section 1.1). We then argue that this is not only in terms of financing provided but also as these companies are getting advice and know-how from fund managers (section 1.2). Finally, we provide evidence that risk capital indeed plays a crucial role for the creation of valuable SMEs at a global level (section 1.3).

1.1 Equity finance is suited for high-risk and high-upside investment projects

Fundamentally, there are two types of finance available for companies: credit and equity. These two types of finance differ fundamentally in character, and, when assessing lack of finance to SMEs, it is crucial to distinguish between the two:

1. **Credit** is the promise of full reimbursement of funds plus interest. This type of finance is typically carried out by banks, whereas corporates (companies above the SME segment) can also use capital markets to issue debt (corporate bonds). From an investor perspective, credit finance is all about risk minimisation, i.e. to make sure that the borrower will not default. The creditor (typically a bank) has no upside from granting credit and the focus is on getting the money back. As such, the possibility for major scale-up is less important for a creditor as long as the business model is sufficiently robust to ensure that the borrower repays the loan.

2. **Equity**: The investors get to own a part of the company and are thus entitled to future earnings from the company, corresponding to the share, i.e. investors buy into the potential upside of the company. But equity investors are also subordinated to creditors and will only get a return if the company produces a profit – after creditors are paid. As such, the equity investors are prone to assume more risk, including potential default, in return for a potential upside. For example, the ambition is typically an increase in company value of 10-20 times for Venture Capital (VC).

The typical SME does not have the ambition and ability for such high scale-up required by equity investors. Consequently, credit is the most suited form of finance – also from an owner perspective, as they do not have to give up shares

and hereby entitlement to all future profits. It is important to note that this study does not cover the availability of credit for SMEs.[14]

Equity finance is for companies with a major scale-up potential

For the few companies, particularly SMEs, that have an ambition to scale up, the risks become too big for creditors, and equity finance becomes a relevant source of funding. However, to be worth the major risks that equity investors are running, the upside must be equally large. This means that SMEs eligible for equity finance are often highly innovative, on the edge of the technology frontier, with a unique selling point and most importantly a large scale-up potential. As such, equity financing is not turning ordinary SMEs into growth unicorns but is making the already high-potential companies even better.[15]

Even successful SMEs in a market where scale-up is not possible will often not be candidates for equity finance. This could for example be services using direct customer contact, both within B2C and B2B such as consultancies, craftsmen, accountants and hairdressers. Consequently, even in well-functioning equity markets, it is the minority of SMEs that end up receiving equity finance. For example, in the US with one of the world's most well-functioning VC markets, only 0.20 per cent of all start-ups between 1979-2005 received VC.[16] The equity-backed companies typically represent sectors such as ICT, pharmaceutical and certain retail product industries that do indeed have the potential to serve the mass markets and thus have large scale-up potential.

For the few companies that are being funded by equity funds, again only a minority manages to successfully establish on the market. For example, in the Nordics, around half of all VC investments are loss-making, cf. Figure 1. These losses are offset by the 25 per cent of the investments that provide return higher than two times the invested amount. Finally, 4 per cent of the investments return more than 10 times the invested amount.

In this context, it is important to note that companies with a return multiple in between that of loss makers and high-growth unicorns often still make it as successful companies that create jobs and growth.

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14 For an analysis of the general financing of SMEs, see for example ECB (2019), *Survey on the Access to Finance of Enterprises in the euro area* and OECD (2018d), *Enhancing SME access to diversified financing instruments*.

15 EIF, *The VC Factor: Data-driven insights about VC-backed start-ups in Europe.*

16 OECD (2018a), *A portrait of innovative start-ups across countries.*

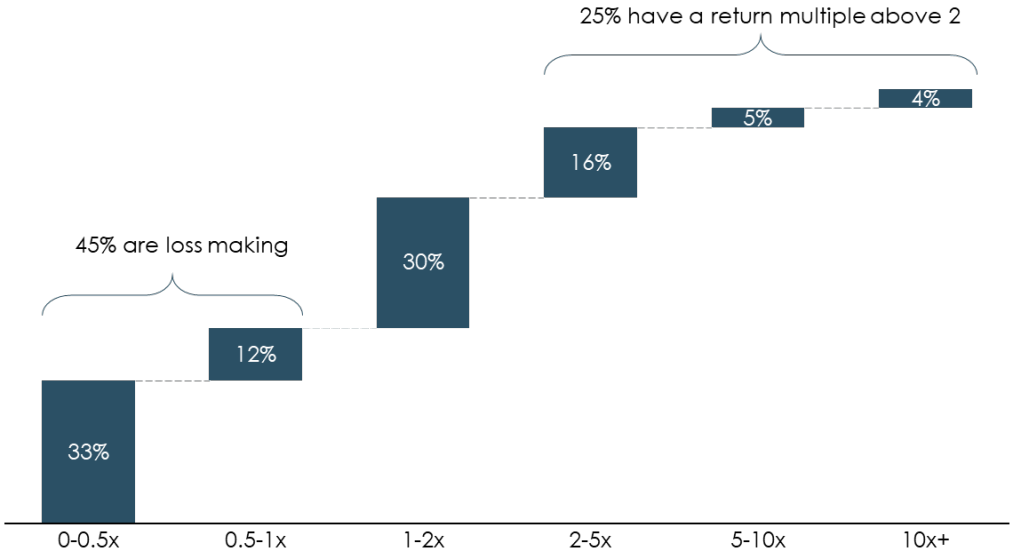

Figure 1 Distribution of return multiples (TVPI) of companies in major Nordic VC funds
Based on the Nordic Venture Capital Index (NVPI) including all the major Nordic VC companies
Note: The return multiple is measured as Total Value to Paid-in-Capital (TVPI) and is the total value of the funds' cumulative distributions compared to paid capital.
Source: NVPI

Different types of equity finance are needed throughout the growth path of a company

Equity finance can be categorised in four types. The first three types of equity finance relate to start-up and scale-up of companies (see also Figure 2):

1. **Seed VC and business angels:** Early on, when the company is not yet established and only has an idea or prototype, the entrepreneurs mostly rely on own funds or perhaps business angel funding. The first round of VC typically happens when the company has a prototype and some revenue, usually with an investment size of EUR 0.1-4 million.

2. **Start-up VC:** Once the company has a product to show and possibly some turnover growth, start-up VC funds become available, which are arranged in several rounds of varying ticket sizes:

    a. Series A: EUR 4-10 million.

    b. Series B: EUR 10-25 million.

    c. Series C: EUR 25-50 million.

3. **Late-stage VC and growth PE:** For newly established companies with high growth during the first years and typically more than 100

employees, late-stage VC and growth PE become available. Here the focus is on growing an already proven business concept. In VC/PE vocabulary, this is typically called Series C or Series D for late-stage VC according to Invest Europe's definition.[17] For growth PE, it refers to Series D or Series E rounds, i.e. ticket sizes exceed EUR 50 million.

Throughout the report, we will refer to these three types of equity finance as *risk capital* – capital used to sustain growth of start-ups. The fourth type is buyout PE:

4. **Buyout PE** somewhat differs from risk capital as the focus is not necessarily on scale-up of newly established companies. Instead, buyout PE funds often identify already established companies with a large growth potential conditioned on certain changes. This could for example be:

    - Potential for international expansion that the current board had not considered.
    - Buyout of ill-managed companies with a large growth potential given a new management team.
    - Possible synergies through several buyouts (e.g. buyout of entire value chain with monopolistic competition).

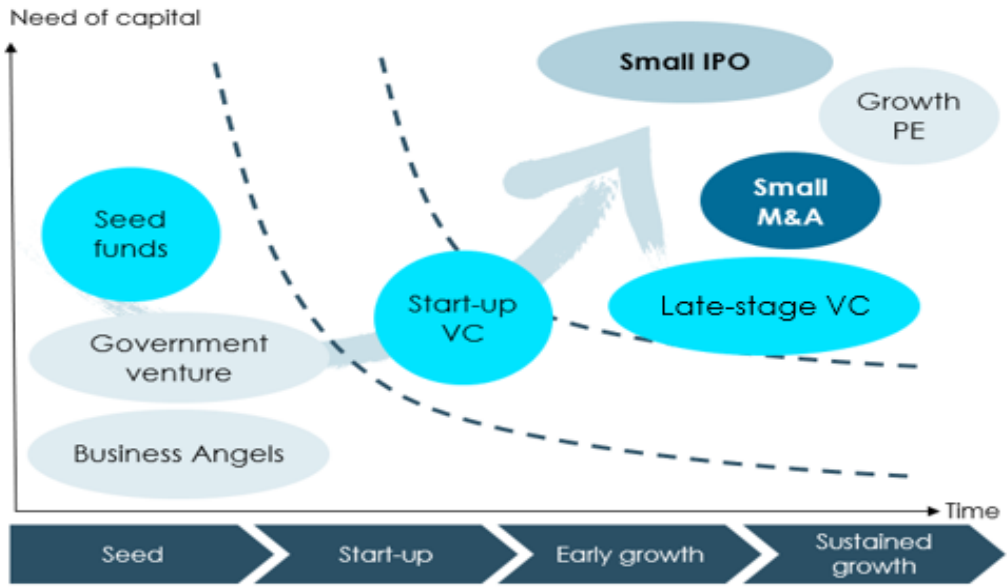

Figure 2
Growth path of innovative start-ups and their funding needs
Source:Copenhagen Economics (2019), Economic footprint of Swedish venture capital

[17] Invest Europe (2019), *Invest Europe research methodology and definitions.*

It should be noted that the distinction between the different types of equity finance is not clear-cut; different data providers use different definitions – and it often relies on how the fund classifies themselves. For example:

- Whether Series B and Series C investments should be regarded as start-up or late-stage VC is also not always clear-cut.

- A EUR +50 million investment into a start-up could both be considered a late-stage VC as well as growth PE, depending on the type of fund from which the investment originates.

- Buyout PE funds also sometimes buy into young companies, making the distinction to growth PE unclear.

1.2 Equity finance is more than just funds

The tasks of VC and PE funds fundamentally differ from the usual credit screening at banks – concretely, their tasks can be divided into four (see also Figure 3):

- **Fundraising:** As a first step, a new fund needs to find investors, also known as limited partners (LPs). Due to the risk nature of equity investments, the reputation and past performance of fund managers are very important. For newly established funds (involved in less than 2-3 funding rounds), this is naturally difficult, but here public funds can play a crucial role – it can work as a kind of blue stamp for private investors.

- **Screening and investing:** Over the following 2-4 years, the fund managers search through a large number of companies to identify investment cases. It goes without saying that picking the right start-ups, i.e. those with the best teams and ideas, is crucial to the success of the fund.

- **Active ownership:** Equity funds carry out active ownership in the companies they invest in (so-called portfolio companies), using their highly specialised knowledge, network and syndication with other funds to increase the chance of success.

- **Exit and realising value:** When the company has matured, the fund will start looking for potential buyers in other types of equity markets. The realised potential and experience are often canalised into new start-ups.

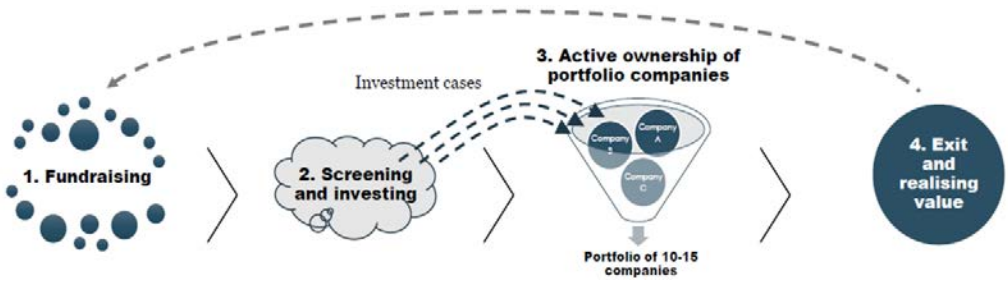

Figure 3
Four tasks of VC and PE funds
Source: Copenhagen Economics (2019c), Economic footprint of Swedish venture capital

Of these four tasks, the active ownership is a distinct feature as it does not relate to actual fundraising but is important for understanding the possibilities of a fund's success.

The VC and PE funds are managed by so-called General Partners (GPs), who represent the interest of investors in the funds (the LPs). GPs are remunerated based on the performance and have together with the LPs a strong incentive to boost the value of the portfolio companies. This structure shapes the functioning of the equity markets and the funds have a strong role in shaping and scaling up the companies they invest in.

For VC in particular, the portfolio companies are often strong content experts in their field but lack more general knowledge of creating a commercial success. Therefore, the funds usually staff previous entrepreneurs or management consultants that know what it takes to transform a good idea into a commercial success.

Concretely, we have through interviews identified the following aspects where VC and growth PE funds typically help their portfolio companies[18]:

- Finding the right strategy from the start, e.g. that the scientific strategy matches a sound financial plan.
- Minimising product risks and bringing the product to market, e.g. by providing access to global markets.
- Networking and bringing in the right talent, e.g. support in setting the right board consisting of CEO etc.
- Getting access to other sources of finance.

[18] Based on interviews for a previous study on VC, see Copenhagen Economics (2019c), *Economic footprint of Swedish venture capital*.

- Helping with standard start-up compliance.

- Choosing the best exit strategy and executing it, e.g. mergers and acquisitions, initial public offering (IPO) or private equity.

As mentioned, buyout PE somewhat distinguishes from the VC and growth PE as the required tasks are a bit different, e.g. change of management or executing a turnaround.

Equity funds are part of broader eco-system

The strong emphasis on active ownership also means that equity funds are an integrated part of the innovative business eco-system around scale-up companies. As mentioned, they often hire previous successful entrepreneurs and sector experts with in-depth knowledge. As such, the eco-system is self-enforcing; successful start-ups can spur GPs to raise funds to invest in new start-ups and staff within the start-up can create new spin-off projects. Also, returns from successfully exited start-ups are often re-invested in new projects, either as business angels or LPs in a VC fund.

Therefore, creating a successful equity market is not just a matter of enough cash – it is required to stimulate an entire eco-system of knowledge-intensive SMEs on the edge of the technology frontier.

1.3 Impact of risk capital

The potential immense societal value of well-functioning risk capital markets is well-established within economic research:

- An increase of VC of 1 EUR results in an increase in output growth of 3.33 EUR as a result of economic spill-overs, based on an analysis of 16 OECD countries.[19]

- Social return (impact on the entire economy) of R&D investments is about three times higher than the private return.[20]

- One dollar of VC invested at the level of the equity fund ("industry level") is associated with around three times more patents than one dollar of corporate R&D.[21]

- 8 per cent of the innovation by American companies in the period 1983-1992 is a result of VC investments.[22]

- Empirical research showing that VC-backed companies grow considerably more and faster than their non-VC backed counterparts.[23]

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19 Romain and van Pottelsberghe (2004), *The economic impact of Venture Capital.*
20 Colino (2016), *Cumulative Innovation and Dynamic R&D spill-overs.*
21 Schnitzer and Watzinger (2017), *Measuring the Spill-overs of Venture Capital.*
22 Kortum and Lerner (2000), *Assessing the Contribution of Venture Capital to Innovation.*

Looking at the American market, which is the most developed equity market in the world, also clearly illustrates the value of a well-functioning VC eco-system; while VC funds merely invested in around 0.20 per cent of start-ups in the US between 1979 and 2013 – these 0.20 per cent made up 43 per cent of American public listed companies founded in this period, cf. Figure 4.

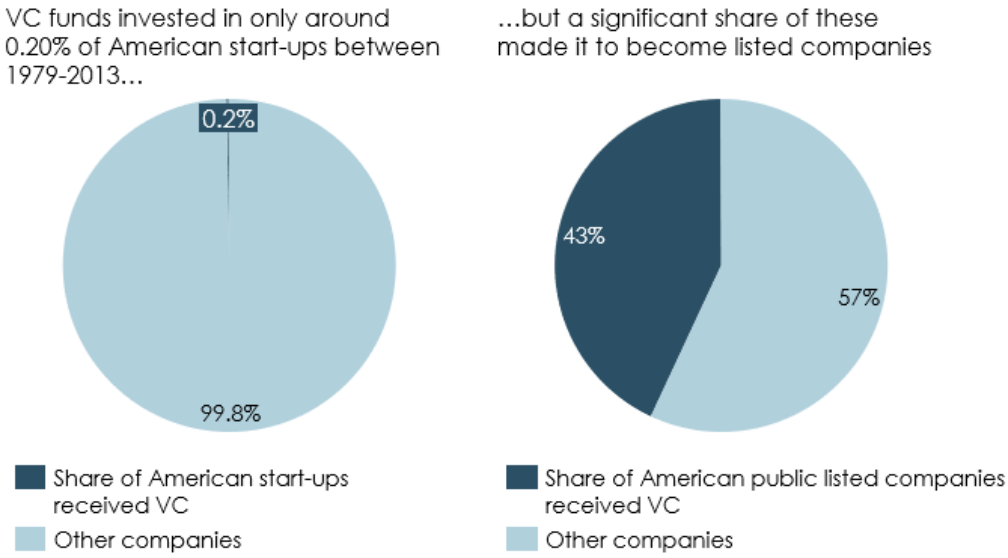

Figure 4
VC is important for the creation of valuable companies
Share of American start-ups (left) and share of American public listed companies (right), 1979-2013
Source: OECD (2018a), A portrait of innovative start-ups across countries

In addition, the world's four most valuable companies in 2018 are VC-backed, cf. Figure 5.

[23] Except for those companies with the highest probability of defaulting anyways, see EIF, *The VC Factor: Data-driven insights about VC-backed start-ups in Europe.*

1	Apple, est. 1976 (US)		VC backed	ICT
2	Amazon.com, est. 1994 (US)	amazon	VC backed	ICT
3	Microsoft, est. 1975 (US)	Microsoft	VC backed	ICT
4	Alphabet/Google, est. 1998 (US)	Google	VC backed	ICT
5	Berkshire Hathaway, est. 1839 (US)	Berkshire Hathaway		
6	Facebook, est. 2004 (US)		VC backed	ICT
7	Alibaba Group, est. 1999 (CN)	Alibaba.com		ICT
8	Tencent, est. 1998 (CN)	Tencent 腾讯		ICT
9	JPMorgan Chase, est. 2000 (US)	JPMorganChase		
10	Johnson & Johns on, est. 1886 (US)	Johnson&Johnson		

Figure 4
The world's most valuable companies
Measured by market cap in October 2018
Source: Invest Europe and National Account

2 EQUITY GAPS IN EUROPE

Having laid out how the equity markets for SMEs are working in chapter 1, we now turn our attention to a data-driven analysis of the functioning of the EU equity markets.

Following our analysis of the role of equity finance in chapter 1, we define an equity gap as the lack of a well-functioning risk capital eco-system to support innovative SMEs with high scale-up potential.

There is hardly any single metric capturing all aspects of such an equity gap. One typical proposed measure is the difference between demand for risk capital and actual risk capital investments.[24] However, as we will demonstrate in section 2.2.5 (and in Appendix), a low level of risk capital available for investments is often correlated with weak demand by companies – leading to the counterintuitive result that countries with very absent risk capital markets almost have no equity gap. Therefore, we see this as a flawed metric of an equity gap.

Thus, in this chapter, we analyse the equity gap from a series of dimensions using several methodologies to cover the wider context of potential gaps on the EU equity markets. From an economic point of view, it is difficult to define the "correct" level of ambition. For example, we will in an intra-EU benchmarking exercise compare each country to the EU27 (hereafter referred to as "EU" unless otherwise stated) average. But this is not to say that the EU average is the correct level of ambition given the fact that this average is still significantly below the US counterpart. Yet, even in the US, economic research indicates that the level of risk capital investments is significantly below the social optimal (as outlined in section 3.1).

The chapter is structured as follows. First, we will set the scene by providing a high-level benchmarking of Europe average against the US, which has the most developed equity markets in the world (section 2.1). Then, we will conduct a thorough intra-EU benchmarking of the entire value chain of the equity markets, revealing in which countries, in which stage and in which part of the value chain, there seem to be equity gaps (section 2.2). We then take a sector focus analysing which sectors are likely to be most affected by the identified gaps (section 2.3). Finally, we provide an overview of the drivers behind the identified gaps (section 2.4).

2.1 Benchmarking to the US

In terms of private equity (VC and PE) markets, the US arguably has the most developed equity market in the world, which is around three times the absolute size of the EU counterpart in 2017, when measured as equity issuance for non-financial corporates.[25] On average, the per centage difference has remained

[24] See for example ECB (2019), *Survey on the Access to Finance of Enterprises in the euro area.*

[25] AFME (2018), *Capital Markets Union: Measuring progress and planning for success.*

steady over the past ten years, with Europe facing difficulties in catching up with the US, cf. Figure 6.

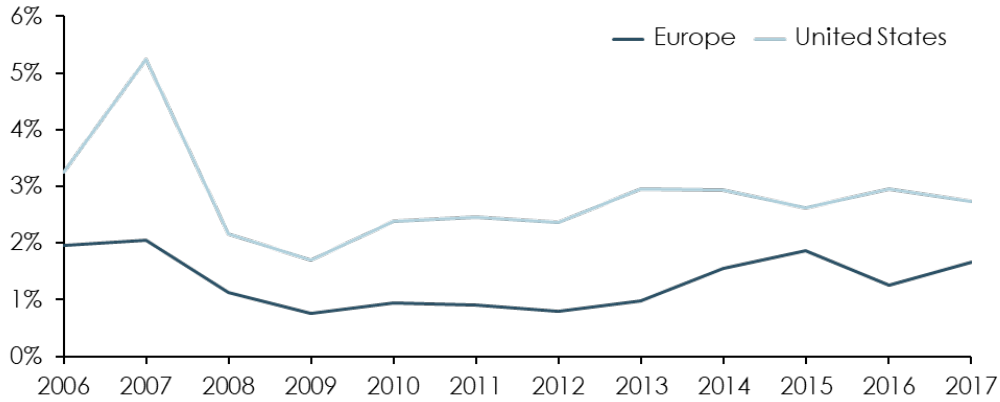

Figure 5
Equity investments in portfolio companies
Share of GDP
Note: Equity investments consist of business angels and VC and PE investments, and market issuance (IPO and secondary offerings). Statistics for market issuance in Europe cover EU27 only; Business angel investments count from 2008 onwards; PitchBook data as of 12/12/2019.
Source: EBAN Statistics Compendium, European Early Stage Market Statistics; Jeffrey Sohl, Center for Venture Research; PitchBook; AFME (2018), Capital Markets Union: Measuring progress and planning for success; World Bank

Taking a more disaggregated view reveals differences within the different stages:

- **Large-cap:** In market issuance of equity (both IPOs and secondary offerings), the European market is around 2/3 of the US (adjusted for GDP), cf. Figure 7. A study by Ernst & Young finds that the American IPO market viewed in isolation is more than twice the absolute size of the respective market in Europe in 2019.[26] For buyout PE, we find that the gap to the US is a bit smaller.

- **Business angel and VC segment**: Here, the gap is considerably larger, with the US being some four times larger than the European.[27]

[26] EY (2019), *Global IPO trends: Q4 2019.*

[27] If we had instead relied on OCED data that uses PitchBook for the US (like us) but Invest Europe for Europe, the VC market in the US would be some 12 times bigger than the European market.

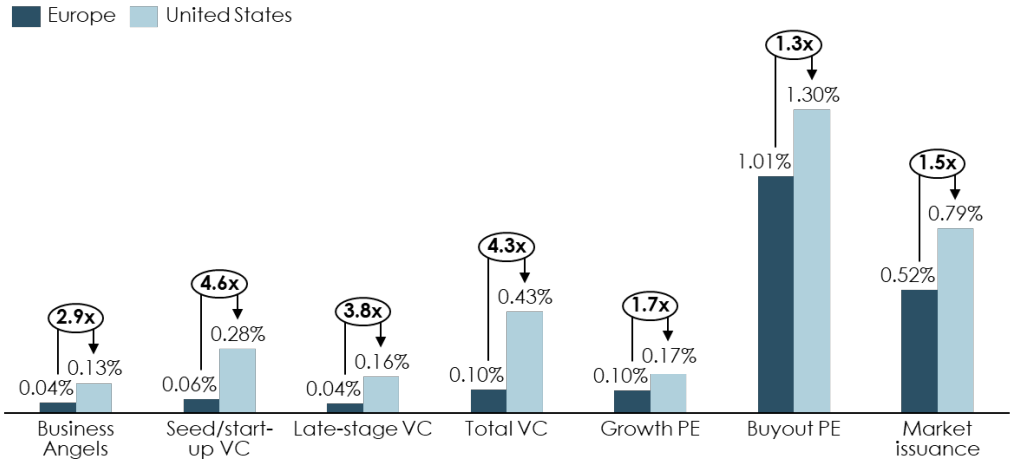

Figure 6
Investments in portfolio companies by stage
Share of GDP, average of last four years (2014-2017)
Note: Market issuance refers to IPO and secondary offerings; PitchBook data as of 12/12/2019.
Source: EBAN Statistics Compendium, European Early Stage Market Statistics; Jeffrey Sohl, Center for Venture Research; Invest Europe; PitchBook; PwC/CB Insights MoneyTreeTM Report; AFME (2018), Capital Markets Union: Measuring progress and planning for success; World Bank

For the large well-established corporates, we do not expect big differences in the access to equity markets. The listed equity markets are more comparable, and we primarily expect the differences to occur for companies ready for an IPO; once listed, the barriers of issuing new equity decrease. In this way, the difference to the US for large well-established corporates is to some extent a matter of preferred capital structure. This should be seen in the light of a different industry composition in the US, with a larger share of the economy within tech (e.g. Facebook, Apple, Google, Amazon, Microsoft), which in general makes use of more equity finance.

The VC segment with a four-fold gap to the US market appears on the face of it more alarming and could indicate a lack of equity funding for innovate SMEs with ambitions of scaling up. However, again different industry compositions could have a role as well as simply the number of start-ups of sufficient quality and type to be eligible for VC. Recall from chapter 1 that it is a very distinct kind of SMEs for which VC is relevant. As such, the causality can go both ways – small and ill-functioning equity markets can lead to a lack of innovative start-ups – but lack of innovative start-ups and a well-functioning eco-system to support start-ups may also lead to low demand for risk capital. We will discuss this further in section 2.3.

It should be noted that the choice of source can significantly influence the size of the equity gap. For comparability, we have used data provided by PitchBook as the main data source for both Europe and the US for seed/start-up VC, late-stage VC, growth PE and buyout PE. Moreover, it should be kept in mind that the UK is covered in most of the European statistics, implying that the gap would be even larger by benchmarking the US to the EU countries only.

In the following two sections, 2.2 and 2.3, we will conduct a thorough intra-EU benchmarking through the value chain of VC and PE, across countries and sectors.

2.2 Intra-EU benchmarking of equity markets

We now turn our attention to a benchmark analysis for Horizon 2020 associated countries[28] to the extent that data allows, the UK and intra-EU countries in terms of a series of parameters.

In the benchmarking of intra-EU countries, the country-specific equity markets are measured against the EU average to identify the countries that are lagging behind. This does not entail that the EU average is the optimal level of equity investments. For example, the EU average is far behind frontrunners such as the US and Israel, and many countries do have ambitious plans involving a wider view than just catching up to an average. Thus, the benchmarking analysis simply sheds light on where there seems to be unexploited potential, with the best performing intra- and extra-EU countries setting the direction to pursue.

Specifically, in the following sections, we examine each of the three parts in the risk capital value chain illustrated in Figure 8, while deep diving into the stages of equity funds and companies receiving capital (portfolio companies).

Figure 7
Risk capital eco-system
Source:Copenhagen Economics

[28] The list of Horizon 2020 associated countries is available at https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf.

2.2.1 Description of data sources

In this benchmarking exercise, we will rely on Invest Europe as our primary data source for fundraising and investment activity in Europe.[29] The data provided by Invest Europe are survey based, in this way collecting information on the activity of European equity funds on an annual basis.[30]

The funds included in the Invest Europe statistics are equity funds making direct investments, mezzanine funds, co-investment funds and rescue/turnaround funds.[31] However, not necessarily all transactions on the equity market that involve these types of funds are registered. In particular, caution should be taken for countries with less activity/smaller markets, such as Denmark for which Invest Europe captures around 60-80 per cent of the activity.[32] Consequently, the figures throughout our report must – as a general rule – be interpreted as the level of activity that has been taking place as a minimum. As such, the dataset does not necessarily provide the exact levels of activity on the equity markets.

In the sectoral analyses, we also supplement the Invest Europe data with that provided by PitchBook to shed light on VC and PE investment activity within the deep tech and fintech sectors, as the sector scope of Invest Europe does not cover this granularity.[33]

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[29] Invest Europe produces significantly lower levels of investments compared to the private capital market data provider PitchBook, whereas the differences are less pronounced for registered fundraising across these sources. We have preferred to base our analysis on Invest Europe to the extent possible as this is recognised in the industry as being one of the most reliable sources. Also, the relative ranking of countries can differ between different sources, which is why we make an effort to construct our cross-country comparisons based on one main data source only, e.g. either Invest Europe or PitchBook.

[30] For fundraising statistics at country level, we report industry statistics, meaning that fundraising is recorded in the country of the advisory team raising/managing the fund. For country-specific investment activity, the figures presented are market statistics. That is, the investment statistics are reported according to the location of the portfolio company ('market statistics') rather than the country of the equity fund's office in charge of the investment ('industry statistics').

[31] Activities from the following funds are completely excluded from the statistics: infrastructure funds, real estate funds, private debt funds, distressed debt funds, primary funds of funds and secondary funds-of-funds. See Invest Europe (2018), *European Private Equity Activity*.

[32] Vækstfonden (2016), *The Danish market for buyout capital*

[33] Like for Invest Europe, the Pitchbook statistics should in general not be considered as exact totals because the dataset may not include all transactions, and, again, extra caution must be taken for those countries with smaller equity markets. More specifically, just because our sources do not have much data for a particular country, it does not necessarily mean that more fundraising or investment activity has not happened there. The approximated figures are thus minimum levels representing a lower bound of the activity that in fact has been taken place in the equity markets.

The benchmark figures include data on fundraising and investment activity for the following Horizon 2020 associated countries; Israel[34], Norway, Serbia, Switzerland and Ukraine. For the remaining countries that are associated to Horizon 2020, we have also received data from Invest Europe and/or PitchBook. [35] However, for these countries, Invest Europe and PitchBook have simply tracked no or, if any, very little activity meeting their methodology.

2.2.2 Benchmarking of investors within the EU

First, we examine the investors of equity funds (or Limited Partners, LPs).

Figure 8
Risk capital eco-system
Source: Copenhagen Economics

A geographical breakdown of European investors shows France & Benelux as the most active investors, cf. Figure 10. Especially in terms of VC, the French & Benelux investors are at the forefront with, e.g., two times more funds raised than the UK & Ireland. The Nordics (Denmark, Finland, Norway, Sweden and Iceland) also have active investors but primarily in the PE segment, whereas CEE (Central and Eastern Europe), Southern European countries and DACH (Germany, Austria, Switzerland and Lichtenstein) have less active and/or fewer investors.

[34] It should be noted that data on Israel are provided by PitchBook as market statistics on investment activity are not captured for Israel in the Invest Europe dataset. To make statistics more comparable, we have scaled the PitchBook figures based on the observable difference for Europe overall across sources.

[35] This involves the following countries: Iceland, Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, Turkey, Moldova, Faroe Islands, Tunisia, Georgia, Armenia.

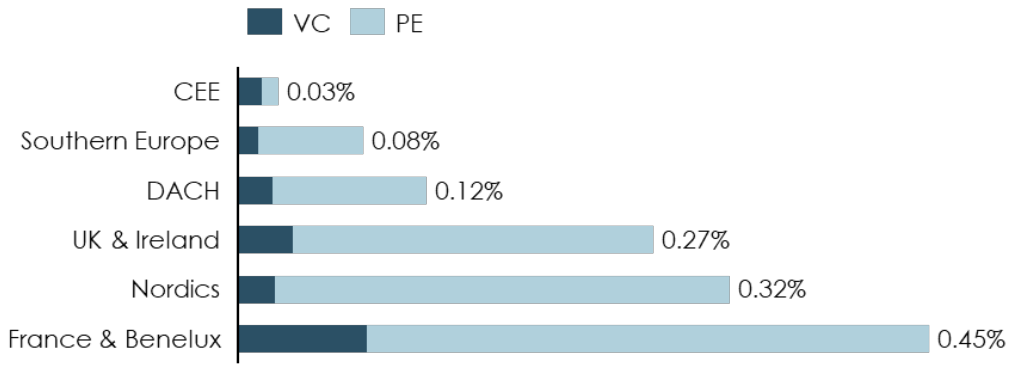

Figure 9
Geographical breakdown of sources of funds in European funds
Share of total GDP in each region, average of last four years net of inflation (2015-2018)
Note: The figures are funds raised in terms of incremental amounts raised during the year and not final closings in the year (cumulative amount raised since inception). PE is the residual between all private equity funds and venture funds.
CEE comprises the countries of Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Serbia, Slovakia, Slovenia and Ukraine; Southern Europe includes Andorra, Cyprus, Greece, Italy, Malta, Portugal and Spain; DACH is composed of the countries Germany, Austria, Switzerland and Liechtenstein; Nordics refer to Denmark, Finland, Norway, Sweden and Iceland; France & Benelux consists of France, Belgium, Netherlands, Luxembourg and Monaco.
Source: Invest Europe and Eurostat

In absolute numbers, North America accounts for the largest inflow of some EUR 19 billion into Europe each year. In addition, investors from Asia & Australia are active in Europe, although almost exclusively in the PE segment, cf. Figure 11.

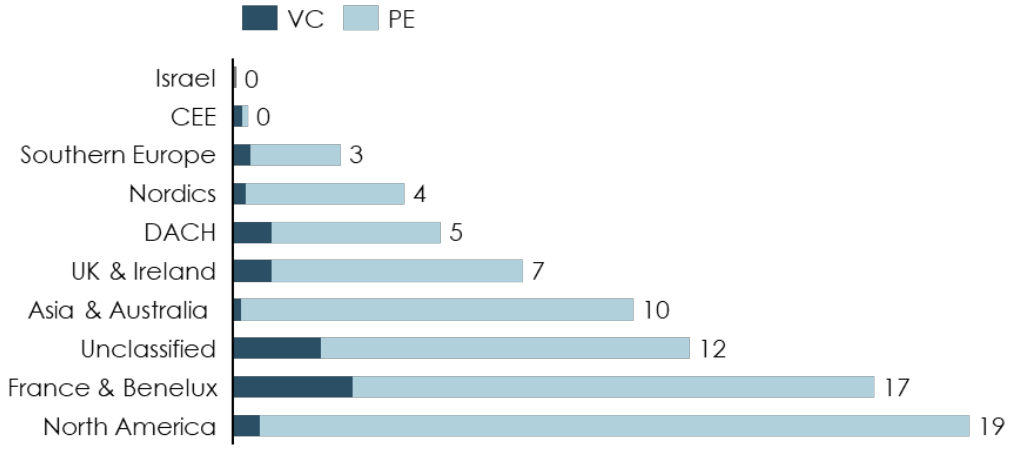

Figure 10
Geographical breakdown of sources of funds in European funds
EUR billion, average of last four years net of inflation (2015-2018)
Note: The figures are funds raised in terms of incremental amounts raised during the year and not final closings in the year (cumulative amount raised since inception). PE is the residual between all private equity funds and venture funds; North America consists of Canada and the US.
Source: Invest Europe

Turning to the investor type, we find that institutional investors (pension funds and insurance companies) are the most predominant in European equity markets. However, they primarily focus on buyout PE and to some extent growth PE, cf. Figure 12.

For the VC segment, institutional investors are quite absent, where public[36] money make up the largest share of the classified fundraising. Institutional investors only make up some 9 per cent of the total VC funds. The lack of institutional investors is a problem raised several times, among others by fund managers in a survey carried out by the EIF[37], and points towards a big potential to increase fundraising by engaging institutional investors in the VC investment class. For example, a report on the Nordic VC markets shows that merely 0.10 per cent of institutional investor assets are invested in VC.[38] To illustrate the potential hypothetically; if this share was increased to 0.50 per cent, it could increase VC fundraising in Europe by 60 per cent.

One of the key obstacles to increasing institutional investors' participation in the VC asset class is the lack of scale associated with European VC opportunities as well as the lack of a dedicated allocation to the VC asset class on the part of the institutional investors.[39] Yet, with the tendency of a growing European VC eco-system and the potential of high returns, the VC market in Europe may prove to become attractive for institutional investors. Given the long-term investment horizon that VC investments present, together with the possibility of gaining exposures in emerging sectors and establishing a well-diversified VC portfolio, the VC market would suit well the investment profile of long-term financial investors (primarily pension funds, insurance companies and asset managers).

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36 Public refers to academic institutions and government agencies.

37 EIF (2018c), *VC Survey: Fund managers' market sentiment and views on public intervention.*

38 Copenhagen Economics (2019c), *Economic footprint of Swedish venture capital.*

39 Axon (2019), *Participation of Institutional Investors in European Venture Capital.*

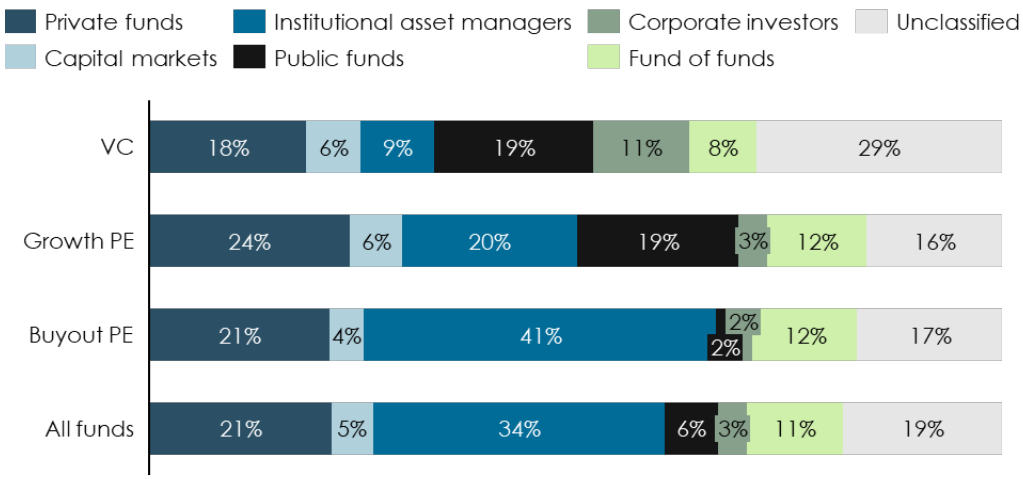

Figure 11
Sources of European funds by investor type
Share of total investments, average of last four years net of inflation (2015-2018)
Note: The figures are funds raised in terms of incremental amounts raised during the year and not final closings in the year (cumulative amount raised since inception).
Source: Invest Europe

In this context, note that the EIF has recently made an effort to mitigate the issue of lack of institutional investors' engagement in risk capital markets; in 2017, they launched an Asset Management Umbrella Fund (AMUF) with the aim to increase the amount of risk capital available for investment activity in Europe, whilst maximising investments from institutional sources.[40]

2.2.3 Benchmarking of VC and PE funds within EU

In this section, we turn our attention to the funds, which invest the equity raised into companies.

Figure 12
Risk capital eco-system
Source: Copenhagen Economics

In absolute values, the size of all British VC and PE funds is by far the largest with some EUR 40 billion raised each year – this is more than the total funds raised in the entire EU, amounting to EUR 30 billion. France is the second largest with total fundraising of EUR 10 billion. As a share of GDP, British funds

[40] EIF (2018f), *ENPACL commits to new EUR 2 billion EIF Asset Management Umbrella Fund for European SMEs.*

are also sizeable, only succeeded by Luxembourg. In the case of Luxembourg and United Kingdom, the reason is that they are often the preferred jurisdiction for funds with an international LP base or those LPs where the regulatory framework in their home countries is not deemed optimal.

Also, Sweden, France and Netherlands have large equity markets measured in terms of fundraising. These countries have a strong pull upwards on the EU average of 0.24 per cent (adjusted for GDP) and the EU median of around 0.10 per cent.

The other end of the scale is mainly dominated by countries from Eastern and Southern Europe. However, Germany, Austria and Ireland break the pattern, all ranking below the median and being some 0.15-0.20 per centage point short of the EU average, cf. Figure 14.

These large regional differences in funds raised across the European countries are in particular driven by buyouts, especially being pronounced for Sweden. As we will demonstrate below, the regional differences are less pronounced when looking only at risk capital (VC and growth PE).

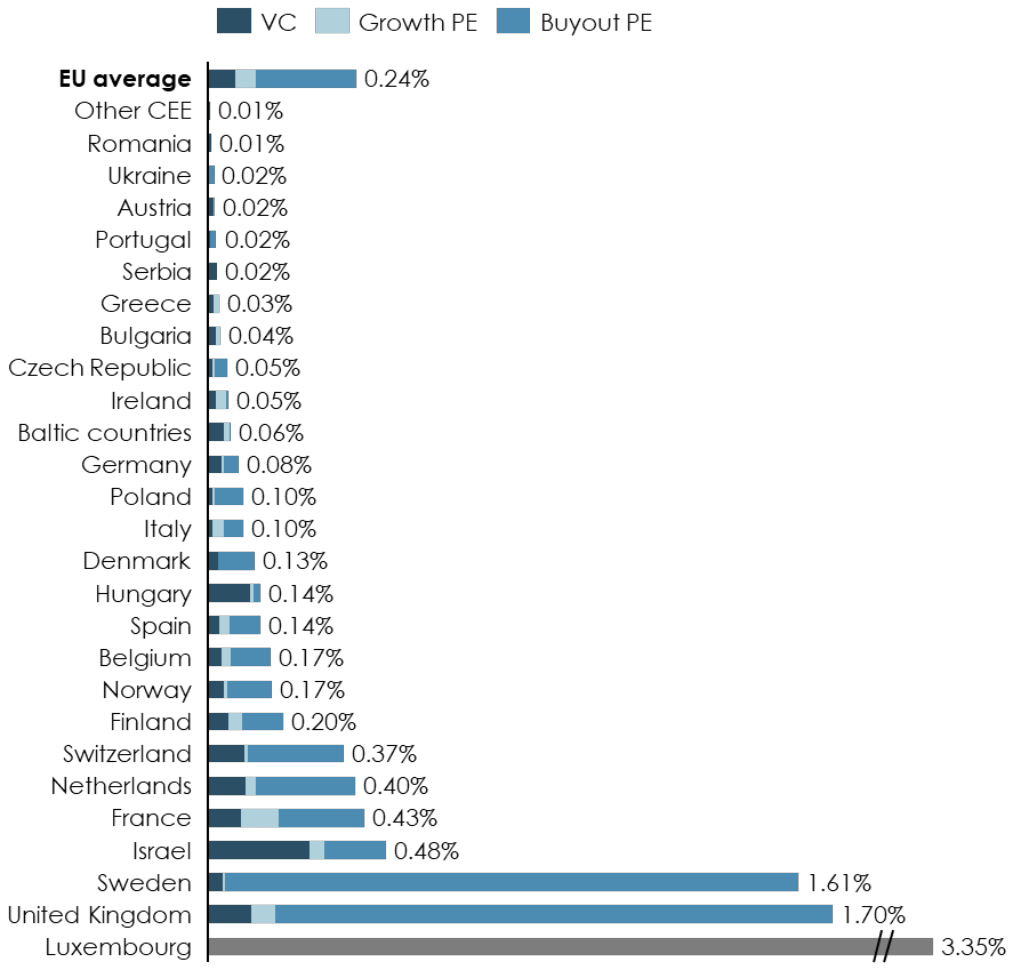

Figure 13
Total funds raised by fund stage
Share of GDP, average of last four years net of inflation (2015-2018)
Note: The figures are funds raised in terms of incremental amounts raised during the year and not final closings in the year (cumulative amount raised since inception); Other CEE are Croatia, Slovakia and Slovenia.
Source: Invest Europe; PitchBook; Eurostat; World Bank

The large inflow of buyout fundraising to Sweden and the UK is driven mainly by investors from other European countries or outside Europe, indicating that investors operate internationally and that these funds have shown repeated success in managing to attract foreign investors.[41] These foreign investors are not of any particular investor type, with a more or less equal distribution between private funds, institutional asset managers and other types (excluding public funds). Similarly, the Netherland's fairly good position is driven by

[41] Copenhagen Economics (2019c), *Economic footprint of Swedish venture capital* and Invest Europe.

international investors, whereas France's large PE industry is to a larger extent funded through domestic investors.

In general, investors operate internationally with less than 40 per cent of funds originating from domestic investors for the European average, although the share of international investors tends to decrease the smaller the fund market becomes, e.g. half or more of the investors are domestic for the bottom half.

Risk capital markets

The market for risk capital is less dispersed, cf. Figure 14 and Figure 15. In relative terms to GDP, France is in the lead among European countries with more than twice the market size of the EU average. However, it is striking that the risk capital markets of the EU frontrunners only correspond to two thirds of the respective market size in Israel.

Eastern and Southern European countries are generally below average in terms of risk capital raised by funds, with Hungary as an exception. For Southern Europe, Spanish funds are those raising most risk capital, although still being below the EU average. The Nordics are also remarkable absent in risk capital, which stands in contrast to Sweden's strong position within buyout PE.

For the EU countries, late-stage VC only takes up 10 per cent of total risk capital raised, driven by that no late-stage VC funding has been raised at all the past four years for 17 out of 25 EU countries. This indicates that there could be a late-stage VC gap in Europe.

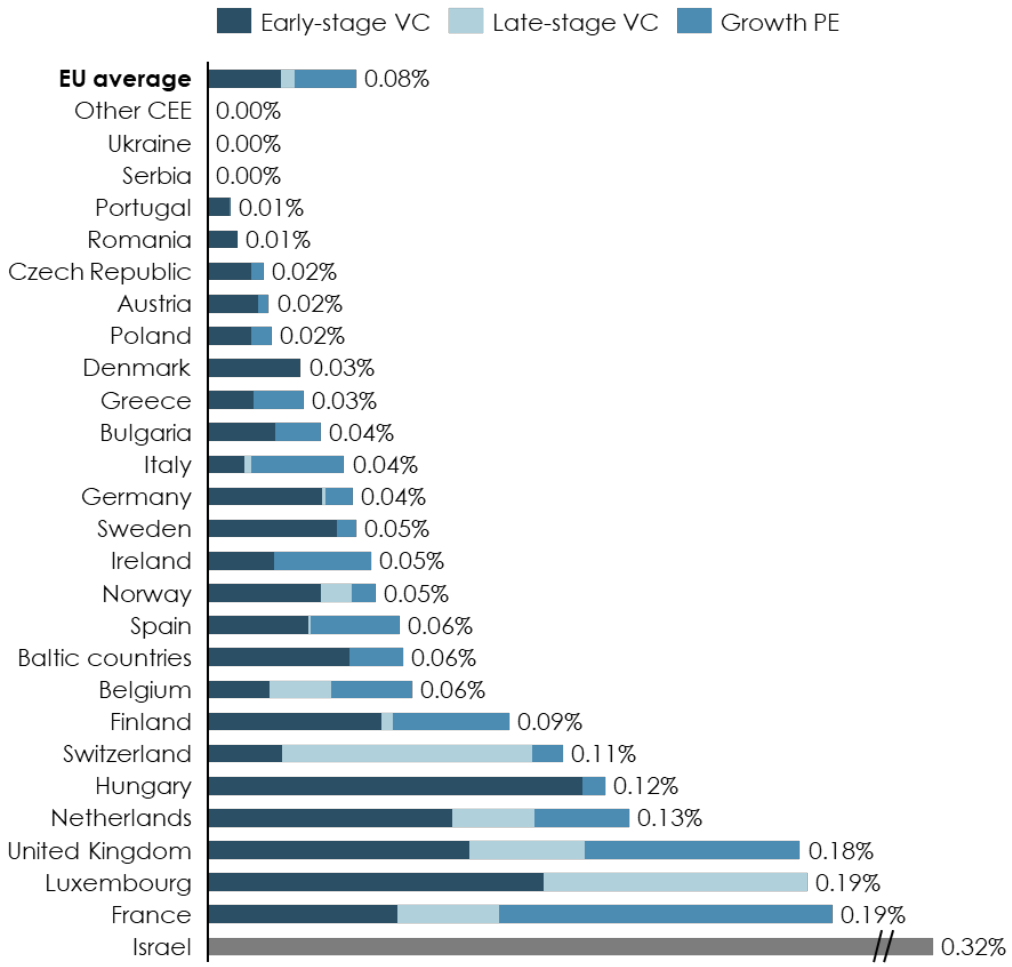

Figure 14
Risk capital raised by stage
Share of GDP, average of last four years net of inflation (2015-2018)
Note: The figures are funds raised in terms of incremental amounts raised during the year and not final closings in the year (cumulative amount raised since inception). In Invest Europe vocabulary, VC fundraising consists of early-stage VC, late-stage VC and venture, where the latter refers to VC funds that focus on early and/or late-stage investments, but it has not been categorised any further. The amounts for venture have been split between early-stage VC and late-stage VC depending on their respective market shares observed from the categorised activity that has been captured; Other CEE are Croatia, Slovakia and Slovenia.
Source: Invest Europe; PitchBook; Eurostat; World Bank

Looking at the market over time, the level of risk capital available by European funds for investments has increased, with some fluctuation during the period under observation, cf. Figure 16. The largest increase happens after 2015. In 2018, funds supported by government agencies (serving as a proxy for the public) amounts to 14 per cent, decreasing both in absolute and relative terms compared to the two years before. In relative terms, the highest rates of government agency funding are observed for 2011 and 2012.

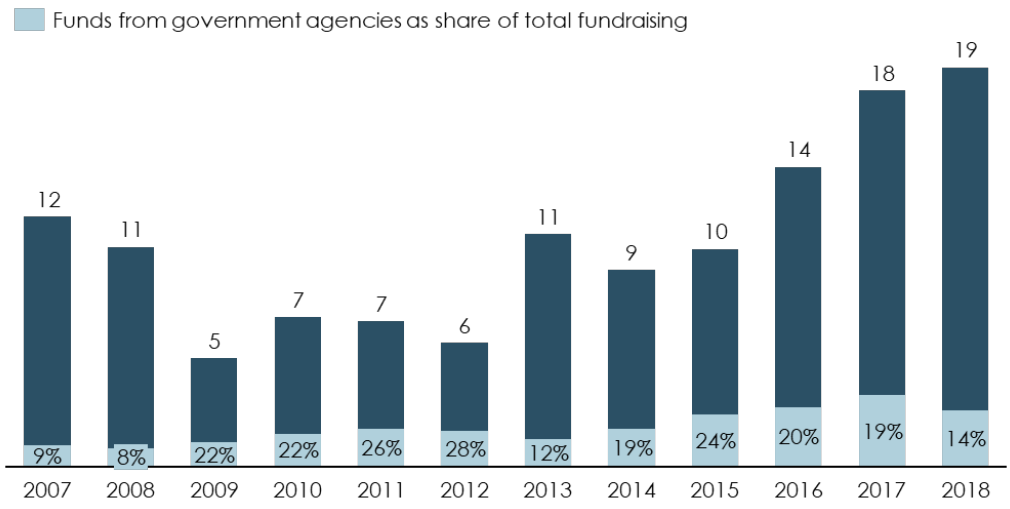

Figure 15
Funds raised and public support for risk capital funds in Europe
EUR billion (2018-prices), public support as percentage
Source: Invest Europe

Small average fund size entails insufficient later-stage financing

A small average fund size of European equity funds could limit the funds' ability to attract major institutional and private investors. Given the sound management principle and to ensure sufficient risk diversification, a fund should typically not invest more than some 10 per cent of the fund's size into one company.[42] The average European late-stage VC fund raises around EUR 150 million (cf. Figure 17), giving rise to a maximum investment size of some EUR 15 million, which often can be insufficient to support the scale-up needs of high-potential companies, e.g. in preparation for an IPO, cf. chapter 1. For growth PE funds, the average fund size and thus the maximum financing per company is even lower, see Figure 17. In fact, evidence suggests that no less than 90 per cent of the companies with high growth face problems in financing their scale-up in Europe.[43]

The absence of large investment sizes for companies during pre-IPO phases implies that the European-born companies tend to seek financing from investors in the US or China. For example, American VC funds are on average around three times bigger than European[44], thereby allowing for an average maximum investment size of some EUR 45 million.

Fortunately, we find that the direction of development is on the right track, among others for those with focus on investing in companies in the late stages of their lifespan, cf. Figure 17. In particular, the late-stage VC funds in Europe

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42 EC (2019b), *Unleashing firms' growth potential.*
43 Ibidem.
44 EC (2018d), *VentureEU: Pan-European Venture Capital Funds-of-Funds programme.*

have experienced a larger increase in size per centage wise, compared to other types of equity funds in terms of the stage focus.

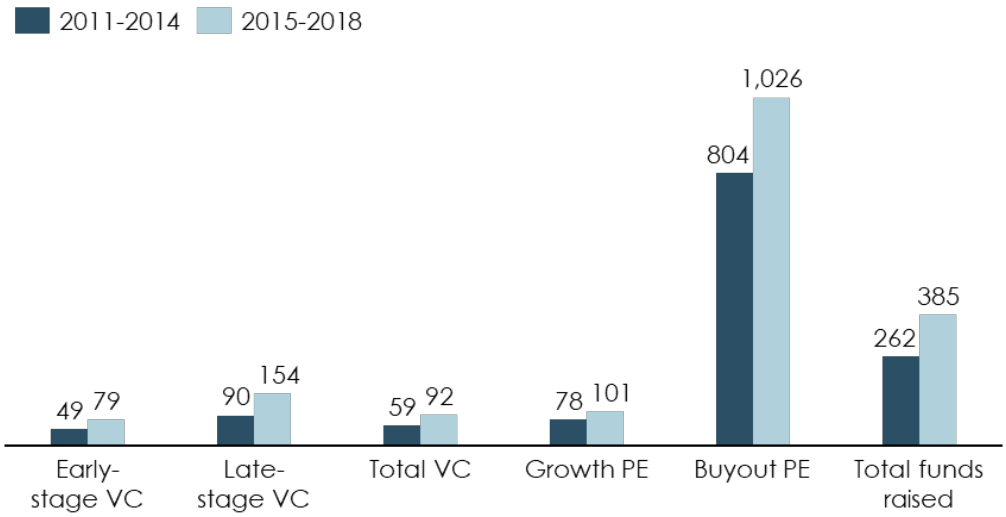

Figure 16
Average fund size of a European equity fund
EUR million, 2018-prices
Note: The figures are based on funds raised in terms of final closings in the year (cumulative amount raised since inception) and not incremental amounts raised during the year. Total funds raised include VC, growth PE, buyout PE, mezzanine and generalist. The number of funds in a given year include only those funds with non-zero fundraising.
Source: Invest Europe

The issue of European-born companies seeking risk capital abroad can be reinforced by IPO markets in Europe providing limited opportunities to emerging companies, compared to the US counterpart. For example, only 23 per cent of European IPOs had market capitalisation between EUR 200 million and EUR 1 billion compared to 48 per cent in the US, between 2012 and 2015.[45] For the biotech space, almost one third of the European biotech companies have filed for their IPO directly in the US.[46]

Based on our sector interviews, part of the issue with supporting growth companies can be found in the absence of cross-over funds, which refer to a type of fund that is able to invest in both privately held and publicly listed companies.[47] For investments in privately held companies, these occur around 1-2 years before the company enters the public markets. With sizes of more than EUR 500 million and a focus on companies in their pre- as well as post-IPO stage, the cross-over funds have capability to not only getting foothold in a potential IPO but also support it to be successful inside the EU.

45 AFME (2017), *The shortage of risk capital for Europe's high growth businesses.*
46 McKinsey & Company (2019), *Biotech in Europe: Scaling innovation.*
47 Anson M. (2001), *Crossover funds: A new venue for private equity.*

2.2.4 Benchmarking of investment in portfolio companies within EU

Now we turn our attention to the perhaps most important part in the equity finance value chain; the companies receiving the funds.

Figure 17
Risk capital eco-system
Source: Copenhagen Economics

As mentioned, the EU equity markets are international, meaning that the equity fund does not have to be from the same country as the portfolio company invested in. However, previous studies on the topic suggest that the degree of internationalisation increases throughout the growth path of companies[48]:

- In the business angel and seed phase, companies are very much depending on local funds and will rarely apply for funds abroad. This is linked to asymmetrical information biases as very early stage companies have few concrete results to show and will have to rely more on trust in 1) the entrepreneurs behind the start-up and 2) the idea/concept of the company.

- As companies grow and have more concrete performance numbers to demonstrate, the asymmetrical biases decline, and it becomes easier for international funds to assess the potential. Also, the companies themselves orientate more internationally, increasing the likelihood of approaching international funds.

In the following, we go through data on the level of investments in portfolio companies in each country to analyse if this is indeed the case. That is, answering the question; do companies in countries with low level of raised equity also receive less capital?

Overall, the answer is affirmative, there are overall significant differences in the level of received capital between countries, but the difference is less than in terms of funds raised, cf. Figure 14 and Figure 19. The variance in fundraising between countries is some 3 percentage points of GDP, whereas it is around 1 percentage point of GDP for investments in portfolio companies.

The lower dispersion for investment activity is, in particular, driven by the major buyout PE funds in Sweden and the UK investing very internationally – just as the investors of the funds are international. Portfolio companies in these countries are in the high end in terms of investments, but they do not break the box, as they did in terms of funds raised. Also, the funds based in Luxembourg invest the majority of their funds abroad, seen by an investment share of GDP

[48] Copenhagen Economics (2019c), *Economic footprint of Swedish venture capital.*

of 1 per cent which is only around one quarter of the capital raised. These cases show that at least for buyout PE, it is possible to create equity finance hubs that supply capital to companies internationally.

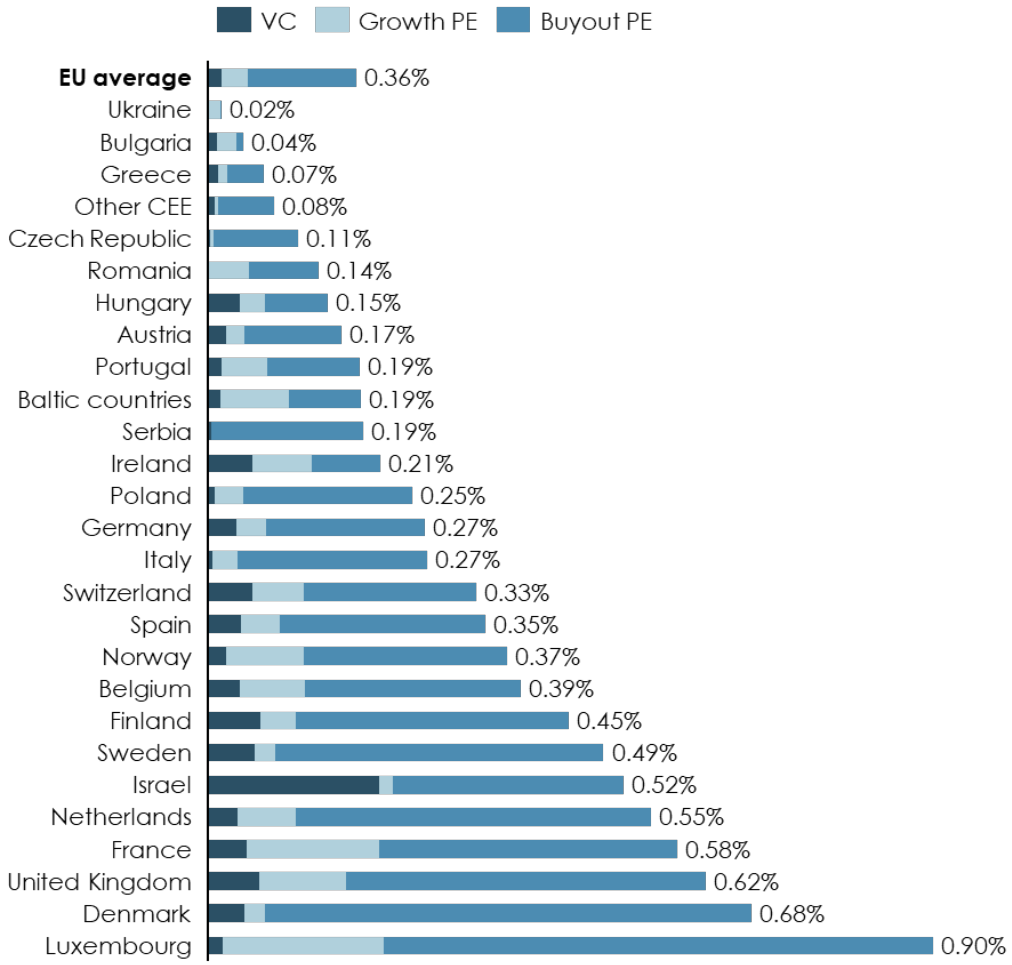

Figure 18
Total investments in portfolio company by stage
Share of GDP, average of last four years net of inflation (2015-2018)
Note: Investment activity is measured by country of portfolio company (market statistics) and not by country of the PE firm (industry statistics).
Source: Invest Europe; PitchBook; Eurostat; World Bank

Nevertheless, outside the international buyout PE hubs, there still seems to be somewhat a correlation between buyout PE invested in companies and the size of buyout PE funds in each country (see Appendix), pointing towards the importance of having regional buyout PE hubs.

Turning to risk capital investments in portfolio companies, there is also a great dispersion between EU countries, ranging from almost no investments in some countries, e.g. Czech Republic and Greece, to above 0.20 per cent of GDP in France, cf. Figure 20.

Among the least developed risk capital markets are several Southern and Central Eastern European countries, while Austria and Denmark also rank low. Considering top countries, the differences are driven by growth PE investments with dispersion being less pronounced for VC. As an example, Denmark, which ranks lowest among the Western European countries, has more VC investments than, e.g., France that ranks third of all countries under consideration.

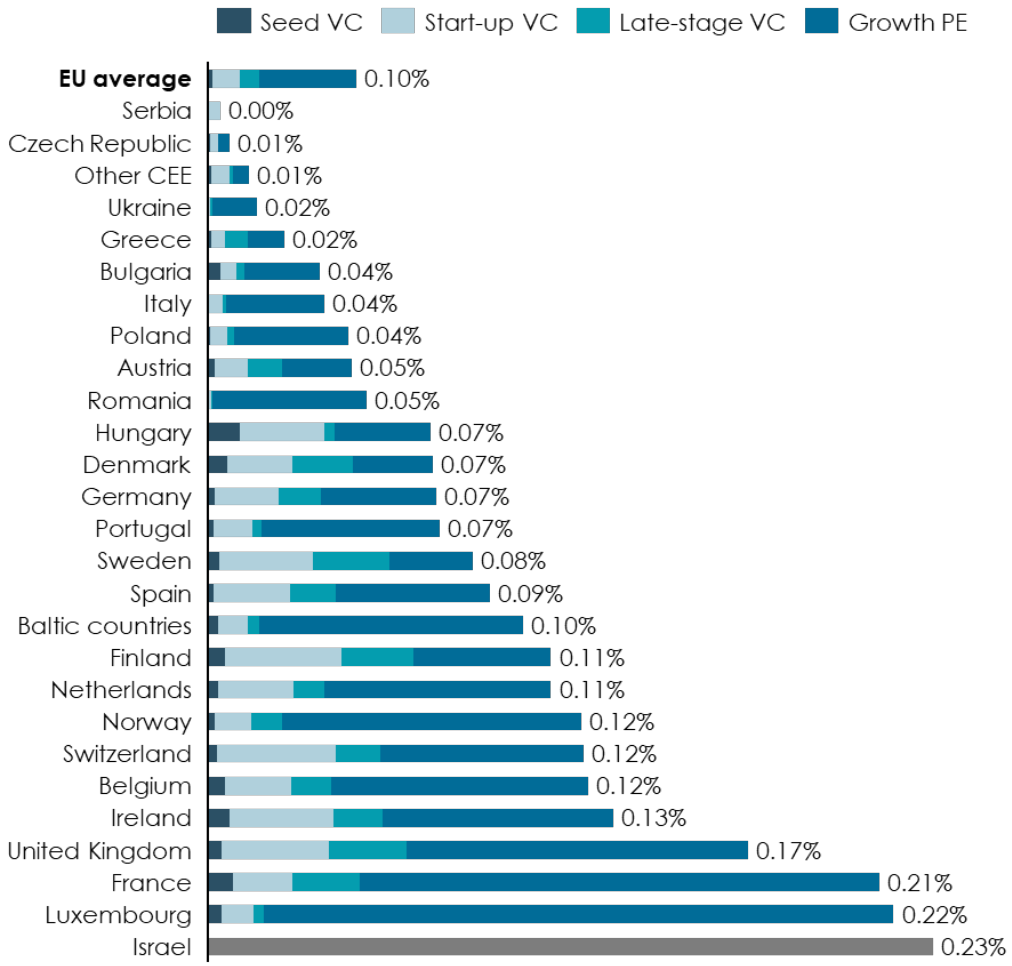

Figure 19
Risk capital investments in portfolio company by stage
Share of GDP, average of last four years net of inflation (2015-2018)
Note: Investment activity is measured by country of portfolio company (market statistics) and not by country of the PE firm (industry statistics).
Source: Invest Europe; PitchBook; Eurostat; World Bank

For risk capital, the correlation between capital raised by funds and investments in portfolio companies is more pronounced compared to buyout PE (see Appendix), which is a sign of relatively less international orientation for risk capital funds.

Development in equity investments in Europe

Considering the development in equity investments over time for Europe, we see that the total investments (as a share of GDP) just now merely have reached pre-crisis level, cf. Figure 21. Buyout PE investment is the main driver behind fluctuations in equity investments, with a major drop in 2009, which gradually has bounced back since then. The development in risk capital has been steadier, see the right panel in Figure 21. This asset class saw a decline in 2009, but much smaller than for buyout PE. Compared to 2007, growth PE is now some 0.03 percentage point above. Also, VC is above pre-crisis level with 0.05 per cent of GDP in 2018 against 0.04 per cent in 2007.

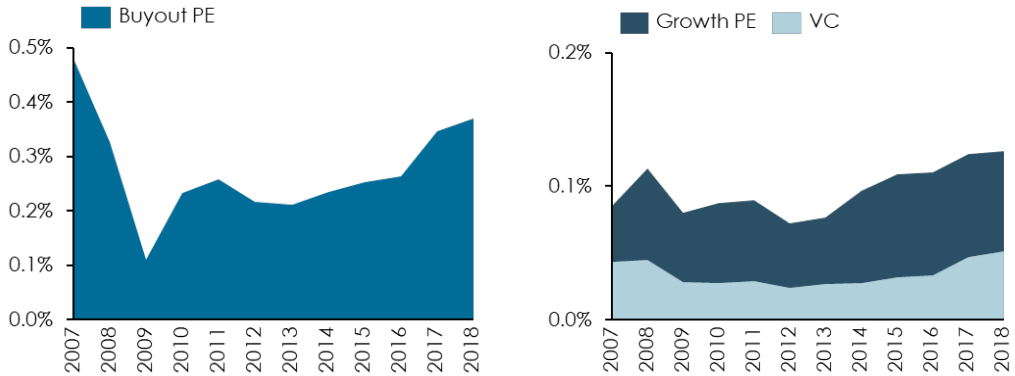

Figure 20 Equity investments in portfolio companies in Europe
Source: Invest Europe and Eurostat

Focusing on risk capital at country/regional level, we see that 15 out of 21 EU areas have experienced growth in investment activity for risk capital between the periods 2009-2012 and 2015-2018 on average, cf. Figure 22. For these countries, the risk capital markets have developed in the right direction since the financial crisis. However, a great dispersion in growth rates across EU areas leads to a modest growth of 0.03 per cent of GDP in EU in the period. This corresponds to an annual growth rate from 2009 to 2018 of 6% net of inflation.

One of the countries driving the positive growth in Europe is France, being the EU frontrunner, cf. Figure 22. Particularly, half of the risk capital invested in French companies nowadays corresponding to 0.10 per cent of GDP is explained by their expansion in the after-crisis period. This development leaves France very well positioned as shown earlier in the benchmarking analysis, see Figure 20.

Another success story worth mentioning is the Baltic countries, with an existing risk capital market similar in size to the EU average. For this region, more than three quarters and thus the vast majority of the market today exists because of their remarkable growth since the financial crisis. This large growth in the Baltic risk capital market is, however, primarily driven by a few big growth PE investment activities that could be said to shake the balance. Nevertheless, the fact that such activities have begun to take place in recent years should also be seen as a sign of a healthier eco-system. Also, even regardless of the outlying investment activities, the Baltic countries still seem to have made progress both for the VC and growth PE markets.

More specifically, from 2009-2012 to 2015-2018, the Baltic risk capital market expressed in terms of GDP has more than tripled. Hence, the Baltics facing an almost non-existent market for risk capital less than a decade ago have managed to kick-start its risk capital market. This also applies to Hungary taking outset in a risk capital market corresponding to no more than 0.03 per cent of GDP in 2009-2012, now with an investment activity that has been almost tripled in size for risk capital.

In the other end of the spectrum are other Central Eastern European countries, where the size of the risk capital market has remained fairly steady over time. Despite high growth in Polish economic conditions overall since the financial crisis, the growth in investment activity in Poland has been only modest between 2009-2012 and 2015-2018. Also, moderate growth rates are experienced in Southern Europe, with no growth in Italy despite its low starting point and thus large catch-up potential. In terms of the Iberian Peninsula, Spain and Portugal are doing fairly well with growth rates of 0.03 per cent, respectively.

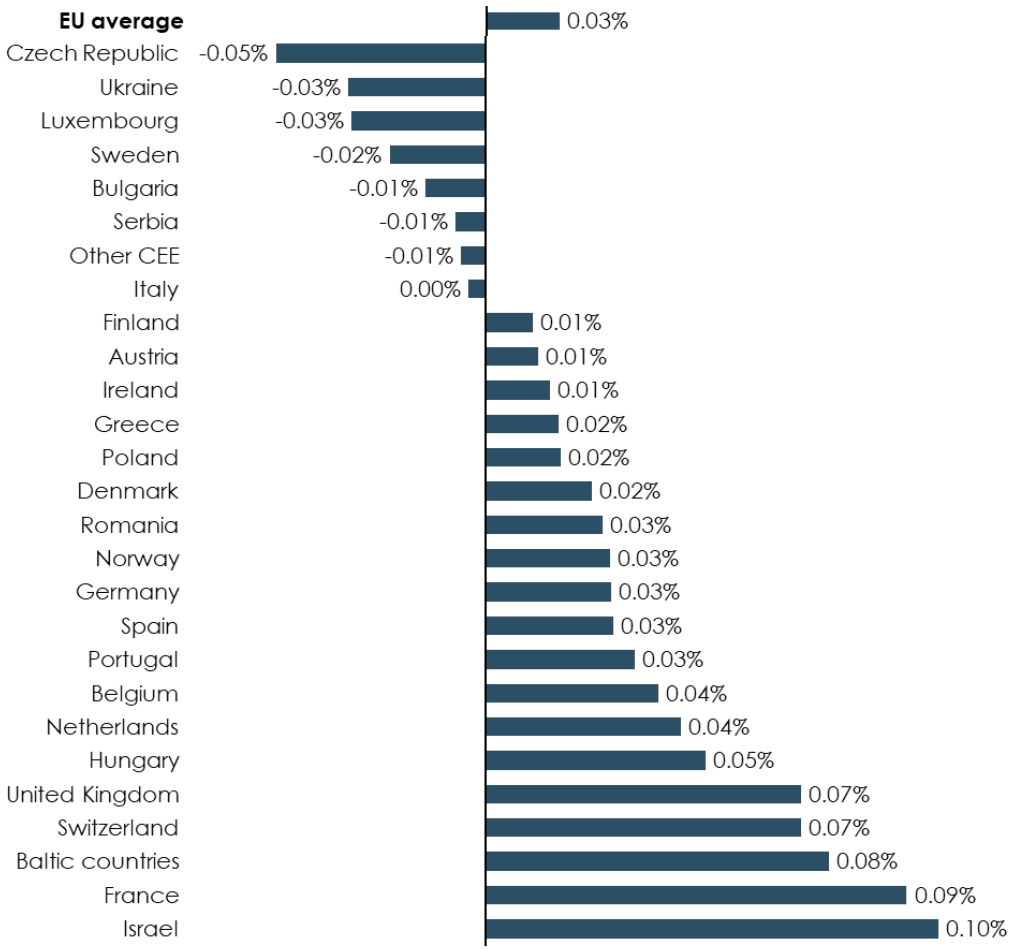

Figure 21
Difference in risk capital investments between 2009-2012 and 2015-2018
Share of GDP, net of inflation
Note: Investment activity is measured by country of portfolio company (market statistics) and not by country of the PE firm (industry statistics).
Source: Invest Europe; PitchBook; Eurostat; World Bank

2.2.5 Demand by portfolio companies

In this chapter so far, we have focused on the actual amount of invested capital based on data provided by Invest Europe and PitchBook. In this section, we turn our attention to how SMEs perceive the relevance and availability of equity finance based on the Survey on the Access to Finance of Enterprises (SAFE) conducted by ECB.

It should be noted that the survey results entail significant uncertainty, in particular when looking at country level results. On average, the survey has around 650 respondents for a country, but can go down to as little as 100 respondents at country level. As such, this section entails larger uncertainty

than the previous sections, which were based on actual recorded fundraising and investment activity.

Great dispersion in whether equity is perceived as a relevant source of funding

First, we examine whether SMEs find equity a relevant source of finance at country level. The survey reveals a great dispersion across European SMEs in this question, cf. Figure 23, particularly ranging from 59 per cent in Sweden to no more than 2 per cent in Hungary.

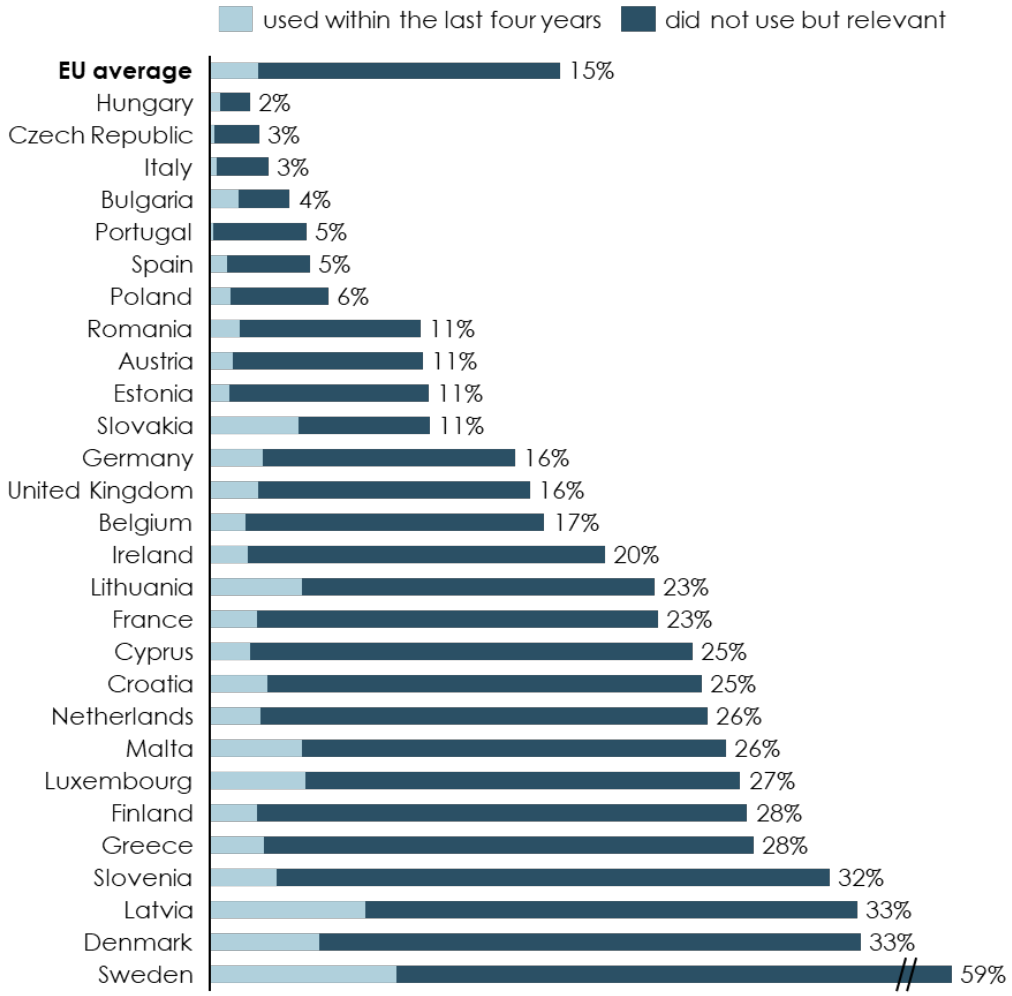

Figure 22
Relevance of equity financing for European SMEs
Share of respondents, 2015-2019
Note: Base: All SMEs. The EU average is calculated as the weighted average of the national results, weighted with GDP available from Eurostat. Survey question (modified to only involve equity capital as instrument): Is equity a relevant source of financing to your enterprise, that is, have you used equity capital in the past or considered using it in the future? If "yes", have you obtained new financing of this type in the past six months?
Source: SAFE research database, round fourteen (October 2015 – March 2016) to twenty-one (April – September 2019) of the survey and Eurostat

It is worth noting that the extent to which SMEs find equity finance relevant tends to follow the degree of how well-established the respective equity markets are; SMEs are more likely to find equity financing relevant if they operate in a country with a relatively developed equity industry. Countries such as Sweden, Finland, the Netherlands and France are above the median country both in terms of investments in portfolio companies and the relevance of equity capital.

That is, if one is to construct a gap indicator of the difference between companies finding equity relevant and actual equity funding received – it will show the largest gap for the most developed equity markets, such as Sweden. In contrast, there would be almost no equity gap in little developed markets such as Czech Republic. Consequently, this would not be a meaningful indicator of a lack of equity finance – the limited awareness of the possibility of equity finance in many countries can in itself be a sign of an insufficiently developed equity eco-system.

The tendency that companies with relatively well-developed equity markets find equity finance more relevant is not without exceptions. For example, SMEs located in Greece perceive equity to be a relevant financing source, while the amount of equity investments received is below average. Similarly, SMEs in the UK do not find equity finance particularly relevant despite having very well-developed equity markets.

Following ECB (2019)[49], we have constructed a financing gap indicator based on the change in SMEs' need for equity (demand side) and their perceived change in the availability of equity (supply side).[50] However, not all financing needs are relevant in the construction of a valid indicator – only those related to SMEs with high scale-up potential. Also, this indicator reveals the same picture as with the relevance indicator (see Appendix), namely that the interpretation is twofold, making it difficult to draw any clear-cut conclusions on such an indicator – in particular with the questionable data quality in mind.

2.2.6 Potential for more risk capital investments

The above analysis illustrates some ambiguity when using survey data to estimate the financing gap and particularly the demand side. Another approach is to consider which sectors typically make use of equity finance, i.e. estimate demand from a sector perspective. Specifically, we know that ICT and life science companies typically have a strong demand for risk capital as we will elaborate in section 2.3. This means that countries with strong ICT and life science sectors should have a strong potential to build up a strong risk capital market. In general, we do indeed find a positive correlation between a country's

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[49] ECB (2019), *Survey on the Access to Finance of Enterprises in the euro area.*

[50] For each enterprise, the financing gap takes the value of 1 (-1) if its need for equity increases (decreases) and the availability decreases (increases). If both the need for and availability of equity financing are perceived to increase (decrease), the gap indicator is assigned the value 0.50 (-0.50). This gives a positive financing gap in case that the increase in companies' need for equity is deemed to be larger than the improvement in the access to this type of financing source and negative otherwise.

ICT and life science sector and the size of equity markets, cf. Figure 24, with North America being the showcase, where risk capital is paramount in financing these sectors.

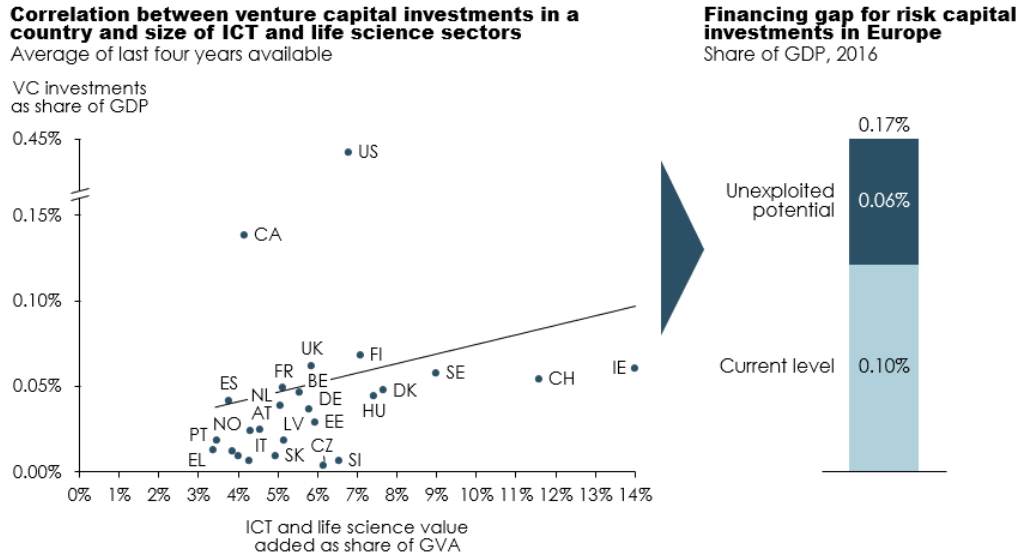

Figure 23

Note: Source for VC investments in the left panel is OECD and not Invest Europe; Unexploited potential for risk capital investments is calculated based on that for VC investments. This assumes that the demand for growth PE follows that of VC.
Predicted risk capital gap in Europe based on size of ICT and life science sector
Source: Invest Europe and OECD

Based on this general tendency, we are able to construct a measure for the potential of the risk capital market in Europe given its size of ICT and life science sectors, thereby illustratively quantifying the European equity gap. This approach reveals an unexploited potential in Europe of 0.06 per cent in terms of GDP, cf. the right panel in Figure 24. That is, if the potential was fully utilised, it would boost risk capital investments in Europe by approximately this amount.

2.3 Lack of equity finance will in particular hamper innovative sectors

In this section, we turn our attention from a country/stage focus to analysing the European equity market by sector compositions.

As described in chapter 1, risk capital is well suited for innovative SMEs that aim to bring a new product to the market and then to scale up, i.e. companies that rely heavily on R&D efforts. This process is possible in almost all sectors and, as such, risk capital is not restricted to certain sectors. Nevertheless, there are sectors that on average rely more on R&D than others and these sectors on average also rely more on equity finance. This is in particular relevant for the

ICT and life science sectors, where R&D investments take 50-85 per cent, compared to 14 per cent for other sectors (based on data for the US).51

Looking at the European VC investments, we also find that around three quarter of all capital goes to either ICT or life science start-ups, cf. Figure 25. Therefore, for countries with an identified lack of VC capital, we would expect that these sectors will be particularly affected.

ICT is also the largest sector for growth PE but life science to a lesser extent. In total, around 37 per cent of growth PE is allocated to these two sectors. Finally, buyout PE does not have a focus on ICT and life science but focuses more on traditional consumer goods and business-to-business services, with around half of buyout investments going into these sectors.

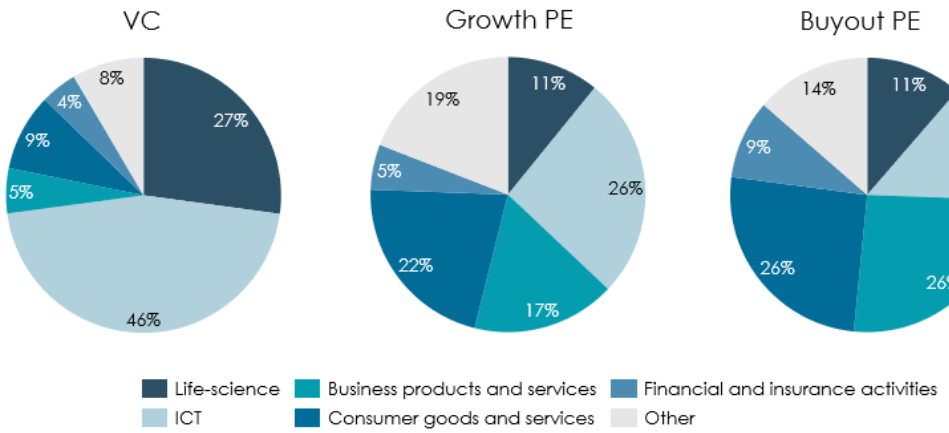

Figure 24
Investments in portfolio company by sector
Share of total investments, average of last four years net of inflation (2015-2018)
Source: Invest Europe

The importance of ICT and life science for VC investments is confirmed by a survey by the EIF among VC funds they invest in, where the two sectors are singled out as being the most important – both currently and going forward (see Appendix). Companies developing clean technologies also achieved important rankings in the EIF survey; currently on par with companies in the services sector and expected to grow significantly in importance going forward.[52]

Figure 26 showing realised risk capital investments by sector confirms that countries with a high level of such investments typically also have large life science and ICT sectors. It should be noted, however, that the causality can go both ways, i.e. dominance of industries dependent on risk capital drives high

51 Brown et al. (2016), *Stock Markets, Credit Markets, and Technology-Led Growth.*
52 EIF (2018c), *VC Survey: Fund managers' market sentiment and views on public intervention.*

demand for risk capital – or strong risk capital markets allows these industries to grow.

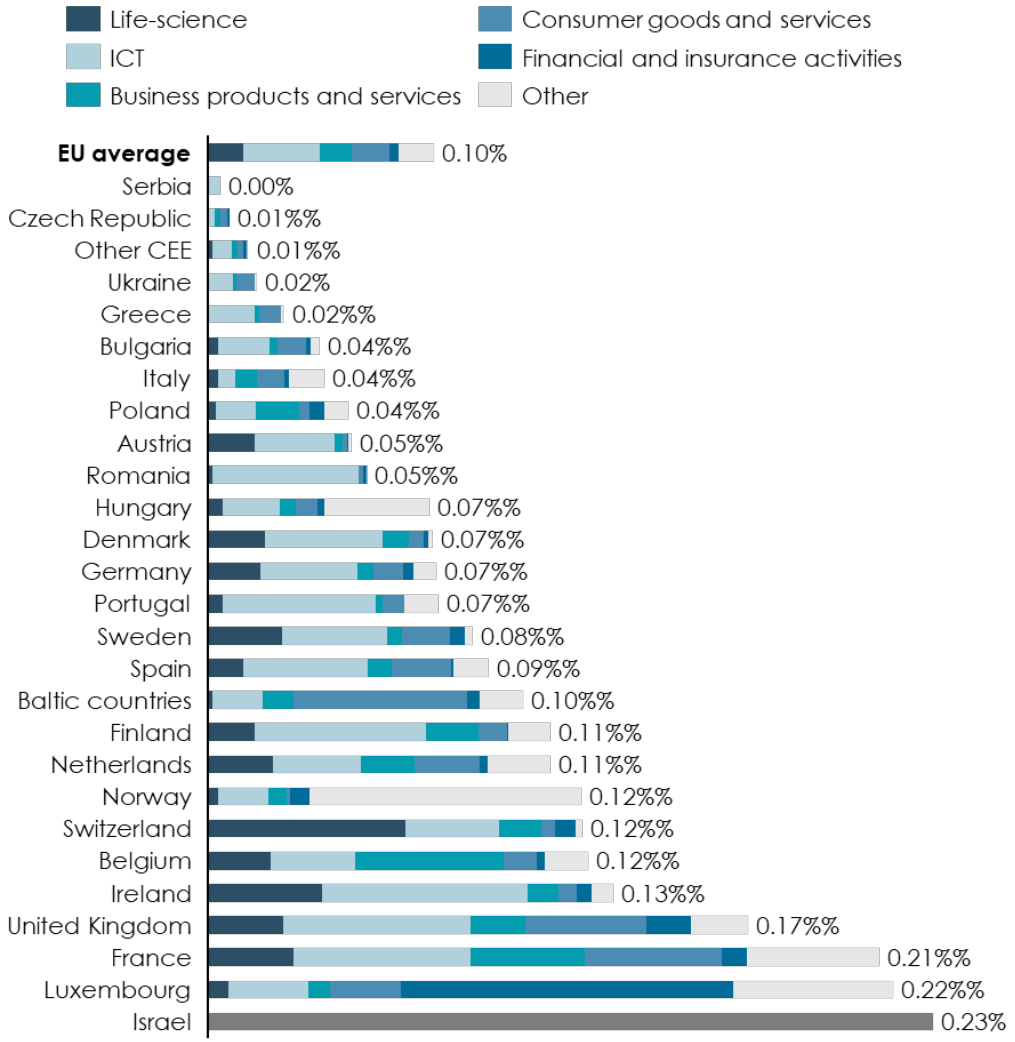

Figure 25
Risk capital investments in portfolio company by sector
Share of GDP, average of last four years net of inflation (2015-2018)
Note: Investment activity is measured by country of portfolio company (market statistics) and not by country of the PE firm (industry statistics).
Source: Invest Europe; PitchBook; Eurostat; World Bank

It is important to keep in mind that the above figure is historical and future growth sectors could be found in other industries as well. That is, the above focus on ICT/life science does not mean that EU programmes should focus on these sectors; the support measures are designed for several years as a multiannual framework, and markets and market needs can change rapidly, so it is key to maintain flexibility. Also, as such, whether a given company has an industry code or not is not important for the fund managers in deal sourcing.

For example, clean technologies which were indicated as growing in importance would often not fall within the ICT or life science industry codes.

The EIF has also asked VC funds[53] how likely it is that certain defined technologies will grow in importance going forward. The top scorers are deep technology, fintech and cybersecurity, where the majority of the VC funds expect companies of this type to be included in their funds going forward. The deep technology sector involves those companies that rely their technology on substantial scientific advances or high-tech engineering innovation. Fintech can be defined as technology that is used by companies to support or enable banking and financial services. A significant number of funds also expect technologies relating to energy efficiency and bioeconomy to be included.

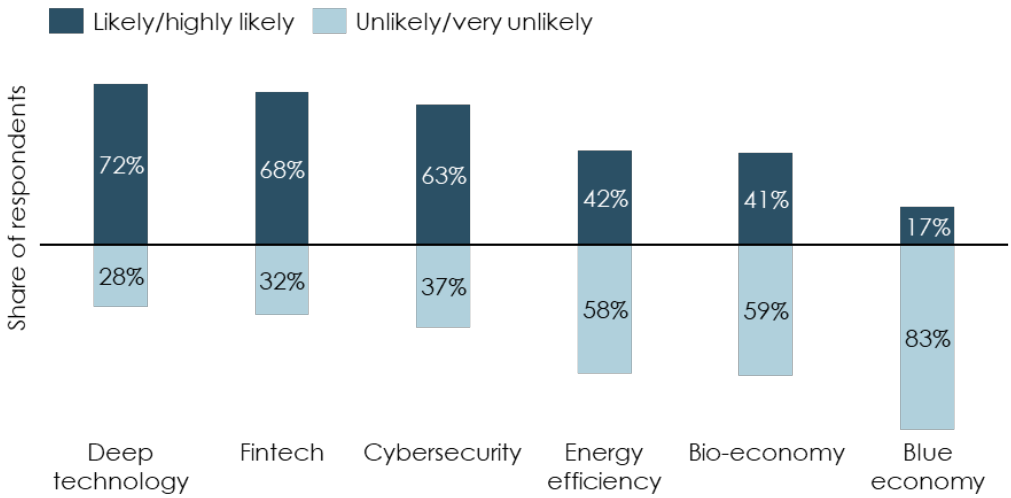

Figure 26
Likelihood for future portfolio to include an investee
Share of respondents
Source: EIF (2018c), VC Survey: Fund managers' market sentiment and views on public intervention

Looking at the deep tech and fintech sectors at country level, it becomes clear that such investments are currently driven by relatively few countries (see Appendix). For example, of the total EUR 3 billion that is invested every year into deep tech companies doing business in one or more of the EU countries, almost EUR 1 bn goes to companies located in France. In comparison, EUR 2 billion is invested in British deep tech companies. It should be noted that investments in deep technology are primarily carried out by VC funds, which should be seen in conjunction with the high-risk nature of the asset class. For equity investments in fintech companies, the UK again tops the list – with an investment activity corresponding to that of the entire EU (see Appendix).

[53] EIF (2018c), *VC Survey: Fund managers' market sentiment and views on public intervention.*

Green technologies and infrastructure funds[54]

Going forward, we see an even greater need for well-functioning equity markets and for infrastructure funds[55] to play a pronounced role in the transition to a low-carbon economy.

To reach a sustainable Europe in accordance with the European Green Deal requires a significant investment effort. More specifically, the climate and energy targets for 2030 require additional investments of EUR 260 billion a year by 2030.[56]

Investments in green technologies are associated with high risks due to:

- The rapidness of technological changes, which creates the risk of other similar technologies being developed faster and thereby overtaking the envisaged market position. Also, the technology may simply fail, is easily replicable or not scalable.

- Uncertainty about the future demand for the green technology in question, i.e. whether there will be a match between the technology supported and the preferable energy production in the future. This will be influenced by the political environment, in particular whether initiatives making CO2 emissions more costly are in fact implemented.

This risk nature of green technologies – high-risk and high-gain – makes it an obvious candidate for equity financing; particularly VC to facilitate the development phase of the technology and PE capital to promote technology maturing.

Also, equity plays a crucial role in the context of infrastructure investments due to the risks and complexity of these investments. A central element of the transition to a low-carbon economy is electrification of the economy, combined with massive investments in renewable energy. The financing of investments in renewable energy is complex and the investment projects can be large and contain several risk elements throughout the project phase:

- It requires thorough and costly preliminary investigations to screen potential sites, e.g. for offshore wind farms, before the plant is constructed.

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[54] See Copenhagen Economics (2020), *Finanssektorens Klimapartnerskab: Baggrundsrapport.*

[55] Infrastructure funds provide the opportunity to invest in essential public assets e.g. utilities, transportation, social infrastructure and energy supply. PE infrastructure is "low risk" compared to more traditional investments, since infrastructure investments often have low volatility, a protected downside, a stable cash flow profile and have low correlation to other assets.

[56] EC (2020a), *Sustainable Europe Investment Plan.*

- During the construction phase, there is a risk that the costs will be bigger than anticipated and thereby change the profitability of the project.

- Finally, there are risks associated with fluctuations in electricity prices in the few cases where the owners are not covered by a fixed-price agreement.

Focusing on the area of energy and environmental technology opens up for an export potential, where Europe can have a competitive edge:

- Some of the world's leading producers of renewables are located in Europe.

- Sustainable finance is way more mature in the European market compared to other markets, e.g. the US.

- Also, investments in clean energy have been continuously higher in Europe compared to the US, cf. Figure 28.

Figure 27
Value of new investments in clean energy in Europe and the US
In billion US dollars, net of inflation: 2018-prices
Source: Statista

Lastly, the green agenda also calls for EU support, as investments directed to SMEs that generate environmental benefits provide even further benefits than usual equity investments; in addition to the general large societal benefit from equity investments in, e.g., the retail sector, such impact investing can lead to reduction in CO2 emissions on a global scale – where neither are included in the private decision of making a risk capital investment.

Technology transfer funds

Technology transfer funds are engaged in the process of translating research and scientific knowledge into innovation and marketable products and technologies.[57] Typically, the technology transfer invests into start-ups or university spin-out companies from the very beginning at the proof of concept stage, to the seed and start-up phases – until VC or PE funding become available.[58] This means that the initial investment in projects are at least 3-4 years from the market.

Research by the EIF suggests that the technology spinouts currently suffer from a structural underfunding in Europe[59]; Europe's performance when it comes to transforming the results of research and development into technologies, products and companies falls short of its potential and is far behind that of its peers.

The technology transfer funds can help alleviating the equity gap for universities facing structural problems in getting access to funding to help technology spinouts past the very early stages.[60] Thus, an enhanced technology transfer funds sector could help university projects within sectors such as life sciences, space technologies and deep tech to get to the commercialisation stage.

2.4 Key framework conditions driving these gaps

There is a wide range of studies that explain the decisive factors for creating an environment in which SMEs with high growth potential and demand for equity thrive.

Key factors for boosting the *supply* of entrepreneurs and business angels as well as the creation of new business ventures in need of external risk capital are (supply side):

- A taxation scheme for entrepreneurs and business angels that ensures they are rewarded rather than penalised for taking substantial risks in starting business with high growth potential but also high risk.[61]

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57 EIF, *Technology transfer: Converting research into products for the market.*

58 J. Samson (2019), *Tech Transfer: What's next?*

59 J. Samson (2019), *Tech Transfer: What's next?*

60 Apax Partners (2005), *Understanding technology transfer*.

61 Henrekson and Sanandaji (2016), *Owner-Level Taxes and Business Activity* find that lowering dividend taxes on companies with dispersed ownership shift capital from mature companies into rapidly growing companies. Furthermore, they suggest that taxation of capital gains tends to reduce the number of innovative start-ups and diminish VC activity. See also Lin and Flannery (2013), *Do personal taxes affect capital structure? Evidence from the 2003 tax cut*.

- Flexible cooperation between research institutions and companies, and strong supply of highly qualified workforce notably with STEM background.[62]

- Willingness of public authorities to absorb risks particularly in the early stages of risky projects with high innovation perspective.[63]

- Legal framework and overall predictable policy framework that allows entrepreneurs to take long term risks.[64]

Key factors for the interest and ability of financial markets to buy into the investment opportunities resulting from the efforts of entrepreneurs etc. (demand side):

- A regulatory framework that makes it attractive for institutional investors to invest in high-risk equity portfolios.[65]

- A well-developed overall financial system across the entire eco-system that is relevant for growth of the risk capital market (banks, stock exchanges, legal and other advisory services).[66]

By the same token, there is also a wide range of studies showing that differences in these framework conditions can explain a large part of the variance in the size of risk capital markets across countries.

A substantial part of these policies is very much set at the national level in the EU context, but clearly EU policies also have a key role to play in at least three ways:

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62 See for example Baldock et al. (2016), *The Role of Government Venture Capital Funds: Recent Lessons from the UK Experience*, which shows that cooperation between government and companies leads to high-growth SMEs. Or EIF (2015), *Bridging the University Funding Gap: Determinants and Consequences of University Seed Funds and Proof-of- Concept Programs in Europe,* highlighting the importance of technology transfer which can take place, e.g., in collaboration between research organisations and the industry.

63 Copenhagen Economics (2018d), *Innovationsmiljøernes værdiskabelse i Danmark*, more specifically see Baldock et al. (2016), *The Role of Government Venture Capital Funds: Recent Lessons from the UK Experience*.

64 This is also highlighted in Copenhagen Economics (2019b), *The role of venture capital for economic growth in the Nordic region*, where the need for a transparent, competitive and stable tax policy is highlighted together with the importance of creating and attracting scarce talents.

65 As discussed in, e.g., 1) Itenberg, O. (2013), *Firm size, Equity Financing and Innovation Activity*, 2) Lerner, J. (1999), *The Government as Venture Capitalist: The long-run impact of the SBIR program* and 3) Russ et al (2009), *A Theory of banks, bonds and the distribution of firm size.*

66 The importance of a well-developed financial system is showed in Copenhagen Economics (2016), *Gevinster for Danmark ved reduktion i barrierer for børsnoteringer og øvrig risikovillig kapital* and furthermore in an article by Siddharth Sharma (2007), *Financial Development and Innovation in Small Firms*. Sharma shows that R&D spending in small companies (relative to large companies in the same industry) is more likely and sizeable in countries which are at a higher level of financial development.

1. One of the key issues to develop successful risk capital markets is to get scale and critical mass. An important difference between, e.g., the US and EU VC markets is the size of equity funds. The funds in the US are by orders of magnitude larger and more specialised, and thereby also better positioned to identify the best investment opportunities and help them grow.[67] Hence, the EU can play a role by removing barriers for risk capital providers to achieve European as opposed to "just" national scale, being particularly important for the small EU countries. This has a direct link to the Capital Market Union that includes a number of regulatory initiatives with this aim in mind.

2. The role of supporting innovative but also risky projects that potentially provide wider societal and environmental benefits flowing across EU borders also provides a case for the EU as opposed to national funding.

3. The EU can play a role in speeding up the growth of these markets, potentially also with a focus on those EU countries lagging behind the best performing countries, e.g. by helping to disseminate best practice included on the wider regulatory agenda.

In chapter 3, we will elaborate on the latter EU-related part, focusing on the existing support measures that are directly aimed at developing the European risk capital markets for SMEs.

[67] Copenhagen Economics (2019b), *The Role of Venture Capital for Economic Growth in the Nordic region*.

3 EVALUATION OF EXISTING PROGRAMMES AND RECOMMENDATIONS

In this chapter, we evaluate the functioning of the existing EU programmes and how they contribute to closing the identified equity gap, serving the basis for our recommendations on the design of EU support going forward.

It should be noted that other initiatives in place to promote the capital markets of Member States in one way or another, e.g. national strategies, the CMU[68] and those by multilateral development banks, will not be addressed. This does not mean that the programmes under consideration should do the job alone.

In section 3.1, we highlight why there is a role for public authorities to play on the European equity markets. Then, in section 3.2, we will provide a high-level description of the currently most relevant EU programmes aiming at facilitating the equity markets; InnovFin Equity, COSME - Equity Facility for Growth (EFG), SMEW EFSI and VentureEU. In section 3.3, we will evaluate the functioning of these initiatives. As we will document, the different EU programmes have similar means and aims, so we will in this section focus on evaluating the functioning of the existing programmes under one, while addressing the specific challenges caused by the combination of more programmes. Finally, in section 3.4, we lay out our recommendations for a future structuring of the EU support to European equity markets.

3.1 Why and how to support equity markets

As documented in chapter 1, well-functioning equity markets are crucial for economic growth and innovation. In theory, if private markets were able to provide the optimal level of equity finance to companies, there would be no need for government support. However, due to several structural market failures, there is indeed a scope for EU support; without support, the level of equity investments would be too low from a societal perspective:

- First of all, there are large spill-over effects from risk capital investments. These spill-over effects are not included in the decision-making of private risk capital firms, giving rise to a suboptimal level from a societal perspective; investors only consider the return they will get on their investments – not the return to society. Concretely, empirical studies find that the social return is more than three times larger than the private benefit from a VC investment.[69]

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[68] See e.g. AFME (2018), *Capital Markets Union: Measuring progress and planning for success*.

[69] More specifically Romain and Pottelsberghe (2004) found that an increase in VC of 1 EUR results in an increase in output growth of 3.33 EUR. A similar result is found by Colino (2016), *Cumulative Innovation and Dynamic R&D spillovers*.

- There is a high degree of imperfect information in the context of SMEs financing as there is disproportionality between the cost of assessing a relatively small company's need for finance and the potential financial return.[70]

- On a similar note, there is often an uncertainty of future prospects as start-ups do not have any track record – so typical private investors will not contemplate such investment opportunity. However, if the EU managed to create an eco-system of professional investors, it could lead to a market for private funding – but it needs a "push" to get started.

- Finally, public investors' participation in a VC fund also has a positive signaling effect on private investors.[71]

As such, government support to equity markets does not only address the funding gap between what is optimal and actually provided by private markets – the government support can help alleviate some of the informational barriers creating the gap in the first place.

Thus, by only relying on private investments, there is a risk for underinvestment and, hence, there is a clear scope for EU support. This leaves the question on how to support equity markets.

3.1.1 How to support equity markets

In the academic literature, there is somewhat consensus that government support measures to equity markets must follow a "crowding-in" approach, implying that EU support should be provided indirectly via the funds, acting as intermediaries, rather than in a direct way to the beneficiaries.[72] In this way, the EU support will have a double effect: it provides equity support to companies in need of finance – but it will also initiate private investors to help closing the equity gap. In this way, government supports will promote the described eco-system that can provide the funding needed and attract private investors and relevant stakeholders. Otherwise, the EU will have to close the entire gap between the actual level of equity funding and the socially optimal one. As the EU budget is only 1 per cent of the European gross national income, this would not be possible.

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70 EIF (2016c), *The European venture capital landscape: An EIF perspective.*

71 Brander et al. (2015) found that companies funded by both public and private VC obtain more investment than those funded purely by private VC.

72 As discussed in e.g. i) Raposo and Lehmann (2019), *Equity finance and capital market integration in Europe*, ii) Claeys et al. (2018), *Analysis of developments in EU capital flows in the global context*, and iii) De Groen (2019), *Finance for Sustainable Growth*. See also EIF (2019b), *European Small Business Finance Outlook*.

3.1.2 The EU equity support programmes are only part of the solution

It should be noted that the EU programmes are just a part of the general commitment to support the equity markets. The effort should be seen in the wider context of the Capital Market Union (CMU), which has a stronger focus on improving some of the weak framework conditions as described in section 2.4. In general, the objective of the CMU is to[73]: 1) Remove barriers to cross-border investments; 2) lower the cost of funding; and 3) help companies tap into more diverse sources of capital from anywhere within the EU.

Thus, in this study, we only analyse a subset of the overall effort to improve the European equity markets.

3.2 Description of existing EU policies and programmes

The EU supports equity markets with the objective to improve the financing environment for European SMEs. In this context, the EU has established a series of financing measures. The programmes concentrate on investment capital to innovative companies in their pre-seed, seed, start-up and scale-up phases, aiming at alleviating financing constraints. We will evaluate the programmes in the next section.[74]

The initiatives currently in place are:

InnovFin Equity

The main objective of this programme is to leverage private investments in research and innovation (R&I) projects to counteract financing gaps and market deficiencies for R&I-driven companies. Together with crowding in private investors, the funds provided by the programme thus address the suboptimal allocation of capital in the EU.

Through this initiative the EIF invests in selected intermediaries which, in turn, provide financing to the SMEs, including social enterprises, operating in the sectors covered by Horizon 2020. The InnovFin Equity facility has a thematic focus adopted in line with the Horizon 2020 objectives, e.g. the most recent InnovFin delegation agreement includes two pilots, namely Space and Artificial Intelligence & Blockchain.[75] The EU contribution to InnovFin Equity is in the magnitude of EUR 730 million.

In terms of geographical scope, the beneficiaries should be located or active in the EU Member States or Horizon 2020 associated countries. The initiative itself consists of four products which target the SMEs at their different stages of

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[73] See EC (2015a), *Questions and answers on the Action Plan on building a Capital Markets Union*.

[74] The access to capital is still mentioned as an important problem by a considerable share of SMEs as documented in the recent SAFE survey conducted by the ECB. Country-heterogeneities are evident (see Chart 7 of the survey, for instance).

[75] EC (2020c), *Horizon 2020, Work Programme 2018-2020.*

development, particularly the entire spectrum of early-stage phases, and reach them through different funds (technology transfer funds, funds pooled by business angels and VC funds). The target audience is therefore varied and reaches companies from the pre-seed and seed stage to start-ups and scale-ups. To avoid overlap and competition with InnovFin Equity, the sector scope of InnovFin is focused on more acute market failures as well as research and innovation.[76]

COSME - Equity Facility for Growth (EFG)

Another initiative that is part of the Single EU Equity Financial Instrument is COSME - EFG, aiming to support the development of a self-sustainable pan-European risk capital market by mobilising funds from the private sector.[77]

Like InnovFin Equity, COSME - EFG also provides funds indirectly through selected intermediaries, particularly those VC and PE funds operating across borders, but to SMEs only (not small mid-cap companies). But the focus of these investments is typically at later stages of the business development (expansion and growth stage). As such, the EIF typically targets somewhat less risky investments through COSME - EFG.[78]

An EU budget of around EUR 400 million is available for this equity instrument, which is expected to result in a total investment in beneficiaries of EUR 2.6-4.0 billion. The eligible beneficiaries of this initiative are SMEs, established and doing business in the EU Member States and COSME associated countries. As long as the companies are not active in any of the EIF restricted sectors, no specific sector focus has been assigned and we are not familiar with any current thematic allocations for COSME – EFG.

SME Window of the European Fund for Strategic Investments (SMEW EFSI)

The SME Window of the EFSI, being the central pillar of the so-called Juncker plan, is implemented by the EIF and aims at facilitating access to loan and equity financing for SMEs.

Focusing on the equity product (EP), the objective is to crowd in private sector capital to enhance financing access for SMEs, including social enterprises, targeted by EU policy priorities. EFSI SMEW EP has a budget of EUR 1,270 million to contribute to a total multiplier of x15 for EFSI's overall portfolio on average, measuring the relation between EFSI's contribution and total investment. The EFSI equity instruments are deployed through an intermediary vehicle within two windows; the early stage window and the expansion and growth window.

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76 EIB (2018a), *Evaluation of the European Fund for Strategic Investments.*

77 EC presentation, *EU Access to Finance Policies and COSME Financial Instruments for SMEs.*

78 See CSES (2017), *Interim Evaluation of Horizon 2020's Financial Instruments (Final Report)*, p. 123 and Technopolis Group (2017), *Interim Evaluation of the COSME Programme.*

In terms of sector scope, EFSI has no assigned targets but a requirement to avoid sector concentration. Also, recently a thematic allocation for the Blue Economy has been introduced for the EFSI Equity.

VentureEU

VentureEU is a pan-European VC funds-of-funds originally aimed at[79]

- Attracting major private investors into the European VC market: Government funding represents a much larger share of the total VC investments in Europe than in the US.

- Increasing the size of VC funds in the EU: The average VC fund in the US is around three times larger compared to those in Europe.

- Overcoming fragmentation[80] across countries in Europe: Most VC funds only operate in one or a few Member States, and European VC investment is largely concentrated in only a few Member States.

However, the VentureEU approach was met with too large challenges for the programme to become successful.

VentureEU was based on six funds-of-funds selected to act as intermediaries. Particularly, the six funds should bridge the gap between large institutional investors and smaller VC funds, whilst backing projects in at least four European countries each. Also, it should result in EU support being used more effectively.[81]

The VentureEU programme was managed by the EIF and part of, among other things, the Investment Plan for Europe and the Capital Markets Union (CMU) Action Plan. It gathered EU funds from four partners; InnovFin Equity under Horizon 2020, COSME - EFG, EFSI and the EIF's own resources, totalling to EUR 410 million available to crowd in private investors.

The six selected fund managers had 12 months to mobilise private investments corresponding to at least three times as much as the EU investment. This pool of public and private funds invested into VC funds should then attract additional capital again from private sources, aiming for EUR 6.5 billion of new investment in innovative start-ups and scale-ups. The sector scope of VentureEU involve, among others, ICT, digital, life sciences, medical technologies, and resource and energy efficiency.

Table 1 provides an overview of the different programmes just presented.

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[79] EC (2016c), *Commission and EIF seek Pan-European Venture Capital Fund-of-Funds managers.*

[80] See the EIF SME Access to Finance (ESAF) subindex for equity in EIF (2019d), *The EIF SME Access to Finance Index*.

[81] EC (2018d), *VentureEU: Pan-European Venture Capital Funds-of-Funds Programme.*

TITLE	Technology	Stage scope	Geographical scope	Sector scope
InnovFin Equity	Most risky investments	Early-stage phases	EU MS and H2020 Associated Countries	Thematic allocations
COSME - Equity Facility for Growth	Less risky investments	Late-stage phases	EU MS and COSME Associated Counties	No assigned sector targets
EFSI SME Window - Equity Product	Risky investments	Early- and late-stage phases	EU MS	No sector concentration but occasionally thematic distribution
VentureEU	Risky investments	Early- and late-stage phases	EU MS and H2020 Associated Countries	Innovative sectors, e.g. ICT and life science

Table 1
Overview of existing EU equity instruments

Going forward, the InvestEU programme, which is planned to be introduced in 2021, will merge together a series of EU programmes, including those related to equity as well as other types of external financing.

3.3 Evaluation of the functioning of EU programmes to support equity markets

In this section, we will evaluate the EU support programmes currently in place for the European equity markets.

First, it is important to stress that we have analysed and will evaluate these support programmes from an economic perspective, whereas legal and political considerations are not included in our assessment. For example, certain requirements could be inefficient from an economic perspective but might be favourable from a political or transparency point of view – the latter will not be included. As such, our evaluation should be seen as an input – from an economic perspective – to a coherent decision-making where also legal and political priorities are taking into account.

EU support programmes are on track from a high-level perspective

From a high-level perspective, the EU programmes live up to established principles for public support. First of all, the programmes provide the described catalytic support vital to build up an eco-system that can sustain without public support, i.e. aiming at crowding in private investments. As such, the existing programmes:

- Provide a share of up to 25-50 per cent of the funding that can have leverage effects by attracting private investors.

- Focus on commitments in first closings, meaning that the initial capital to some funds are provided by these programmes and then the EU scale

back once the equity funds get more solid performance numbers, i.e. larger potential for private investors.[82]

- Only support equity funds which they assess in time can work on private terms, i.e. it is believed that the fund can achieve sufficiently solid performance numbers. As such, implementing partners are conscious that their support can work as a blue-stamp for private investors; it signals that the partner believes the programme will generate solid returns for private investors, making it more likely for private investors to follow suit.

Furthermore:

- The EU support can also be first movers geographically by supporting underdeveloped areas to initiate the development of a private led equity eco-system.

- Supporting at a European level creating EU value added, as risk capital markets operate across borders to build scale and critical mass; capital markets are international at least to some extent and it is important not to impose national limitations on which SMEs to support. In the same line, an interim evaluation of the COSME programme finds that the support through COSME is additional to national and regional measures and that it further enhances these.[83]

- Finally, the programmes also have a focus on supporting the entire spectrum of risk capital to avoid gaps in the value chain, meaning that companies will more likely be able to progress to the next stage, as described in the previous section.

The notion that the existing EU programmes are broadly on track in promoting European equity markets is backed up by a number of recent studies:

- A 2019 study finds a positive outcome of the policy instruments for equity financing to SMEs in Europe, as those companies backed by VC investments deployed through EIF tend to growth faster and thus contribute to higher job creation than non-VC-backed companies.[84]

- A 2017 study finds that the COSME programme has successfully set the building blocks for reaching its intended impacts.[85] Also, it is said that EFSI is adequately designed to increase access to external financing for

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82 EIF, *Annex II to the Open Call for Expression of Interest to select Financial Intermediaries under the Single EU Equity Financial Instrument.*

83 Technopolis Group (2017), *Interim Evaluation of the COSME Programme.*

84 EIF (2019c), *VC Survey: Fund managers' market sentiment and policy recommendations.*

85 Technopolis Group (2017), *Interim Evaluation of the COSME Programme.*

SMEs companies.[86] For InnovFin, research suggests that the InnovFin scheme is performing well against its objectives.[87]

- A 2018 study finds that the fund managers' perceptions of the EIF's value added, products and processes are highly positive – the EIF's involvement in a fund is perceived to have a positive impact on its fundraising and the structuring process. In particular, the fund managers indicate that they are able to increase the number of European SMEs they invest in as well as the amount invested per SME due to EIF's involvement.[88]

At a glance, this may seem to contradict our findings from chapter 2. Recall that growth in risk capital investments has been modest in the EU since 2013, while large differences within Europe and a gap to the US – even for the best performing European countries – remain. However, we see this first of all as a testament to the long process it takes to build up a well-functioning risk capital eco-system and we – in general – do not see this as an indicator of ineffectiveness of the EU programmes; it is not feasible to build up successful eco-systems over a few years only:

- Most equity funds have a lifecycle of over 10 years from first fund generations of deals to exit of portfolio companies. Moreover, it requires several rounds of fundraising before the right expertise is built up as well as having sufficient solid track record of performance to attract private investors.

- A self-sustaining risk capital eco-system needs previous successful entrepreneurs or GPs to start new equity funds or spin-off start-ups etc. Again, this is a slow process as it builds on previous successes.

- Moreover, as documented in chapter 2, a number of the critical factors for a well-functioning risk capital markets are linked to structural policies, most national level, beyond the scope and control of the evaluated EU programmes.

In addition, the development of the European risk capital eco-system has been counteracted in the last decades; first by the dot.com crisis at the beginning of the 2000s, which resulted in many unsuccessful VC-backed IT companies[89], then the financial crisis hitting the European economy in 2008 and finally the subsequent debt crisis in Europe.

As such, in evaluating the EU programmes, we are talking about adjustments in the following section: no need for fundamental reform of the support measures to European equity markets.

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86 EIB (2018a), *Evaluation of the European Fund for Strategic Investments.*
87 CSES (2017), *Interim Evaluation of Horizon 2020's Financial Instruments.*
88 EIF (2018a), *Fund managers' perception of EIF's value added.*
89 Copenhagen Economics (2019c), *Economic Footprint of Swedish Venture Capital.*

3.3.1 Five focus areas to improve EU promotion of risk capital markets

To further improve the EU promotion of risk capital markets, we have identified five focus areas where adjustments could benefit the development. The main input to our evaluation has been interviews with various sector stakeholders, which we have assessed from an economic perspective backed-up by studies and regulatory texts where possible.

1: Too many windows in place pursuing the same objectives

A recurrent criticism raised in our sector interviews is that there are too many programmes in place, with some having the same objectives broadly and thus overlapping each other, which can be confirmed by our review of the programmes in section 3.2. According to our sector interviews, the presence of these numerous programmes makes it intransparent for fund managers to know under which programme they should apply for funds.

In light of these learnings, the InvestEU programme planned to run from 2021 to 2027 will gather the different initiatives under one. We strongly support this unification as it is an obvious solution to solve the issue with many overlapping programmes.

However, if the many different objectives of the several programmes currently in place will be kept within InvestEU – it will not solve the problem. We find some evidence that this could be the case: Initial Commission plans[90] show that InvestEU will contain five policy windows, namely a sustainable infrastructure window, a RID (Research, Innovation and Digitisation) window, a SME window, a social investment and skills window and a strategic European investment window, e.g. where there is a joint equity product with contribution both from the RID and SME window to SMEs. This indicates a risk of numerous overlapping windows to remain within InvestEU.

2: Detailed specifications of the programmes

We have found that the EU programmes in some dimensions are subject to detailed specifications and requirements for investments. These specifications may in some instances prevent the Implementing Partners from an optimal support on a case-by-case basis. In particular, the programmes have detailed specifications within three dimensions:

- Restriction on the size of the investment.
- Restrictions on which sectors (or type of companies) can be invested within.
- Restrictions on stage of investment.

[90] EC (2020b), *Questions and Answers: The proposed InvestEU programme.*

In terms of restriction on the investment size, we find the following limitations for the EU programmes covered in this report:

- Within COSME - EFG, each investment shall represent at least 7.5 per cent of total commitments but must not exceed 25 per cent and never be an amount above EUR 30 million.[91]

- Similarly, the size of an InnovFin Equity investment[92] is restricted to be a maximum of 25 per cent of the total commitments or EUR 50 million and no less than 7.5 per cent. Though there are certain exceptions where the EIF can go up to 50 per cent of the total commitments, e.g. if the InnovFin financial intermediary is a technology transfer fund, or higher.

- Also, the EFSI Expansion & Growth window operates under several requirements to the size of the investments that goes into financial intermediaries and has further exceptions to these requirements. For instance, each EFSI investment must not exceed EUR 50 million, except if it is entered into with a Fund-of-Funds. Further, each investment shall not exceed 50 per cent of the aggregate commitments made to the financial intermediary, except if the intermediary is investing in the area of Social Impact and co-investment funds. In terms of lower bound, each EFSI investment must represent at least 7.5 per cent of the commitments made at the closing.[93]

On average, such restrictions appear to be sound and within the best practice of government support to equity markets, detailing that the EU in general should provide a minority share of the investment in a fund to crowd in private investors. However, there could be instances of high policy value where it would be necessary to deviate from the above restrictions on maximum levels and defined exceptions in order to successfully crowd in private investors. Of course, this should only be the case when the fundamentals of the investment – assessed by the Implementing Partner – are solid. If this is the case, it could be necessary to go in with for example 60-70 per cent in a first closing in an entirely new market, where private investors would be very reluctant to provide the majority of funds – despite the fundamentals of the project is sound. As such, requirements that are *on average* fair and sound but might be an obstacle in certain cases.

In terms of restrictions on which sectors that can be invested within, we have identified the following examples:

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91 EIF, *Annex III to the Open Call for Expression of Interest to select Financial Intermediaries under the Single EU Equity Financial Instrument.*

92 Here deployed in the context of the EFSI Equity Instrument, see EIF, *Annex III to the Open Call for Expression of Interest to select Financial Intermediaries under the EFSI Equity Instrument*.

93 EIF, *Annex II to the Open Call for Expression of Interest to select Financial Intermediaries under the EFSI Equity Instrument.*

- InnovFin has a thematic focus, e.g. the 8th amendment for the EFSI Equity delegation agreement include thematic allocations in the domain of Space and Artificial Intelligence and Blockchain technologies for risk capital.

- VentureEU is focused on a range of sectors such as ICT, digital, life sciences, medical technologies, and resource and energy efficiency.[94]

- For the EFSI Equity, a requirement to avoid sector concentration. Also, recently a thematic allocation for the Blue Economy has been introduced.

Again – on average – the sector specifications seem reasonable; the sectors which are required to receive the largest share of the invested amount are also the sectors that typically are in most need of risk capital, i.e. life science, R&D, ICT, technology, etc. This is unsurprising, as the sector specifications are based on empirical studies on the need for equity investments.

However, it can be difficult to predict which sectors will trend in the future and equity funds often support companies that are on the technology frontier, thus being very dynamic and susceptible to changing technology trends. As such, any sector specifications – that were historically accurate – might be outdated, once implemented. For example, if a product focusing exclusively on deep tech is created, but there is a sudden increase of cleantech companies, there may not be a sufficient number of funds with a deep tech investment strategy to support, which would be suboptimal.

Similarly, *in terms of restrictions on which stages that can be supported by the individual EU programmes* as evident from Table 1*,* it could be that certain stages were underserved in some regions historically – but again, the market can change within a few years, where new needs arise.

3: Limits to risk absorption of the EU programmes

One purpose of the EU support is to leverage private funds and crowd in investments in projects in which private investors would not otherwise invest, which helps build up a strong European risk-capital eco-system. In this context, the risk sharing between the public and private investors is an important element.

Consequently, an inherent risk-aversion built into the EU programmes can be problematic. One example of this is the so-called “pari-passu” principle. The principle states that EU’s support should take risk on equal terms with the private investors. This implies that the EU cannot take on the majority risks

[94] EC (2018c), *Factsheet VentureEU – Boosting Venture Capital Investment in Europe’s Innovative Start-ups.*

without also getting the majority return – there should be a symmetric return structure.[95]

Naturally, if it is possible to crowd in private investors, while public investors get a return that matches the risk taking, this is preferable. This would limit the budget impact, freeing up more funds for other purposes. However, the principle could – in some cases – limit the crowding-in effect, particularly in situations where private investors assess that the risk left is too considerable compared to the potential payoff, e.g. in newly established funds and markets.

Similar, the provisioning rate is basically an upper limit on the expected loss that the investments can entail – again there could be a need to deviate from the established provisioning rate on a case-by-case basis.

4: The programmes are criticised for being too administrative burdensome

The perhaps single most raised issue during our sector interviews is criticism of the programmes being too compliance heavy and difficult to administrate for funds applying for EU support. Several stakeholders mention that a fund needs one full-time equivalent to do all the necessary reporting and compliance. This is, in particular, an issue if you are a small VC fund with limited administrative capacity.

The heavy administrative burden is also apparent from a recent survey, where[96]

- 45 per cent of fund managers say that the EIF took more than one year to approve an application and 41 per cent report that it took between six months and one year.

- 66 per cent say that they were in contact with three to five interlocutors from the EIF during the application process, with some interlocutors not always being familiar with national particularities.

According to our sector interviews, an aggravating factor is that the requirements are often a misfit from the daily operations of funds, in a language that is difficult to understand, making it more difficult for funds to comply with the requirements.

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[95] The principle is for instance in place for the COSME - EFG investments. See EIF, *Annex III to the Open Call for Expression of Interest to select Financial Intermediaries under the Single EU Equity Financial Instrument.* With regards to the ranking between InnovFin[95] as a programme and private investors, this principle also applies to InnoFin Equity investments. With regards to the structure of InnovFin Equity as a product, it is not symmetric – the EU support is subordinated to the resources provided by Implementing Partners at programme level. In terms of the ranking of EFSI investments, the EIF should generally rank pari passu with other investors (including National Promotional Banks) – but in case that the EFSI intermediary invests in the social impact area, deviations from the pari-passu principle may be acceptable. See EIF, *Annex II to the Open Call for Expression of Interest to select Financial Intermediaries under the EFSI Equity Instrument.*

[96] European Court of Auditors (2019), *Centrally managed EU interventions for venture capital: In need of more direction.*

The administrative burden associated with applying for funding may prevent small VC funds to apply due to limited resources available. Consequently, resources available for administration and ability to draft good applications rather than potential and GP expertise may sometimes be decisive for which equity funds receive EU support.

On the other hand, we do acknowledge that this is a balancing act. Part of the catalytic effect from EU support is the high due diligence requirement entailed. As such, when a fund receives EU funding, private investors know that it has been under heavy scrutiny and hereby works as a blue stamp. Also, we do realise that some security will always be required to distribute EU funds, which is beyond the scope of the programmes.

5: National Promotional Banks are ill-suited to foster cross-country VC hubs

In the context of the establishment of InvestEU, it has been considered whether National Promotional Banks (NPBs) should take a larger role in implementing the programmes. Today, they primarily work as an intermediary for the programmes but often not as an Implementing Partner.

We do indeed see a role for NPBs, e.g. they have regional knowledge which is important when acting as an intermediary. Also, they play an important role in spreading awareness among SMEs about their eligibility for relevant funding opportunities through the EU programmes, contributing to closing an information gap on the European VC market.[97]

Nevertheless, NPBs might not think in the framework of creating regional hubs for VCs servicing several markets but will naturally have a national focus. Particularly, often NPBs only have mandate to support local markets. Such limitations are somewhat in contrast to the idea that funding should go towards the companies with biggest potential for growth, which may involve crossing borders.

3.4 Recommendations

In this section, we provide five high-level recommendations for how to improve support to equity markets in Europe going forward.

Before presenting the recommendations, it is important to stress two factors:

1. The recommendations are based on the *economic* analyses in chapter 2 and the evaluation presented above, i.e. legal and political aspects are not included. As such, our recommendations should be seen as input to a coherent political decision-making that also include legal and political priorities.

[97] Communicated by the European Commission, see European Parliament (2016), *New Financial Instruments and the Role of National Promotional Banks*.

2. Our general assessment is that the EU support to equity markets is overall on track – and any perceived lack of rapid growth of the European equity markets should primarily be ascribed to the fact that it takes time to build a flourishing equity eco-system and as a result of a number of structural barriers – primarily on national level. Therefore, the recommendations presented below are suggestion for the direction that the EU programmes could explore – *not a call for a turnaround of the current support system.*

3.4.1 Continue the work of streamlining and increasing flexibility of the EU support programmes

As touched upon in focus areas 1 and 2 of our evaluation, there exists a multitude of objectives within the different programmes currently in place and several further programmes, some with overlapping aims. Fortunately, this seems to be streamlined at least to some extent, based on the preliminary blueprints of InvestEU, where the EU support is gathered within one instrument.

However, as mentioned, there will still be different windows within InvestEU that could be competing. Therefore, we suggest examining whether it is possible to further simplify and streamline InvestEU in order to make it easier and more effective for Implementing Partners to use and for funds to apply for.

Furthermore, in general, the detailed specifications applying at a transactional level for the existing programmes in terms of stage and sector specifications and amount of capital that can be invested into funds seem reasonable on average only. There could be cases where it would be optimal to deviate from such constraints, specifically in the case of high policy value added.

Therefore, we recommend allowing for greater flexibility for the Implementing Partners going forward. More specifically, we recommend to incorporate flexibility in InvestEU to make it possible to deviate from the general requirements on a case-by-case basis, if deemed necessary by the Implementing Partner and given that it can be justified from a catalytic perspective. For example, when supporting:

- in a first closing.
- teams operating in emerging geographies or nascent sectors such as deep tech and clean technologies.
- specific types of funds such as technology transfer and social impact funds.

The increased flexibility could thus involve the ability to intervene more intensively and provide above the usual 25-50 per cent of the total commitments, also in cases where none of the exception criteria currently listed in the investment guidelines are met. Or to increase the share of investments to a certain sector, where there is a great growth potential not spotted once the programme was launch or at the time of adopting new thematic allocations.

As such, the constraints will become general guiding principles that the EU support must usually stay within – but there might be deviations, if the Implementing Partner can justify it with reference to the overall aim of EU support:

- Facilitate crowding in of private investors;
- build-up and support the growth of eco-system; and
- support new and fragile markets.

This approach will support the diverse European equity markets with very different maturity, as documented in chapter 2.

Expected impact

We expect that the flexibility for Implementing Partners to tailor the EU support on a case-by-case basis will improve the quality of public support provided to SMEs in Europe; market failures and gaps are different from one country to another, so one general guideline does not always fit all markets. Hence, the solution requires a modulated approach of European intervention, where tools are allowing enough flexibility to sufficiently accommodate the varied support need of the equity markets across Europe.

3.4.2 Review the ability to absorb risks

As addressed in focus area 3 in the evaluation, the design of the EU programmes currently in place tends to limit the risks absorbed, potentially at the risk of delivering on the prime objective of addressing market failures. Examples include ceiling to the risks that can be absorbed; a pari-passu principle and ceiling on provisioning rates. Although being prudent restrictions on average, this might prevent the EU programmes from effectively crowding in private investors, particularly in immature markets, e.g. in Eastern and Southern Europe, as highlighted in chapter 2.

As a result, we recommend that the ability of EU programmes to absorb risk should be reviewed, with a focus on a case-by-case basis to deviate from the established risk constraints. Thus, very much in line with the recommendation given above of increasing flexibility of EU support to equity markets.

One option is to increase the allowed provisioning rate, which will directly allow more risk-taking for the EU in individual cases. Furthermore, the pari-passu principle could become a guiding principle that can be deviated from, if it can be justified from a catalytic perspective – exactly as recommended with the other constraints in the section above.

Based on our sector interviews, the EU has successfully used a non-pari-passu risk sharing structure in products categorised with higher expected risk-taking such as InnovFin. This has allowed the Implementing Partner, in this case the EIF, to deliver higher volumes of investment activity in underlying operations characterised by higher risk that could not be undertaken in pari-passu

products. In this context, it should be highlighted that a product like InnovFin Equity has allowed the EU to intervene in high policy priority areas; such as scaling up the support to business angels and supporting technology transfer funds and the creation of first-time teams in emerging markets in Europe.

Expected impact

We expect this recommendation to give the EU programmes a stronger crowd-in effect, particularly in immature markets, where crowding-in can be difficult in some instances with the current risk appetite, as described earlier in this chapter.

We do acknowledge that less risk aversion will have budgetary implications; a greater expected loss will follow with more risk taking, implying that a larger EU budget must be allocated for the proportion of equity supported to remain unchanged. That is, more risk-taking makes 1 EUR of equity support relatively more expensive, which likely leads to a lower quantity provided. Thus, there is a trade-off between quantity of support and quality of support. However, our assessment presented in this report points towards a stronger need for more high-risk bearing capital.

3.4.3 Ease the burden of administrative procedures

As stated in focus area 4, the procedure that equity funds have to follow to apply for public funding is criticised in the market for being so compliance heavy that it even prevents some funds from applying.

Therefore, we recommend revisiting the administrative procedure associated with applying for EU support. The aim of reducing the due diligence and easing the burden currently created by the process is to make it easier and less compliance cost heavy to apply for funds. Particularly, the following areas could be looked into:

- Revisit the entire application process from a “customer perspective” to ensure that it is user-friendly and as simple as possible.
- Change the language and format of the administrative document and reporting. requirement to make it more friendly and easy to understand for market participants.
- Ensure that funds only have to make one application when applying for funding.
- Slim down the reporting requirements, making sure that only the most necessary information is required to be provided.

In addition, the streamlining of the EU support recommended above would likely also in itself ease the application process.

We acknowledge that it is a balancing act between the burden on one hand and the signaling effect which is key on the other hand. The fact that the procedure

currently is being recognized as a tough process in the market creates a signaling effect, which is of value not only for those companies getting accepted for EU support, as it promotes the catalytic effect.

Recall that this recommendation uses interviews with market participants as input combined with our economic evaluation of the arguments provided – political and legal considerations are not included in the recommendation.

Expected impact

We expect that this recommendation would make it less costly for equity funds as well as the EU administration to engage in the administrative procedure, if implemented. As a result, part of the fundraising will no longer be used to simply cover the costs associated with recruiting a full-time person internally only to deal with the administrative reporting to the EIF. It will also free up time for other personnel, allowing focus on the core activity. Finally, we expect that more funds will apply for funding, potentially increasing the number of funds that can benefit from EU support.

3.4.4 Support a globally competitive later-stage equity market

As documented in chapter 2, the equity markets in Europe are somewhat constrained from availability of later-stage equity funding to growth companies in the pre-IPO phase. As a result, many European companies look towards the US or China for funding of a sufficient ticket size, given that alternative channels of financing of growth are not well developed in Europe.

We expect that a main cause of the issue is the small average fund size of European late-stage VC and growth PE funds, being around three times smaller than the US equivalent. High-growth companies in a pre-IPO phase typically need funding of a magnitude surpassing EUR 40 million. Given that the investment size is often constrained to 10 per cent of a fund's size, this means that emergence of funds of above EUR 400 million would be necessary to sufficiently accommodate the funding need of these high growth companies.

Funds of this magnitude have not previously emerged on pure market terms at a sufficient level, not least due to the issue of engaging large institutional investors in later-stage financing. Therefore, public involvement is needed, and the support needs to be substantial enough to make it sufficiently attractive for major private investors to participate, in order to create funds with the sufficient size.

The support should preferably come through EU intervention, due to the international character of later-stage funding; companies can cross borders to seek later-stage financing and it is not necessary for all 27 Member States to have large late-stage VC and growth PE funds. But if they should not look towards the US or China for funding, it is important that Europe as a whole can deliver. Also, the support should improve upon the pan-European fund-of-funds approach, following from the experience with and learnings from the VentureEU

programme. In this respect, we welcome the European Scale-up Action for Risk Capital (ESCALAR) initiative for 2021-2027 recently launched by the EIF[98]

ESCALAR is launched with the policy objective to alleviate the later-stage equity gap at European level. On a high level, the design of ESCALAR is characterised by quasi-equity financing that should be financed by patient investors such as pension funds and insurance companies and an inverse pari-passu system for risk sharing[99], both fitting well with our proposed recommendations.

Concretely, we recommend that the EU support to later-stage (late-stage VC, growth PE and "cross-over") funds should continue to be in line with the ESCALAR programme for SMEs; particularly to allow contributing with investments of up to EUR 100 million per fund[100] in order to create momentum to attract private investors of a sufficient size. In doing so, the EU support could be made non-pari-passu with other investors which is a departure from the usual approach – but in a balanced way, to further boost the crowding-in potential.

To further promote large later-stage funds, we recommend increased coordination amongst the different EU institutions that provide financing to SMEs, e.g. the EIF and NPBs. Particularly through pooled resources that are targeted to selected late-stage VC or growth PE funds for which the initiative is most likely to be successfully implemented. Such initiatives will be of a multi-country nature, requiring NPBs to target whole regions, e.g. Central and Eastern Europe, the Baltic states or the Nordics, rather than the local market usually mandated. Thereby, this recommendation will engage NPBs in a pan-European solution upon implementation.

Expected impact

We expect this recommendation to activate larger crowding-in of investors participating in later-stage financing rounds and facilitate more funding of series C and beyond to portfolio companies, thereby increasing the European competitiveness on a global scale. Also, it could benefit the IPO market in the financial market in Europe, as less high-growth companies are likely to leave Europe in the pre-IPO phase.

3.4.5 Continue strong support to the European early-stage VC eco-system through enhanced tech transfer capabilities and financing

Although the majority of VC markets in EU have experienced growth in the past decade, there is still a significant potential for strengthening VC eco-systems across Europe, because Europe, as a whole, is still trailing far behind the US, and many geographies remain underserved.

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98 EIF (2020a), *ESCALAR Programme.*

99 R. Aernoudt (2018), *ESCALAR European Scale-Up Action for Risk Capital.*

100 EIF (2020b), *Annex II to the Open Call for Expression of Interest to select Financial Intermediaries under the ESCALAR programme.*

This clearly highlights that the scope for EU support remains and will remain for the years to come. The need for continued strong support is underlined by the fact that 1) informational barriers preventing optimal market outcomes are in particular pronounced at the early stages and 2) if there is no funding for seed and start-up companies, few companies can make it to the later stage and thereby utilise their growth potential.

A way in which the EU can promote access to early-stage funding for SMEs is to further enhance the support to technology transfer funds. This could help to exploit the large potentials within the technology sector.[101] What is needed is the emergence of dedicated technology transfer and pre-seed/seed funds that are managed by professional and qualified teams with tech transfer expertise.

Thus, *we recommended that EU support to the European VC eco-system should be maintained and further increased through enhanced contribution to tech transfer*; to ensure appropriate access to financing for innovative, high growth European SMEs as well as further development of the VC eco-system across Europe.

[101] Atomico (2018), *The State of European Tech 2018*.

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APPENDIX: ADDITIONAL FIGURES

Relationship between fundraising and investment activity

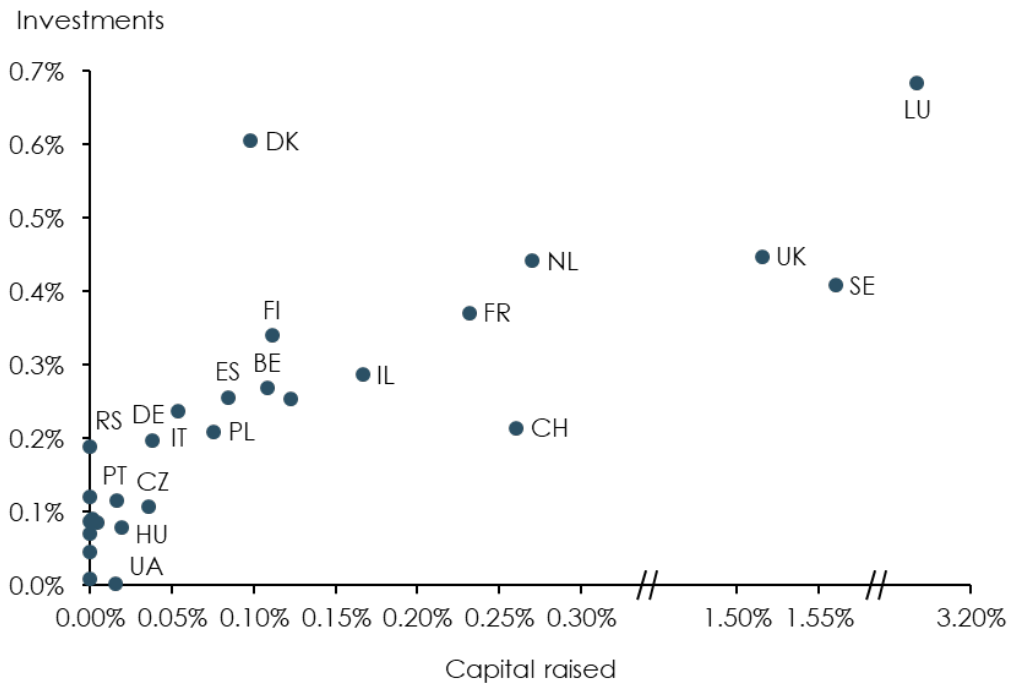

Figure 28
Cross-plot between capital raised in funds and investments for buyout PE
Share of GDP, average of last four years net of inflation (2015-2018)
Note: Investment activity is measured by country of portfolio company (market statistics) and not by country of the PE firm (industry statistics). Funds raised are expressed in terms of incremental amounts raised during the year and not final closings in the year (cumulative amount raised since inception).
Source: Invest Europe; PitchBook; Eurostat; World Bank

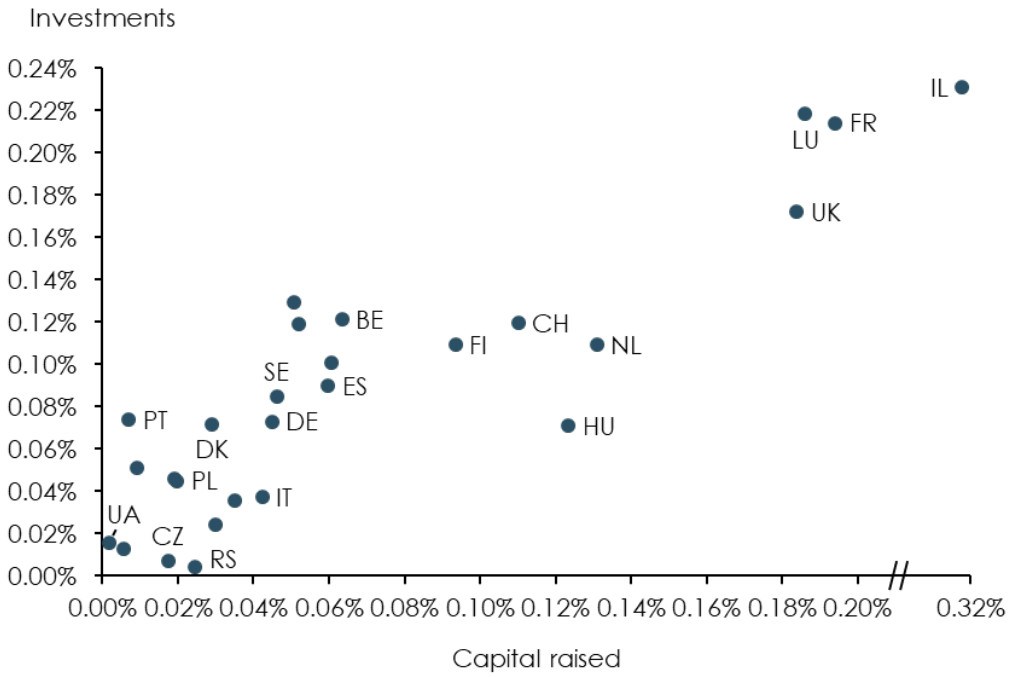

Figure 29
Cross-plot between capital raised in funds and investments for risk capital
Share of GDP, average of last four years net of inflation (2015-2018)
Note: Investment activity is measured by country of portfolio company (market statistics) and not by country of the PE firm (industry statistics). Funds raised are expressed in terms of incremental amounts raised during the year and not final closings in the year (cumulative amount raised since inception).
Source: Invest Europe; PitchBook; Eurostat; World Bank
Financing gap indicator

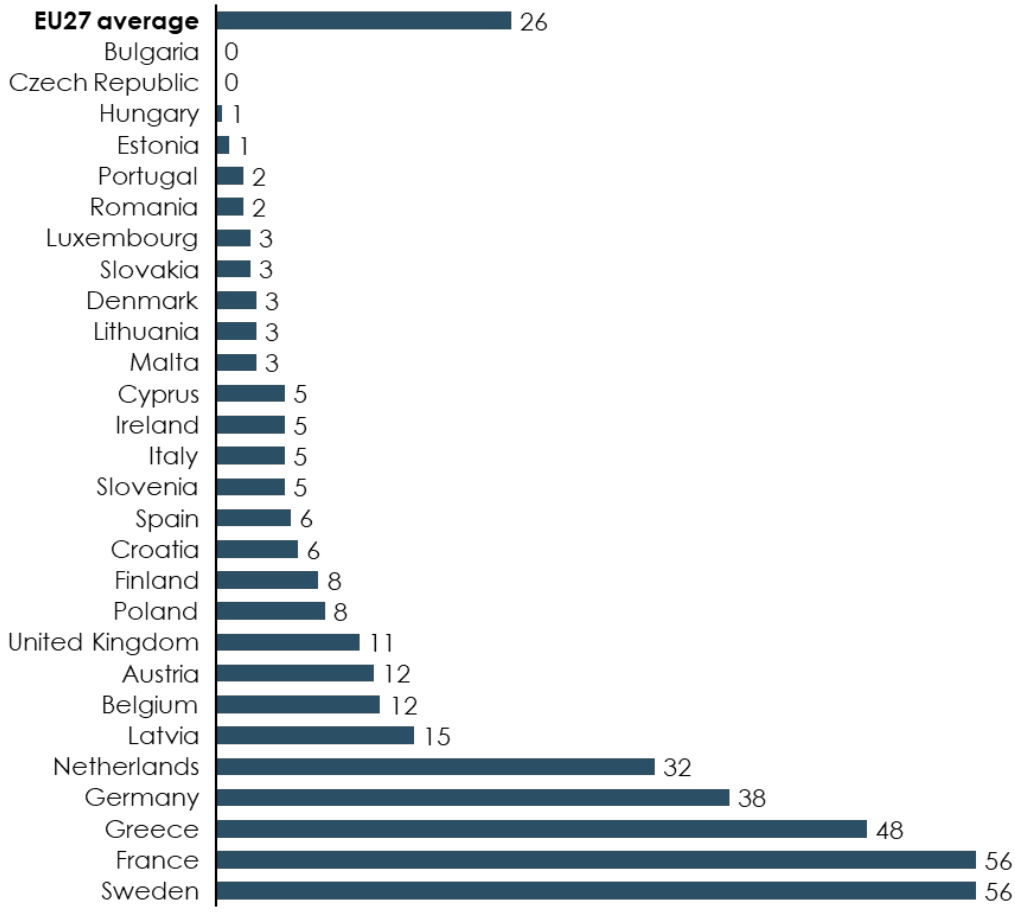

Figure 30
Equity financing gap as perceived by European SMEs over the last four years
Financing gap indicator
Note: Base: SMEs for which equity is relevant. The EU average is calculated as the weighted average of the national results, weighted with GDP measured in current prices available from Eurostat.
Source: SAFE research database, round fourteen (October 2015 – March 2016) to twenty-one (April – September 2019) of the survey and Eurostat
Sector focus

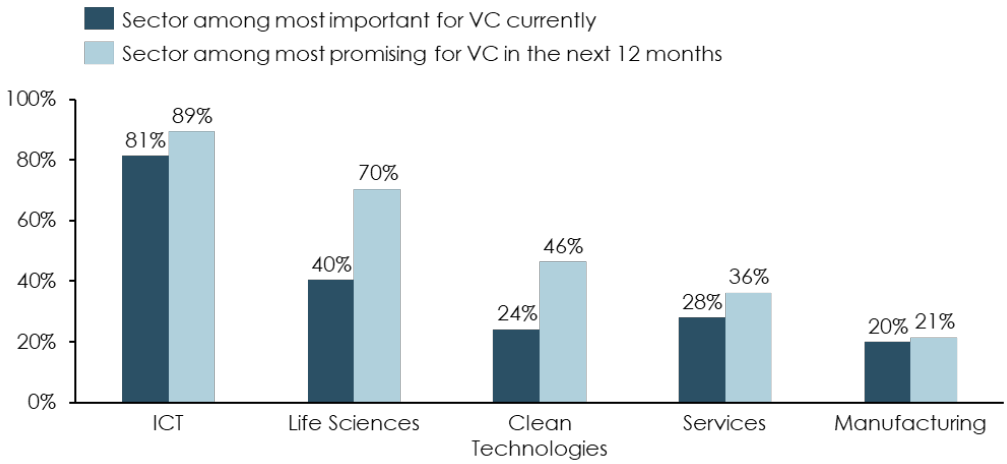

Figure 31
Most important sectors for VC investments
Share of respondents
Source: EIF (2018c), VC Survey: Fund managers' market sentiment and views on public intervention

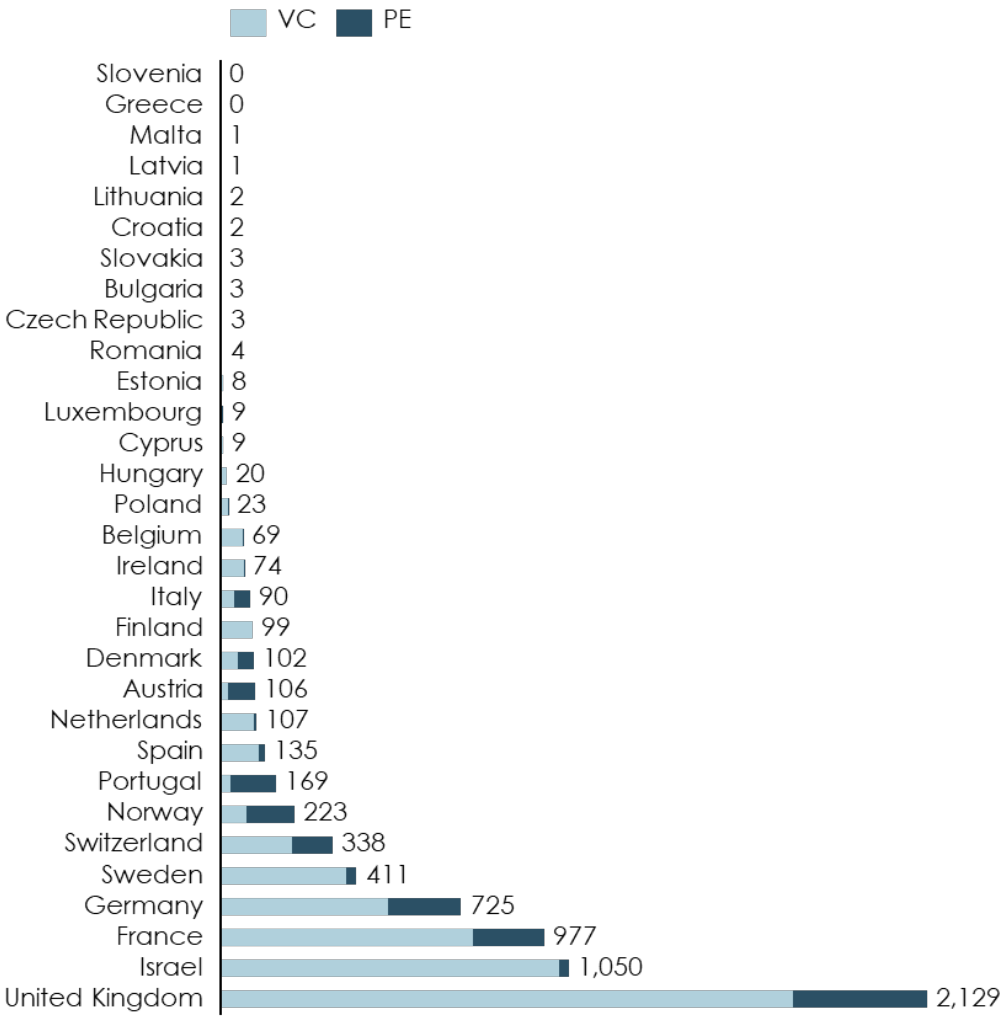

Figure 32
Investment activity for deep tech companies
EUR million 2019-prices, average of last four years net of inflation (2016-2019)
Note: Data as of 12/12/2019. Note that the data source is not Invest Europe and therefore not directly comparable.
Source: PitchBook

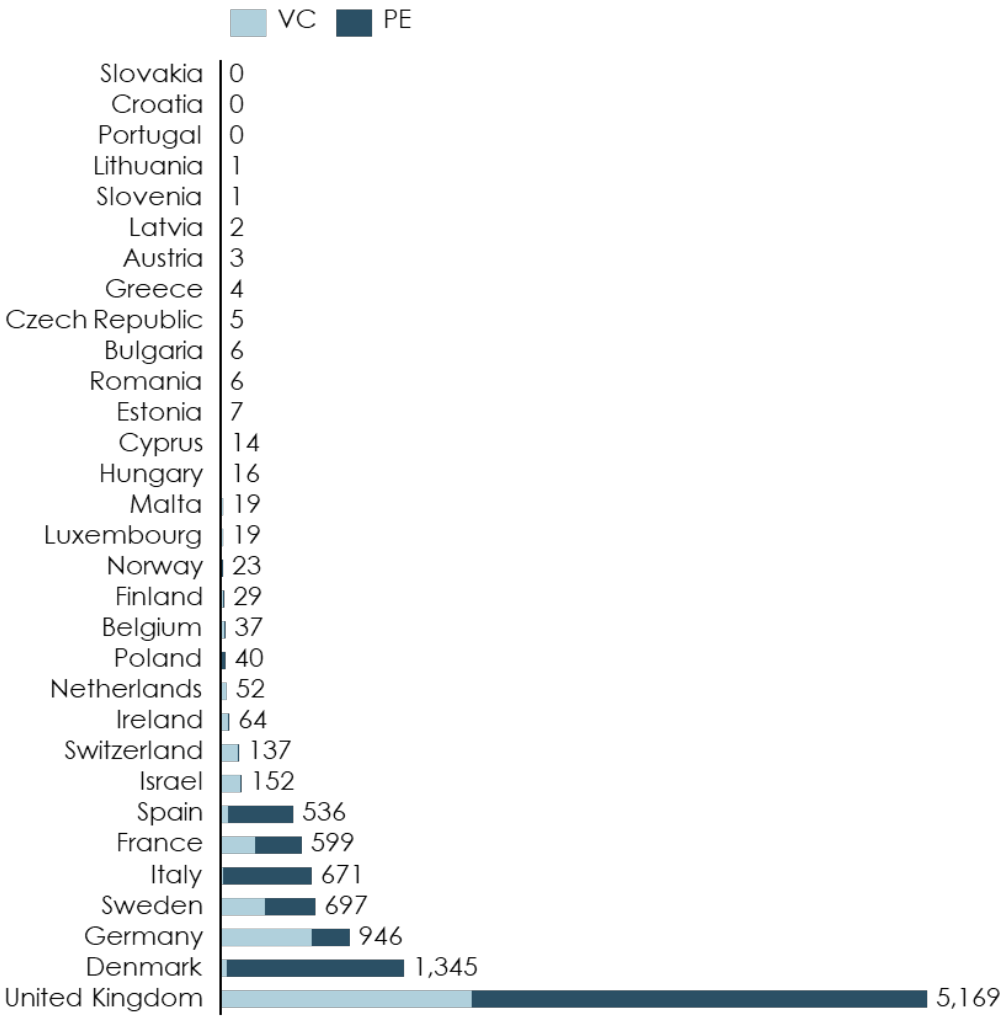

Figure 33
Investment activity for fintech companies
EUR million 2019-prices, average of last four years net of inflation (2016-2019)
Note: Data as of 12/12/2019. Note that the data source is not Invest Europe and therefore not directly comparable.
Source: PitchBook

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Having a well-functioning risk capital market is crucial for innovation, economic growth and investments. However, the need for external risk capital very much depends on the concrete business model. Credit plus retained earnings will be sufficient to address the investment needs of many SMEs and small mid-caps. This secures the creditor a predictable repayment profile and return, whereas the borrower gets to keep the entire upside from the investment. With equity finance on the other hand, the investors are not guaranteed any return, but instead they buy into the potential future earnings of the company. As such, equity finance is well-suited for the few high-risk, high-return profile companies, which are ineligible for credit. This typically characterises innovative companies where high scale-up is possible. Such companies are often found within ICT, life science and technology sectors.

Equity finance is more than just funding. Along with the capital investment often comes extensive coaching and value-added support from the equity investors whether they be business angels, or the investment teams and sector experts employed by the General Partners (GPs) in VC and PE constructions. The incentive here is obvious they own part of the company and thus have a clear motivation to accelerate its development and boost its growth potential. It requires knowledgeable external partners and investors that are actively involved in an entrepreneurial eco-system, ultimately helping to bring innovative companies to the market.

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