



Start-ups and their financing in Europe

Out of the woods with Capital Markets Union

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Following years when the focus was primarily on reforming banks, European policymakers finally also set their sights on something else: the capital markets. With the Capital Markets Union project, they aim to ensure sufficient financing for start-ups and innovative firms, among other objectives.

Start-ups play a paramount role in job creation and growth. Yet, in some larger economies of the euro area, the number of start-ups is small and their success is limited which can partly be attributed to problems in access to finance.

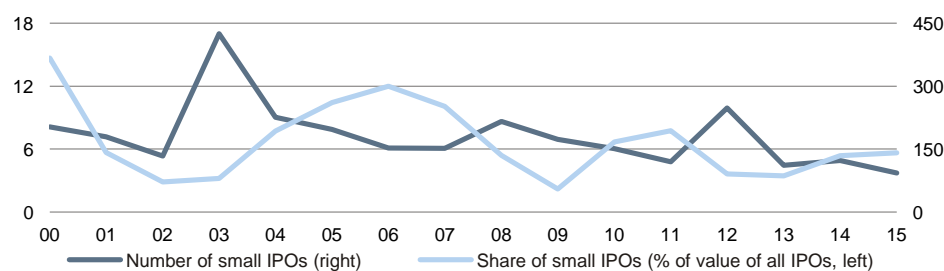
Even established start-ups are seldom listed on public stock markets these days which may to a large extent be due to cost considerations. To enhance participation in equity markets, the CMU should aim to relax one-size-fits-all issuance rules that are particularly burdensome for small firms. In addition, preferential risk weights could spur demand by incentivising institutional investors to invest more in start-up equity.

To boost bank lending to start-ups, measures that link banks' credit risk to capital markets are necessary. The CMU should for instance ease regulations that have stymied investor demand for securitisations and allow small loans to serve as collateral for covered bonds. Banks meanwhile should focus on innovative ways to evaluate the credit risk of start-ups.

Venture capital is one of the most efficient ways to finance start-ups in their early stage. In order to spur venture capital markets in Europe, the CMU should grant European pension funds more flexibility in their portfolio allocation. To reduce imbalances in VC investments within Europe, creating a pan-European VC fund of funds would also be useful.

Platform consolidation is a crucial step in order to expand crowd funding in Europe. To facilitate this, the CMU should introduce a common legal approach at EU level to act as catalyst for cross-border mergers. Similarly, the CMU should establish union-wide rules to avoid contradictions and inconsistencies in the national treatment of crowd-funding platforms.

Decline in small IPOs* in Europe



* IPOs with a volume of less than EUR 50 m.

Sources: Dealogic, Deutsche Bank Research



A. Introduction

The creation of a single market for capital in Europe to complement bank financing has received enhanced attention in recent years. The key step to achieve this is the Capital Markets Union (CMU) project of the European Commission (EC). With the overarching goal of establishing better-functioning, more diversified and integrated union-wide capital markets, the CMU sets out measures and objectives to be completed by 2019.¹ To achieve the CMU's ambitious goals, a number of initiatives that target conventional capital market segments such as stock, bond and securitisation markets have already been launched. Among them are a legislative proposal to restart markets for simple, transparent and standardised (STS) securitisations, a proposal to modernise the prospectus directive and an amendment to the Solvency II delegated act. In Kaya (2015a), we carried out a detailed empirical assessment of the CMU's potential in strengthening these traditional capital market segments.

Start-ups in a nutshell

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A start-up is a newly created innovative micro enterprise that tries to exploit new ideas in order to find a repeatable and scalable business model. Significant growth potential is a key determinant in identifying a start-up firm. Usually, the first few years of a start-up firm are characterised by the development and validation of its business ideas. To advance, start-ups use cutting-edge technologies. Therefore, they are often considered technology-based companies only. This assumption, however, is not always true and even though many start-ups offer financial technology, online, e-commerce/market place and cyber security services, they may also be active in other less technology intensive sectors such as healthcare and consumer goods.

Source: Deutsche Bank Research

Another objective of the CMU is to ensure sufficient financing for start-ups and innovative firms. Indeed, these firms face greater difficulties in their funding due to potential information asymmetries and adverse selection (see box 1 for a short definition of a start-up firm). What is more, they benefit little from loose monetary policy such as the ECB's credit easing. To mobilise sufficient funds for start-ups, the CMU targets funding alternatives that suit start-ups' inherent characteristics. More specifically, recognising differences in start-up funding in early and later years, i.e. depending on the firm's position in the life cycle, the CMU aims to secure seed capital for early-stage start-ups and equity capital for expansion-stage start-ups. In line with this, the CMU's first status report from April 2016 cites venture capital financing and promotion of innovative forms of corporate financing as key initiatives planned by end-2016. The EC published a report that assesses current state and possible trends in crowd funding in the EU as a part of the CMU action plan as well.²

In this publication we focus on measures to enhance funding for start-ups. We start our analysis with a discussion of the role of start-ups for the real economy, how they are created and what differences exist between individual countries in Europe. We continue with an overview of start-ups' development stages and delve deeper into the different funding alternatives available to them. We focus first on equity financing which is key for more established start-ups, before continuing with bank lending for early-stage start-ups. And finally, we look at venture capital and crowd funding which are suited for the launch and early stage of start-ups.

Our main findings can be summarised as follows:

- To boost equity funding in public markets for later-stage start-ups, measures that reduce issuance costs are pivotal. Revisiting regulations that limit institutional investors' equity holdings would also be beneficial in increasing liquidity of small IPOs.
- To improve the availability of bank loans for start-ups, amending rules and regulations that govern securitisation markets and SME-covered bond markets is crucial. Meanwhile, innovative ways to evaluate the creditworthiness of start-ups may be necessary to boost loan generation.
- To increase venture capital investments, rules that constrain pension funds' portfolio allocations should be eased. Creating a pan-European venture

¹ See European Commission (2015a).

² See European Commission (2016).

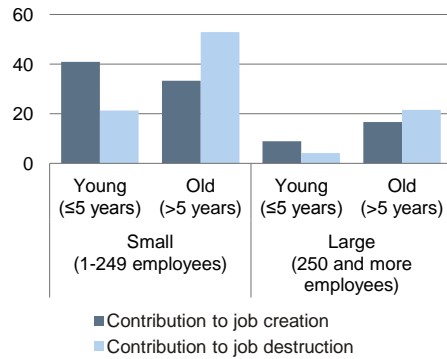


Start-ups and their financing in Europe

Small young firms play a central role in job creation

2

2001-2011 average in OECD countries
percentage share

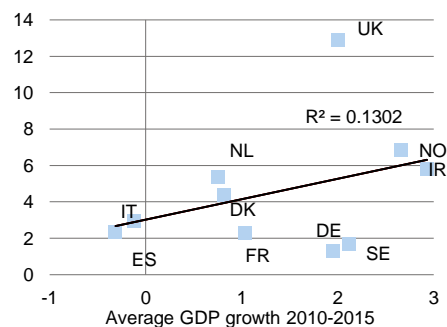


Sources: OECD, Deutsche Bank Research

GDP growth and new entrepreneurial activity move in sync

3

New business density*



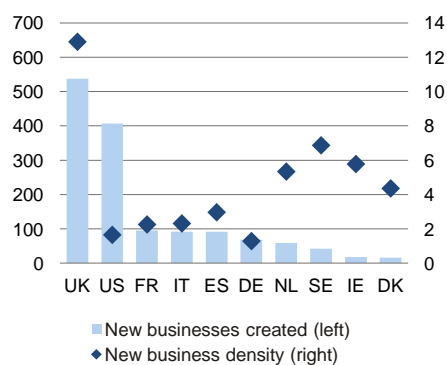
*new registrations per 1,000 people of the working age population.

Sources: World Bank, Deutsche Bank Research

The UK leads in business creation

4

Enterprises in thousands (left), number of new enterprises per 1,000 working-age people (right)



Figures are from 2012 for the UK, from 2013 for the US and DE, from 2014 for all other countries.

Sources: World Bank, USCB, Deutsche Bank Research

capital fund would help reduce imbalances in venture capital investments within Europe.

- To strengthen crowd funding, introducing a common legal approach at EU level would facilitate a consolidation of funding platforms. It would also reduce search costs for investors and borrowers. Measures that target the safety of crowd funding platforms could be a boon for cross-border transactions within the EU.

B. An overview of start-ups in Europe

Ever since IT start-ups began rapidly reshaping the US economy in the 1980s and 1990s and with some of them becoming the most valuable enterprises globally (firms such as Microsoft, Apple, Google), the role of start-ups in employment and growth has been in the focus of policymakers and investors. Even though a lack of data makes a precise evaluation of the interaction between start-ups and employment difficult, the contribution of young firms to the creation of new jobs provides first insights (chart 2).³ Young firms in this context are defined as firms aged less than or equal to 5 years. Between 2001 and 2011, young small firms accounted for 41% of all jobs created, compared with 33% created by older firms of the same size in the OECD countries. Because they primarily use new technologies and innovative methods of production and are thus highly competitive, young small firms account for only 20% of total job destruction, a substantially smaller figure compared with 50% for older small firms. For firms with more than 250 employees, differences with respect to the impact of firm age on employment are less visible. Hence, young small firms on a net basis seem to generate most of the newly created jobs in developed economies, while older small firms may make the biggest negative contribution to employment. This also highlights the small firms' role in facilitating structural change and adjustment to shocks.

Start-ups also contribute significantly to economic growth. As chart 3 shows, there is a clear positive relation between GDP growth and new business density, i.e. the ratio of the number of enterprises created in a given year divided by the working-age population in that year. Probably the relation is causal in both directions. Looking at the causality from new business density only, new business density explains 13% of the variation in average GDP growth. Undoubtedly, our sample is too small to make a robust inference on the relation between GDP growth and start-up activity. Moreover, several other factors may affect the evolvement of these indicators. That said, it is intuitively evident that if start-ups are able to offer a viable product, they usually have a competitive advantage in the market considering their mostly technology-intense background. They contribute to economic dynamism in a country by intensifying competition in markets and spurring innovation.⁴ They are more inclined to engage in new technologies and thereby improve the long-run productivity of the economy. This in turn can have a positive effect on sales and revenues and thereby on economic growth.

To illustrate start-up activity in individual countries, the number of new businesses serves as a good starting point as it reflects entrepreneurial activity on an aggregate scale. As shown in chart 4, with around 400,000-500,000 enterprises created per year, the UK and the US are the frontrunners by far.⁵ Other large European economies on the other hand have a much smaller number of new businesses (around 60,000-90,000). It is important to note that countries with a large working-age population will of course have large absolute

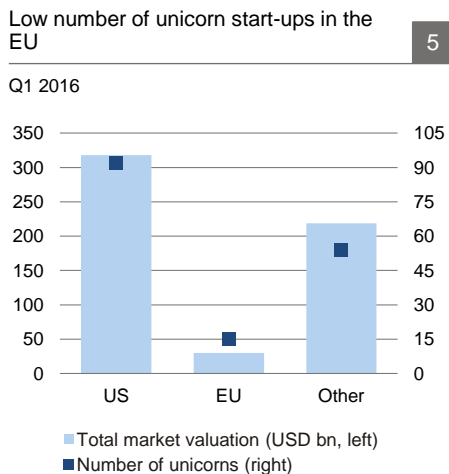
³ See Criscuolo, Gal and Menon (2014) for a detailed discussion.

⁴ See Haltiwanger, Jarmin and Miranda (2013).

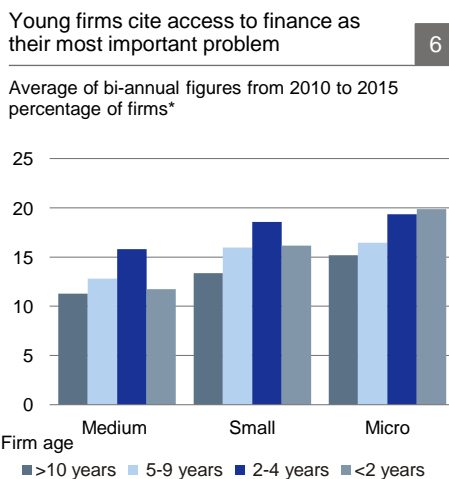
⁵ Data availability limits an analysis for recent years.



Start-ups and their financing in Europe



Source: Deutsche Bank Research



* that report access to finance as the single most pressing problem

Sources: ECB, Deutsche Bank Research

numbers of company creations. Moreover, new entrepreneurs are not necessarily motivated by high revenue and profit expectations. Indeed, individuals may become entrepreneurs as an alternative way of employment due to difficulties in finding a job.⁶ For example, considering extremely high unemployment levels in Italy and Spain during and after the financial crisis, entrepreneurial activity in these countries may have been driven by such micro entrepreneurs.⁷ To derive meaningful cross-country conclusions, a normalised indicator of business creation such as the number of new enterprises per 1,000 working-age people or, in short, the “new business density” is helpful. With a new business density of 13, the UK is leading, followed by Sweden, Ireland and the Netherlands. Compared to their population, especially northern European countries seem to be more successful in start-up creation than their peer nations within the EU.

The number of **unicorn start-ups** provides further insights (see chart 5). In short, unicorn start-up refers to a start-up company whose market value exceeds USD 1 bn typically three to five years after its foundation. Globally, there are currently 161 unicorn start-ups whose cumulative market valuation is USD 567 bn. Of these firms, 92 are located in the US with an aggregate market value of USD 320 bn. There are a remarkable number of unicorn start-ups in Asia, especially in China. Europe, on the other hand, has only 15 of these most valuable start-ups. Of these, 4 are located in the UK and another 4 in Germany, while there are 3 in Sweden. In some of the largest EU countries, there is not even a single unicorn start-up. All in all, especially in larger economies of the euro area such as Spain, Italy and France, start-up creation and success seem relatively weak.

What are the reasons for that? Apart from excessive bureaucracy and a general reluctance to take risks, difficulties in access to finance seem to play an important role. We will focus on them in the following. Chart 6 shows the percentage of firms that in an ECB survey cite access to finance as their most important problem, with results broken down with respect to firm age and firm size. There is no data available for start-ups only, however, micro firms that are younger than 2 years include young innovative start-ups in their early stage and micro and small firms of 2 to 4 years include start-ups in their later stage. Between 2010 and 2015, on average 20% of the micro firms aged up to 4 years cited access to finance as their single most pressing problem. Also, a notable share of small firms that are 2 to 4 years old cited access to finance as their biggest problem, probably due to internal funds left from the inception drying up. With firms getting larger or more mature, access to finance becomes less of a problem. To sum up, financing seems to be a bottleneck for many start-ups especially in their early stages and enhancing access to finance may help to reduce the mismatch between the large size of some European economies and subdued start-up activity.

C. Start-ups’ business development stages

Funding alternatives available to start-ups differ significantly depending on their business stages. In short, start-ups’ business development can be categorised into two phases: early stage and expansion stage (see figure 7). The former is by and large considered as the loss zone whereas in the latter start-ups begin to become profitable.

The early stage of start-ups can be categorised further into the seed stage and the start-up stage. During the **seed stage**, firms are typically mainly occupied with developing their business ideas and production concepts, as well as

⁶ See Santarelli and Vivarelli (2007) for a detailed discussion.

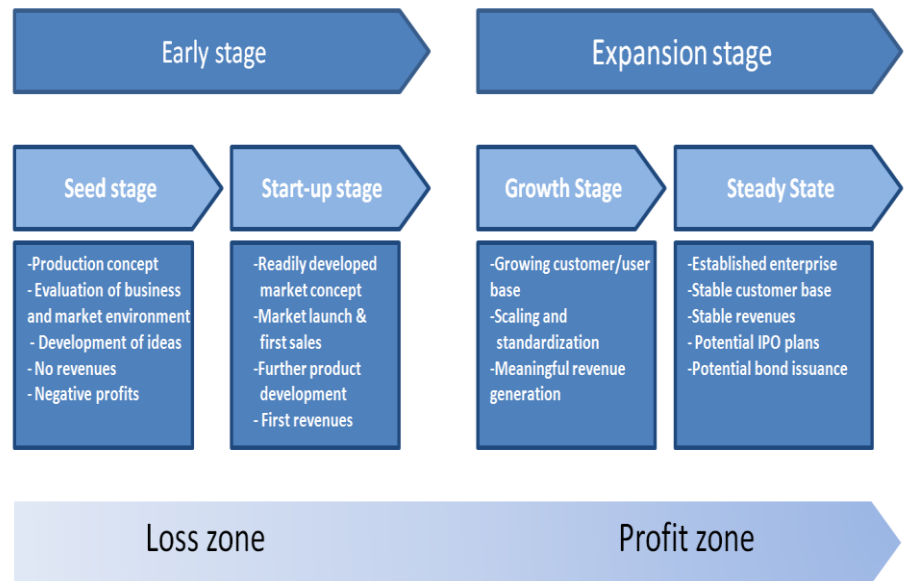
⁷ This would of course weaken the positive correlation between start-ups and the GDP.



Start-ups and their financing in Europe

Start-ups' development stages

7



Source: Deutsche Bank Research

observing their market environment. During this stage most start-ups are in the loss zone, i.e. they incur the fixed costs of investment without any revenue generation. Subsequently, in the *start-up stage*, start-ups have a readily developed market concept and record their first sales. Nevertheless, they are still largely in the loss zone as they are unable to generate meaningful revenues. The lack of positive returns combined with the inability to pledge sufficient collateral often makes it difficult to raise enough capital in these stages. Half of the start-ups already fail in the early stage, according to some industry estimates. Therefore, start-up funding at this level of development requires a very large risk tolerance by investors.

The expansion stage of start-ups can also be split into two parts: the growth stage and the steady state. In the *growth stage*, the business model and customer base of start-ups are usually already established and start-ups generate meaningful revenues. They are more settled and therefore information asymmetries about their business model and creditworthiness diminish. As credit screening and conventional risk management become possible for potential lenders, start-ups are able to borrow at this stage. In the *steady state*, start-ups become pretty much established enterprises; have stable revenues and a stable customer base and are able to access a large spectrum of funding options. They also become target for acquisitions. For example, EC estimates point out that European startup acquisitions reach to around 1,100 since 2012. Around a third of these were by US companies which made around two third of the total capital invested in European start-ups.

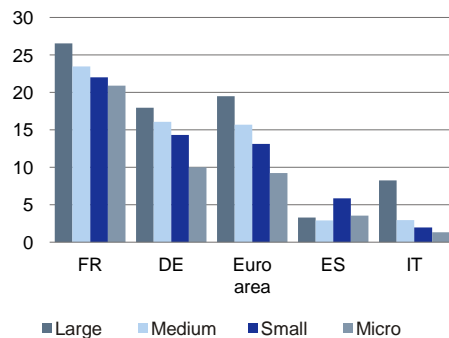
There are significant differences in funding sources available to early-stage and expansion-stage start-ups. In the early stage, they by and large have access only to alternative sources such as venture capital and crowd funding. It is also common that start-up founders use their own personal savings or raise capital from family and friends in the seed stage of their business. This type of funding is dependent on the individual entrepreneur, usually relies on personal relations and therefore is not a structural form of financing. Wealthy private individual investors can use their own funds to provide capital to early-stage start-ups as well. These “business angel” investments usually take place ad hoc, can require a lot of involvement in the business and are less transparent. Both family and friends’ contributions and angel investments are rather personal, less structural and also less relevant in the context of capital markets. Therefore we do not cover them in this publication.



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Use of equity capital increases with firm size 8

% of firms that report equity capital* as a relevant funding option for their firm in H2 2015



*Equity capital includes quoted and unquoted shares or other forms of equity provided by the owners themselves or by external investors, including venture capital or business angels.

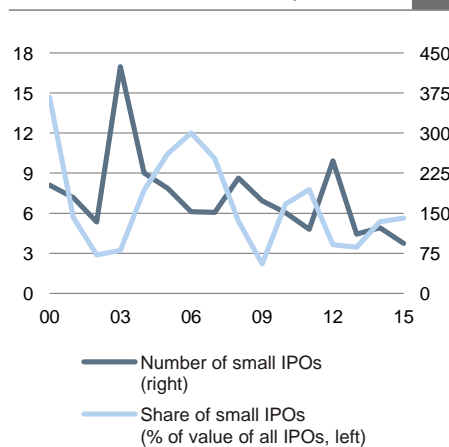
Sources: ECB, Deutsche Bank Research

Cost of IPOs 9

Initial costs
Underwriting discount
Exchange listing fees
Legal, accounting and printing costs
Road show expenses
Ongoing costs
External reporting costs
Investor relations maintenance costs

Source: Deutsche Bank Research

Decline in small IPOs* in Europe 10



* IPOs with a volume of less than EUR 50 m.

Sources: Dealogic, Deutsche Bank Research

In the expansion stage, the availability of traditional forms of funding improves for start-ups. However, they continue to be disadvantaged due to elevated costs of tapping capital markets. In addition, bank loans are not easily accessible due to difficulties in the evaluation of start-ups' credit risk. Thus, in the following section we focus on public equity markets, bank lending, venture capital and crowd funding for start-ups in greater detail.

D. Start-up financing

Equity financing in public markets

We start our discussion with market-based financing for expansion-stage start-ups. Like any other enterprise, those start-ups can reduce their dependence on debt and strengthen their capital structure by issuing equity. As mentioned already, during the expansion stage, start-ups' business models have become more structured and they generate meaningful revenues. Their balance sheets grow in size and funding needs expand which makes relatively large start-ups a potential candidate for public equity markets.

There is almost no granular data on start-ups' balance sheet composition, unfortunately. However, according to a broader ECB survey, in almost all countries a clear monotone relation between firm size and use of equity capital is observable (see chart 8). The use of equity capital decreases as firm size decreases in the euro area as a whole and among its largest economies. For example, in the euro area 20% of the large firms cite equity capital as a relevant funding option compared with only 9% of micro firms. What is more, equity capital issuance seems much less of an option in southern countries compared with France or Germany. It is also important to note that equity capital as defined in this survey also includes other forms of equity provided by external investors, e.g. venture capital. This indicates that the use of public markets as a funding option for small and micro firms is probably even more limited than shown by these figures. It could be negligible in southern euro area countries considering the already very small reported shares there.

Issuance costs may be the first to blame for smaller firms' and start-ups' subdued equity financing in public markets. Equity issuance incurs one-time, initial as well as ongoing costs that are probably prohibitive for many start-ups even in their expansion stage (see table 9 for an indicative list). For example, several sources cite underwriting costs for IPOs of 5% to 7% of the total proceeds. Exchange listing and legal fees can also be substantial, depending on the size of the deal. As a public company, firms are subject to certain compliance costs (and "red tape") as well. For example, they have to disclose quarterly financial balance sheet information and to maintain investor relations on an ongoing basis. All these costs probably deter some start-ups from tapping public equity markets.

In addition to cost-related factors, the depth of the market for small-cap stocks is also important in attracting start-ups to public equity markets. Indeed, the absence of a track record and resulting opaqueness makes price discovery in public markets less efficient for start-up IPOs. Before an IPO, the issuing firm is unsure about investor demand for the new shares, while the market is unsure about the quality of the issuing firm. These information asymmetries and associated inefficiencies potentially also lead to less favourable liquidity dynamics. To illustrate the depth of the market for start-up IPOs in Europe, the volume of small IPOs of less than EUR 50 m serves as a proxy (see chart 10). Prior to the financial crisis, this market was more active, but trends reversed after the crisis. More specifically, between 2000 and 2008 on average there were around 200 small IPOs annually which accounted for 8% of the total IPO



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SME growth markets

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Article 4(1)(12) of MiFID II defines an SME growth market as “a multilateral trading facility (MTF) that is registered as an SME growth market in accordance with Article 33”. One of the key conditions for an SME growth market is that “at least 50 % of the issuers whose financial instruments are admitted to trading on MTF are SMEs at the time when the MTF is registered as an SME growth market and in any calendar year thereafter.”

MiFID II is somewhat flexible in the application of the 50% rule and states that “A temporary failure to meet that criterion should not mean that the trading venue will have to be immediately deregistered or refused to be registered as an SME growth market if it has a reasonable prospect of meeting the 50% criterion from the subsequent year.”

Source: Directive 2014/65/EU

volume. After 2009, the numbers came down significantly to around 120 and 5%, respectively. This shrinking market in recent years has probably discouraged start-ups even more from tapping equity markets.

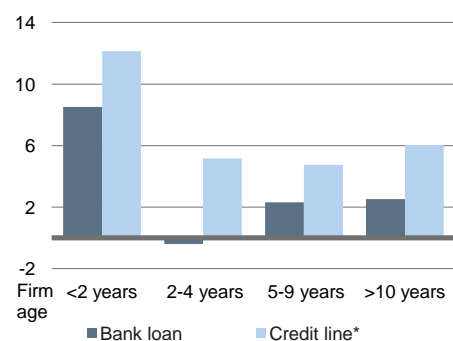
What can be done to enhance equity issuance in public markets by expansion-stage start-ups? First and foremost, measures are necessary that reduce issuance costs. This can partly be achieved by relaxing one-size-fits-all rules for equity issuance. In doing so, the CMU’s particular focus on MiFID II’s “SME growth markets” (see box 11) is an important step forward. In short, SME growth markets aim to reduce administrative burdens for issuers. They also intend to raise the visibility and profile of SME stocks with potential investors. Even though SME growth markets offer lucrative features for first time issuers, qualification requirements are somewhat restrictive. To be considered an SME and be allowed to issue equity on these markets, firms must have a balance sheet total of less than EUR 43 m or an annual net turnover of less than EUR 50 m. Yet expansion-stage start-ups are able to reach relatively large balance sheet figures in their early years already and easily exceed the limits of SME growth markets. Unicorn start-ups are good examples for this rapid expansion. Hence, qualification requirements for SME growth markets should be relaxed for younger firms.

In addition to making listings easier, there is a need for more investor demand and thereby favourable liquidity dynamics for small issuances. This could be achieved by attracting more institutional investors to small stocks. To be more specific, Solvency II’s punitive treatment of equity holdings dampens insurance companies’ appetite for these investments. Relaxing the regulatory treatment, e.g. via preferential risk weights for small-firm equity investments, might create greater impetus for investing in start-up equities. For example, there are already reduced risk weights for banks’ SME lending (“SME supporting factor” in the Capital Requirements Regulation). While creating a more favourable environment for start-up stocks, it is important to maintain high investor protection standards. Indeed, the large diversity of start-ups with very different business models makes continuous monitoring of credit information challenging for potential investors. Promotion of equity research on these smaller stocks would bring some transparency and may increase the demand for and liquidity in these stocks as well.

Young firms suffer most from reduced availability of bank loans

12

% of SMEs reporting deterioration in availability
Average of bi-annual figures from 2010 to 2015



*Credit line, bank overdraft or credit card overdraft

Sources: ECB, Deutsche Bank Research

Bank lending to early-stage start-ups

Unlike in their expansion stage, start-ups often make losses in their early stage, when they have uncertain future cash flows and usually own low or no collateral. All these factors make it almost impossible for them to access public equity and bond markets.⁸ In addition to that, bank loans are not easily accessible for early-stage start-ups either. To shed some light on the availability of bank loans for young firms, survey responses by SMEs of different age serve as a good proxy (see chart 12). Looking at figures from 2010 to 2015, deterioration in bank loan availability over time is observable for SMEs of almost all ages in the euro area. However, this decline was much more pronounced for SMEs that are younger than 2 years. Interestingly, after the second year, differences in bank loan availability with respect to firm age become notably less visible. A similar but even more evident deterioration is observable in credit lines for young SMEs. More than 12% of SMEs that are younger than 2 years reported deterioration in the availability of credit lines, bank overdrafts or credit card overdrafts compared with 5-6% of older SMEs. Taken together, in their early years, small firms seem to have considerable difficulty in borrowing from banks whereas in their later years these hurdles tend to diminish.

⁸ See Kaya (2014) for a detailed analysis of SME financing.



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Indicative checklist for small business loans 13

Credit history (if there is any)
Proof of income tax payments
Financial statements of the applicant
Collateral (varies a lot depending on the applicant)
Legal documents if necessary
Source: Deutsche Bank Research

Why are the first few years particularly difficult? To receive a bank loan, firms need to satisfy certain conditions such as building a financial track record that demonstrates the firm's ability to repay the loan or shows the collateral it owns in different forms (see table 13 for a short indicative list). More specifically, at a minimum a track record is required on financial performance, sales volumes and market prices. However, during their early stage the products of start-ups are not tested on the market. Moreover, information on their business plan or budget is usually only supplied by start-ups themselves. This leads to elevated levels of information asymmetry and a high degree of uncertainty about the viability of business models. Since credit risk estimates are usually a function of historical data from the firms' track record, banks' appetite to lend based on these new, unexplored business models is constrained. It is also essential to note that bank loans normally involve defined rules and covenants. In their early stage, it can be the case that start-ups themselves are reluctant to follow these rules. At that stage start-ups might neither focus nor have the expertise with regard to finance. All in all, start-ups' access to bank credit is more limited in their early years.

One of the main hurdles regarding credit intermediation to start-ups is that banks, in line with prudent risk and capital management, hesitate to take on excessive credit risk. Measures that would allow banks to link the credit risk on their balance sheets to capital markets could help overcome this hesitation. One of the most efficient ways to achieve this is the securitisation of loans. To restart and promote securitisation markets in Europe, the EC's legislative proposal for *simple, transparent and standardised (STS) securitisations* is a crucial step forward. Another potential measure would be to create a market for fixed-income securities backed by high-quality SME loan pools serving as collateral – in short: SME-backed covered bonds.⁹ Legal issues have so far created a bottleneck for these in Europe. For instance, small loans are often not allowed to serve as collateral for bonds. Revisiting these limitations and creating an EU-wide framework that would allow SME loans to be used as collateral for covered bonds could help spur lending to start-ups as well.¹⁰

Both securitisation and SME-backed covered bonds require that banks lend to start-ups upfront. Therefore they still require a backward looking evaluation of creditworthiness and a track record on performance. In building a credit score, utilising alternative measures of credit risk could prove beneficial. First and foremost, there are indicators directly related to the borrowers, the start-up's founders:

- Education and employment background¹¹
- Trustworthiness (which can be measured e.g. by how promptly bills are paid)
- Money that remains in a borrowers' bank accounts after monthly expenses can provide hints about financial management skills
- Big data gathered from smart phones to social media

Second, capital provided by family and friends may help, too. Funds raised by the borrowers' social circle may generate sufficient skin in the game and thus "social incentives" and thereby can be used as an indirect type of collateral. All this information can flow into scoring models and lending algorithms to determine the maturity, size and interest of the loan. After these loans have

⁹ See Kaya (2015b) for a detailed discussion.

¹⁰ The main difference between SME-backed covered bonds and securitisation is that while (a true-sale) securitisation takes the loan completely off the bank's balance sheet, an SME-backed covered bond remains there. The latter is also backed not only by the cover pool, but also by the issuer's balance sheet – the "dual recourse".

¹¹ See Hofmann (2008) for an overview on financing based on [intellectual capital](#).

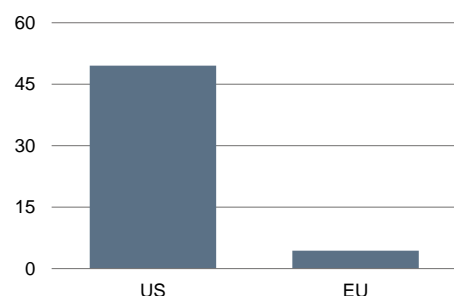


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Venture capital investments

14

USD bn, 2014



Sources: OECD, Deutsche Bank Research

been granted by the banks, they can either be securitised or funding can be passed on to capital markets in the form of a covered bond.

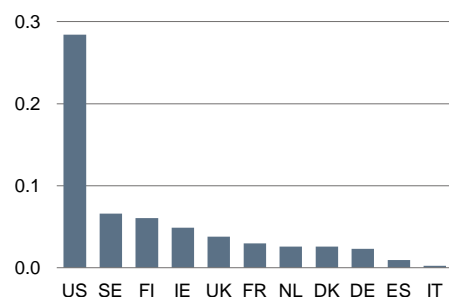
Venture capital as direct equity

One of the most efficient ways to finance a start-up in its early years is direct equity funding from investors to support the pre-launch, launch and early stage, i.e. venture capital (VC). It is usually considered a subset of private equity. VC investors with higher risk-return preferences directly invest capital in start-ups where they see long-term growth potential. They normally receive any pay-backs and returns from these investments only at a later stage, in the medium to longer term. Since VC providers are usually experts in the sectors they invest in, they are able to evaluate business models of start-ups more accurately and reliably than other potential investors. What is more, they usually actively monitor the new firms and provide advice and experience if necessary. The significant role of VC investments for start-ups' financing is increasingly being recognised also by policymakers as the EC's report on VC in the context of the CMU shows. According to industry estimates for the US, of all companies that were founded during the last four decades, 43% used VC, and those firms by now account for a staggering 57% of the market capitalisation. They employ 38% of all employees and invest heavily in research and development.

Venture capital investments in the US and in individual EU countries

15

As a percentage of GDP, 2014



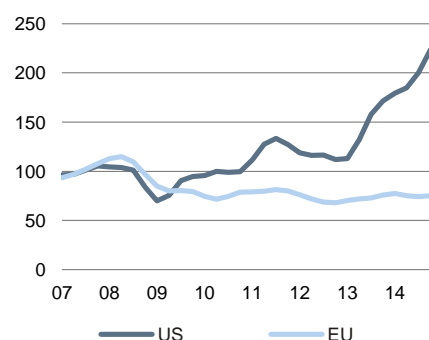
Sources: OECD, Deutsche Bank Research

Chart 14 compares VC volumes in the US and EU. In the US, they totalled around USD 50 bn in 2014; ten times the VC investments in the EU which were only USD 4.4 bn. In addition to this striking difference, there is significant heterogeneity within the EU as well. With respect to the size of the economy, especially northern European countries such as Sweden, Finland and Ireland generate relatively large VC investments (even though they are much smaller than in the US) (see chart 15). By contrast, in some important EU economies such as Spain and Italy, VC investments are virtually negligible. The three largest economies of the EU – Germany, France and the UK – cover the middle ground, even though they lead in absolute terms (with VC investments of USD 1.1 bn for the latter and USD 0.8 bn for the former two).

Venture capital investments over time

16

2007=100



Sources: OECD, Deutsche Bank Research

Despite the different size of VC markets already before the financial crisis, the US and EU markets have diverged even more since then (see chart 16). Although VC investments came down in both regions during 2007-09, they recovered fairly quickly in the US and are now more than twice as high as in 2007. In Europe meanwhile they are still down 25%. The question is why VC investments are so high in the US and what can be done to increase them in Europe?

Prudent Man Rule

17

The Prudent Man Rule refers to behaviour-oriented standards for investment decisions made by institutional investors and professional money managers. It originates from the 1830 ruling of the US judge Samuel Putnum that "those with responsibility to invest money for others should act with prudence, discretion, intelligence and regard for the safety of capital as well as income."

Source: Deutsche Bank Research

The reasons that allowed VC investments to take off in the US may help to answer this question. It is indeed important to note that, similar to the figures that now prevail in Europe, VC investments were subdued in the US during the 1970s and stood at only around USD 100-200 million annually.¹² At that time, US pension funds were less flexible in their portfolio allocations. Before a policy loosening in 1979, pension funds were unlikely to invest VC in start-ups because these were seen as risky or imprudent targets (see box 17 for a short definition of the "prudent man" rule). With the change in the Prudent Man Rule, portfolio diversification needed to be considered in determining prudence of an individual investment. The change required that pension fund assets be suitably diversified among appropriate asset classes and within each asset class in order to avoid an unwarranted concentration of investment risk. This allowed pension funds to allocate a small part of their portfolio to VC investments. As a result, total VC investments took off exponentially in the 1980s and reached around USD 4 bn annually. Since then, VC investment in the US has grown tenfold

¹² See Gompers (1994) for a detailed discussion.



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Types of crowd funding 18

The EC categorises crowd funding into five types:

- 1) **Donation crowd funding** involves contributors providing small donations to a project (usually a non-profit one) without any monetary return or for acknowledgement only
- 2) **Reward crowd funding** involves contributors providing small amounts of capital to a project in return for small rewards such as mementoes, first versions or exclusive limited editions of the product
- 3) **Invoice crowd funding** involves investors buying unpaid invoices or receivables of businesses (usually in a charity-related, non-commercial context)
- 4) **Equity (or investment) crowd funding** involves investors buying stakes (i.e. becoming owners) in a project or company
- 5) **Lending crowd funding (peer-to-peer lending)** involves investors offering a loan to a project or company in return for receiving interest. Lending crowd funding is also known as crowd lending or peer-to-peer lending.

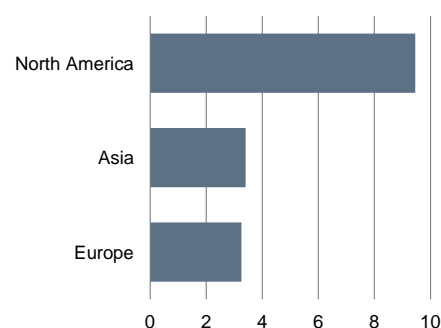
Sources: EC (2016), Gabison (2015), Deutsche Bank Research

further which in the eyes of many observers has been driven to a large extent by pension funds' enrolment.

Unlike the US, in many European countries pension funds are not permitted to invest in VC. The EC points out that pension funds' VC investments make up only around 5% of total VC investments in Europe, to varying degrees in individual countries. The share is 23% in the UK, for instance, but only 5% in Germany.¹³ Admittedly, pension funds in the EU are much smaller than in the US. Still, they are large enough for even moderate investments to make a big difference for the VC industry (the average European VC fund has a size of only EUR 60 m, according to EC figures). In this vein, revisiting some aspects of the legislation that regulates European pension funds could release enormous VC investments. To achieve this, the CMU could i) introduce measures that allow for a gradual shift from "defined benefit" pension systems (which also include pay-as-you-go schemes) to funded "defined contribution" systems.¹⁴ This would enlarge the pension fund industry in Europe and may increase their VC investments. ii) Giving pension funds more freedom to invest, i.e. allowing more flexible portfolio allocation depending on the specific risk-return preferences of individual participants, would equally be beneficial for VC volumes. To reduce the imbalances in VC investments within Europe and to attract more private investors, creating a pan-European VC fund of funds may also prove useful. Even though the fund itself should be managed in the private sector, the CMU could kick-start it with public backing as a catalyst.

Crowd funding volumes 19

USD bn, 2014



Sources: EC, Deutsche Bank Research

Crowd funding

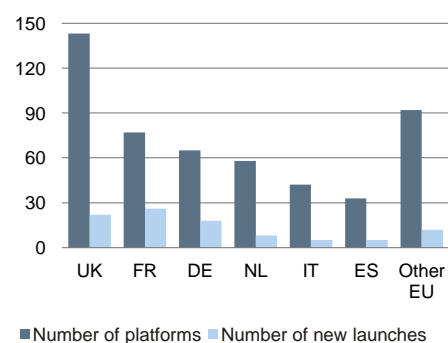
Another form of early-stage financing is crowd funding where investors and start-ups (not only, but primarily) are brought together on a platform which is usually an online market place. Crowd funding typically raises small funds from a large number of contributors. Even though crowd funding has been around for some time, its use has become much broader with the developments in internet technology. There are different forms of crowd funding for tailor-made needs of specific projects, individual entrepreneurs or companies (see box 18 for a short overview). Among these, equity and lending crowd funding that aim for a financial return are the most important ones for early-stage start-up financing.

In 2014, global crowd funding volumes reached around USD 16 bn (see chart 19). Of this amount, almost USD 10 bn was raised in North America and some USD 3 bn in both Asia and Europe. Focusing on absolute volumes alone may conceal underlying dynamics though, in a vibrant industry that is developing very quickly. For example, crowd funding in Europe has gained significant traction in recent years. The European Commission (2016) documents that funds raised via crowd funding platforms surged more than 50% to USD 4.6 bn in 2015 in the EU. A lack of data prevents a comparison of the latest trends in Europe with other regions, yet it is reasonable to argue that there are signs of European crowd funding catching up.

The number of platforms provides insights into the state of crowd funding in individual countries within the EU (chart 20). In 2014, there were 510¹⁵ crowd funding platforms in the EU of which 140 were located in the UK and 77 and 65 in France and Germany, respectively. Apart from the large economies, there were around 90 crowd funding platforms in other EU countries. Not only the existing number of platforms is remarkable but also the new platform launches. Of the total of 510 platforms, 96 were opened in 2014 alone. Most launches were observed in France (26), the UK (22) and in Germany (18).

Crowd funding platforms across Europe 20

2014



Sources: EC, Deutsche Bank Research

¹³ See European Commission (2015b).

¹⁴ See Kaya (2015a) and Bräuninger (2016) for a detailed discussion.

¹⁵ Of these, 8 are active in the EU but based in non-EU countries.

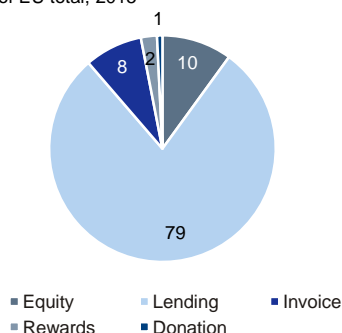


Start-ups and their financing in Europe

Crowd funding is largely about lending

21

In % of EU total, 2015



Donation includes donations and community shares.
Lending includes loans, bonds and debentures.

Sources: EC, Deutsche Bank Research

Equity crowd funding has the largest average deal size

22

Type of crowd funding in EU	Average funding raised in EUR, 2015
Equity	504,832
Invoice	59,898
Loan	15,676
Rewards	4,573
Donations	2,938

Sources: EC, Deutsche Bank Research

Jumpstart Our Business Start-ups

23

In 2012, the SEC added Title III of the Jumpstart Our Business Startups (JOBS) Act to Securities Act Section 4(a)(6). The JOBS Act provides an exemption from registration requirements for certain crowd funding transactions. In 2015, the SEC adopted to implement Title III which came into force on May 16, 2016.

Sources: SEC (Regulation Crowdfunding: A Small Entity Compliance Guide for Issuers), Deutsche Bank Research

Not all platforms offer all types of crowd funding and not all types of crowd funding are of equal importance in financing of early-stage start-ups. As mentioned above, equity and lending crowd funding are the most important types and dominate the scene in Europe (see chart 21). 79% of the total crowd funding raised in 2015 in the EU came from lending crowd funding followed by investment (i.e. equity) and invoice crowd funding with 10% and 8% respectively. Rewards and donations crowd funding, which do not entail any monetary return, made up a very small part of the total (2% and 1%, respectively). European Commission (2016) reveals that 83% of all crowd funding campaigns in the EU in 2015 were lending campaigns. Total loans raised in these campaigns were around EUR 3.2 bn, followed by an equity crowd funding volume of EUR 0.5 bn. In this vein, it can be argued that crowd funding is by and large about **crowd lending**. Of course, absolute crowd lending volumes are still far too small to be compared with bank loan flows. Yet crowd lending has a far-reaching influence by increasing retail investors' participation in and awareness of start-up financing.

Although crowd lending accounts for the lion's share in terms of total funds raised, it is not the frontrunner in terms of deal size (see table 22). In 2015, the average project size in Europe was the highest in equity crowd funding with EUR 505,000 (up from EUR 260,000 in 2014). The average deal size in crowd lending was EUR 15,500 (EUR 11,000) and EUR 3,000-5,000 for rewards and donations. Against this background, equity crowd funding seems more suitable for campaigns with larger funding requirements whereas lending crowd funding may already fulfil smaller thresholds. It is also important to note that for both types the risk per investment (i.e. per investor) is generally limited due to the very nature of crowd funding. (That said, crowd funding still involves risks such as traditional credit risk, risks related to information asymmetries and a potential insolvency of platforms etc.) The management of these risks or legal enforcements in case of failures could turn out to be very complicated. Indeed, "the crowd" probably has less incentive to focus on these risks as crowd funding involves small investments from a large group of investors. On the other hand, the platforms themselves are extra cautious not to put their reputation at risk by hosting projects with fraud risk as they are repeated players in the market. Moreover, the *wisdom of the crowd* (a notion used to express the collective opinion of investors) might also reduce the likelihood of these risks in advance.¹⁶

In this context, the question is how crowd funding can take an even more important role in early-stage start-up financing in Europe? First, consolidating crowd funding platforms may prove beneficial. Undeniably, there are significant search costs for potential investors and borrowers alike in spotting the "right" platform (and the "right" investment project) among more than 500 alternatives. Consolidation of platforms that offer similar services would allow efficient scanning of available deals. A more dense market pool will also enable better review of the quality of projects. Even though competition between crowd funding platforms may reduce costs for campaigners, it is also in their interest to be able to attract more funds from the pool. To achieve greater consolidation, the CMU should thus introduce a common legal approach and define the market and its participants at the EU level to act as catalyst for cross-border mergers. Second, the specific regulation of crowd funding platforms is another important point. In the US, the "regulation crowd funding" which became effective in May 2016 provides for a certain easing of rules for crowd funding transactions (see box 23). In Europe, Spain, France, Portugal and the UK are taking steps to regulate crowd lending. These cover, similar to the US regulation, measures such as the scope of lenders and borrowers, authorisation, type and size of loans etc. The circle of countries that already somehow regulate equity crowd funding is a bit wider and includes Austria, Belgium, Spain, France, Italy,

¹⁶ See Dapp (2011) for a detailed discussion.



Start-ups and their financing in Europe

Germany, Portugal and the UK. The CMU can introduce rules at the EU level to avoid contradictions and inconsistencies on this front.

E. Conclusion

To complement bank financing in Europe, creating a single market for capital has become the focus of policymakers' attention in recent years. The main step to achieve this has been the Capital Markets Union project of the European Commission. Ensuring sufficient funding for start-ups and innovative firms through the capital markets is one of the CMU's central objectives. In this context, we have taken a closer look at European start-ups and their capital markets-linked financing in this study.

Indicators of start-up creation and success are relatively weak in a number of large European economies. Financing creates a bottleneck for euro area start-ups especially in the early stages. To boost start-up activity in Europe so that they can play a bigger role in job creation and growth, a number of measures should be introduced at the EU level. In doing so, varying funding needs at different stages of the start-ups' development must be taken into account.

First, equity issuance in public markets is by and large a concept for expansion-stage start-ups only. To enhance equity issuance, the CMU should aim to reduce issuance costs. In particular, one-size-fits-all rules should be relaxed to reduce the administrative burdens for small issuers. To spur investor demand, preferential treatment (e.g. via reduced risk weights) of institutional investors' equity investments in small firms may prove beneficial. It is also necessary to promote equity research to maintain a high standard of investor protection.

Second, measures that link banks' credit risk to capital markets could help unlock bank lending in general, and also to start-ups. The CMU can achieve this by revisiting regulations that have stymied investor demand for securitisations and by allowing small loans to serve as collateral for covered bonds. That said, innovative ways to evaluate the creditworthiness of start-ups may be required to boost loan generation upfront.

Third, venture capital and crowd funding are suited to provide financing in the early stage of start-ups. For venture capital to take off, revisiting some aspects of European pension funds legislation could release huge potential. Granting them more flexibility in their portfolio allocation – depending on specific risk-return preferences of individual participants – is of paramount importance. To reduce imbalances in VC investments within Europe and to attract more private investors, creating a pan-European VC fund of funds may also prove useful.

Fourth, to expand crowd funding in Europe, platform consolidation would be a major step. To achieve that, the CMU should introduce a common legal approach at the EU level to act as catalyst for cross-border mergers. Likewise, the CMU can introduce rules at the EU level to avoid contradictions and inconsistencies in the treatment of crowd funding platforms.

Overall, the CMU offers significant opportunities to improve the funding environment for start-ups in Europe. With the EU's start-up hub – the UK – leaving the Union, the EU is at cross-roads in terms of future start-up activity. On the one hand, there is a risk that without its most important financial centre, the CMU will not become a success and not deliver the expected significant benefits. On the other hand, due to their vibrant nature, start-ups will probably be the first to ensure they maintain access to the EU's single market for jobs, goods and services. Hence, some start-ups may relocate to other EU countries. If the remaining members are able to take the necessary steps quickly, e.g.



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secure sufficient funding and reduce bureaucracy, the EU has tremendous potential to become a major start-up hub globally.

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