KfW Start-up Report 2021
Coronavirus crisis weighs on start-up numbers – minor impact on start-ups that are open to VC
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The coronavirus crisis has reduced the number of innovation- or growth-oriented young enterprises in Germany. In 2020 the number of these start-ups fell to 47,000 after 70,000 in the year 2019. The much lower number of business start-ups was obviously not enough to offset the high number of closures that is typical in this segment. In comparison with the overall decline in start-ups, the number of start-ups that are intending to receive venture capital remained remarkably steady at 8,600 (2019: 9,400).

In start-ups, the long-term average share of women entrepreneurs is 20%. That is only around half their share in overall entrepreneurial activity. From that starting point, the share of female business founders drops successively the more start-up characteristics are included in the analysis. Gender stereotypical behaviours play a role in this. The groundwork for more female start-up founders therefore must be laid long before a business is founded. More successful role models are also required. Greater diversity in the venture capital ecosystem to improve access to venture capital (VC) for women entrepreneurs would be helpful here.

Numerous examples demonstrate how dominant companies were replaced by agile newcomers on the basis of new technologies or business models, even though it was unimaginable that they would decline during their heyday.¹ Young innovation- or growth-oriented enterprises are celebrating successes in Germany, too. Just recently, Zalando and Hello Fresh joined the DAX benchmark index² – companies that were founded just 13 and 10 years ago. Start-ups hold great potential for renewal. Venture capital helps harness this potential. Without an active VC industry, many of the largest stock corporations would not exist in their current form.³

Coronavirus crisis adversely affects not just the entry to the market for start-ups but their exit too

In the years before the coronavirus crisis, the number of start-ups, i.e. up to five years old, innovation- or growth-oriented businesses (see box ‘What are start-ups?’) in Germany rose significantly and stabilised at a high level of 70,000 in 2019. In the coronavirus year 2020, the number of such start-ups fell again to 47,000 (Figure 1). That is mainly due to the strong dynamism of start-ups. They are characterised by high growth rates but also by high rates of closure. If closures are offset or even overcompensated by a sufficient number of market entries, the number of start-ups rises, as it did in the years preceding the coronavirus crisis. In the year 2020, however, the coronavirus-induced uncertainty led to a sharp drop in founding activity, with much fewer innovative or growth-oriented new businesses as well.⁴ Market entries were therefore not sufficient to offset closures, which had rather increased due to the pandemic. Furthermore, the pandemic situation may also have discouraged some business founders from pursuing their growth plans, so that they no longer fell under the start-up definition.

Not all start-ups were equally affected, however. The number of start-ups intending to finance their future growth using venture capital has remained at a relatively steady 8,600. This has to do with both market entries and market exits. Thus, the number of newly founded businesses with start-up characteristics dropped in 2020 but those that are open to VC became more numerous. Furthermore, start-ups open to VC are also more likely to already have the backing of an investor (such as business angels), making them more resilient against coronavirus-induced closures. The quick decision to provide coronavirus crisis support for start-ups by the German government may have contributed to alleviating the situation here.

Figure 1: Number of start-ups dropped in 2020 but number of start-ups open to VC remained relatively steady

![Figure 1: Number of start-ups dropped in 2020 but number of start-ups open to VC remained relatively steady](image)

Start-ups* in thousands

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
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<tbody>
<tr>
<td>Value</td>
<td>54,000</td>
<td>60,000</td>
<td>70,000</td>
<td>70,000</td>
<td>47,000</td>
</tr>
</tbody>
</table>

* For start-up definition see box ‘What are start-ups?’

Data source: KfW Entrepreneurship Monitor
Start-ups that are open to VC are sure to also have been stabilised by the development of the German VC market. VC business sentiment plunged to an unprecedented level after the outbreak of the coronavirus crisis but the recovery set in immediately and recently culminated in a new record high.\(^5\) Contrary to market sentiment and investors’ expectations\(^6\), there was no coronavirus effect in investment activity. VC deal volume in the first quarter of 2020 was on the level of the final quarter of 2019 and the subsequent quarters in 2020 were better than the long-term average (Figure 2). Driven by several mega deals, VC deal volume in Germany then reached new record levels in the first two quarters of 2021.

**Female business starts are often not covered by the start-up definition**

International start-up and VC ecosystems are becoming increasingly aware of the importance of diversity. The reasons for reduced female participation are being debated with particular intensity. A partial explanation is that women are less keen to be self-employed. Thus, around three in ten men of working age were content to be self-employed irrespective of their current personal situation but the same only applied to around two in ten women.\(^7\) Given that the number of men and women of working age in Germany is roughly equal, this represents a gender ratio of 3 to 2 among persons considering entrepreneurship, which is reflected to a similar extent in business founding. On average throughout the years, just under 40% of new businesses are founded by women. But in start-ups – that is, innovation-or growth-oriented young businesses – the share of female founders was only 20% on average over the past years (Figure 3).

The fact that the share of female start-up founders is only half as high as in all business founding activity mainly has to do with the definition of start-ups (see box ‘What are start-ups?’). Start-ups are defined as businesses in which characteristics overlap that are all less common among female founders.\(^8\) Since women are more likely to start a business as self-employed professionals, on a part-time basis, as single founders and without any employees, and as they are less likely to seek high growth, conduct technological research and development or offer a supra-regional new-to-market innovation, only three of 100 businesses founded by women have start-up characteristics compared with nine in 100 for men. So the question is why businesses founded by women are less likely to have start-up characteristics.

**Box: What are start-ups?**

The database of the KfW Start-up Report is the KfW Entrepreneurship Monitor, which is carried out in the form of an annual telephone survey of around 50,000 randomly selected persons domiciled in Germany. The design of the survey allows the evaluation of representative results that can be projected to the working age population in Germany. Start-up entrepreneurs are defined as all persons who founded their business not more than five years ago, run them commercially on a full-time basis, have a start-up team or employees, are innovation-oriented or aim for high growth.

**Figure 2: Thanks to VC mega deals: Record volume in second quarter of 2021 – business sentiment after coronavirus slump better than ever**

![Graph showing VC business sentiment](image)

*Source: Preqin, German Venture Capital Barometer, own calculations.*

**Figure 3: Half as many start-ups by women as in business founding overall**

<table>
<thead>
<tr>
<th>Start-ups definitions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realised business starts</td>
<td>38</td>
</tr>
<tr>
<td>Realised starts of new businesses</td>
<td>37</td>
</tr>
<tr>
<td>Incumbent new businesses (up to 5 years old) limited to: commercial</td>
<td>39</td>
</tr>
<tr>
<td>+ full time</td>
<td>35</td>
</tr>
<tr>
<td>+ start-up team or employees</td>
<td>30</td>
</tr>
<tr>
<td>+ growth-oriented or techn. Innovative or supra-regional market novelty (=start-ups)</td>
<td>25</td>
</tr>
<tr>
<td>Business starts</td>
<td>20</td>
</tr>
</tbody>
</table>

Business starts are all business activities started in a year by establishing a new business from the ground up, by taking over or participating in existing companies. Established new businesses: active new businesses (i.e. established from the ground) in the first five years of existence.

*Data source: KfW Entrepreneurship Monitor.*
Gender stereotypes impact on female entrepreneurship

Businesses founded by women are less likely to have start-up characteristics. Gender stereotypes are one explanation that is regularly mentioned in the scientific literature in regard to the individual characteristics. Thus, gender stereotyped education that tends to discourage girls from taking risks plays a role in women’s preference for salaried employment over self-employment. The division of domestic tasks also negatively influences women’s entrepreneurial motivation and contributes to the fact that women are more likely to start a business on a part-time basis and on their own without employees, and less likely to aim for high growth. Finally, gender stereotyped educational pathways and career choices make women less likely to become self-employed professionals or conduct technological research and development.

Only some of the common challenges for new businesses are also high barriers to start-ups

Besides cultural conditions – the soft factors that influence business founding –, there are hard factors such as explicit obstacles and difficulties that act as barriers to starting up. But to be able to assess them, the focus should not be just on actual business founders as they reflect only one side of the coin. After all, those individuals have successfully overcome the barriers to start up. We must also take into account the experiences of people with plans who abandoned the process of starting a business. The comparison of obstacles faced by failed business planers and successful business founders shows that the five greatest barriers to starting a business consist in financial risk, lack of funding, fear of social descent in case of failure, an undeveloped business idea and the prospects of salaried employment – for both male and female founders. However, this comparison does not permit separate statements to be made about start-ups in our definition because not all necessary information is available from men and women planning start-up businesses.

But it is helpful to take a look at the barriers and difficulties of male and female start-up founders even if they reflect only the side of the coin showing the successfully founded start-ups. It shows what aspects specifically hamper the development of start-ups compared with other young enterprises and whether they differ between male and female business founders.

For start-ups, by far the most common difficulties mentioned by female founders are the burden on the family or relationship, bureaucracy and lack of employees (Figure 4). The burden on the family or relationship is much less of an issue for male start-up founders, while lack of employees and job market opportunities are even more common – along with financial risk. Other aspects mentioned more often by female than male start-up founders are job market opportunities, insufficient business skills and economic risks. These difficulties and obstacles are more important aspects not just compared with male start-up founders but also in comparison with male and female founders of established new businesses at all. So they appear to play a major role for female start-up founders.

Figure 4: Burden for the family / relationship stands out as obstacle for female start-up founders

Shares in per cent, average for the years 2016–2020

Setting the course early to lift share of female start-up founders

Achieving a significantly higher share of female start-up founders will probably require a great deal of stamina because gender stereotypes are relatively persistent. But the cultural transition can be supported and thus accelerated, for example by more strongly integrating entrepreneurship education elements in school curricula. Financial literacy is such an element. Financial literacy lowers the three highest barriers to starting up.
A higher level of financial literacy would presumably encourage women more than men to start a business, as women are less likely to regard themselves as having a minimum of good financial literacy. Improving the teaching of financial literacy already at school might even generate a relatively fast effect because the difference between men and women is particularly great among young adults. Only one third (32%) of 18 to 24-year-old women describe their financial literacy as good or better, while that rate is close to half (45%) among men.\textsuperscript{13}

The lower self-assessment of financial literacy among young women is not verifiable against an objective measure of financial literacy, however. It therefore appears to be the result of a false self-perception.\textsuperscript{14} The empirical finding is that even on the same attainment level, girls systematically rate their mathematical skills more poorly than boys.\textsuperscript{15} This has a significant negative impact on girls’ decision to pursue a STEM occupation, which then also translates into weaker orientation towards technology and innovation when they start a business. Remedial action should be taken here. For example, educators should openly address and correct this false self-perception.

With respect to the choice of STEM occupations, however, in recent years there has been a positive development in that the share of women has grown steadily. Thus, the share of women among first semester students of IT and engineering degree courses rose from 16% in 2005 to 24% in 2019. Despite the positive development, there is still upside potential, especially in the field of electrical engineering and information technology, where the share was recently 17%.

A good approach to breaking down gender stereotypical patterns of decision-making is to point out attractive alternatives. Thus, increasing the visibility of successful female start-up founders as alternative role models is probably another way to motivate more women to adopt a think-big entrepreneurial strategy. But successful female start-up founders must become not just more widely known but more likely. Insufficient access to venture capital appears to be a handicap in this regard.

**Established structures hamper access to venture capital for female start-up founders**

Measured by the number of all start-ups, the number of those that are actually receiving venture capital is generally very low – irrespective of whether they were founded by men or women. However, international studies show that female start-up founders have greater difficulty accessing venture capital than their male counterparts – even though key figures for female start-ups on average appear to be better.\textsuperscript{16} Pitchdecks of female founders appear to fall by the wayside more often in the investment process,\textsuperscript{17} and – where a deal is struck – receive less finance than they have sought.\textsuperscript{18} On balance, of every VC dollar invested, less than 3 cents (US)\textsuperscript{19} and less than 1 penny (UK)\textsuperscript{20} goes to start-ups of all-female teams. Research findings indicate that this distorted investment activity is attributable to unconscious bias.

Like the start-up ecosystem, the VC ecosystem is a very male-dominated environment. Around the world, women make up a good 20% of all employees in the VC sector.\textsuperscript{21} Investors may now have the persistent feeling that typical all-male teams are the ‘default’ and women are ‘atypical’ and therefore ‘riskier’.\textsuperscript{22} In pitches, investors therefore respond with greater reluctance to behaviour perceived as typically feminine.\textsuperscript{23} Furthermore, questions asked to female founders in their pitches more often relate to risk while male entrepreneurs are more often asked about opportunities.\textsuperscript{24} The rub here is that pitches are much more likely to lead to a deal if they are focused on opportunity rather than risk.

A similarly contrary perception can be seen with regard to technological skills. While male business founders with a technical background tend to be seen as less capable of succeeding than other men, it is exactly the opposite for their female counterparts. Female business founders with a technical background are perceived as more promising.\textsuperscript{25} The lower proportion of women in STEM fields thus appears to be a handicap here.

In addition, the established structures mean that men are better connected in the start-up and venture capital scene. Pitchdecks from male business founders therefore reach investors more often from their own network (warm introduction), while those from female founders tend to be without previous contact or endorsement (cold introduction). Pitchdecks with a warm introduction, however, are 13 times more likely to receive a financing commitment than those with a cold introduction.\textsuperscript{26}

**Improving female founders’ access to VC**

There are many possible ways to improve access to VC for female founders. Studies show that attracting more women to the VC sector is one possibility that would help.\textsuperscript{27} For example, female investors are more
likely to present a financing offer to women entrepreneurs in female-dominated industries. A recent evaluation shows that the share of women at the senior level of the VC industry is just under 14% globally and only around 9% in Germany. Their share is much higher in investment teams, but lower again on investment committees. That means women are less well represented particularly in decision-making positions. Changing this is also in the VC industry’s own interest. After all, greater diversity at the decision-making level appears to go hand-in-hand with higher returns.

Measures should also be considered that mitigate or completely prevent the effect of unconscious bias. In the US, for example, an increasing number of VC funds has begun to ‘ditch the pitch’. Most investors may at first find it unimaginable to stop hearing VC pitches. Evidence shows, however, that purely data-based approaches do work. The goal remains: finding the best start-ups for good returns. A secondary effect, however, is a much more balanced investment portfolio, meaning more women entrepreneurs are reached.

In future, investment decisions may possibly be left to computers anyway. Thus, it has already been demonstrated that the returns from purely algorithm-based investment decisions could be beaten by business angels in the early phase only if they had extensive investment experience and were capable of suppressing their cognitive bias.

Funds with alternative investment strategies also show more balanced investment portfolios. Turnover-based investment strategies (revenue- or royalty-based investing) accommodate female founders as empirical evidence shows that women achieve higher turnover growth more often. It would also be helpful for the VC industry to become aware of unconscious bias. To achieve this, the UK introduced an ‘Investing in Women Code’. Its signatories indeed appear to address female entrepreneurs more effectively.

More venture capital for female founders = more female founders? It’s the multiplier effect that counts!

The aim of the described measures should be to level the playing field between male and female start-up founders in accessing venture capital. This will eventually create more successful female start-up founders who will act as role models, inspiring and motivating other women to found a start-up themselves. It will be up to this indirect multiplier effect to significantly increase the number of female start-up founders by improving access to VC, as the direct effect of completely offsetting disadvantages would be marginal because only a small fraction of all start-ups receive any venture capital at all.

In order to attract more women founders for the start-up ecosystem, there appears to be no way around the three-pronged approach of 1) overcoming gender stereotypes, 2) removing unconscious bias and 3) initiating a multiplier process.

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5 Metzger, G. (2021), *VC market reaches new high: new top scores for confidence indicators*, German Venture Capital Barometer 2nd Quarter 2021, KfW Research.
6 Metzger (2020), *Coronavirus crisis has unsettled the VC market and changed the investor landscape*, Economics in Brief No. 202, KfW Research.
Financial literacy was surveyed in the KfW Entrepreneurship Monitor in the year 2014. In the working-age population of 18 to 64-year-olds, 51% of women and 56% of men claim to have (very) good financial literacy. The gender difference is greatest among un

For details on how the measures of financial literacy were constructed see Cf. Leifels, A. and Metzger, G. (2015), Financial literacy helps with business start-ups: easier, better funded, more competitive, Journal of Small Business Management 50 No. 1, KfW Research.


Rubio, J., Mathur, P. and Thorne, J. (2021), Female founders are having a standout year—that’s not the whole story, PitchBook News; Teare, G. (2020) Global VC Funding To Female Founders Dropped Dramatically This Year, Crunchbase News.


["[...] potentially allowing the feeling to persist that all-male teams are the ‘default’ and women are ‘atypical’ and therefore ‘riskier’", British Business Bank (2019), UK VC & Female Founders.


36 The Female Founders Monitor 2020 reports a share of 15.7% of women start-up founders (Hirschfeld, A., Gilde, J. and Wöss, N. (2020), Female Founders Monitor 2020, Bundesverband Deutsche Startups e.V.). Thus, of the 4,670 start-up founders, 731 were women. All-women teams made up of a share of 10.9% of all start-ups (209 all-women teams with an average team size of around 1.3). Of these, 1.6% already received VC finance, while this was 11 times more often the case (17.6%) for all-male teams. If 41 new, additional VC-financed all-women teams were to raise their share to the 17.6% share of all-male teams, that would be 52 additional female founders given an average team size. The share of female founders would rise by 0.9 percentage points to 16.6%. As the Female Founders Monitors 2018 and 2019 reported significantly higher VC shares of 5.2 and 7.8% for all-women teams (men: 17.9 and 16.8%) and the low share of 1.6% is therefore likely to be a downward outlier, the actual direct effect of offsetting the VC disadvantages of all-women teams on the share of female founders is rather smaller than the increase of 0.9 percentage points – especially since it is likely that the additional VC financings would benefit not so much new teams but predominantly existing teams and, hence, female founders who are included in the original 15.7%. The Female Founders Monitor 2020 contains no detailed data on mixed teams. Based on the previous Female Founders Monitors, however, the following assumptions can be made: Mixed teams have an average team size of three, broken down into 60% men and 40% women, as well as a realised use of VC that is roughly halfway between the frequency of use of all-women teams and all-men teams. Based on this data, the above rough estimate can additionally be carried out for mixed teams. The result, however, would be that the share of female founders would rise only marginally to 17.0%.