# The influence of COVID-19 on investment strategies and external financing sources of start-ups in The Netherlands

Master thesis

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# Abstract

This research examines the influence of COVID-19 on investment strategies and opportunities for external financing sources for Dutch start-ups established between 2019 and 2022. The qualitative part of this research (interview) consists of 8 participating start-ups, and the quantitative part (survey) consists of 142 participating start-ups. The aim of the study is to see whether the established companies have benefited from the situation during the pandemic and have been able to grow despite the measures. This has been tested using three constructs, Influence of the Pandemic (IP), Sources of Finance (SF), and Investment Capital (IC). It emerged from the literature that the relationship between securing sources of investment and continuing to grow in times of crisis for start-ups is reinforced by a number of variables. Namely, size, age, growth intention, asset structure, and entrepreneurs' characteristics. During this research, it was tested whether these variables strengthen the relationship. The results of the study show that the start-ups have not been hindered in development but have actually benefited from the situation that has arisen. The influences of the tested variables sometimes differ in this respect and on an industrial level, this is also sometimes different. The start-ups have been able to secure investments despite the pandemic.

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## **1. Introduction**

The studies of Cassar (2004) and Vaznyte & Andries (2020) have shown that capital decisions and the use of debt and equity have important consequences for a start-up and determine the success or failure of their company. Namely, on the company's operations, risk of failure, performance, and growth opportunities. In addition, the importance of financing decisions of new companies also affects the economy, among other things. This is because they play a role in employment, competition in the markets, and innovation (Cassar, 2004). But how do start-ups deal with this in times of crisis?

Santoso (2020, p. 181) "capital is one the crucial things in building a creative-based business". However, it is not always easy for start-ups to raise capital. It often happens that start-ups are unable to meet the desired requirements of banks and investors. In addition, the assets of start-ups in the creative sector are often intangible, so they cannot be accepted by financial institutions and are therefore considered risky. Also, the cash flows of these start-ups are often unstable (Santoso, 2020). Despite the global pandemic, how do start-ups manage to stand out in this to bring in investment?

Start-ups today play an important role in today's economy, performing above average and potentially changing the rules of today's economic competition (Wiesenberg, Godulla & Tengler et al., 2020). These types of companies are often in an early stage of development, often not older than ten years, have a high degree of innovation and creativity, and have a high scale of growth ratios in turnover and employment (Kollmann et al., 2016). Start-ups have five characteristics, these are closely linked to the establishment of the start-up, namely liability of newness (Stinchcombe, 2000), the liability of smallness or size (Aldrich & Auster, 1986), and owner centricity (Vazynyte & Andries, 2020). In addition, in the context of the growth of the start-up, also the effects of their growth and the necessity of investment (Churchill & Lewis, 2000).

At the beginning of December 2019, a worldwide pandemic started called the Coronavirus better known as COVID-19. The outbreak of this global pandemic has caused major economic consequences (Padhan & Prabheesh, 2021), noticeable on the supply and demand sides. On the supply side, it came from the loss of working hours, and the fall in demand came from the fall in income due to unemployment related to closures. The research of Maliszewska, Mattoo & van der Mensbrugghe (2020) gives four clarifications about the effect of the pandemic on the economy: (1) the direct effect of a reduction in employment; (2) the increase in international transaction costs; (3) the sharp decline in travel; (4) the decline in demand for services requiring proximity between people. However, it need not be the case that every business or industry is affected. A McKinsey study (2009) of the last four recessions shows that certain industries were not affected at all by a global recession: on the contrary, they benefit from it<sup>1</sup>. Paunov's (2012) research shows that by investing correctly and wisely during a crisis, a start-up can stay afloat and benefit from the situation.

Several studies have done research on investment strategies and capital decisions of start-ups in times of crisis (Chaya, 2004; Conti, Dass, Di Lorenzo & Graham, 2019; Filippetti & Archibugi, 2011). On the other hand, little is known about the impact of the most recent crisis, COVID-19, on investment strategies and opportunities for funding sources. The research of Flippetti & Archibugi (2011) shows that companies anticipate very differently when it comes to investment strategies in times of crisis. This may depend, among other things, on several company-specific characteristics. Such as the strategy of a start-up, the attitude of its management, and the stage of development in which the company finds itself. In addition, industrial factors are also important. These include market demand, profit opportunities, and possibilities for technological development.

<sup>&</sup>lt;sup>1</sup> Jiang, B., Koller, T.M., William, Z.D. (January 1, 2009) Mapping decline and recovery across sectors. <u>https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/mapping-decline-and-recovery-across-sectors</u>

To survive such a crisis, companies need to adapt to such a crisis. Smallbone, Deakins, Battisti & Kitching (2012) state that small businesses and start-ups tend to excel at adaptability and flexibility in times of crisis. Start-ups with resilient entrepreneurs are the ones that stand out in times of crisis (Martinelli, Tagliazucchi, Marchi, 2018). Partly due to their innovative way of working and making use of the available opportunities, they manage to achieve success (Sarasvathy, 2001).

For a company to grow, various financing methods and strategies can be used. The influence of firm characteristics on the type of financing plays a significant role (Cassar, 2004; Vaznyte & Andries, 2020). Especially in the supply and demand sides of financing for new companies. The fact that start-ups often have little data and access to respondents makes it difficult for investors to determine whether they should proceed with an investment (Cassar, 2004). However, they may benefit from using various sources of funding. Therefore, it is interesting to investigate whether and how, as a result of the outbreak of the COVID-19 pandemic, start-ups in the Netherlands have been able to develop and grow.

This research will investigate what influence the COVID-19 pandemic has had, and may still have, on the investment strategies of start-ups in the Netherlands. This has resulted in the following research question.

"How does COVID-19 influence investment strategies and the possibilities of external financing sources of start-ups in the Netherlands as of 2019?"

To be able to answer the research question formulated, both qualitative and quantitative data were collected. This is done through a literature review, a questionnaire, and interviews with (co-)founders of several start-ups in the Netherlands.

The findings of this study contribute to a better understanding of the investment strategies of Dutch start-ups in times of crisis. In addition, it also provides new insights on how start-ups manage to distinguish themselves in securing funding sources. From a corporate perspective, start-ups can gain insight into how competing companies managed to get through the pandemic.

The research will start with a literature review. Data was then collected using a clear methodology. From the data collected, the findings were discussed. The literature review will look at how start-ups have behaved in the past as part of investment strategies in times of crisis. These findings are then assessed in practice. The research will be a valuable addition in both theoretical and practical terms. It will be assessed whether start-ups can be influenced in generating funding opportunities, as in previous times of crisis.

# 2. Theoretical framework

The literature review lays the foundation for this research. The following topics are discussed: investing strategies of start-ups, prior research on start-ups in crisis scenarios, funding strategies of start-ups during COVID-19, and the Dutch start-up climate. The last section describes and presents the theoretical model, and the proposition of this research is presented.

#### 2.1 Investing strategies of start-ups

Paul Graham's (2012, p. 1) definition indicates that "A start-up is a company designed to grow fast". An important note he made in this quote is that "Being newly founded does not in itself make a company a start-up. Nor is it necessary for a start-up to work on technology, or take venture funding, or have some sort of "exit." The only essential thing is growth. Everything else we associate with start-ups follows from growth." In short, a start-up distinguishes itself from an "ordinary company" based on growth.

Financing and capital are crucial for start-ups (Cassar, 2004; Vaznyte & Andries, 2020), i.e., if the start-up does not have enough personal capital to finance the desired capital, it will turn into bank loans. However, the bank may not want to finance the full amount due to insufficient information and associated risks, the debt financing is then above the threshold. As a result, the start-up will search for external sources of financing. This means that if the search is successful, the financial restrictions will be relaxed (Colombo & Grilli, 2005).

Investing in start-ups can be done in several ways-the ways and the amount invested depends on several things. Among them are the start-up size, asset structure, organisation type, growth orientation, and owners' characteristics (Cassar, 2004; Vaznyte & Andries, 2020). The enterprise must decide for itself how much it wants to finance with external capital and what part of the enterprise it wants to hand over for this purpose. As the research of Cassar (2004, p. 261) has shown "capital decisions and the use of debt and equity at start-up have been shown to have important implications for the operations of the business risk of failure, firm performance and the potential of business expansion in the future".

Possible ways to finance start-ups are through Family, Friends, Fools (3F's), Angel Investors (AI), or Venture Capital (VC). The decision to use external sources of finance need not to based solely on the funding they bring. Also, as the knowledge and experience, they can bring to the company (Bernstein et al., 2016). The choice often considers the growth the company wants to go through. If one wants to grow fast and requires more capital, one will more quickly switch to VC or AI instead of the 3F's (Hellmann & Thiele, 2015).

As indicated above, the size and age of a company play a key role in the financing strategy of a startup. Start-ups often find it relatively more costly to switch to external financing, due to the information asymmetry that can occur as a result (Berger & Udell, 1998; Cassar, 2004; Christensen, 2010). This occurs less around the establishment of new companies as they are opaquer in terms of information than established companies (Berger & Udell, 1998). The research by Colombo & Grilli (2005) also indicates that there is a positive relationship between the size of a start-up and obtaining external financing. Therefore, it is expected that larger start-ups, founded just before or during the pandemic, will be quicker to apply for external capital.

Asset structure is also related to the way a start-up is financed. In general, start-ups with more tangible assets are larger companies, and this is often financed by external capital (Harc, 2015; Harris & Raviv, 1991; Titman & Wessels, 1988). Given the high opacity of information from start-ups and the lack of other options for financiers to mitigate financial risks by examining both current and future profitability, the structure of assets should have an impact on how a start-up is financed in its early stages (Cassar, 2004). With this, it can be assumed that there should be a positive relationship between the size of a start-up and the use of external sources of funding. In this study, differences in industries will be considered T because certain types of start-ups have little or no tangible assets and, therefore, cannot be compared with start-ups that do.

Cassar's (2004, p. 268) research found that "growth opportunities and intention to grow should influence the agency costs associated with financing", start-ups may choose to experience rapid growth which may come with additional costs. The use of external financing is likely related to the planned growth of the company since the start-up chooses a source of financing based on the conviction of its future use (Michealas, Chittenden & Poutziouris, 1999). By establishing relationships with external financiers early on as a start-up, the company can create growth potential at an early stage (Korityak & Fichtel, 2012). It will also have an advantage in terms of both access and cost of future external funding (Cassar, 2004; Vaznyte & Andries, 2020). The researcher, therefore, assumes in this study that growth opportunities and intention have a positive influence on the use of external sources of finance by start-ups.

Finally, the characteristics of the entrepreneurs are also an indicator of the investment strategies and the capital structure of a start-up (Martinelli, Tagliazucchi, Marchi, 2018). As stated earlier in this study, the first goal of a start-up is to survive, and this can be done by making decisions. The decisions that an entrepreneur makes in this respect can be based on several factors (Cassar, 2004). Experience in the same market and industry plays a vital role in securing the desired sources of funding (Bates, 1997; Storey, 1994). The experience gained leads to better human capital, which in turn will increase the viability of a start-up (Scherr, Sugrue & Ward, 1993). As a result, investors will have more confidence in the start-up and will proceed to finance it. In contrast, several studies show that gender does not influence obtaining specific sources of funding for start-ups (Coleman, 1998; Storey, 1994; Verheul & Thurik, 2001). In this study, it will therefore be assumed that the experience of the entrepreneurs has a positive influence on obtaining the desired source of financing.

In short, the above-mentioned characteristics will be tested from the literature in practice. Later in this report, these assumptions are formulated in the form of a proposition. This proposition is tested using the data obtained from both interviews with entrepreneurs of start-ups and participants in the survey that was conducted.

#### 2.2 Start-ups in crisis scenarios

A crisis generally affects the performance of a company (Boin, 2009; Comfort, 2002; Quarantelli, 1988; Williams et al., 2017). Preparation is crucial in being able to act and survive as a company during a crisis (Kuckertz et al., 2020). Several studies suggest that start-ups can deal with such crises by developing skills to differentiate themselves before a crisis (Bullough et al., 2014; Doern et al., 2019; Korber & McNaughton, 2018). What these skills and character traits are of these start-ups will have to emerge during this research. However, not every start-up is prepared for a crisis, which can have a major impact on its progress as a beginning company. The research by Kuckertz et al., (2020) shows that this was also the case during Hurricane Katrina. Many start-ups were not prepared for this, with major consequences. Consequences included interrupted cash flows, lack of access to capital for recovery, but also infrastructure problems (Runyan, 2006). Interesting such a crisis is the fact, can you as a start-up prepare for this at all?

The quality of a start-up's response to a crisis is related to its resilience and ability to improvise, coordinate, flexibility, and stamina (Boin et al., 2010; Kuckertz et al., 2020). Smaller and beginning companies are often more creative than larger ones. Creativity can help start-ups stay viable in times of adversity and crisis (Williams et al., 2017). A crisis can cause development to take place. This may be in the form of new opportunities, innovation, or alternative products or services (Brem et al., 2020; Brünjes & Revilla Diez, 2013; Irvine & Anderson, 2004). Research also shows that, regardless of the type of crisis and the short- or long-term consequences, entrepreneurs must always reckon with uncertainty and failure (Mandl et al., 2016; Ucbasaran et al., 2013). It can be seen as a part of their job. As a result, entrepreneurs may be expected to show flexibility and adapt their business models and investment strategies in response to a crisis. This suggests that a start-up is better prepared for a crisis than any other economic actor. This study will investigate whether this assumption is in line with the results generated from the interviews and survey.

Because start-ups may be less well funded than larger companies at the outset, they can more easily become the victim of an unexpected crisis, such as the outbreak of the COVID-19 pandemic (Csath, 2021). Csath (2021) indicates in her research that the government plays a crucial role in this. They influence taxes, and the granting of loans and can make payment arrangements. Of course, the start-ups themselves also play a key role in surviving and getting through a pandemic or crisis. One methodology that is important here is well-applied crisis management (Chesbrough, 2003). This can be applied in uncertain and rapidly changing times. the role of the entrepreneur is central to this. In times of crisis, it is important to strengthen human relations within the company. Strengthening these relationships is important for securing future relationships as well.

### 2.3 Funding strategies of start-ups during COVID-19

Unlike the Global Financial Crisis (GFC), which was spread worldwide through financial markets, the COVID-19 pandemic was spread through the global pipelines of people travelling around the world. The COVID-19 pandemic seems to at least match the economic and social disruption caused by the GFC, this is partly due to the enormous uncertainty and devastation it caused worldwide (Baker, et al., 2020). The first studies following the outbreak of the COVID-19 pandemic show that this crisis has caused a significantly greater economic shock compared to the GFC of 2008 (Baker, et al., 2020). Unlike other crises, the COVID-19 pandemic did not affect every country at the same time and in the same way. Countries were able to respond proactively based on experiences from other countries (Kuckertz et al., (2020).

Many studies show that investors prefer close relationships and interactions with beneficiary companies, often preferably face to face (De Clercq & Sapienza, 2006). Particularly VC investors often invest based on their networks, with which they bring deals, and can subsequently continue to supervise the companies in which they have invested (Brown & Rocha, 2020). In this way, they stay close to their money and ensure that quick intervention is possible, and that foreseen danger can be quickly grasped (Colombo et al., 2019; Cumming & Dai, 2010; Shane & Cable, 2002). Due to the measures taken during the COVID-19 pandemic, it was of course not possible to have physical contact. Research by Howel et al., (2020) shows that equity finance has been hit hard by the pandemic, as a result, recent technology sources have been applied to mitigate the impact of the crisis. Nevertheless, research shows that personal interaction is moderately replaceable, creativity, therefore, seems to be in demand. This research already shows that start-ups are often more creative than larger renowned companies, in this pandemic they will be able to take advantage of this. In the interviews, it will become clear how start-ups distinguish themselves from the competition in attracting investment capital.

Several studies assume that early-stage investments involve higher risks and greater volatility of returns than later-stage deals (Parhankangas & Hellström, 2007; Sapienza & Gupta, 1994). It is also the case that early-stage deals are being done by a much wider and rapidly growing group of smaller investors (Block et al., 2018; Bonini & Capizzi, 2019). Due to the smaller size of these investors, they are less isolated in times of crisis compared to larger equity investors (McKelvie et al., 2011). This assumption should therefore mean that in the COVID-19 pandemic, investments are made, especially in the early stages.

It will be interesting to see if the outbreak of the COVID-19 pandemic has created certain trends and how these have affected investments and funding rounds. A survey conducted by SeedLegals<sup>2</sup> to find out what direct impact COVID-19 has had on the funding rounds among UK start-ups has led to some interesting findings. The study indicates, among other things, that there is no significant difference in valuations over the period that the country was in lockdown. A crucial point to note is the increase in investments in HealthTech and EdTech and the decrease in Food-based start-ups.

<sup>&</sup>lt;sup>2</sup> Richards, R. (2020, August 4). *SeedLegals data reveals COVID-19 effect on UK startup funding rounds*. <u>https://seedlegals.com/resources/seedlegals-data-reveals-covid19-effect-on-uk-startup-funding-rounds/</u>

A distinction will have to be made between the types of financing that start-ups have obtained and what stage they have reached. The research of Brown et al. (2020) indicates that there has been a 40% decline in finance deals for the seed finance category between 2019 and 2020. This is the first important investment round for a start-up to get started, conquer the market, and develop its product. However, later-stage start-ups show greater resilience. They are therefore less affected by the outbreak of the crisis. Research by the ScaleUp Institute in 2021<sup>3</sup> shows that previous crises have created opportunities for entrepreneurs to start new innovative businesses based on new products, services, and business models. Nevertheless, during a crisis, including during the COVID-19 pandemic, start-ups face the greatest obstacles in obtaining finance, according to a study by Brown, Rocha, & Cowling (2020).

#### 2.4 The Dutch start-up climate

The Dutch start-up climate is known to be excellent, according to the State of Dutch Tech report by Techleap.nl, the Netherlands has been one of the top places to work and live for years. According to the World Economic Forum report, the Netherlands is also the fourth most competitive economy in the world (Schwab, 2019). The Netherlands has 11,000 start-ups with 19,000 founders and 145,000 employees <sup>4</sup>. Compared to other countries, the Netherlands has 2.6 times as many start-ups per million inhabitants as the European average.

Dutch start-ups excel in sectors such as life sciences, fintech, food, and water (Brennenraedts, 2020). This is due to the infrastructure, the language, and the willingness to cooperate. This makes the Netherlands one of the best-connected ecosystems for doing business in the world, according to the State of European Tech report by Atomico (2020)<sup>5</sup>. However, there are differences between start-ups in other countries. In other countries, employees within a start-up can be rewarded with shares. In the Netherlands, tax has to be paid on these shares, in other countries tax only has to be paid when the shares can be traded (Kleijngeld, 2022). In addition, Angel investors are hard to find in the Netherlands, and attracting Venture Capital is difficult.

According to Kleijngeld's article (2022), Venture Capital funds often step into large investment pools. Despite the earlier picture of a substantial increase, it is not yet good enough. Moreover, only 21% of start-ups grow into scale-ups, in contrast to an average of 60% of their European counterparts. According to various sources in Kleijngeld's article (2022), the government plays a significant role in freeing up the best possible climate for doing business as a young company. This research will investigate whether this picture is confirmed by the Dutch start-ups

The report drawn up by the Dutch research and data institute Techleap.nl is an important comparative indicator in this research. The report "The Dutch Tech Ecosystem and COVID-19 – Impact Report" prepared by Techleap.nl investigated the impact of COVID-19 on the Dutch start-up ecosystem in 2020<sup>6</sup>. The impact of COVID-19 on start-ups is highly visible. According to the report, 50% of Dutch start-ups have lost significant revenue in 2020. Founders had also indicated that they needed a bridging loan. VC investment slowed down tremendously and 27% of the start-ups needed structural funding. In addition, their research shows that 65% of the investors are postponing their investments due to the outbreak of the pandemic.

<sup>&</sup>lt;sup>3</sup> ScaleUp Institute. 2021. "ScaleUp Annual Review 2021." <u>https://www.scaleupinstitute.org.uk/scaleup-review-2020/introduction/</u>

<sup>&</sup>lt;sup>4</sup> Kleijngeld, J. (2022, February 11). *Met deze stappen wordt Nederland een tech-paradijs*. <u>https://mena.nl/artikel/verbeteren-ecosysteem-startups-in-nederland</u>

<sup>&</sup>lt;sup>5</sup> Atomico. (2020). The State of European Tech. <u>https://2020.stateofeuropeantech.com/</u>

<sup>&</sup>lt;sup>6</sup> Techleap.nl (2020, November 10). The Dutch Tech Ecosystem and COVID-19: Impact Report.

The participants in the survey of that research indicated that they were particularly affected by the outbreak of the pandemic in terms of attracting customers, difficulty in raising money, and loss of existing customers, and businesses. In addition, the study shows that 85% of the participating start-ups had to cut their costs at the time. This had consequences not only for operational activities but also for reducing investments and not achieving milestones. Previous points from this study show that start-ups are set for growth and that coming to a standstill can have drastic consequences, especially in 2020 when there was a lot of uncertainty.

The research shows that at the time only 9% of the participating start-ups made use of a COVID-19 support package from the government. A probable reason for this is that start-ups do not always meet the requirements to be eligible. A surprising finding in itself, since they are precisely the ones who can create rapid employment, bring innovation, and make things better (Cassar, 2004; Vaznyte & Andries, 2020). The Techleap.nl research includes start-ups from the Netherlands and does not consider the year of establishment. In this study, the year of establishment is considered. This makes it interesting to see whether start-ups have been created as a result of the pandemic, and whether have they been able to benefit from the situation that has arisen. Or it may be the case that, despite the pandemic, they have managed to continue their idea through a good strategy.

The Techleap website states that, see Figure 1, the pandemic has indeed caused the number of investment rounds in general, regardless of the industry or the year of foundation, to drop significantly. A slight increase can already be seen between 2020 and 2021. According to the State of Dutch Tech report, the year 2021 has been a particularly good year for start-ups. Compared to 2020, a total of 5.6 billion euros in venture capital was invested. This is three times more than in the previous year. This shows that the greatest uncertainties of the pandemic have been overcome and that people are slowly regaining confidence and daring to make investments again. A twist that will also be investigated during this research.

#### Figure 1: Number of investment rounds in Dutch start-ups



#### 2.5 Theoretical model

The literature shows that a crisis does not necessarily have a negative effect on attracting funding for start-ups. On the contrary, it can provide opportunities for this type of business to benefit from the advantage of already existing businesses. The extent to which the possibilities of obtaining finance are enhanced by several variables, namely: Firm size, Firm age, Asset structure, Growth intention, and Entrepreneur's characteristics.

The figure below is a schematic representation of the theoretical model presented and tested in this study. The model directly reflects the proposition formulated, which is further explained in the next section.





So, in short, COVID-19 has had a positive impact on attracting funding sources for start-ups in times of COVID-19. This is reinforced by the parts of the independent variable: Firm size, Firm age, Industry (Asset structure), Growth intention, and Entrepreneur's characteristics. The ability to attract funding is subdivided into three variables that are tested, namely Sources of Finance (SF), Influence of the pandemic (IP), and Investment Capital (IC).

### 2.6 Proposition

The table (Table 1) below shows the relationships and effects between variables and the possibility of attracting sources of financing from the literature.

Variables on ability to attract funding				
Variable:	Influence:	Source:		
Firm size	Positively	Berger & Udel (1998)		
		Cassar (2004)		
		Christensen (2010)		
		Colombo & Grilli (2005)		
Age	Positively	Berger & Udel (1998)		
		Cassar (2004)		
		Colombo & Grilli (2005)		
Asset structure	Positively	Cassar (2004)		
		Harc (2015)		
		Harris & Raviv (1991)		
		Titman & Wessels (1998)		
Growth intention	Positively	Cassar (2004)		
		Korityak & Fichtel (2012)		
		Michealas et al, (1999)		
Entrepreneur's characteristic	Positively	Bates (1997)		
		Cassar (2004)		
		Coleman (1998)		
		Martinelli, Tagliazucchi &		
		Marchi (2018)		
		Scherr et al, (1993)		
		Storey (1994)		
		Verheul & Thurik (2001)		

Based on the research question and the literature review the following proposition has been formulated:

# **Proposition:** The outbreak of COVID-19 has had a positive influence on investment strategies and on obtaining financing for Dutch start-ups founded between 2019 and 2022.

The literature review has shown that start-ups can distinguish themselves in times of crisis. The expectation, therefore, that the proposition put forward is that a crisis creates start-ups that benefit from it. In short, the ability of start-ups to obtain external finance increased before and during/after COVID-19. This has been tested on a national scale.

The above proposition shows both the independent and the dependent variables that will be investigated. The independent variable "COVID-19" shall be made measurable. This will be done by setting an event date. The dependent variable is investment strategies: the ability to secure funding. When testing the influence of the independent variable on the dependent, some control variables have to be considered.

# 3. Methodology

This chapter will look at the methodology used throughout this research. First of all, the choice of both qualitative and quantitative research will be discussed. Then, the sample of this study will be discussed. Next, the survey and the interviews will be discussed in more detail. Finally, the researcher will conclude with some analytical tests to discuss later the results of the surveys and interviews. The data for the analyses on start-ups in this study are start-ups founded just before or during the COVID-19 pandemic in the Netherlands, this starting point is in the Netherlands from January 2020<sup>7</sup>.

### 3.1 Research method

Strauss and Corbin (1990, p. 17) define qualitative research as "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification". The method is used to describe a set of approaches in the form of words, from which an attempt is made to derive a certain pattern and then analyse it (Levitt et al., 2018). In qualitative research, there are many ways to collect data such as conducting archival data, focus groups, interviews, ethnographic observation, or fieldwork. Using this research method, deeper insights can be gained into a subject. The qualitative part includes conducting interviews with (co-)founders of start-ups.

Qualitative research measures relationships between variables and tests theories by developing hypotheses or propositions based on already existing theories, these hypotheses or propositions are then tested using statistical methods (Morgan, 2015). Taguchi (2018, p. 24) "Quantitative research employs objective measures (e.g., tests, surveys) and uses statistical and numerical data analysis techniques". Two primary methods of this data analysis are descriptive statistics and inferential statistics (Loewen & Plonsky, 2017). Quantitative research is expressed in numbers and graphs, based on the method of investigation, facts can be generated. The more participants there are in this research method, the more reliable and clearer a picture can be painted of a larger population. In this research, the quantitative part consists of an online survey

This research contains both a qualitative and a quantitative part. The advantage of combining these two methods is that they provide both a detailed view and an overall view (Cresswell, 1999). Looking at this research, by combining these two methods, more detailed research can be done on the choices of start-ups in times of crisis. Combining qualitative and quantitative research ensures that the research is enabled to answer research questions in a more complete and detailed manner (Greene & Caracelli, 1997; Plano et al., 2016). The qualitative data collected through the interviews can ensure that certain ambiguities or unavailable data from the quantitative data provide more insight into a particular issue or issue (Jick, 1979). For this study, the combination of the two methods is important because it ensures that clarity emerges about certain types of chosen sources of investment in times of crisis. The survey shows which type was used and how much, the interviewees can then explain why exactly this type was applied.

#### 3.1.1 Qualitative research: Interview sample

The qualitative part of this research was carried out by conducting interviews. The interviewees are all (co-)founders of their start-ups, a total of 8 (co-)founders were interviewed. The table (Table 2) below shows the industries in which the interviewees are active, the year in which the company was founded, and where it is located. The interviewed start-ups were approached through an e-mail or contact form on their website, while approaching these start-ups, the aim of interviewing these start-ups from multiple industries was considered. The purpose of this is to be able to show that the pandemic has only affected some industries, or not at all, start-ups from a particular industry could have benefited enormously from this. An interview can therefore be used to come to a deeper understanding of the choice of strategy and the thought process for the future than a survey.

<sup>&</sup>lt;sup>7</sup> Rijksoverheid (2022, April 4). *Coronavirus tijdlijn*. <u>https://www.rijksoverheid.nl/onderwerpen/coronavirus-tijdlijn</u>

Using the search engine on the website Techleap.nl, it was possible to map out a large group of startups in the Netherlands. Techleap.nl is a non-profit publicly funded organisation helping to build a thriving start-up ecosystem in the Netherlands<sup>8</sup>. The website, established by the Dutch government in 2019, contains a wide range of data on both start-ups and scale-ups in the Netherlands. The programme focuses on promoting the growth of scale-ups into large companies <sup>9</sup>.

Techleap acts as a centre of expertise and undertakes various actions together with stakeholders to strengthen access to capital, markets, talent, and technological or scientific knowledge in the start-up ecosystem. The knowledge and data that are subsequently gathered are then shared with the entire ecosystem in the Netherlands. On this website, a filter was used to generate an overview of all start-ups in the Netherlands founded between 2019 and 2022. This considers the number and type of investment rounds a company may have already made. From there, several start-ups from each category were approached to see if they were open to an interview. The choice to interview several categories was made to be able to compare the research from different angles. Indeed, some industries are more dependent on the direct injection of capital than others.

The confirmation of the different start-ups' approaches is shown in the table below (Table 2). Several types of organisations were founded in different years and located in various places. To clearly show the difference between the situations before the pandemic and during the pandemic, the researcher chose to interview start-ups that had already been established well before the pandemic in two categories, (enterprise software & health). They may have applied quite different strategies or may have been influenced by the pandemic, whereas start-ups established during the pandemic may have benefited from the situation. This can be particularly interesting for companies in the health sector during a global health crisis. For example, they can respond to the rapid demand for solutions. In the case of software start-ups, it is interesting to see whether they were able to continue their development during the pandemic. The literature study also shows that investors may become more cautious in times of crisis. Software companies need capital to continue their development.

Interview	Type of organization	Founding year	Location
A.	Health	2019	Enschede
B.	Enterprise Software	2019	Amsterdam
C.	Fintech	2020	Amsterdam
D.	Enterprise Software	2021	Amstelveen
E.	Health	2018	Amsterdam
F.	Agritech	2020	Den Bosch
G.	Enterprise Software	2020	Amstelveen
H.	Enterprise Software	2014	Hilversum

Table 2: Interview sample

Beforehand, it was agreed with the entrepreneurs that the interviews could be recorded for the purpose of this research. In the appendix (see Appendix 1) the questions asked during the interviews can be found. A transcript of each interview is therefore now available afterward. With the help of a coding scheme that has been set up (Figure 3) and the transcriptions that have been printed out, it is possible to ensure that the most important points are highlighted. From the coding scheme, it can then be deduced whether different answers are given to the questions asked.

 <sup>&</sup>lt;sup>8</sup> Techleap.nl (2022, 20 August). *Connecting Dutch Tech*. https://www.techleap.nl/
 <sup>9</sup> Ministerie van Economische Zaken en Klimaat. (2022, June 4). Techleap.nl. https://www.bedrijvenbeleidinbeeld.nl/ beleidsinstrumenten/techleap.nl

The interview is divided into several topics. First, a brief introduction round was held in which an explanation was given of the research and for what the data will be used. Next, some general questions are asked to clarify exactly what kind of company it is and what industry it is in. From there, a start was made with more in-depth questions, for example, questions were asked about starting a business during a crisis. These questions should clarify whether the start-ups correctly responded to the situation that arose or whether the idea to start had already arisen before the pandemic. Through follow-up questions, it will also become clear whether COVID-19 has hindered or accelerated the company's development. The interview continues by asking questions about the financing procedures the company has gone through and may still have to go through. It is interesting to see what kind of investments the start-ups have made and the reason behind them.

Start-ups can go through rapid development and growth, which is why future-oriented questions were asked during the interviews, but also questions focused on the past. They should have done things differently. Did they grow too fast due to too much demand? In times of COVID-19, companies in the Netherlands benefited from an aid package. The interview concludes with some questions about government support in the Netherlands in stimulating and creating a good start-up climate.

As mentioned earlier, a transcription was made of each interview conducted. To collect the most essential information from all these transcriptions so that any connections or striking features emerge, a coding scheme was used (see Figure 3). The coding scheme in Figure 3 has been drawn up as a summary resulting from the overall document, part of which can be found in Appendix 2. The diagram in Appendix 2 is made up of several steps. On the left-hand side, you can see that it starts with the main topics (Aggregate dimension) as they were discussed earlier. Then the corresponding questions are listed (Second-Order Themes). From the transcriptions, the answers to the questions can then be placed under the heading First-Order Concepts, then they can be coded, this is done based on the In-Vivo Codes method. In-Vivo Coding is a form of qualitative data analysis that emphasises the actual spoken words of the participants (Manning, 2017). Each interview has its letter, each question has its number. If the same answer is given in several interviews, code can also be applied to the First-Order Concepts concerned. The result of this may be that the same answers are given in several interviews, which may therefore lead to a link. In addition, contradictions can be quickly found and noted.

The next step to be taken after processing all transcripts in the diagram is to summarise this in Figure 3, corresponding answers from the collection document can be merged here. General statements are placed below the bolded main topics and then ticked in the relevant interview. As a result, you get a much clearer view of the answers given and conclusions can be drawn more quickly. The results of the interviews will be discussed further in the next chapter.

Figure 3 is finally completed on the basis of the data obtained from the interviews. The top line in the diagram shows the company interviewed. In order to guarantee anonymity, the companies concerned have been given a letter (see, for example, company "A"). It is then indicated for each company when the company was founded, this can be taken into account whether the company was founded before or during the pandemic. After that, the collected data will be continued, and the questions from the interview are divided into sub-topics such as the background of the company and why the company started during the pandemic. If the companies gave the same answers, a cross can be put for those companies in the relevant column. As a result, you can eventually easily read a pattern with which answers can be given to certain situations. Later, during the data analysis, the completed scheme will be discussed. So far, Figure 3 lists companies A to D, eventually, this will be A to H since a total of 8 different companies were interviewed.

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#### Figure 3: Coding scheme

Company	А	В	С	D
Launching year				
Background				
Starting a company in times of crisis				
First funding process				
Sources of funding for further development				
Reason for type of external funding source				
Differentiating factor in terms of obtaining funding from competitors				
Government support				
Future investment sources/perspective				
Looking back on two years of pandemic				

#### 3.1.2 Quantitative research: Survey sample

The data for the quantitative part of this study was collected using an online survey. This survey was conducted between 8 June and 20 July 2022. The survey was first distributed via LinkedIn, in addition, start-ups were approached by e-mail. The data of the approached companies were collected via the website Techleap.nl. This website searched for start-ups in the Netherlands that were established between 2019 and 2022. These companies were approached via an email or contact form on their website, asking them to fill in the survey and thereby participate in the research. This resulted in 150 completed surveys. Of these 150 completed surveys, eight surveys were declared not valid as these startups were established before 2019. The table below shows how the sample is structured. As with approaching the start-ups for an interview, the start-ups approached to participate in the survey were also approached in groups, through Techleap's website, it is possible to filter on investment opportunities. To ensure that participation was as high as possible, a reminder was sent after 2 weeks.

The survey could be completed via the Qualtrics website. From this website, the collected results could be downloaded to an Excel file, from where the data could be loaded into the analysis programme IBM SPSS Statistics 28. The frequency tables, see tables and appendixes below, were then prepared. Before we could start looking for correlations between the various variables, they were first made measurable, how this was done is explained in the next paragraph.

Table 3 shows that over one-third of the participating start-ups were established just before the pandemic. The remaining part was established during the pandemic. It will be interesting to explore this further in the study. Especially the start-ups that were founded just before the crisis, which got them through the crisis.

Descript	ive statistics		
	Year of establishing	Frequency	Percentage
2019		54	38
2020		53	37.3
2021		31	21.8
2022		4	2.8
Total		142	100

Table 3: Survey frequency – Year of establishing

Table 4 shows that about two-thirds of the participating start-ups have already made at least one investment round. This might already be the first sign that the start-ups investigated in this study have not been hampered in bringing in investment sources and may have actually benefited from the pandemic.

Table 4: Survey frequency - Investment rounds

Investment rounds	Frequency	Percentage
0	52	36.6
1	52	36.6
2	33	23.2
3	3	2.1
4	2	1.4
Total	142	100

Table 5 shows that more than half of the participating start-ups are still in a start-up/development phase. This, of course, seems quite logical at first because the companies have not existed for very long. However, some start-ups have grown very quickly in such a brief time. The cause of this will be further investigated in this study.

Table 5:	Survey freque	ency - Stage	of growth
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Stage of growth	Frequency	Percentage
Pre-Seed Stage	27	19.0
Seed Stage	44	31.0
Early Stage	38	26.8
Growth Stage	30	21.1
Expansion Stage	2	1.4
Exit Phase	1	0.7
Total	142	100

Table 6 shows how many employees the participating start-ups have. These have been compiled on the basis of an assumed group distribution that is also used by CBS (Centraal Bureau voor Statistiek) and the Dutch Ministry of Social Affairs and Employment (Ministerie van Sociale zaken en Werkgelegenheid) in its studies<sup>10</sup>. It is immediately striking that more than half of the participating start-ups have fewer than ten employees. But also, two start-ups already have more than fifty employees. This study will further investigate how a start-up was able to grow so quickly in such a short time in times of crisis.

Employees	Frequency	Percentage
1-4	64	45.1
5-9	40	28.2
10-19	29	20.4
20-49	7	4.9
50-99	1	0.7
100 or more	1	0.7
Total	142	100

Table 6: Survey frequency - Employees

Two additional frequency tables (Tables 7 & 8) contain information about industries in which the start-ups are active and which sources of financing they have used in their investment rounds to date. In total, start-ups from twenty-one different industries participated in the survey. What is striking in Table 30 (Industry) is that in terms of participation, three industries stand out. Enterprise Software (N = 39 - 27,5%), Health (N = 18 - 12,7%), Food (N = 12 - 8,5%). Further on in this study, it will be investigated whether there is an explanation for the high level of participation from these specific industries. In Table 31, it is immediately noticeable that the participating start-ups used a diverse range of investment methods. Varying from 3F's to Venture Capital, but also combinations of these. This research will investigate if there is an explanation behind the use of a certain type of investment method.

<sup>&</sup>lt;sup>10</sup> Ministerie van Sociale Zaken en Werkgelegenheid. (2021, November 23). Arbo-kengetallen naar vestigingsgrootte. <u>https://wp.monitorarbeid.tno.nl/wp-content/uploads/2022/01/Rapportage-vestigingsgrootte.pdf</u>

 Table 8: Survey frequencies - Investment methods

Investment method	Frequency	Percentage
0	41	28.9
3F's	19	13.4
3F's   Convertible Debt	1	0.7
3F's   Private Equity	1	0.7
Angel Investment	15	10.6
Angel Investment   3F's	3	2.1
Angel Investment   Grant	2	1.4
Bank	4	2.8
Bootstrapped	2	1.4
Convertible Debt	2	1.4
Crowdfunding	2	1.4
Crowdfunding   Convertible Debt	1	0.7
Grant	15	10.6
Private Equity	7	4.9
Private Equity   Grant	1	0.7
Venture Capital	16	11.3
Venture Capital   3F's	2	1.4
Venture Capital   Angel Investment	5	3.5
Venture Capital   Angel Investment   3F's	1	0.7
Venture Capital   Private Equity	2	1.4
Total	142	100

Table 7:	Survey	frequencies	5 -	Industries
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Industry	Frequency	Percentage
Art	2	1.4
Dating	1	0.7
Education	3	2.1
Energy	8	5.6
Enterprise Software	39	27.5
Fashion	2	1.4
Fintech	8	5.6
Food	12	8.5
Gaming	1	0.7
Health	18	12.7
Home living	4	2.8
Jobs recruitment	5	3.5
Marketing	8	5.6
Media	4	2.8
Real estate	5	3.5
Robotics	6	4.2
Security	3	2.1
Tourism	1	0.7
Transportation	5	3.5
Travel	6	4.2
Wellness	1	0.7
Total	142	100

#### 3.2 Measures

In this research (quantitative part) there were three parts to the survey instrument (dependent variables). The first part of the survey consisted of questions about whether the start-ups had made use of external sources of funding and, if so, which ones. The response options were "Yes" or "No." In SPSS, these response options were converted to dummy variables. Namely, "Yes = 1" and "No = 0". The second part of the survey consisted of measuring how founders/owners of start-ups perceived COVID-19 as affecting their business, investment strategy, opportunities for external funding sources, and their outlook on the future of their business. The answers could be given based on a 5-point Likert scale (Fully Disagree to Fully Agree). The purpose of the last part of the survey was to be able to map out how many investments rounds they have done in total, as well as explicitly during the COVID-19 pandemic, the amount of government support they have received, and how much they expect to raise in a next investment round. These questions could be answered through open answers. In short, three constructs have emerged within this survey, namely: Sources of Finance (SF), Influence of the Pandemic (IP), and Investment Capital (IC). The table below (Table 9) shows the different measurement constructions. Important to keep in mind are the industrial differences.

Table 9: Survey -	Measurements
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Construct	Code	Statement							
Sources of Finance	SF1	The start-up has used external sources of funding							
	SF2	The start-up has used the 3F's (Familiy, Friends, or Fouls) funding source							
	SF3	The start-up has used the Angel Investment funding source							
	SF4	The start-up has used the Venture Capital funding source							
	SF5	The start-up has used another funding source							
	SF6	The start-up has made use of a "COVID-19 support package" of the Dutch government							
	SF7	The start-up has experienced a growth during the COVID-19 period							
Influence of the Pandemic	IP1	The outbreak of the COVID-19 pandemic has affected the normal running of my business							
	IP2	The outbreak of the COVID-19 pandemic has reduced my ability to secure external funding sources							
	IP3	Thanks to the outbreak of the COVID-19 pandemic, I have had to change my entire future outlook							
	IP4	Thanks to the COVID-19 outbreak, I have actually seen new opportunities to further develop my business							
	IP5	COVID-19 has made us as a company more hesitant in approaching sources of funding							
	IP6	We managed to differentiate ourselves as a company from competitors during the pandemic							
	IP7	The investments through external funding sources during the COVID-19 pandemic were used to survive							
	IP8	The investments through external funding sources during the COVID-19 pandemic were used purely for growth							
	IP9	During the pandemic, we used investors' knowledge and experience to get through the crisis							
	IP10	In mid-2022 the crisis seems to be over; this is directly noticeable in the growth of the company							
	IP11	After COVID-19, investors are more willing to provide financing							
	IP12	The start-up is prepared to take more risk to attract external funding							
	IP13	The start-up needs meer investment rounds to exist or develop							
Investment Capital	IC1	The amount of external funding rounds in total							
	IC2	The amount of external funding rounds in total during COVID-19							
IC3 The amount of the governmental COVID-19 package									
	The amount of the first investment round								
	IC5	The type of investment							
	IC6	The average of all the funding rounds							
	IC7	The expected amount of the next investment round							

The above measurements (the dependent variables), Table 9, will be tested against the independent variables that have emerged from the literature, see Table 1. The constructs were measured with existing scales from the literature. Firm Size and Firm Age are applied to the independent variables. This should reflect a clear effect according to the proposition. Especially on Sources of Finance and Investment Capital. This corresponds how this has been investigated in the studies of Berger & Udel (1998) Cassar (2004), and Colombo & Grilli (2005). To be able to measure company size properly, the number of employees has been divided into categories, a total of six categories have been created. This is in line with how CBS and the Dutch Ministry of Social Affairs and Employment assumes it to be (1-4, 5-9, 10-19, 20-49, 50-99, 100 or more) see Table 6. In order to make the year counts measurable, each year gets its number from the beginning of 2019.

Investigating whether Asset structure has a positive influence on the possibilities of attracting external financing will have to be done according to the type of company. Not every company has tangible assets. However, this depends on the industry, but also on the company and the phase it is in. This will therefore have to be examined in greater detail. To be able to give a convenient answer to this question, it will be investigated during the interviews. This is in line with the way Cassar (2004), Harris & Raviv (1991), and Titman & Wessels (1998) have done their research.

Growth Intentions will also be classified on a 5- point Likert scale based on the phases the start-ups are currently in (Pre-seed to Exit phase). This will be used together to test the construct influence of the pandemic. This is in line with the research of Cassar (2004) and Michealas et al., (1999).

The interviews will be used in particular to test whether the character traits including experience and knowledge of the market influence the possibility of obtaining funding sources and steering their startup through times of crisis. The interviews are used for this because it is difficult to measure experience and knowledge by numbers. This also shows that a combination of qualitative and quantitative research can lead to deeper insights and is therefore particularly useful. This is in line with the research of Bates (1997), Cassar (2004), Coleman (1998), Scherr et al., (1993), Storey (1994),) and Verheul & Thurik (2001).

#### 3.3 Analysis

The theoretical model established in Chapter 2 is tested using both the results from the interviews and the surveys. In this research, there is both a qualitative and quantitative research method, as previously mentioned, the data collected from the interviews (qualitative research) is converted into usable data using a coding scheme (see appendix).

The results of the survey (quantitative research) were analysed in the SPSS programme. A significant role is played in this by making the different variables measurable (answers to the questions from the survey), see section 3.2. First of all, an analysis of the results of the survey, in general, will be started. This does not include industrial and company characteristics. Subsequently, correlations and cross tabs can be used to test mutual relationships. These can be used to show what differences there are between the industries and how the pandemic affects them. The results from the interviews (qualitative research) will be applied throughout the study, from the coding scheme, to confirm or deepen findings from the collected results with the aim of creating depth in this study.

#### 3.4 Examining start-up financing

According to the research of Cassar (2004), three deficiencies are associated with the majority of research specifically examining start-up financing. Namely, survivorship bias, lack of empirical testing of theories, and limited geographic or industry focus. In fact, survivorship bias is caused by the fact that the start-ups in the survey sample may not be fully representative of the population of start-ups at the time of creation (Cassar, 2004), the start-ups participating in the survey, of course, still exist at that time. The literature review also shows that a large proportion of start-ups cease to exist shortly after incorporation because there is no future in the company.

It may therefore be the case that the enterprises which still exist today and have participated in the survey have different characteristics than those which have since ceased to exist or have not participated in the survey at all. The study by Manigart & Struyf (1997) therefore also confirms that the longer the period into the survey of respondents and the actual start, the greater the influence of this bias on the results.

As in Cassar's (2004) study, start-ups with a year of establishment as close as possible to the pandemic will be approached in this study. This ensures that the possible sampling bias is reduced. The start-ups approached for the survey will have been established between 2019 and 2022. An exception may be made for conducting the interviews, to gain deeper insights between the situation before and during the pandemic.

Contrary to Cassar's (2004) research, several studies that test the financing of start-ups have tended to stay away from testable implications, being more descriptive. The studies by Carter & van Auken (1990) Shaffer & Pulver (1985), and van Auken & Carter (1989) therefore provide limited insight, in contrast to Cassar's (2004) research. Cassar's (2004) study tests, based on different theories, see previous sections, certain relationships to obtaining funding for start-ups. This study will do so in a comparable manner, it will test whether the COVID-19 pandemic played a significant role in this. Past research will be applied to a new type of situation, the outbreak, and associated changes of the COVID-19 pandemic.

Several empirical studies focused on the financing and capital structure of start-ups that only focus on a certain area or industry (Cassar, 2004). As a result, regional or industrial differences may be disregarded, and conclusions drawn too quickly or incorrectly. In this study, therefore, the Netherlands as a whole is included and it is considered whether it is possible to recognise regional differences. In addition, it indicates which industries are being discussed and considers assumptions from theory. This reduces the likelihood of misinterpretation and makes it interesting whether the assumptions made in the theory are also applied during this pandemic.

## 4. Results

This chapter discusses the results of this research. This concerns both the results from the interviews (qualitative research) and the results from the survey (quantitative research). These will be presented together with the aim of testing the proposition and answering the research question. As mentioned earlier, the dataset for the qualitative part consists of eight participants and the quantitative part of 150 participants. From the results of the survey, eight participations were removed as the year of establishment of their company was before 2019, thus resulting in a sample of 142. Table 2 shows how the interview sample is structured. Tables 3 to 8) show the frequency tables from the survey results.

First of all, descriptive statistics will be discussed, without considering the possible influences of certain variables. The measurement model is then tested using Cronbach's alpha. After that, multiple correlations between different variables are assessed. This is then followed by an assessment of the results at an industrial level. To conclude with an assessment of the results from the interviews. This then makes it possible to test the proposition.

#### 4.1 Goodness of the model fit

Looking at Techleap's research "The Dutch Tech Ecosystem and COVID-19", it is immediately noticeable that the categories of participants and percentages in both this research and Techleap's research are identical. In both frequency tables, see Table 7 and Figure 3 (Appendix 6), it can be seen that a large proportion of the participating start-ups are active in the "Enterprise Software of Health" industry. The other industries also have a similar percentage of participation in the surveys. In addition, the phase of growth in which the participating start-ups are in both studies is also similar. In both cases, see Table 5 and Figure 4 (see Appendix 6), most participating start-ups are still in the early stages of growth. In both cases, they are exactly in the phases where an investment round has just taken place or is planning to do one soon. These results make it even more interesting to see whether the start-ups founded between 2019 and 2022, which is the focus of this study, were better able to obtain funding and adapt their strategy to the pandemic outbreak than the start-ups that took part in the other study that did not take the year of foundation into account.

#### 4.2 Descriptive statistics

Tables 10 and 11 below show the descriptive statistics of both the independent and dependent variables which are dealt with in the quantitative section. The tables show a summary of the statistics for the data used in this sample. The dataset consists of 142 start-ups in the Netherlands established between 2019 and 2022. For the independent variable Industry (Asset structure), it is not possible to present a descriptive statistic in the interviews, the question of whether the investments were made to attract tangible assets can be specifically addressed. This can then also be used to measure the variable Industry (Asset structure). The variable "Entrepreneur's characteristic" will be tested based on the qualitative part. This is done because here the (co-) founders are discussed in more detail. For the descriptive statistics the mean, standard deviation, minimum, maximum, variance, skewness, and kurtosis are shown.

Looking at the results in Table 10 (independent variables), the results for the variable "Firm size" immediately stand out. The dataset contains start-ups with only one employee and also a company with five hundred employees. This also explains the high scores on the points Skewness and Kurtosis. During this study, it was examined whether the outliers, especially the high outlier of five hundred employees, had any influence. Looking at the variable Growth, it is striking that, on average, the start-ups are already at a fairly advanced stage of growth. A factor of 2.570 indicates that, on average, the start-ups founded between 2019 and 2022 are already in a phase between Seed Stage and Early Stage. This means that on average, the start-ups have made their first investment round and are now preparing to establish themselves in the market. Often, they are still busy with the final developments of the product and exploring the market, with the aim of making an enormous impact once the product is on the market. It should be noted, however, that the values for the factors Standard Deviation and Variance are also on the high side, which indicates that there are differences between them.

Descriptive statistics of start-ups in the Netherlands (N=142)									
Variable	Mean	SD	Min	Max	Variance	Skewness	Kurtosis		
Firm size	1,901	1,013	1,00	6,00	1,026	1,118	1,118		
Year of establishment	0,894	0,840	0,00	3,00	0,705	0,494	-0,690		
Growth	2,570	1,107	1,00	6,00	1,226	0,249	-0,584		

Table 10: Survey - Descriptive statistics - Independent variables

Table 11 shows the descriptive statistics of the dependent variables. In this table, it is not yet possible to see what influences the above independent variables, but also the Industry and Entrepreneur's characteristics have had, this will be examined later. First, therefore, we will present the overall picture after conducting the survey. Important when interpreting the results of Table 11 is the fact that, as mentioned in the previous chapter, the answers were made measurable.

From the first construct SF (Sources of Finance), the results of the two codes stand out immediately, namely the codes SF6 and SF7. Code SF6 contains the question: "During the COVID-19 pandemic, we as a company made use of a "Corona support package" from the Dutch government". The average answer to this question gives a very low score of 0,0986. This indicates that almost none of the start-ups participating in this survey made use of a COVID-19 support package from the government. This is in contrast to the Techleap.nl report where start-ups, regardless of the year of establishment, participated. The report indicated that many start-ups did need government support. The result for the other standout code, SF7, contains answers to the question: "Did you experience growth with the company during the COVID-19 period?". The mean for this answer gives a score of 0,746. This indicates that on average, growth is expected in times of COVID-19 for the start-ups established between 2019 and 2022. This is in line with the assumption in the literature that start-ups can benefit from an emerging crisis and experience rapid growth as a result.

Code SF1 is also an important indicator for the codes SF2 to SF5. It contains the average answer to the question: "As a start-up, have you used external sources of funding? The underlying codes SF2 to SF5 provide a specification by giving answers to the type of external source of funding. The value of 0,676 indicates that, on average, more than half of the start-ups have already used an external source of funding. This is in line with the assumption in the literature that start-ups are fast-growing companies and that they need funding and capital to survive and then develop.

The results for the second construct Influence of the Pandemic (IP) are based on a 5-point Likert scale. Based on the answers given, the entrepreneurs give an insight into how they have experienced the pandemic as a company, what influence it has had on their development and how they have adapted their vision of the future to this. A striking feature of the results for this construct is that all averages are between 2.2 and 3.5 (Disagree - Agree, with No opinion/Neutral as the middle ground). Looking at the variance, it is also striking that these values are on the high side. This indicates that there are differences between the participants when it comes to answering questions. It will therefore be investigated later in this study to what extent the independent variables have played a role in this and thus bring out the differences.

The last part of the descriptive statistics contains the results on the questions concerning the Investment Capital (IC) construct. The codes IC1 and IC2 answer the question of how often the startups made an investment round both in total and during the COVID-19 period. The difference between IC1 and IC2 (1,021 and 0,754) confirms that there are participating start-ups that have already made an investment round before the pandemic. This is logically explained as companies participating in the study that were established in 2019 and at the beginning of 2020. The other codes for this construct all contain open answers. It was decided to transform these answers into dummy variables. The codes IC3 to IC6 indicate whether an answer (a value) has been given to the questions or what amounts the startups have raised with their investment rounds. This will be discussed in more detail later. The last code, IC7, is an interesting one regardless of its missing value. It answers the question: "How much do you expect to need in your next investment round? The average value that emerges from the survey is 0,6761. This indicates that the vast majority of start-ups expect to make another investment round in any case. This is interesting to see as quite some start-ups have already done an investment round, more than half of them in the past. So, there is an expectation that the start-ups will still want to raise capital for further growth. The question of which industry and which type of company this specifically concerns will be further examined in the following paragraphs.

In short, the descriptive statistics from the results of the survey already provide the first view from practice that can be used to confirm findings from the literature.

Descri	Descriptive statistics of start-ups in the Netherlands (N=142)									
Code	Mean	SD	Min	Max	Variance	Skewness	Kurtosis			
SF1	0,676	0,470	0,00	1,00	0,221	-0,760	-1,442			
SF2	0,415	0,495	0,00	1,00	0,245	0,347	-1,907			
SF3	0,359	0,481	0,00	1,00	0,232	0,593	-1,672			
SF4	0,268	0,444	0,00	1,00	0,197	1,061	-0,887			
SF5	0,479	0,501	0,00	1,00	0,251	0,085	-2,021			
SF6	0,099	0,299	0,00	1,00	0,090	2,722	5,485			
SF7	0,746	0,437	0,00	1,00	0,191	-1,145	-0,698			
IP1	3,585	1,106	1,00	5,00	1,223	-0,584	-0,337			
IP2	2,761	0,952	1,00	5,00	0,907	0,248	0,068			
IP3	2,704	1,064	1,00	5,00	1,132	0,259	-0,602			
IP4	3,599	1,011	1,00	5,00	1,022	-0,628	-0,182			
IP5	2,310	1,040	1,00	5,00	1,081	0,654	-0,034			
IP6	3,549	0,927	1,00	5,00	0,859	-0,336	-0,043			
IP7	2,690	1,106	1,00	5,00	1,222	0,130	-0,590			
IP8	3,331	1,070	1,00	5,00	1,145	-0,343	-0,476			
IP9	2,261	1,056	1,00	5,00	1,116	0,485	-0,383			
IP10	2,880	1,048	1,00	5,00	1,099	0,018	-0,559			
IP11	2,570	0,870	1,00	5,00	0,757	-0,219	-0,287			
IP12	2,613	0,921	1,00	5,00	0,849	-0,034	-0,596			
IP13	2,655	1,143	1,00	5,00	1,306	0,306	-0,621			
IC1	1,021	0,926	0,00	4,00	0,858	0,610	0,023			
IC2	0,754	0,764	0,00	3,00	0,584	0,742	0,011			
IC3	0,120	0,326	0,00	1,00	0,106	2,368	3,658			
IC4	0,627	0,485	0,00	1,00	0,236	-0,530	-1,744			
IC5	0,711	0,455	0,00	1,00	0,207	-0,942	-1,128			
IC6	0,577	0,496	0,00	1,00	0,246	-0,317	-1,927			
IC7	0,676	0,470	0,00	1,00	0,221	-0,760	-1,442			

Table 11: Survey - Descriptive statistics – Dependent variables

#### 4.3 Measurement model

To be able to say something about the results of a study, it is important to be able to assess whether the data (measurement model) is reliable and valid (Tavakol & Dennick, 2011). Tavakol & Dennick (2011, p. 53) "validity is concerned with the extent to which an instrument measures what it is intended to measure. Reliability is concerned with the ability of an instrument to measure consistently." The testing of comprehensibility is closely related to the testing of validity, an instrument cannot be valid without being reliable. In this study, the research model will be tested using Cronbach's alpha. This is one of the most commonly used tests of reliability (Tavakol & Dennick, 2011). This research has three constructs, and each of these constructs has its indicators (codes). The constructs in this study are Sources of Finance (SF), Influence of the Pandemic (IP), and Investment Capital (IC).

#### 4.3.1 Cronbach's alpha ( $\alpha$ )

Travalkol & Dennick (2011, p. 53): "Cronbach's alpha is developed as a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1". Internal consistency describes the extent to which all items in a test measure the same concept or construct. It tests the connectedness and interdependence of the items within the test. If the items in the test are correlated with each other, the value of the alpha will increase. An important note here is that the length of the test affects the value of the alpha According to the research of Travalkol & Dennick (2011), a value above 0,700 is more than sufficient to be able to say that there is consistency between the items of the construct. A low alpha does not always mean that there is little connection between the underlying items. A low alpha can be caused by a small number of questions, poor inter-relatedness between items, or heterogeneous constructs. A too high alpha value (> 0,900) indicates that the test on the construct is too long and should be shortened.

Table 12 shows the alpha values of the constructs investigated in this study. The underlying items of the constructs tested can be found in Table 9. The values of the alphas may give a somewhat striking picture. The value for the construct SF (0,472) seems to be on the low side in this case (0,472 < 0,700). The SPSS print-out shows that this is not due to one of the underlying items, as the values for the item "Cronbach's alpha if Item Deleted" show little to no difference. Looking more closely at the type of questions asked in this construct, it can be seen that the underlying questions do not have to be related to each other. The value for the second construct IP (0.624) is just slightly lower than the required "reliable" value from Travelkol & Dennick's (2011) research, namely (0,624 < 0,700). The value from SPSS at the point of what happens when deleting also indicates that the underlying constructs are important. Because it concerns a minimal difference, with a large number of questions in this case (N=13), the internal consistency for this construct is considered reliable in this study. The alpha value for the last construct IC can be considered perfect. It is above the value from the aforementioned study (0,853 > 0,700) and is also below the maximum value that would lead to the reduction of questions (0,853 < 0,900). In short, the internal consistency and reliability of this construct can be considered good. The internal consistency and reliability of the three constructs can be considered reliable in this study.

Table 12: Reliability: Cronbach's alpha

Construct	Cronbach's Alpha
SF	0,472
IP	0,624
IC	0,853

#### 4.4 Correlation

In this section, several correlation matrices will be presented. A correlation matrix can be used to examine whether there is a relationship between the independent and dependent variables and also between each other. The correlation matrices will be treated according to the order of dependent variables as discussed during the methodology development.

#### 4.4.1 Sources of Finance (SF)

Table 13 shows the correlation matrix between the independent variable "Size" and the components of the construct (dependent variable) Sources of Finance (SF). The table immediately shows that there are several significant positive correlations between dependent and independent variables. The significant positive correlation between Size and SF1  $(0,260^{**})$  indicates that an increase in employees also indicates a higher expectation that the company has made use of external sources of funding. The significant positive relationship between Size, SF3  $(0,189^*)$  & SF4  $(0,437^{**})$  indicates that an increase in employees within a start-up leads to more frequent use of the founding source types Angel Investment and Venture Capital. Where the increase in employees correlates even more strongly with the use of Venture Capital. There is also a significant positive correlation between the number of employees within a company and the use of the support package from the Dutch government during the COVID-19 pandemic  $(0,266^{**})$ .

The findings from the field are consistent with earlier findings from the literature and the Techleap report. Indeed, the studies by Cassar (2004), Colombo & Grilli (2005), and Berger & Udel (1998) also confirm the assumption that the size of a firm in terms of the number of employees has a significantly positive influence on the use of external sources of finance. The Techleap report also indicated that it was Small and Medium Enterprises (SMEs) in particular that benefited from the support package, rather than tailored start-ups. The interviews conducted (see Appendix 3) confirm that start-ups often apply the type of investment of an Angel at an earlier stage, when they have not yet grown to such an extent, and then apply Venture Capital at a later stage. The reason for this, which is confirmed by both the interviews and the literature, is companies using the knowledge of the Angels. They are more involved in the investment and the further development of the company. Venture Capital investors often come in later when the company is at a more advanced stage of development and the risk of failure of the investment is much lower. It is noteworthy that there is a positive correlation, but not significant, between the number of employees and the fact that start-ups experienced growth during the pandemic.

Significant correlations can also be seen between the dependent variables themselves. Logically, there is a significant positive relationship between SF1 (whether the firm has used an external source of finance in the past) and the use of Angel Investment - SF3  $(0,330^{**})$  and/or Venture Capital - SF4  $(0,248^{**})$ , or another type of investment source - SF5  $(0,483^{**})$ . The finding from the literature and from the interviews that start-ups that have made use of Angel Investment also subsequently make use of Venture Capital is again confirmed here, namely a significant positive correlation of  $0,244^{**}$ .

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employee Size (Size)	1							
SF1	,260**	1						
SF2	0,082	0,156	1					
SF3	,189*	,330**	0,143	1				
SF4	,437**	,248**	-0,058	,244**	1			
SF5	0,080	,483**	-0,007	0,105	0,057	1		
SF6	,266**	0,128	,201*	-0,100	0,067	0,061	1	
SF7	0,152	0,046	-0,001	0,099	0,060	0,008	0,030	1
**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).								

Table 13: Correlation - SF - Size

Table 14 shows the correlation matrix between the independent variable "Age" and the components of the construct SF. There is only one significant correlation between the codes of the construct and the variable "Age". Namely, there is a significant negative correlation of -0,267\*\* between the age of the firm and the fact that the firm experienced growth during the pandemic. This means that younger start-ups did expect to grow as a result of the pandemic. This result is in line with the findings from the literature (Berger & Udel, 1998; Cassar, 2004; Colombo & Grilli, 2005). The study by Csath (2021) also indicates that start-ups may be less influenced in times of crisis and manage to profit from an emerging situation. The interviews we conducted also confirm this. The youngest participants in particular indicated that they profited from the situation by responding to the demand from society and the market. The result of this has sometimes been that they have had to deviate from their original idea. The contrast is even more noticeable in the interviews with start-ups that were already established before the pandemic. They indicated that they had been uncertain about the continuation of their business during the pandemic, in contrast to start-ups that were only established during the pandemic. It should be noted, however, that no industrial differences have been included in this study to date. These will be further specified later in this study.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year of Establishment (Age)	1							
SF1	0,003	1						
SF2	0,141	0,156	1					
SF3	0,007	,330**	0,143	1				
SF4	-0,057	,248**	-0,058	,244**	1			
SF5	-0,031	,483**	-0,007	0,105	0,057	1		
SF6	-0,128	0,128	,201*	-0,100	0,067	0,061	1	
SF7	-,267**	0,046	-0,001	0,099	0,060	0,008	0,030	1
**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).								

Table 14: Correlation - SF - Age

Table 15 shows the correlation matrix between the independent variable "Growth", and the components of the construct SF. Between the codes and the independent variable "Growth" two significant values can be read. First, there is a negative significant correlation of -0,201\*\* between "Growth" and the use of Angel Investment - SF3. This relationship corresponds to previously mentioned facts from both practice and literature. Start-ups in a younger/earlier stage often use an Angel first before moving on to a "bigger" source of investment". Angels often bring with them the knowledge and experience from the market that young companies and entrepreneurs need. In addition, there is a positive significant correlation of 0,193\*\* between "Growth" and the use of the COVID-19 support package from the Dutch government - SF6. This indicates that start-ups that have grown further have already built up more risks and may have been hit harder by the pandemic as a result. As a result, they had to make use of the support package during the crisis.

Table 15:	Correlation	- SF -	Growth
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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
Growth intention (Growth)	1									
SF1	-0,092	1								
SF2	-0,112	0,156	1							
SF3	-,201*	,330**	0,143	1						
SF4	0,091	,248**	-0,058	,244**	1					
SF5	-0,100	,483**	-0,007	0,105	0,057	1				
SF6	,193*	0,128	,201*	-0,100	0,067	0,061	1			
SF7	0,037	0,046	-0,001	0,099	0,060	0,008	0,030	1		
*. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).										

#### 4.4.2 Influence of the Pandemic (IP)

Table 16 shows the correlation matrix between the independent variable "Size" and the components of the construct (dependent variable) Influence of the pandemic (IP). It can be seen from the table that there is only one significant correlation between company size in terms of employees and codes concerning the impact of the pandemic. There is a significant positive correlation of 0,169\*\* between the size of the company and that growth has occurred as a result of the end of the pandemic - IP10. This means that larger companies in this study are more affected by the pandemic than smaller companies. This is in line with the studies of Berger & Udel (1998), Cassar (2004), and Colombo & Grilli (2005). In these studies, it was also assumed that smaller companies can suffer less from a crisis than larger companies. They can be more creative than larger companies, they need fewer adjustments (Williams et al., 2017).

It is also striking that there are negative associations between the size of the start-up and IP. Despite this, there is a positive correlation (0,159), albeit not significant, between company size and the impact COVID-19 has had on normal business operations - IP1. Exactly as indicated in the study by Williams et al. (2017). Creativity can play an important role in this. From the interviews, see Appendix 3 - coding scheme, it is also confirmed that the vast majority of the interviewed start-ups have not been influenced in the day-to-day business. The companies concerned are start-ups with few employees. So, for the time being, a brief conclusion can be drawn that larger start-ups are more affected by the COVID-19 pandemic than smaller start-ups. However, it is important to bear in mind that there can be large differences between the industries. These differences will be further investigated during this study.

Between the codes of the independent variable Influence of the Pandemic, a large number of significant relationships can be read from the table. The table shows the mutually positive correlation between start-ups affected by COVID-19 in their normal course of business (IP1) and the difficulty in attracting external financing sources (IP2)  $-0.235^{**}$ . As a result, they had to adjust their view of the future (IP3)  $-0.256^{**}$ . However, it is not the case that the start-ups affected in their day-to-day business have been able to take advantage by seizing new opportunities for further development (IP4) -0.094. On the other hand, they have had to use the investments they have been able to get to survive as a business being (IP7)  $-0.242^{**}$ . They, therefore, need more investment rounds to survive or to develop further (IP13)  $-0.206^{**}$ . The opposite is visible in the start-ups that have managed to take advantage of the new opportunities (IP4) and the fact that they have used the investments just to grow (IP8)  $-0.229^{**}$ . The start-ups that have made use of the emerging opportunities (IP4) are also the start-ups that have managed to distinguish themselves from competitors in times of COVID-19 (IP6)  $-0.290^{**}$ .

The correlations below show that, now that the pandemic seems to have ended, the market situation has also changed in terms of financing. The correlation between the feeling that the pandemic now is over and that there is immediate growth (IP10) has a significant correlation with both the feeling that investors are willing to take more risk when providing financing (IP11) and also the start-ups themselves, be ready to take more risks in attracting external financing (IP12). Namely a positive correlation of 0,309\*\* and 0,348\*\*.

The results of the interviews also confirm the above results regarding the impact of the pandemic in general. The start-ups that have not been affected by the pandemic have benefited from the opportunities that have arisen. However, for all start-ups, the pandemic has impacted the success of their business. To which industry this applies will become apparent later in this study when more industry-specific considerations will be taken.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Employee Size (Size)	1													
IP1	0,159	1												
IP2	-0,128	,235**	1											
IP3	-0,021	,317**	,322**	1										
IP4	0,058	,256**	-0,005	,284**	1									
IP5	-0,085	0,094	,312**	,192*	0,092	1								
IP6	-0,078	0,051	-0,019	0,116	,290**	-0,148	1							
IP7	-0,008	,242**	,320**	,289**	0,135	,195*	-0,006	1						
IP8	0,155	0,093	-0,130	-0,163	,229**	-0,131	0,094	-,230**	1					
IP9	0,110	-0,065	0,119	0,107	-0,021	,197*	-0,089	0,033	0,067	1				
IP10	,169*	0,116	,184*	0,044	0,081	0,080	0,002	0,084	0,004	0,118	1			
IP11	-0,081	-0,025	,175*	0,046	-0,044	,274**	0,048	0,097	-0,052	,238**	,309**	1		
IP12	-0,125	0,133	,225**	0,049	-0,069	,274**	-0,056	,174*	-0,042	,243**	,348**	,463**	1	
IP13	-0,085	,206*	,197*	,266**	0,020	0,156	-0,041	,257**	0,042	,175*	-0,011	0,135	,310**	1
**. Correlation is significant at	the 0.0	l level (2	2-tailed).	*. Corre	elation is	significa	ant at th	e 0.05 le	vel (2-ta	iled).				

Table 16: Correlation - IP - Size

Table 17 shows the correlation matrix between the independent variable "Age" and the components of the construct Influence of the pandemic (IP). The table shows that there is one significant correlation between the independent variable "Age" and one of the codes of the dependent variable IP. The number of years the company has been in business as of 2019 has a significant negative correlation with the impact the pandemic has had on the day-to-day business of the company (IP1)  $- 0,200^*$ . This means that the older the company is, the more it has been affected by the pandemic in its day-to-day operations. This is a negative relationship because of making the years measurable. As is known, the year 2019 has been given the value "0" (starting point), from which it goes up by one point every year. Furthermore, based on the rest of the table, the age of the table appears to have had a minor impact on the impact of the pandemic on the company. It may therefore still be the case that there are many industrial differences.

Table 17:	Correlation	- IP - Age
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	(1)	(2)	(2)	(4)	(5)	$(\mathbf{C})$	(7)	(0)	(0)	(10)	(11)	(10)	(12)	(1.4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Year of Establishment (Age)	1													
IP1	-,200*	1												
IP2	0,048	,235**	1											
IP3	-0,091	,317**	,322**	1										
IP4	-0,025	,256**	-0,005	,284**	1									
IP5	0,013	0,094	,312**	,192*	0,092	1								
IP6	0,030	0,051	-0,019	0,116	,290**	-0,148	1							
IP7	-0,097	,242**	,320**	,289**	0,135	,195*	-0,006	1						
IP8	0,016	0,093	-0,130	-0,163	,229**	-0,131	0,094	-,230**	1					
IP9	0,135	-0,065	0,119	0,107	-0,021	,197*	-0,089	0,033	0,067	1				
IP10	-0,031	0,116	,184*	0,044	0,081	0,080	0,002	0,084	0,004	0,118	1			
IP11	-0,014	-0,025	,175*	0,046	-0,044	,274**	0,048	0,097	-0,052	,238**	,309**	1		
IP12	0,020	0,133	,225**	0,049	-0,069	,274**	-0,056	,174*	-0,042	,243**	,348**	,463**	1	
IP13	0,073	,206*	,197*	,266**	0,020	0,156	-0,041	,257**	0,042	,175*	-0,011	0,135	,310**	1
**. Correlation is significant at	the 0.0	l level (2	2-tailed).	*. Corre	elation is	signific	ant at the	e 0.05 le	vel (2-ta	iled).				

Table 18 shows the correlation matrix between the independent variable "Growth" and the components of the construct Influence of the pandemic (IP). It can be concluded from the table that there are significant correlations between the variable "Growth" and codes of the construct IP. There is a significant positive correlation between the stage of growth and the feeling that COVID-19 has caused start-ups to become more hesitant in attracting funding sources (IP5)  $-0,203^*$ . This means that the further the start-ups are in their growth phase, the more hesitant they are in raising capital tomorrow. This is in line with the literature (Cassar, 2004; Korityak & Fichtel, 2012; Michealas et al., 1999) which indicates that start-ups that are more advanced in their growth phase may have more risks and are therefore less likely to make hasty decisions. In addition, they often have already completed one or more investment rounds and they may not need to do another investment round. They already have the knowledge and experience of their previous investment round(s) and, partly due to the outbreak of the crisis, they are more cautious about attracting financing again.

The interviews also indicate that to be able to receive investment at all, as a start-up you must be very well prepared. And even if you have already secured investment in the past, it does not always have to be the case that financing is also self-evident the next time. In addition, start-ups also indicate that they initially want to continue developing responsibly after securing an investment. The next step in terms of the investment round could be that part of the company also has to be handed over. This is something that is not supported by every entrepreneur.

Table 18: Correlation - IP - Growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Growth intention (Growth)	1													
IP1	0,068	1												
IP2	0,043	,235**	1											
IP3	0,030	,317**	,322**	1										
IP4	0,073	,256**	-0,005	,284**	1									
IP5	,203*	0,094	,312**	,192*	0,092	1								
IP6	0,004	0,051	-0,019	0,116	,290**	-0,148	1							
IP7	-0,081	,242**	,320**	,289**	0,135	,195*	-0,006	1						
IP8	-0,101	0,093	-0,130	-0,163	,229**	-0,131	0,094	-,230**	1					
IP9	0,018	-0,065	0,119	0,107	-0,021	,197*	-0,089	0,033	0,067	1				
IP10	0,114	0,116	,184*	0,044	0,081	0,080	0,002	0,084	0,004	0,118	1			
IP11	0,094	-0,025	,175*	0,046	-0,044	,274**	0,048	0,097	-0,052	,238**	,309**	1		
IP12	0,003	0,133	,225**	0,049	-0,069	,274**	-0,056	,174*	-0,042	,243**	,348**	,463**	1	
IP13	-,191*	,206*	,197*	,266**	0,020	0,156	-0,041	,257**	0,042	,175*	-0,011	0,135	,310**	1
**. Correlation is significant at	the 0.0	l level (2	2-tailed).	*. Corre	elation is	signific	ant at th	e 0.05 le	vel (2-ta	iled).				

#### 4.4.3 Investment Capital (IC)

Table 19 shows the correlation matrix between the independent variable "Size" and the components of the construct (dependent variable) Investment Capital (IC). The table shows that almost all codes for the dependent variable IC have a significant positive correlation with the independent variable "Size". An increase in the number of employees of a start-up also leads to an increase in the number of investments rounds the company has made (IC1) 0,380\*\*. This is logically explicable since a company grows with its investments, investments are going to develop and grow. This remains significantly positive for the number of investment rounds made by the participating start-ups during the pandemic (IP2), 0,207\*. This is in line with the research by Cassar (2004) which also found that start-ups still try to keep making their investments, despite a crisis. This can be due to several reasons, taking advantage of a problem and taking advantage of it or for survival as we saw in previous paragraphs. In addition, there is a significant positive correlation between the growth of a company in terms of the number of employees and whether the company has made a first investment round (IC4 & IC6), 0,271\*\* & 0,227\*\*. As indicated earlier during the methodology, a dummy variable has been created for this code to initially measure whether an investment round has been made. It strongly depends on the type of company/industry and how much money is raised with an investment round. What is striking about the correlation matrix (Table 19) is the fact that there is virtually no correlation between the size of the company in the form of the number of employees and the expectation to make an investment round quickly (IC7), -0.008.

There are also significant positive correlations between the dependent variables. It is not surprising that in this study there is a significant positive correlation between making an investment round in the general existence of a start-up (IC1) and doing an investment round during the COVID-19 pandemic (IC2), 0,729\*\*. The start-ups participating in the survey were established between 2019 and 2022, and the completed surveys that did not meet this requirement were filtered out before analysing the results. Start-ups that have made an investment round during the pandemic (IC2) expect to also make an investment round in the near future (IC7), 0,329\*\*. This shows that the start-ups are undergoing rapid development and expect to be able to continue this in the near future through an additional investment round. This is in line with how a start-up develops according to the theory. As in the previous correlation, industrial ratios have not been considered. These will be further investigated later in this study.

The above findings are confirmed from the interviews, see Appendix 3. Investments are made to grow. The start-ups that have recently made an investment round have in mind to do another in the future. However, it should be noted that doing and preparing the investment round takes a lot of time, often it takes a year before the entire cycle is completed. The advantage indicated by start-ups that have already made an investment round before the pandemic is that in some cases they can once again turn to an earlier investor, who will join them in the development.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)				
Employee Size (Size)	1											
IC1	,380**	1										
IC2	,207*	,729**	1									
IC3	0,144	0,133	,176*	1								
IC4	,271**	,696**	,649**	0,150	1							
IC5	,261**	,638**	,569**	0,091	,761**	1						
IC6	,227**	,668**	,603**	0,140	,843**	,745**	1					
IC7	-0,008	,358**	,329**	0,116	,493**	,356**	,474**	1				
**. Correlation is significant at the 0.01 level (2-	**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).											

Table 19: Correlation - IC - Size
Table 20 shows the correlation matrix between the independent variable "Age" and the components of the construct Investment Capital (IC). It can be seen from the table that no significant correlations can be derived between the independent variable "Age" and the components of the construct IC. On the other hand, most correlations are negative. In this case say that the older a company is, the greater the correlation with doing an investment round, both before (IC1), -0,107 and during the pandemic (IC2), -0,096. This is logically explicable since the scope of this research consists of start-ups founded between 2019 and 2022.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			
Year of Establishment (Age)	1										
IC1	-0,107	1									
IC2	-0,096	,729**	1								
IC3	-0,083	0,133	,176*	1							
IC4	-0,028	,696**	,649**	0,150	1						
IC5	0,050	,638**	,569**	0,091	,761**	1					
IC6	-0,006	,668**	,603**	0,140	,843**	,745**	1				
IC7	0,146	,358**	,329**	0,116	,493**	,356**	,474**	1			
**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).											

Table 20: Correlation - IC - Age

Table 21 shows the correlation matrix between the independent variable "Growth" and the components of the construct Investment Capital (IC). Two significant correlations between the independent variable "Growth" and codes of the IC construct can be derived from the table. There is a significant positive correlation between the growth phase a start-up is in and whether people have used the corona support package from the Dutch government (IC3), 0,183\*. This, therefore, indicates that more established start-ups (based on the growth stage they are in) have made more rapid use of a support package. This again confirms findings from the literature. These start-ups already have more risks, which means that they have had to switch to the support package in order to survive as a company. The other significant correlation concerns a significant negative correlation between "Growth" and the start-up's near-future investment round (IC7), -0,229\*\*. This means that start-ups that are already in a more advanced stage of growth are less likely to enter into an investment round, so there is no need to do another "quickly". During this research, it will be investigated whether this applies to all industries or whether there are also differences between them.

Table 21:	Correlation	- IC -	Growth
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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			
Growth intention (Growth)	1										
IC1	0,071	1									
IC2	-0,017	,729**	1								
IC3	,183*	0,133	,176*	1							
IC4	0,003	,696**	,649**	0,150	1						
IC5	-0,065	,638**	,569**	0,091	,761**	1					
IC6	-0,075	,668**	,603**	0,140	,843**	,745**	1				
IC7	-,229**	,358**	,329**	0,116	,493**	,356**	,474**	1			
*. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).											

## 4.5 Industry (Asset structure)

Several interesting findings have already emerged from the previous sections. Some of these results are in line with the findings from the literature and prepared reports. However, the influence of the various industries has also been mentioned several times. In this paragraph, we will look at what influence an industry/type of company has had on the results. This will be investigated based on the three constructs drawn up Sources of Finance (SF), Influence of the Pandemic (IP), and Investment Capital (IC).

In total, start-ups from twenty-one different industries participated in the survey. Only a small number of start-ups from some industries have participated. In order to be able to make a meaningful assessment, industries with at least eight start-ups participating will be investigated further. This amounts to the top six. These are Enterprise software (N=39), Health (N=18), Food (N=12), Energy (N=8), Fintech (N=8) & Marketing (N=8). This represents 65.5% of the start-ups participating in the survey (93 out of 142). The total overview of the number of participating start-ups per industry can be found in Table 7.

#### 4.5.1 Sources of Finance

Appendix 6 Tables 32 & 33 show the total lists of answers given and converted into percentages on the first construct Source of Finance (SF) by Industry. In the tables below, Table 22 & Table 23, as indicated in the introduction, the focus is more on the industries most of the participants in this study are in. The purpose of this is to be able to investigate whether the type of industry influences the choices that are made about the Sources of Finance construct. Looking at the first code SF1, "Has the start-up used external investment sources", the average of all participating start-ups is 67.6% who have done so. The high percentages for the industries "Food" (75.0%), "Health" (94.4%) and "Marketing" (75%) is striking. Their percentages are well above average, indicating that these are capital-intensive companies. The industry "Enterprise software" also stands out because of the low percentage that used an external investment source, only 53.8%, which is well below average. The results of "Other industries" are in line with the overall average.

The codes SF2 to SF5 indicate the results on the type of investment source used. It is noteworthy in code SF2 that the industries "Energy" (25.0%) and "Fintech" (25.0%) made little use of the investment source 3Fs (Family, Friends, or Fools). This also is a logical explanation since these are industries in which a lot of money circulates. It is then often not interesting for these start-ups to use this way of investing because they need larger investments. The categories "Food" (58.3%) and "Marketing" (50.0%), on the other hand, score higher than the average. The other industries studied for this code all scored around the average of 41.5% which did make use of the investment source 3Fs.

Of the participating start-ups, 35.9% used the Angel Investment (SF3) investment source. Looking at Table 20, industrial differences can be seen. In the industry categories "Fintech" (62.5%) and "Health" (55.6%), more than half of the start-ups did use the investment source Angel Investment. These results, therefore, confirm that whether a company makes use of this type of investment source depends very much on the type of industry it is in.

The result that industries have used the investment source Venture Capital (SF4) also gives some results that stand out. Most start-ups have not yet used this investment source. Venture Capital is more common among start-ups that are already established on the market. The investors of this source often invest in less risky companies. Whereas for all industries 26.8% of the start-ups have used Venture Capital, these percentages are much higher for the industries "Fintech" (62.5%), "Health" (50.0%), and "Energy" (37.5%). It is noteworthy that two out of three industries also scored high on the investment source Angel Investment. The other industries score around the average. It is also noteworthy that no company within the industry "Marketing" (0.0%) has made use of Venture Capital.

Sources of Finance	Sources of Finance per Industry															
		<u>S</u>	F1			<u>S</u>	F2			<u>S</u>	F3			SI	74	
Industry		No		Yes		No		Yes		No		Yes		No		Yes
Energy	3	37,5%	5	62,5%	6	75,0%	2	25,0%	7	87,5%	1	12,5%	5	62,5%	3	37,5%
Enterprise software	18	46,2%	21	53,8%	23	59,0%	16	41,0%	21	53,8%	18	46,2%	31	79,5%	8	20,5%
Fintech	3	37,5%	5	62,5%	6	75,0%	2	25,0%	3	37,5%	5	62,5%	3	37,5%	5	62,5%
Food	3	25,0%	9	75,0%	5	41,7%	7	58,3%	9	75,0%	3	25,0%	8	66,7%	4	33,3%
Health	1	5,6%	17	94,4%	11	61,1%	7	38,9%	8	44,4%	10	55,6%	9	50,0%	9	50,0%
Marketing	2	25,0%	6	75,0%	4	50,0%	4	50,0%	7	87,5%	1	12,5%	8	100,0%	0	0,0%
Other industries	16	32,7%	33	67,3%	28	57,1%	21	42,9%	36	73,5%	13	26,5%	40	81,6%	9	18,4%
Total	46	32,4%	96	67,6%	83	58,5%	59	41,5%	91	64,1%	51	35,9%	104	73,2%	38	26,8%

Table 22: Sources of Finance per Industry 1

Table 23 shows how the various industries responded to the question of whether they used any other type of investment source in addition to the previously mentioned sources of financing. On average, 47.9% of the participating start-ups used a different type of investment source. On an industrial level, the results of "Health" (94.4%) and "Marketing" (75.0%) stand out. The explanation behind the fact that in the industry "Health" other sources of funding were used is confirmed by the results of the interviews. These indicate that in times of COVID-19 there was such a need for a quick solution that a lot of financing was possible. The government provided all kinds of loans, banks were prepared to invest in this, and subsidies were available. The results for the rest of the surveyed start-ups are equivalent to the average. Yet again, the type of industry does influence the type of answers given.

The value for code SF6 indicates how many of the start-ups have made use of a COVID-19 support package from the Dutch government. Overall, only 9.9% of participating start-ups used this option. It should be noted that not every company was eligible. On an industry level, it is notable that several start-ups are above the average percentage, but that the results of the industry "Fintech" (0.0%), "Enterprise software" (5.1%), and "Health" (5.6%) ensure that the overall average is low. It may therefore be the case that, partly due to the situation that has arisen, this type of company has been able to manage without aid. Or they may have benefited from the demand at the time. For the start-ups in the "Health" industry, this is logical to explain. Because they were established around the pandemic, it can be assumed that they were established as a result of the pandemic. The interviews show that it is also possible that they have moved away from the original idea and adapted it to the question at that time. This turned out to have been a great success.

The final code of the construct SF tests whether the start-ups have experienced growth during the pandemic. No less than 74.6% of the start-ups have experienced growth. This corresponds with the expectations from the literature that start-ups can distinguish themselves during times of crisis. Looking at the industrial level, the industries "Energy" (100.0%) and "Marketing" (87.5%) stand out above average. It is difficult for the "Energy" industry to estimate whether COVID-19 has specifically played a critical role in its growth in times of the pandemic. This is because of the development around the environment that has been going on in any case in recent years because it is a subject that is highly regarded among start-ups and in society. The "Marketing" industry, on the other hand, has been positively impacted in its growth by the outbreak of the pandemic. People were not allowed to leave their homes much anymore and shops were closed. The result of this was an enormous increase in online sales. Companies had to be easy to find in this, marketing became crucial in this. Striking is the number of Fintech companies in this survey that think they have experienced growth, only 50.0%. In times of crisis, companies may become more hesitant and therefore postpone their investments. As a result, these companies are less popular. In general, despite some industry differences, it can certainly be concluded that most companies have experienced growth and that the type of industry the company is in has been a multiple factor in this.

Sources of Finance per Industry												
		S	F5			SI	<u>76</u>			2	5F7	
Industry		No		Yes		No		Yes		No	Yes	
Energy	5	62,5%	3	37,5%	7	87,5%	1	12,5%	0	0,0%	8	100,0%
Enterprise software	25	64,1%	14	35,9%	37	94,9%	2	5,1%	5	12,8%	34	87,2%
Fintech	4	50,0%	4	50,0%	8	100,0%	0	0,0%	4	50,0%	4	50,0%
Food	8	66,7%	4	33,3%	10	83,3%	2	16,7%	3	25,0%	9	75,0%
Health	1	5,6%	17	94,4%	17	94,4%	1	5,6%	5	27,8%	13	72,2%
Marketing	2	25,0%	6	75,0%	7	87,5%	1	12,5%	1	12,5%	7	87,5%
Other industries	29	59,2%	20	40,8%	42	85,7%	7	14,3%	18	36,7%	31	63,3%
Total	74	52,1%	68	47,9%	128	90,1%	14	9,9%	36	25,4%	106	74,6%

Table 23: Sources of Finance per Industry 2

#### 4.5.2 Influence of the Pandemic

Appendix 7 Tables 34 & 35 show the total lists of answers given by the mean and standard deviation on the second construct Influence of the Pandemic (IP) by Industry. Table 24 gives a more specific view, as in the previous section, the focus will be on a number of industries where participation was high. The answers to this construct could be given on the basis of a 5-point Likert scale (Fully disagree to Fully agree). The first code is immediately an interesting one, namely whether the start-ups have been affected by the COVID-19 outbreak in their daily business (IP1). On average, the start-ups have been affected (3,585), however, the value for all start-ups measured has a high standard deviation (1,106). This indicates that there are major differences between the start-ups, which is also confirmed by the value of the Variance (1,223). The average value for the industry "Fintech" (2,750) is striking and well below average. This industry has little influence on their daily business. An explanation for this could be that this industry takes place online, and the need to meet physically is probably less in this industry. The industries "Energy" (3,750) and "Marketing" (3,875), on the other hand, say they are definitely influenced in their daily business. As indicated earlier in this study, they had to change their way of working due to the outbreak of the pandemic. The other industries are around the average, which indicates that they are affected, but it is not yet possible to conclude to what extent.

Start-ups can grow on the basis of investments. Code IP2 indicates whether the pandemic has affected the possibility of attracting external funding sources. Almost all values for this code lying around the average of the industries (2,761). This indicates that companies certainly do not agree with the statement and that the pandemic has not influenced them in attracting external capital. The industrial "Health" (2,278) suffered the least. This corresponds to the results from the interviews. They indicate that there was a rapid need for a vaccination product and that investments were made for this. Start-ups in this sector had easy access to capital, and social interest was an important player in this.

The emergence of a crisis can have a major impact on the future of a start-up. As a result, they may have to change their whole outlook (IP3). Looking at the average, this does not seem to be too bad (2,704). On an industrial level, differences can be seen. The "Fintech" industry (1,875) seems to be the most likely to disagree with the statement. The industry has not had to change its outlook as a result of the COVID-19 pandemic. This result also corresponds to the result for this particular industry for code IP1. The industry, therefore, does not seem to be affected in the current situation nor does it is affected in the future. Striking is the high average for the industry "Other industries" (3,122). With this value, they indicate that they have indeed had to adjust their vision of the future.

As tested in code IP3, the outbreak of the pandemic may have changed the picture of the future, this can be both positive and negative. Code IP4 is therefore testing whether the pandemic has created new opportunities and possibilities for the start-ups to further develop the company. On average (3,599), new opportunities and possibilities have certainly emerged as a result of the pandemic. In general, start-ups, therefore, seem to indicate that they have actually profited. At an industrial level, this is true for the industries "Energy" (3,750), "Enterprise software" (3,744), "Food" (3,833), and "Marketing" (4,000). It may have been expected that the value for the "Health" industry (3,389) would also be higher, as the COVID-19 pandemic is really a health crisis, and this could allow start-ups to benefit from the emerging situation. However, the value still indicates that the start-ups in this sector agree that it has brought opportunities and possibilities. Again, the value for the industry "Fintech" (2,625) is striking, as it is well below the average. Nevertheless, it is in line with previous results showing that the industry seemed unaffected and was able to continue as normal despite constraints in society.

Code IP5 tests whether the start-ups agree with the statement and whether they have become more cautious in attracting financing sources due to the pandemic. This code is in line with code IP2 on whether one has been given less opportunity to attract funding sources. The average of IP5 (2,310) indicates that the companies have not become more cautious. This certainly applies to the industries "Energy" (1,750), "Health" (1,778) and "Fintech" (1,625). Either they have been able to continue on the same footing as they were before the pandemic, or it has caused them to do the opposite of what was stated. They then seized the opportunity to attract financing. This seems to have been especially the case for the "Health" industry. This is also apparent from the interviews. It was also indicated earlier that it was possible for this industry to quickly obtain money to invest in research in the interests of society.

The "Marketing" industry, on the other hand, has a high value for this code (2,875) compared to the average. However, there is a high value of variation for these results (1,268), which indicates that there are indeed differences.

To survive and be successful as a start-up, it is important to know how to distinguish yourself from competitors in the same industry and market. Code IP6 measures how the companies from different industries are doing here. On average, the start-ups indicate that they have distinguished themselves from competitors during the pandemic (3,549). On the other hand, there are significant differences between the industries. The industries "Energy" (4,125) and "Marketing" (3,750) have high scores compared to the other industries. An explanation for this is the number of comparable companies in these markets. Because of this, you have to know how to distinguish yourself from others to be able to afford the survival of your company at all. The score for the industry "Fintech" (3,000) also shows a low value compared to the average and other industries. They indicate that they have had less need to distinguish themselves from competitors.

Table 24: Influence of the Pandemic - Industry 1

Influence of the Pandemic																			
			IP1			IP2			IP3			IP4			<u>IP5</u>			IP6	
Industry	Ν	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var									
Energy	8	3,750	1,035	1,071	2,625	0,518	0,268	2,500	1,069	1,143	3,750	0,707	0,500	1,750	0,463	0,214	4,125	0,641	0,411
Enterprise software	39	3,538	1,189	1,413	2,769	0,959	0,919	2,385	1,067	1,138	3,744	0,966	0,933	2,538	1,189	1,413	3,667	1,108	1,228
Fintech	8	2,750	1,282	1,643	2,250	0,886	0,786	1,875	0,835	0,696	2,625	1,188	1,411	1,625	0,744	0,554	3,000	0,535	0,286
Food	12	3,333	1,557	2,424	2,750	0,866	0,750	2,833	0,937	0,879	3,833	1,115	1,242	2,167	1,030	1,061	3,500	1,168	1,364
Health	18	3,556	0,984	0,967	2,278	1,018	1,036	2,611	1,145	1,310	3,389	1,195	1,428	1,778	0,732	0,536	3,333	0,907	0,824
Marketing	8	3,875	0,835	0,696	3,000	0,756	0,571	2,750	0,886	0,786	4,000	0,756	0,571	2,875	1,126	1,268	3,750	1,035	1,071
Other industries	49	3,755	0,947	0,897	3,000	0,979	0,958	3,122	0,992	0,985	3,571	0,935	0,875	2,469	0,981	0,963	3,510	0,739	0,547
Total	142	3,585	1,106	1,223	2,761	0,952	0,907	2,704	1,064	1,132	3,599	1,011	1,022	2,310	1,040	1,081	3,549	0,927	0,859

The literature and the follow-up of this research have already shown that it is possible for start-ups in times of crisis to use external financing sources for further development and growth, but these can also be used to survive in times of crisis. The codes IP7 and IP8 answer these two issues. Table 25 shows that on average the start-ups have not used the investments from external financing sources (IP7) to survive (2,690), but more to grow and develop (IP8) (3,331). For code SF7 (investing to survive) the values are also roughly around the average on an industrial level. Only the industries "Energy" (2,125) and "Fintech" (2,250) are well below the average. This may indicate that they may have used the investments more to survive. For code SF8 (investing to grow), two industries score above average, namely "Enterprise software" (3,538) and "Food" (3,833). They give the image for their industry that the investments in times of COVID-19 have certainly been made to be able to grow. The average across all industries also indicates this to a certain extent. Only for the "Marketing" industry, this is slightly lower (2,875). This corresponds to a logical explanation given the results earlier in this study. They have had to adapt a lot in times of this crisis. The emphasis on marketing online became even more pronounced. People had to participate in this change to continue to participate concerning to others.

When attracting financing, it only has to be that it is purely about the money. In several types of investment sources, the investors also bring knowledge and experiences that can be of great benefit to the start-ups. The code IP9 indicates to what extent the start-ups can identify with the question of whether the knowledge and experiences that investors bring with them have been used to get through the crisis. In general, this does not seem to have been the case (2,261). This is confirmed in some cases from the interviews and in some cases not. Many entrepreneurs make decisions based on their own experience and knowledge of the market. In some cases, they have had a business before and have learned a lot about making decisions. The value for the industry "Health" (2,000) is one of the striking results. The industry, therefore, indicates that it does not agree with the statement. This shows that they rebuke themselves for their own knowledge. This may be logical since they must have explicit knowledge to work in this sector. The other results are in line with the average.

The codes IP10 to IP13 are in line with each other and are all applicable to the situation now that the pandemic seems to be over. IP10 measures whether the start-ups notice that the pandemic seems to be over or whether this directly results in additional growth. Measured on average, it seems that startups agree with the statement (2,880). Measured industrially, there seem to be some differences. Indeed, the industries "Energy" (3,250), "Food" (3,333), and "Marketing" (3,375) seem to be very much in favour of this assumption. These industries indicated in the results for SF1 (impact on day-to-day business) that they were very affected in their day-to-day business. For these industries, it can now also be concluded that it is good that the pandemic seems to be over, and their focus can again be on growing their business. The industry "Fintech" (2,375) shows growth to a much lesser extent than the other industries as a result of the end of the pandemic. This may be due to the fact that, see previous results of this study, they have suffered less from the pandemic.

As a result of the end of an "uncertain time", it may also be the reason for investors to start investing again. Code IP11 measures whether start-ups agree with the statement of whether investors are willing to invest again as a result of the end of the crisis. On average, this is difficult to estimate (2,570) (neutral / no opinion). At the industrial level, there are indeed differences. The industry "Energy" (3,000) notices this. It may also be noted that the increasing extent to which investment in sustainable energy is encouraged by the Dutch government has an influence on investment in this sector. The industry "Health" (2,056), on the other hand, shows a much lower value. Earlier results already showed, and this is also confirmed in the interviews, that investments were made quickly in this sector, especially during the pandemic. At the time, social importance was strongly emphasized.

Where IP11 investigated the investor side, IP12 is more about the start-ups themselves. This code measures whether start-ups, now that the pandemic seems to be over, are willing to take more risks in raising financing. The average for all companies shows that companies do not completely agree with this or are mainly neutral about this (2,613). Perhaps this is because making an investment can always involve risks, but also because most of the companies in this study were founded in times of crisis. Times of crisis can bring risks, but you can also benefit from them. At an industrial level, this is also clearly visible and therefore no surprising results emerge. What is striking is the large division in the "Health" sector (1,428).

The last code for the construct IP measures of whether the start-ups agree with the statement whether the start-ups need more investment rounds in order to grow or survive. On average, the industries are quite neutral in this regard (2,655). However, it is immediately noticeable that the variation value is extremely high for every industry. This indicates that it is difficult to conclude whether this applies to each company in a specific sector. Making an investment depends on the specific business situation. This point will therefore be explored further in other parts of this study.

11111	uence o	I the I	anuen	uc																	
		<u>IP7</u>			<u>IP8</u>			<u>IP9</u>			<u>IP10</u>			<u>IP11</u>			IP12			<u>IP13</u>	
Ν	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var
8	2,125	0,991	0,982	3,000	1,309	1,714	2,500	1,414	2,000	3,250	0,707	0,500	3,000	0,535	0,286	2,750	0,707	0,500	2,750	1,282	1,643
39	2,821	1,121	1,256	3,538	0,969	0,939	2,256	1,093	1,196	2,821	0,970	0,941	2,564	0,852	0,726	2,615	0,907	0,822	2,769	1,366	1,866
8	2,250	0,886	0,786	3,250	1,165	1,357	2,500	1,069	1,143	2,375	1,061	1,125	2,125	0,835	0,696	2,125	0,835	0,696	2,125	1,126	1,268
12	2,667	0,778	0,606	3,833	0,835	0,697	2,583	0,900	0,811	3,333	1,073	1,152	2,583	0,515	0,265	2,750	0,622	0,386	2,583	1,084	1,174
18	2,833	1,200	1,441	3,111	1,183	1,399	2,000	0,970	0,941	2,667	1,085	1,176	2,056	0,802	0,644	2,389	1,195	1,428	2,667	0,970	0,941
8	2,875	1,126	1,268	2,875	0,991	0,982	2,250	1,165	1,357	3,375	0,916	0,839	2,625	0,916	0,839	2,375	0,916	0,839	2,375	1,061	1,125
49	2,674	1,179	1,391	3,265	1,095	1,199	2,204	1,040	1,082	2,837	1,124	1,264	2,755	0,947	0,897	2,775	0,925	0,855	2,694	1,045	1,092
142	2,690	1,106	1,222	3,331	1,070	1,145	2,261	1,056	1,116	2,880	1,048	1,099	2,570	0,870	0,757	2,613	0,921	0,849	2,655	1,143	1,306

Table 25: Influence of the Pandemic - Industry 2 641 D

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### 4.5.3 Investment Capital

Appendix 8 Table 36 show the total list of answers given and converted into the mean and standard deviation on the third construct Investing Capital (IC) by Industry. Tables 26 and 27 provide a more specific picture of a number of industries. For the codes IC1 and IC2, the participating start-ups could indicate how many investments rounds they have in total (IC1) and how many during the COVID-19 pandemic (IC2). For the other codes, IC3, IC4, IC6, and IC7, the start-ups could only indicate the quantity involved. Provided an amount other than zero was passed it got the value "1", on the other hand, it got the value "0", so it has been converted to a dummy variable. A dummy variable was also created for IC5, but this was not about numbers, but about the type of investment that was made.

The comparison between the results for the codes IC1 and IC2 is an interesting one. A difference in value between the two indicates that more investment rounds were made by the start-ups prior to the pandemic than during. Looking at the overall results, this indeed seems to be the case, for IC1 (1,021) and IC2 (0,754). At an industrial level, this also applies to any kind of industry. Nevertheless, it has made an investment round for a large part of the start-ups.

Code IC3 indicates whether the participating start-ups have made use of the COVID-19 support package from the Dutch government (0,120). It is immediately noticeable that the industries "Energy" and "Fintech" have not made use of this. In addition, the industry "Marketing" (0,250) seems to have made the most use of it on average. However, it naturally differs per company, and in which phase it is. However, it is interesting to see what amounts are involved here. Table 37 in Appendix 10 shows the average amounts applied per industry as a result of the granting of the COVID-19 support package. It is striking that there are major differences between the industries. For example, the industries "Enterprise software" and "Other industries" have remarkably high averages. It should be noted that the value for the variance is also high, which indicates that there are also major differences between the amounts obtained.

Investment Capital												
			<u>IC1</u>			IC2			<u>IC3</u>			
Industry	Ν	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var		
Energy	8	0,750	0,839	0,704	0,625	0,731	0,534	0,000	0,307	0,094		
Enterprise software	39	0,923	0,686	0,471	0,692	0,485	0,235	0,103	0,323	0,105		
Fintech	8	0,875	0,793	0,629	0,500	0,718	0,515	0,000	0,389	0,152		
Food	12	0,917	0,886	0,786	0,833	0,744	0,554	0,167	0,000	0,000		
Health	18	1,333	0,991	0,982	1,000	0,756	0,571	0,111	0,000	0,000		
Marketing	8	0,750	0,707	0,500	0,625	0,518	0,268	0,250	0,463	0,214		
Other industries	49	1,122	1,111	1,235	0,776	0,919	0,844	0,143	0,354	0,125		
Total	142	1,021	0,926	0,858	0,754	0,764	0,584	0,120	0,326	0,106		

 Table 26: Investment Capital – Industry 1

Code IC4 in Table 25 shows the extent to which the start-ups responded to the question of how much they raised with their first investment round. On average, there was a response of 0,627. So, on average more than half of the start-ups have passed it on. There are still differences at the industrial level. The industry "Health" (0,944) scores extremely high. The industries "Fintech" (0,500) and "Marketing" (0,500) again a lot lower. It is more interesting to see how much has been raised with the investment round, for this you can look at Table 38 in Appendix 9. It should be noted that in a number of cases the participating start-ups have indicated that they do not wish to pass on any amounts with regard to this study. That is why we have taken the average of the start-ups per industry that did answer this question.

On average, the participating start-ups have raised an amount of approximately 1.25 million euros with their first investment round. The high variation value in the total overview already indicates that there can be considerable differences between them. Looking at the industrial level, the averages for the industries "Enterprise software" (about 1.52 million) and "Health" (about 2.12 million) are immediately apparent. The fact that one industry needs more capital to be able to invest compared to others is also confirmed by the interviews. An example is buying/developing a device in the healthcare sector can of course entail enormous costs, in contrast to initially renting an office building for a marketing company. The same goes for developing software for companies in the enterprise software industry, which requires huge investments. It is striking that almost every start-up in the health sector has answered this question.

Code IC5 in Table 27 shows how many start-ups responded to the type of investment source they used in their rounds of investment. It is striking that this average (0,711) is higher than the average when asked how much they raised with their first investment round (0,627). Perhaps it is the case that start-ups do not want to lose everything. In any case, more than two-thirds of the start-ups have indicated which type of investment source they have used. The types of investment sources that have been applied per industry can be found in Table 41 in Appendix 10. Table 42 shows how the types of investment sources that 101 of the 142 start-ups answered the question about what type of investment source they used during investment rounds.

To date, this research has focused on three types of investment sources, 3Fs, Angel Investment, and Venture Capital. For the industry "Energy" ( $N = 5^*$ ) (\*The "N" is based on the number of start-ups that have answered the question of what kind of investment source they have used) it is striking that about 3 out of 5 start-ups, in any case, the investment source Venture Capital. The industry "Enterprise software" (N = 26) is striking in that many diverse types of investment sources have been used, but also combinations of sources. This, therefore, indicates that several investment rounds have taken place. In addition, this industry is the only one to include two start-ups that are financed through the "Bootstrapped" strategy. This means that everything is financed with money collected by us. The company creates money itself. The choice for this is substantiated on the basis of the interviews. Some entrepreneurs do not want to grow too fast, but above all, they want to outsource part of the company.

Another striking result applies to the "Health" industry (N = 16). Namely, ten of the sixteen startups have used either Angel Investment or Venture Capital or a combination of these. Just like during the interpretation of the IC4 code, this shows that large amounts are needed to make investments in this sector. The investment source 3F's, for example, simply seem to be unable to contribute enough for this. The influence of the pandemic may also have played a role in this because this sector had to quickly raise a large amount due to the social importance to be able to conduct the investigations. While in the industry "Health" the investment source Venture Capital is often applied, this way of investing is not applied at all in the industry "Marketing". This industry mainly uses "smaller" investment strategies. For the other industries, the types of investment sources appear to be fairly spread out.

Code IC6 gives an indication of the average of all investment rounds of the participating start-ups in this research. The average in Table 25 shows that 0,578 responded to this on average. Table 39 in Appendix 9 the weather in figures. The table shows that on average about 1.31 million euros was raised in overall investment rounds. This average is higher than the average for the first investment round (IC4). Strikingly, the averages for the top-3 industries in terms of investments in IC4 (Health, Enterprise software, and Fintech) all go down in IC6 and the other industries surveyed almost all go up. This indicates that the former industries may benefit from high seed capital in their first round of investment. Looking at the type of industry, this is also logically explicable. In order to get started at all, this type of industry requires a lot of money to start up and develop the product compared to other industries.

Where the codes IC4 and IC6 looked at the investment rounds that have already been made, code IC7 tests what the start-ups think they want to get in a future investment round. On average, 0.676 of the start-ups answered the question of how much they think they need and therefore plan to do another investment round anyway. Table 40 in Appendix 9 shows that at least 96 of the 142 participating start-ups are planning to conduct another investment round in the future. The average amount to be collected is approximately 3.7 million. A side note here is the high value for variation, which indicates large mutual differences. This high average is mainly caused by the "Health" industry (about 7.74 million). This immediately makes it by far the most capital-intensive industry in this study. Investigations in this industry remain an ongoing process and are continuously invested in. In addition, it can also be read from the table that other industries are also continuing to increase with what they have raised on average and what they expect to want to achieve in the next investment round.

Investr	nent Ca	apital									
	IC4			<u>IC5</u>			<u>IC6</u>			<u>IC7</u>	
Mean	SD	Var	Mean	SD	Var	Mean	SD	Var	Mean	SD	Var
0,625	0,505	0,255	0,625	0,478	0,228	0,500	0,506	0,256	0,500	0,478	0,228
0,539	0,236	0,056	0,667	0,323	0,105	0,487	0,428	0,183	0,667	0,383	0,147
0,500	0,492	0,242	0,625	0,492	0,242	0,500	0,492	0,242	0,500	0,389	0,152
0,667	0,518	0,268	0,667	0,518	0,268	0,667	0,535	0,286	0,833	0,535	0,286
0,944	0,535	0,286	0,889	0,518	0,268	0,778	0,535	0,286	0,833	0,535	0,286
0,500	0,535	0,286	0,750	0,463	0,214	0,500	0,535	0,286	0,625	0,518	0,268
0,612	0,492	0,242	0,714	0,456	0,208	0,592	0,497	0,247	0,653	0,481	0,231
0,627	0,485	0,236	0,711	0,455	0,207	0,578	0,496	0,246	0,676	0,470	0,221

Table 27: Investment Capital - Industry 2

#### 4.5.4 Combination with correlation

In section 4.4 on correlation testing, we tested the correlation between the independent and dependent variables in this study. However, there may also be a correlation between them, which in turn reinforces the results of the dependent variables. First of all, we will look at the mutual correlation of the independent variables Employee Size (Size), Year of Establishment (Age), and Growth intention (Growth). The independent variable Industry (Asset structure) will be tested separately, as an increasing value for this variable does not indicate whether there is a correlation. For each variable, cross tabs will be used to check whether a relationship can be read between the mutually independent variables.

It has previously been shown that there is a significant correlation between several independent and dependent variables. Namely between Size and SF (+), Size and IC (+), Growth and SF (+ and -), Growth and IP (+ and -), and Growth and IC (+ and -). For the variable Age, only a single significant correlation emerged. It is striking that there are also many significant correlations between the codes. Looking at Table 28, significant correlations can also be seen between the mutually independent variables. For example, there is a significant correlation between Size and Age (-0.187\*). This means that the older the company gets, the bigger the company becomes in terms of employees. This may seem biased as it has a negative value. However, in this study, the start date (2019 = 0, 2020 = 1, ...) has been assigned the value 0. There is also a significant positive correlation ( $0.285^{**}$ ) between the variables Size and Growth. This means that the larger the company is in terms of employees, the further the company is in phases in terms of growth. This also seems logical since start-ups invest in order to grow, as a result of growth additional employees are hired, and people move on to the next phase. The relationship between Age and Growth can also be considered significant (- $0.309^{**}$ ). The older the company is, the further the company is in its growth phases. It takes time to grow as a company. In short, the results between the independent results certainly do not contradict each other, they reinforce each other.

Variable	Employee Size (Size)	Year of Establishment (Age)	Growth intention (Growth)					
Employee Size (Size)	1							
Year of Establishment (Age)	-,187*	1						
Growth intention (Growth)	0,285**	-,309**	1					
* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).								

 Table 28: Intercorrelation between the independent variables

Table 29 shows how many employees the industries surveyed in this study have. The table shows that 73.3% of the start-ups have fewer than 10 employees. Table 30 also shows that 75.3% percent of the start-ups in this study were founded in 2019 or 2020. Table 31 shows that 50.0% of the participating start-ups are still in the initial phase, namely Pre-Seed or Seed phases. These results confirm the general picture from the mutual correlation table 26.

For each industry from table 29, it can be read that the vast majority of start-ups have a number of employees between 1 and 4 employees. It is striking that one company in the industry "Energy" already has more than 100 employees. In addition, also a company from the industry "Fintech" is about one company with 50 to 99 employees. The industry "Marketing" can be considered from the table below as an industry with relatively few employees, namely only one company has between 10 and 19 employees, the rest even less. Table 30 shows that only 4 start-ups from this survey were founded in the year 2022. More than half of the start-ups were founded during the pandemic 59.1% (2020 and 2021). Earlier parts of this research also show that the start-ups that were established at the time have experienced little hindrance from the pandemic and have therefore actually benefited from the situation that has arisen.

Table 31 shows that 81% of the start-ups should already have made an investment round, as they are already scaling at least in the "Seed" phase. It is striking that the percentage for the industries "Enterprise software" (28.2%) and "Fintech" (37.5%) is much higher than the average of 19% in the "Pre-Seed" phase. In addition, one company from the "Other industries" sector is already in the "Exit" phase. Perhaps this company has had to decide to stop the company due to the developments of COVID-19 (the end of the strict measures and the like). In short, from comparing these independent variables it can be concluded that the variable "Industry" (Asset structure) does not influence on other independent variables.

Table 29: Employees per industry

Employees per industry				Size			
Industry	1 (1-4)	2 (5-9)	3 (10-19)	4 (20-49)	5 (50-99)	6 (100+)	Total
Energy	<b>2</b> 25,0%	<b>4</b> 50,0%	<b>0</b> 0,0%	<b>1</b> <i>12,5%</i>	0 0,0%	<b>1</b> 12,5%	8 100,0%
Enterprise software	<b>18</b> 46,2%	12 30,8%	<b>7</b> 17,9%	<b>2</b> 5,1%	0 0,0%	<b>0</b> 0,0%	<b>39</b> 100,0%
Fintech	<b>3</b> 37,5%	<b>1</b> 12,5%	1 12,5%	<b>2</b> 25,0%	1 12,5%	<b>0</b> 0,0%	<b>8</b> 100,0%
Food	<b>7</b> 58,3%	<b>2</b> 16,7%	<b>2</b> 16,7%	1 8,3%	0 0,0%	<b>0</b> 0,0%	<b>12</b> 100,0%
Health	<b>6</b> 33,3%	<b>4</b> 22,2%	<b>7</b> 38,9%	1 5,6%	<b>0</b> 0,0%	<b>0</b> 0,0%	<b>18</b> 100,0%
Marketing	5 62,5%	<b>2</b> 25,0%	1 12,5%	0 0,0%	0 0,0%	<b>0</b> 0,0%	8 100,0%
Other industries	23 46,9%	15 30,6%	11 22,4%	0 0,0%	0 0,0%	<b>0</b> 0,0%	<b>49</b> 100,0%
Total	<b>64</b> 45,1%	40 28,2%	<b>29</b> 20,4%	7 4,9%	1 0,7%	1 0,7%	142 100,0%

Table 30: Age per industry

Age per industry		Age (Year of establishing)										
Industry	0	(2019)	1	(2020)	2	(2021)	3	(2022)	]	<b>Fotal</b>		
Energy	3	37,5%	4	50,0%	1	12,5%	0	0,0%	8	100,0%		
Enterprise software	10	25,6%	19	48,7%	9	23,1%	1	2,6%	39	100,0%		
Fintech	3	37,5%	2	25,0%	2	25,0%	1	12,5%	8	100,0%		
Food	2	16,7%	6	50,0%	3	25,0%	1	8,3%	12	100,0%		
Health	9	50,0%	5	27,8%	3	16,7%	1	5,6%	18	100,0%		
Marketing	4	50,0%	1	12,5%	3	37,5%	0	0,0%	8	100,0%		
Other industries	23	46,9%	16	32,7%	10	20,4%	0	0,0%	49	100,0%		
Total	54	38,0%	53	37,3%	31	21,8%	4	2,8%	142	100,0%		

Table 31: Growth per industry

Growth per industry						Grow	th (S	tage of g	rov	wth)				
Industry	1 (Pi	re-Seed)	2	(Seed)	3 (	(Early)	4 (0	Growth)	5 (	(Expansion)	6	(Exit)	]	Total
Energy	1	12,5%	2	25,0%	0	0,0%	5	62,5%		0 0,0%	0	0,0%	8	100,0%
Enterprise software	11	28,2%	13	33,3%	7	17,9%	7	17,9%		1 2,6%	0	0,0%	39	100,0%
Fintech	3	37,5%	0	0,0%	2	25,0%	3	37,5%		0 0,0%	0	0,0%	8	100,0%
Food	2	16,7%	2	16,7%	6	50,0%	2	16,7%		0 0,0%	0	0,0%	12	100,0%
Health	3	16,7%	8	44,4%	4	22,2%	3	16,7%		0 0,0%	0	0,0%	18	100,0%
Marketing	1	12,5%	2	25,0%	3	37,5%	2	25,0%		0 0,0%	0	0,0%	8	100,0%
Other industries	6	12,2%	17	34,7%	16	32,7%	8	16,3%		1 2,0%	1	2,0%	49	100,0%
Total	27	19,0%	44	31,0%	38	26,8%	30	21,1%		2 1,4%	1	0,7%	142	100,0%

### 4.6 Entrepreneur's characteristics & Growth intention

The advantage of a combination of qualitative and quantitative research is that certain components can be investigated more deeply. In this study, this can be done very well with the variable Entrepreneur's characteristics and an in-depth study of the variable Growth intention. The influence of these variables on the dependent variable will be tested based on the interviews. A part of the elaboration of the interviews (coding scheme) can be found in Appendix 2 and 3.

#### 4.6.1 Entrepreneurs' characteristics

Doing an investment round can entail the necessary stress and work for a start-up. It often takes about a year before the investment is received, considering the preparation, negotiation, and settlement with the investor. From the interviews A, E, F and G it is very clear that the knowledge and experience of the market and industry have been crucial for them in making the type of investment, the amount they need, but above all, knowing distinguishable in winning the investment compared to competitors. Having experience and knowledge of the market as a start-up entrepreneur as a crucial factor in winning investment rounds is in line with the studies of Bates (1997), Cassar (2004), Coleman (1998), Martinelli, Tagliazucchi & Marchi, (2018), Scherr et al. (1993), Storey (1994)), and Verheul & Thurik (2001). Entrepreneurs with experience and knowledge in bringing in investments have in some cases already had a business at an earlier stage where they have done the same thing. They also indicate that it has played a role in their current company and that they have been able to gain the experience before. The choice for the type of investment source and the amount is mainly made based on experience. In some cases, it is precisely the case that by bringing in a certain type of investment source, knowledge is also obtained. The investors then bring knowledge and experience with them, an example of this is when the start-ups start working with the investment source Angel Investment.

The entrepreneurs who did not yet have experience and knowledge of the market, but who have nevertheless made an investment round, indicate that it has indeed taken a lot of time (interview C). They have managed to distinguish themselves through their idea and product. If you know how to sell this well, and a nice side effect can be the social importance it has, it becomes easier to get an investment. The businesses that are not round and have done could have made a deliberate choice to have the bootstrapped strategy, which is all that is funded by the money from the company. This deliberate choice has been made in order to reduce the risk in a time of crisis and to reduce it. Or as mentioned earlier indicate, we have chosen to have the knowledge and experience to get it. In one of the interviews (interview H), is even stated that the belief within the company that there is more to everything in the house is greater than that it may provide, to the interests of the shareholders.

Within a starting company, it is often important to be on the same line. In almost every interview, the person interviewed is not the only person who has founded the company, often this happens with one or more co-founders. As a result, everyone will focus on a certain part of the company. Nevertheless, the most important decisions, such as doing investment rounds, are discussed, and continued with all founders. The advantage of this is that no hasty decisions are made. In a few cases, this led to a co-founder withdrawing from the company.

Entrepreneurs often want to grow with their company, but the question remains what a good speed for a company is to grow? The characteristic of the interviews is the character traits of the entrepreneurs. Looking back on two years of the pandemic, some entrepreneurs indicate that they are satisfied with their growth, but some also indicate that they have always wanted to grow faster. However, it does indicate how realistic this would have been in a time of COVID-19 where there were still many ambiguities and uncertainties, especially at the beginning. From the literature, research by Coleman (1998), Storey (1994), and Verheul & Thurik, (2001), it was indicated that gender does not influence the acquisition of investments for start-ups. Looking at the interviews, both men and women were interviewed. This can also be confirmed in practice from these interviews.

#### 4.6.2 Growth intention

From the data of the quantitative part of this research, it appeared difficult to assess the variable "Growth" only on the phase of growth the company is in. By combining it with the qualitative part of the research, more depth is created. Based on the interviews, it can be assessed whether the start-ups have a certain growth strategy in mind and how they think they will achieve this despite the outbreak of the COVID-19 pandemic.

Looking back on the pandemic, almost all the interviewed entrepreneurs in this research are satisfied with how they got through the pandemic. For several industries, including "Health" and "Marketing," it has in some cases forced them to deviate from their original idea. As a result of the pandemic, they have had to respond to the demand from society and the market. The health sector asked for a quick vaccine so that society could get going again. Due to the increasing rate of online shopping, the demand for online marketing also became enormous. Moving away from the original idea can therefore have direct consequences for the growth that a company wants to experience. The interview asked the question "Looking back on two years of crisis, would you have done things differently in terms of attracting investment sources and the risks involved with it?". This question is intended to see whether start-ups have been able to continue their growth through investments despite a crisis, which may or may not have been affected. The answer is often given that people would have liked to grow faster, which is somewhat characteristic of entrepreneurs, but partly due to the unpredictability caused by the pandemic, they cannot complain about how everything went for them. Responsible growth is central to the answers from the interviews. As a company, you often want to grow quickly, but the question is whether that is feasible and to what consequences it can lead.

In a number of cases, it is necessary to make another investment round to be able to continue to grow. An investment round can be done to achieve various things. It is indicated, among other things, that person must be recruited, the product must be further developed, or, for example, a machine must be purchased. The question posed in the interview with a view to the future is: "Do you expect to do another investment round at an early stage?". Interview A (Health), C (Enterprise software), D (Enterprise software), F (Food), and G (Enterprise software) indicate that they want to do this. Other start-ups indicate that they certainly do not want to do this within one year. The reasons given for this are that people are still experiencing the effects of the pandemic as a nuisance or the increasing inflation that is receiving a lot of attention today. It is therefore the start-ups that were founded before the pandemic, E (2018 - Enterprise software) and H (2014 - Enterprise software), that do not want to make an investment round at an early stage. This also confirms that the start-ups that were founded later, especially during the pandemic, have even greater intentions for growth. Factors that influence this are the demand on the market that has arisen, the social importance, and the development that the company still has to continue. However, it does not have to be the case that the start-ups that were founded before the pandemic have already made an investment round to achieve growth. It was previously indicated that not every company is open to this. In interview H it is indicated that as founders they prefer to keep everything in their own hands and grow based on self-generated income than to use an external source of investment.

The bottom line is that the "Growth" variable has acted as a reinforcing factor in attracting funding sources for some of the start-ups established during or just before the pandemic. They needed investment to be able to grow quickly in order to meet the demand from the market. On the other hand, some start-ups have experienced growth during the pandemic and now want to allow growth to continue steadily so as not to eventually grow too quickly. There are also start-ups that have made the conscious choice, regardless of the impact of the pandemic, to keep everything in their own hands and not to deal with an external source of investment.

## 4.7 Proposition testing

The theoretical framework and the construction of the methodology have shown that the possibility of attracting financing sources is made up of three constructs, namely: Sources of Finance (SF), Influence of the Pandemic (IP), and Investment Capital (IC). The independent variable COVID-19 is reinforced by several variables that have emerged from the literature in previous studies. The number of employees (Size), the age of a company (Year of establishing), the growth intention (Growth), the asset structure (Industry) in which the company operates, and the entrepreneurial characteristics enhance the extent to which a company obtains investment resources.

The proposition as formulated at the beginning of this study was as follows:

"The outbreak of COVID-19 has had a positive influence on investment strategies and on obtaining financing for Dutch start-ups founded between 2019 and 2022."

The constructs as they are described above are each made up of a number of indicators. The number of indicators differs per construct. In addition, the indicators are not related to each other. As a result, it is not possible to test the influence of the construct as a whole. It was therefore decided to look at the general results on the different constructs and what correlation there is between the indicators of the constructs and the variables.

First, the proposition will be assessed on the basis of the construct IP. Have the start-ups participating in this survey been hindered by the pandemic or have they benefited? The construct IP is made up of 13 codes. These codes were initially assessed without considering the independent variables listed above. Four codes can be derived from the results of construct IP (IP1 – 3,584, IP4 – 3,599, IP6 – 3,549, and IP8 – 3,331) that the participating start-ups generally agree with. The start-ups have certainly been influenced in their day-to-day business, the pandemic has brought new opportunities to further develop the company, people have been able to distinguish themselves from competitors during the pandemic and the investments made during the pandemic are done are purely used to grow and develop as a company. The start-ups certainly do not agree with the statement that COVID-19 has made them more cautious in attracting investment sources (IP5 – 2,310). The result of the statement whether now that the pandemic is not supported (IP11 – 2,570). For the other codes, the results can be scaled to disagree/neutral. These are all statements that ask whether people have been hindered by the pandemic.

From all these results regarding the construct IP, it seems that the start-ups have certainly not been affected negatively by the COVID-19 pandemic. Looking at the influences from the specific variables, it can be seen that the variable "Size" has almost no significant influence on the results of the construct IP. Also, for the variable "Age" there are virtually no significant correlations, except for one code. The only significant correlation indicates that the older start-ups in this study are most affected in their day-to-day operations. These are the start-ups that were founded in 2019, so prior to the pandemic. The variable "Growth" represents 2 significant correlations with the construct IP. For example, companies that are in a further stage of growth have become more wait-and-see in attracting investment sources. In addition, companies that are still in the early stages of growth are more inclined to make an investment round now after the pandemic. From the qualitative part of this research, it can therefore be assumed that the start-ups from this research are hardly hindered in their development, on the contrary, it accelerates it. Herein the variables "Size", "Age" and "Growth" have played little to no reinforcing role.

Looking at the results per industry, it is noticeable that the variation is quite different. Where on average the start-ups indicate that they will have new opportunities thanks to the pandemic (IP4 - 3,599), this applies to the extreme for the "Marketing" industry (4,000) and not for the "Fintech" industry (2,625). The same applies to the result on the question of whether start-ups have been able to distinguish themselves from competitors in times of the pandemic (IP6). In this, the result between the industries "Energy" (4,125) and "Fintech" (3,000) differs greatly. This also applies to a few other parts of the construct SF.

The bottom line is that the variable "Industry" does influence how start-ups have experienced and survived the pandemic. Industrial differences are therefore clearly noticeable. Looking at the influence of the variable "Entrepreneur's characteristics" on the construct IP, they are believed to have had a significant influence. In the interviews, the entrepreneurs indicated that a sound business strategy in combination with knowledge and experience in the market led them through the pandemic. This has enabled them to ensure that they have generally been able to continue to grow where they wanted to.

The second construct tested during this research, and also part of the proposition is the construct Sources of Finance (SF). This section thus provides an insight into the type of funding source that has been used during the pandemic and thus provides an insight into the strategy that the start-ups have applied in times of crisis. Looking at the results, it can be seen that about two-thirds of the participating start-ups have already used an external financing source (SF1 – 0,676). It is striking that only a small part of the participating start-ups made use of the COVID-19 support package from the Dutch government (SF6 – 0,099). But especially important for this research, is the result on the question of whether the start-ups have gone through a crisis during the pandemic (SF7). Almost three-quarters of the start-ups (0,747) indicate that they have experienced growth.

The influence of the variable "Size" on the outcomes of this construct is noticeable. There is a significant positive correlation between the size of the company and whether the company has made use of an external source of financing (SF1 – 0,260\*\*). This also applies to applying the type of investment source, Angel Investment (SF3 - 0.189\*) and Venture Capital (SF4 – 0,437\*\*). The start-ups that have made use of the support package are also the larger start-ups (SF7 – 0,266\*\*). Company size does not significantly affect whether start-ups have experienced growth. For the variable "Age" no significant correlations can be read except for one code. Only for the question of whether they have experienced growth can it be concluded that the older start-ups expect to have experienced more growth (SF7 – 0,267\*\*). Also, for the variable "Growth" few significant correlations can be read with construct SF.

At the industrial level, there are indeed differences. The variable "Industry" therefore certainly influences the questions of whether an external financing source has been used and what type. This also applies to the question of whether people expect to have experienced growth (SF7). Virtually all industries, except for the "Fintech" industry (50.0%), a majority of participating start-ups expect to have experienced growth. The variable "Entrepreneur's characteristics" on the other hand does influence the type of investment source that is applied. The entrepreneurs indicate that the type of investment source is chosen based on knowledge and experience of the market, previous investments or because they have had a business before.

The last construct Investment Capital (IC) relates to both the investment strategies and the acquisition of investment sources. The start-ups that have made an investment round have generally done so during the pandemic. For most of the start-ups, this makes sense since they were founded during this time. The size of the company certainly has a significant positive influence on the number of investment rounds in total (IC1 – 0,380\*\*) during the pandemic (IC2 – 0,207\*). In addition, there is also a significant positive influence on whether the start-ups have communicated how much they have collected (IC4 – 0,271\*\*) and which type they have used for this (IC5 – 0,261\*\*). The age of the company does not play a significant role in the results of the construct IC. This includes the role of the "Growth" variable.

The "Industry" variable, on the other hand, certainly does. The number of investment rounds, the amount of money that has already been raised, the type of investment source, and the amount that people think they want to raise in the next investment round differ enormously. In contrast, the variable "Entrepreneurs' characteristics" only affects the type of investment source the firms employ. This has taken place on a number of occasions on the basis of knowledge and experience that they have themselves or that they can bring in with it. The amount they get is highly dependent on the type of company. The same applies to the amount that one wants to collect in a possible follow-up round. The period in which this has to take place is determined by the variable since some start-ups also indicate that it takes a lot of time to prepare such a round.

Based on the above information, supported by the entire investigation, it can be assumed that the proposed proposition can be considered true. The Dutch start-ups founded between 2019 and 2022 have benefited from the situation that has arisen as a result of the outbreak of the COVID-19 pandemic. They have been able to bring in sources of investment and adapt or continue their strategies accordingly. From the formulation of the proposition, it was assumed that a number of variables should have a reinforcing factor. The size of the company, and the number of employees, act as a reinforcing factor on the constructs of SF and IC. The variables "Age" and "Growth" do not play a significant role in the relationship between the outbreak of the pandemic and the acquisition of investment and the associated strategy. The variables that certainly strengthen and identify the relationship are "Industry" and "Entrepreneurs' characteristics". They have a significant influence on each construct.

# **5. Discussion & conclusion**

In this chapter, the main results of this research will be discussed to be able to conclude them. First, the main results will be discussed. Subsequently, the theoretical implications will be discussed. The researcher will also discuss limitations that have had or may still have an influence on this research, and a possible follow-up study will also be examined. It is concluded with a general conclusion to this research in which the research question of this research is answered.

## 5.1 Main findings

This study aimed to investigate whether Dutch start-ups founded just before or during the pandemic experienced difficulties in attracting financing and had to adjust their investment strategy where necessary. This has been tested based on three constructs, Influence of the Pandemic (IP), Sources of Finance (SF), and Investment Capital (IC). It emerged from the literature that several variables should be a reinforcing factor, namely: the size of the company in the form of a number of employees, the age of the company, the growth intention, the asset structure (industry), and the character traits of the entrepreneur. The results of this study provide an important insight into the situation of start-ups that have just been founded during a pandemic and have been able to take advantage of it. It is the first study in which the focus is only on start-ups that were established in the Netherlands during or just before a crisis.

The results of this study show that the start-ups established in the Netherlands from 2019 have benefited from the situation that has arisen as a result of the outbreak of the COVID-19 pandemic. They have been able to secure the desired investment rounds and continue their strategy or adjust where necessary. Thanks in part to the survey results on the construct IP, it has emerged that the start-ups are indeed influenced in their daily work, which is logically explained. Every company had to adhere to the measures that apply at that time. What the start-ups in this study have done is respond to the existing situation at that moment. Met has started to distinguish itself from competitors, where necessary it has moved away from the original idea or has responded to market demand and has responded to the public interest. Looking at the results, regardless of the influence of the different variables, most of the start-ups in this study have already made use of an external funding source. In addition, have experienced growth during the pandemic, taking advantage of new opportunities that have arisen and using the sources of investment to grow and develop their business. According to the literature, it is claimed, for example, that the results of, strengthen, or are influenced by the properties of both the company and the company.

It has been assumed from the literature that "Age" (Berger & Udel, 1998; Cassar, 2004; Colombo & Grilli, 2005) and "Growth intention" (Cassar, 2004; Michealas et al., 1999) have a positive influence on within the financing. The results of this study cannot confirm this assumption with significant values. Both variables have virtually no significant correlation with one of the three constructs. With regard to "Age", this is logically explicable since in this study only start-ups were founded just before or during the pandemic, so this concerns about 3.5 years. As for "Growth", this is difficult to investigate in a sample like this. The start-ups have not been active that long, so they are almost automatically still in growth phases and therefore also have the intention to grow. Partly by conducting interviews, it has become clearer which growth intentions start-ups have. This turns out to be very different, some start-ups have already completed an investment round and intend to do one soon, while others prefer to postpone it because they have just completed one.

The results of this study confirm that there is a significant positive correlation between the size of the company in terms of employees and the acquisition of investment resources (construct SF and IC). There is no significant correlation between company size and construct IP. This means that the start-ups in this study, regardless of company size in terms of employees, have been able to secure sources of investment and have not been affected by developments around the pandemic. The pandemic, on the other hand, has exacerbated it. The size of the company, therefore, acts as a reinforcing factor in obtaining financing. The results for the variable "Size" are in line with the assumptions from the literature (Cassar, 2004; Colombo & Grilli, 2005; Berger & Udel, 1998).

In addition, it also investigated what role the type of industry has played in attracting investments and how a newly founded start-up manages to distinguish itself in times of crisis, and how to continue to develop. It can certainly be inferred from the results that the type of industry plays a role in how the start-ups got through the pandemic. While start-ups in the industrial sector "Marketing" have had to change from the original idea (both offline and online marketing to almost exclusively online marketing), industrial sector "Fintech" has not had to adapt in almost all matters and therefore has little has known influence but has also not been able to take advantage of the situation that has arisen. In addition, it is also true that not every industry needs such a large investment. This is where the "asset structure" part comes into play. In terms of the investment amount, an investment/development in the sector "Health" cannot be compared with an investment in, for example, the "Marketing" sector. The effect of the asset structure (industry) on attracting investments, therefore, plays an important role in this study. This is in line with the assumption made in the literature (Cassar, 2004; Harris & Raviv, 1991; Titman & Wessels, 1998).

The last variable tested on the three constructs during this study is "Entrepreneurs' characteristics". The results from the interviews show a positive effect between the entrepreneur's character traits and the acquisition of investments. This is in line with the assumption made in the literature (Cassar, 2004; Storey, 1994; Bates, 1997; Scherr et al., 1993; Coleman, 1998; Verheul & Thurik, 2001). Entrepreneurs indicate that they have survived the pandemic and have been able to develop (IP) based on knowledge and experience of the market. The same also applies how the sources of investment bring in and the choice of the type of investment source. Based on their knowledge and experience, they know how to distinguish themselves from competitors.

## 5.2 Theoretical implications

In the past, there have been several studies on investment strategies and opportunities for access to external sources of finance by start-ups in general (Cassar, 2014; Hellmann & Thiele, 2015). Studies indicate that there can be various reasons for increasing the chances of attracting an investment source, namely the size of the company, its age (Berger & Udell, 1998; Colombo & Grilli, 2005), its growth intention (Michealas, Chittenden & Poutziouris, 1999), the industry it is in (Harris & Raviv, 1991; Titman & Wessels, 1988) and the characteristics of the entrepreneur funding (Storey, 1994; Bates, 1997). In addition, studies on the relationship between investment strategies and the access to external sources of finance of start-ups in times of crisis have also been investigated. To date, few studies have evaluated the latest crisis, the outbreak of the COVID-19 pandemic, on this issue. There is certainly no research that has examined this for the Dutch start-ups that were founded precisely during this crisis. Techleap's research provides a general overview of all start-ups in the Netherlands and therefore gives the impression that start-ups have not benefited from the situation that has arisen as a result of the crisis. This research focuses on the start-ups that were founded just before or during the pandemic, namely between 2019 and 2022. Therefore, the results of this research will contribute to new insights into the investment strategies and possibilities for external financing sources for start-ups in the Netherlands in times of crisis.

### 5.3 Limitations and future research

There are a small number of limitations to this research that will be highlighted, as well as a number of points that may be focused on during future follow-up research. First of all, this research focuses only on start-ups from the Netherlands. Therefore, no conclusion can be drawn based on these results about the situation of start-ups in other countries. Based on this research, follow-up research could be done in which the situation in other countries could also be tested. In addition, the participating start-ups in this study were established between 2019 and 2022. And, as already indicated in the literature review, testing results regarding start-ups are difficult to compare. A large part of the start-ups does not get much further than an establishment and therefore have little or no influence in this study. The start-ups participating in this study have all survived the pandemic and are therefore already fairly "successful".

During the collection, and specifically and dissemination of the e-mail that contained the survey or a request to participate in an interview, there were also reactions from start-ups that they had stopped doing business in the meantime or were planning to do so, or that they could not complete it due to lack of time. As a result, these start-ups did not participate in the survey or interview, so it is unclear what influence these start-ups would ultimately have had on the result. There are also a number of start-ups that have indicated that they do not wish to provide insight into the amount of money they have raised through their investment rounds. The consequence of this, as described earlier in the study, is that they have automatically been given the value 0. Therefore, it is unclear what impact it would have had if these start-ups had been willing to disclose how much they have already raised and expect to raise in a possible follow-up investment round.

The number of (valid) participating companies in this survey is 142. The search engine on the Techleap website indicates that 1,172 start-ups were founded between 2019 and 2022<sup>11</sup>, based on the search term: "Validated data" and "Year of foundation between 2019 and 2022". This, therefore, amounts to 12.1% of the total sample. If "Validated data" is left out of the search term, the website gives a total of 4,150 established start-ups<sup>12</sup>, which amounts to 3.4%. It is therefore unclear whether this sample is large enough. In addition, it is of course possible that during the process of approaching the start-ups, the development, and delivery of this study, a number of things may have changed in terms of data. New start-ups may already have been created or may have stopped. Start-ups may have had an investment round which was not yet the case at the time of answering the survey. For a future follow-up study, it may therefore be interesting to investigate the number of investment rounds that have taken place after the end of the COVID-19 pandemic.

In addition, there are many different industries present in this sample. It is not possible to say anything significant about every industry because participation in a number of industries is minimal. Therefore, the choice was made to focus on a number of industries that were well represented in the survey. For a follow-up survey, it may be interesting to look at the start-ups that could not be fully assessed. The danger then is that the focus will be emphatically placed on these. The advantage of this survey is that the start-ups were approached independently of each other when it comes to the industrial sector.

In this study, a proposition was used instead of a hypothesis. This choice was made because many different facets were applied in this study, which makes it impossible to test this empirically. In a possible follow-up study, it should be made possible that empirical tests can take place.

<sup>12</sup> Techleap.nl: "2019-2022".

<sup>&</sup>lt;sup>11</sup> Techleap.nl: "Validated data" "2019 – 2022".

https://finder.techleap.nl/companies.startups/f/all locations/allof Netherlands/data type/anyof Verified/launch year max/anyof 2022/launch year min/anyof 2019

https://finder.techleap.nl/companies.startups/f/all\_locations/allof\_Netherlands/launch\_year\_max/anyof\_2022/lau\_nch\_year\_min/anyof\_2019

## 5.4 Conclusion

This research has been prepared with the aim of investigating the influence of COVID-19 on investment strategies and the possibilities of external financing sources for Dutch start-ups founded just before or during the pandemic. The research question of this study was as follows: *"How does COVID-19 influence investment strategies and the possibilities of external financing sources of start-ups in the Netherlands as of 2019?"*. In order to answer this research question, three constructs have been drawn up that jointly provide the assessment, namely: Influence of the Pandemic, Sources of Finance, and Investment Capital. These three constructs were also examined individually on the basis of a number of variables that were reported in the literature as strongly correlated with the attraction of financing sources. These were the independent variables, size, age, asset structure, growth intention, and entrepreneur's characteristics. A survey was set up to collect the data and interviews were held with eight different start-ups. The data collected through the survey were analysed using the IBM SPSS Statistics 28 software program. The data from the interviews were analysed on the basis of a drawn-up coding scheme.

The results of the survey show that Dutch start-ups that were founded between 2019 and 2022 have not been hindered in obtaining financing sources and have therefore not had to adjust their investment strategy in a negative way as a result of the outbreak of the COVID-19 pandemic. The proposition drawn up at the start of this study is hereby regarded as accepted. The results are to a certain extent reinforced by a number of variables, namely the size of the company in terms of the number of employees, the type of industry in which the company is active, and the character traits of the entrepreneurs.

In conclusion, the start-ups in this study indicate that they have benefited to some extent from the situation that has arisen as a result of the pandemic. They have not been hindered in attracting financing sources and have therefore been able to continue their development well in times of crisis. The results of this research can contribute to the knowledge and situations that arise for start-ups in times of crisis. A comparable global crisis to the COVID-19 pandemic had not yet occurred. Entrepreneurs from Dutch start-ups, but also from other countries, can regard this research as highly relevant as it provides an insight into how potential competitors have adapted or benefited in terms of financing sources in times of crisis. A follow-up study on the situation after the pandemic would be an interesting follow-up to this study. This would allow a comparison to be made on possible differences that have arisen as a result of the pandemic.

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# Appendix

## Appendix 1 – Interview questions

During processing, there will first be a brief introduction to the company without disclosing the name or specific details of the company. In addition, the companies interviewed were all established in the Netherlands. The companies interviewed were established between 2019 and 2022. This is to find as specific as possible the companies founded during or just before a crisis. They are still in the early stages where it is essential to get funding in order to survive at all. If the companies give permission to record the interviews, a transcript will be made to ensure that the answers can be collected as accurately as possible. The questions below are an outline for the interview. Follow-up questions can of course be asked during the interview, based on the course of the interview and the answers given.

## **General questions:**

- 1. What is your role role/function within the company?
- 2. Where is your company located?
- 3. What kind of company are you and what market/industry are you or would you like to be in?
- 4. How would you describe your product/service?
- 5. What kind of revenue model does your company have or want to have in the future?
- 6. What stage of growth do you think you are at right now with the company?
- 7. How does your company stand out from other companies in your industry?

### Questions about starting a company in times of crisis:

- 8. Was it a conscious decision to start the business during the COVID-19 pandemic? Or was it that the plans had been there for some time and there remained full confidence in the idea and thus the company?
- 9. Did you have any doubts about the survival of your business during the outbreak of the pandemic?
- 10. To what extent and in what way you been hindered by COVID-19 in the development of your business? Or has it just brought extra opportunities to your business, or have you benefited from it?
- 11. Or has the pandemic brought your company extra opportunities, and have you benefited from it?

### Questions about the first funding process

- 12. Did you use capital to establish your business?
- 13. Has your company made use of internal funding sources?
- 14. Which internal funding sources?
- 15. Has your company made use of grants, development money or support funds?
- 16. How did you determine which source of financing was most appropriate for the establishment and initial development of your business?

### Sources of funding for further development

- 17. Has your company used external sources of financing, if so which?
- 18. What was the reason for choosing this form of financing?
- 19. How much did you raise with this form of financing?
- 20. Do you feel that you have a differentiating factor from competitors in terms of obtaining funding sources in times of crisis?

#### **Government support**

- 21. Did you make use of the support package from the Dutch government during the COVID-19 pandemic?
- 22. Do you think that the government in the Netherlands is creating a climate that is attractive for start-ups to develop in?

#### **Future investment sources/perspective**

- 23. Do you expect to do another investment round at an early stage?
- 24. How much do you expect to raise in a subsequent investment round?
- 25. Do you have any idea that the COVID-19 pandemic is over that it is easier or more difficult to attract funding sources?
- 26. Looking back on two years of crisis, would you have done things differently in terms of attracting investment sources and the risks involved with it?

# Appendix 2 – Coding of the interview

		Com	pany .	A	B	C	D	E	F	G	H
Aggungate Dimension	Second Order Themes	Founding	year 20	, 119	Z019 In Vivo C	2020 odor (Ever	2021	2018 (how)	2020	2020	2014
Introduction / hackground	Second-Order Themes	rus-onder Concepts			m-vivo C	00es (114)	iment nun	iver)			
Background Background	d What is your role role/function within the company?	Chief Technology Officer	Δ	1							
Dacagioun	d what is your role role/function what in the company	COO founder	Δ	1	B 1	C 1		F 1			
		Lam more concerned with scientific cooperation	Δ	1	D.1	0.1		L.1			
		Founder	Δ	1	B 1	C 1	D 1	F 1	F 1	G 1	
		Started the husiness together with a friend	л		D.1	0.1	D.1	E.1 E 1	1.1	0.1	
							D.1	L.1	E 1	C 1	
		Destroy of the company							r.1	G.1	U 1
	Without in status a support to act of	Factoria Company		2				E D			п.1
	where is your company located	Enschede	A		<b>D</b> 2	<b>C</b> 2		E.2 E.2			
		Amsterdam			B.2	C.2		E.2			
		Amstelveen					D.2			G.2	
		Den Bosch							F.2		
		Hilversum									H.2
	In which market/industry is your company located?	Health/MedTech	A	3				E.3			
		Enterprise Software			B.3	C.3	D.3	E.3		G.3	H.3
		Fintech			B.3	C.3					
		Food							F.3		
		Agritech							F.3		
	How would you describe your product/service?	We make bio sensors for diagnostics in the healthcare sector.	A	.4							
		We focus on data collection			B.4						
		So what we are is a block and s'en service service				C.4					
		You have to think mainly about answers to open questions or feedback forms and thing	s like that				D.4				
		Measuring, regulating, analysing airquality.						E.4			
		On the one hand, you have the sensors and, on the other hand, you have the software to	o analyse a	nd ada	pt the data	_		E.4			
		Automating hand harvesting in organic farming	Ĩ		•				F.4		
		We are a software company, a technology company, and we are in the interior market.								G.4	
		We offer accountancy software for the self-employed and we focus very specifically on	the lower e	end of	the market	t				2	H.4

Company	A	ω	C •	D		<del>ا</del> ت ا	ন •	H
Launching yea	r 2019	2019	2020	2021	2018	2020	2020	2014
Background								
Stage of growth	Pre-Seed	Early Phase	Pre-Seed	Pre-Seed	Seed Phase	Seed Phase	Seed Phase	Early Phase
Industry	Health	Fintech	Enterprise Software	Enterprise Software	Health	Agritech	Enterprise Software	Enterprise Software
Location	Enschede	Am sterdam	Amsterdam	Amsterdam	Amstelveen	Den Bosch	Am stelveen	Hilversum
Starting a company in times of crisis								
COVID-19 is the reason for starting the company		X		Х		Х	X	
The idea of starting the business was there before the pandemic	Х		Х	Х	Х			Х
We have been uncertain about the continuation of the company	Х		X		X			X
We have not been uncertain about the continuation of the company		X		X		Х	X	
The pandemic has not hampered the process of development		Х	Х		Х		Х	
The pandemic has hampered the process of development				Х				X
The pandemic has brought us new opportunities	Х	X	Х		X	Х	X	
The pandemic has made us switch from our orignial ideas	х	Х		Х	Х			
The pandemic did influence our succes	х	Х	Х	Х	Х	х	Х	Х
First funding process								
We used capital to establish the company	Х		X		X	Х	X	X
We made use of internal funding sources	x	X				Х	X	X
We used own money to invest	х	Х		Х		Х		Х
We received a grant, development money or support fund	Х		X		X	Х		
Sources of funding for further development								
Bootstrap strategy		Х		Х				X
Venture Capital	x				X	Х		
Angel Investment	Х				X		X	
Other type of external funding source			X			Х		
Reason for type of external funding source								
Bringing knowledge, network and experience into the company	Х				Х	Х	X	
To development is very costly	Х				X	Х		
Differentiating factor in terms of obtaining funding from competitors								
Knowledge about the market	Х			Х			Х	
Experience	x		Х		X		X	
D Bein succesful					X	х	X	
Government support								
COVID-19 support package							X	
The Netherlands have an attractive start-up climate	Х				X	Х		
The Dutch government can do more to support/help start-ups		Х	X	X			X	X
Future investment sources/perspective								
Intention to do an investment round in the near future	Х		X	X		Х	X	
The pandemic has made it more difficult to obtain funding								
The pandemic has had no influence of obtaining funding		X	X			Х		
Inflation has now influence of getting funding sources			X	Х	Х	Х	X	
Looking back on two years of pandemic								
Followed the plan we had before the crisis	Х	Х	Х		Х		X	X
Quite happy with how we have done so far	Х			Х	Х	Х	X	Х
We would have grown faster			X	Х	X	Х		
Start-ups in Twente								
Twente is very attractive to develop as a start-up	Х		Х		X			

# Appendix 3 – Coding scheme interview

# Appendix 4 – Survey questions

# Questionnaire about investmentstrategies of start-ups during COVID-19 pandemic

#### **Open questions**

Date of launching:
Place of establishment:
Type of industry:
Core business activities:
Type of revenue model:
Growth stage: (Pre-Seed Stage / Seed Stage / Early Stage / Growth Stage / Expansion Stage / Exit Phase)
Amount of funding rounds already used:
Number of employees:

#### Please indicate whether the questions/statements below apply to your start-up or not

Ouestion	Whether or r	ot applicable
	No	Yes
As a start-up, have you used external sources of funding?		
Have you used the 3Fs (Family, Friends, or Fools) funding source in the past or present?		
Have you used the funding source of Angel Investors in the past or present?		
Have you used the funding source of Venture Capital in the past or present?		
Have you used another funding source in the past or present?		
During the COVID-19 pandemic, we as a company made use of a "Corona support package" from the Dutch government		
Did you experience a growth with the company during the COVID- 19 period?		

#### Please indicate to what extend you agree with the following statements

		Deg	ree of importan	ce	
Question	Fully disagree	Disagree	No opinion/Neutral	Agree	Fully agree
The outbreak of the COVID-19 pandemic has affected the normal running of my business	1	2	3	4	5
The outbreak of the COVID-19 pandemic has reduced my ability to secure external funding sources	1	2	3	4	5
Thanks to the outbreak of the COVID-19 pandemic, I have had to change my entire future outlook	1	2	3	4	5
Thanks to the COVID-19 outbreak, I have actually seen new opportunities to further develop my business	1	2	3	4	5
COVID-19 has made us as a company more hesitant in approaching sources of funding	1	2	3	4	5
We managed to differentiate ourselves as a company from competitors during the pandemic	1	2	3	4	5
The investments through external funding sources during the COVID-19 pandemic were used to survive as a start-up company	1	2	3	4	5
The investments through external funding sources during the COVID-19 pandemic were used purely for growth as a start- up, not just for survival	1	2	3	4	5
During the pandemic, we used investors' knowledge and experience to get through the crisis	1	2	3	4	5
In mid-2022 the crisis seems to be over; this is directly noticeable in the growth of the company	1	2	3	4	5
As a result of the end of COVID-19, it is noticeable that investors are more willing to provide financing	1	2	3	4	5
As a result of the end of the COVID-19 crisis, I am prepared to take more risks as a company with regard to attracting finance	1	2	3	4	5
As a result of, and having survived, the COVID-19 crisis, I think I will need several rounds of financing to be able to continue to exist or develop my business	1	2	3	4	5

#### Please indicate what is applicable to your start-up regarding external investment rounds

Question		L	Amount/tir	nes	
How many times have you used an external funding round as a start-up in total?	0	1	2	3	More than 3
How often did you use an external funding source during the COVID-19 pandemic?	0	1	2	More than 2	
What amount did you receive as a result of the COVID-19 aid package of the Dutch government	Op	en question, a	also the optic	on to give no	answer
How much did you raise in your first funding round?	Op	en question, a	also the optic	on to give no	answer
➔ Follow up question: which kind of investment fund did you use fort his investment round	Op	en question, a	also the optic	on to give no	answer
How much did you raise on average on all the funding rounds?	Op	en question, a	also the optic	on to give no	answer
➔ Follow up question: which kind of investment fund did you use fort his investment round	Op	en question, a	also the optio	on to give no	answer
How much do you expect to need in your next investment round?	Op	en question, a	also the optio	on to give no	answer

# Appendix 5 – The Dutch Tech Ecosystem and COVID-19 – Frequency

Figure 4: Techleap research - Response distribution over the industries



Figure 5: Techleap research - Questionnaire distribution



# Appendix 6 – Sources of Finance per Industry – Total overview

Sources of Finance	per	Industry														
		S	F1			S	F2			S	F3			SI	74	
Industry		No		Yes		No		Yes		No		Yes		No		Yes
Art	1	50,0%	1	50,0%	1	50,0%	1	50,0%	1	50,0%	1	50,0%	2	100,0%	0	0,0%
Dating	0	0,0%	1	100,0%	0	0,0%	1	100,0%	0	0,0%	1	100,0%	1	100,0%	0	0,0%
Education	3	100,0%	0	0,0%	2	66,7%	1	33,3%	3	100,0%	0	0,0%	3	100,0%	0	0,0%
Energy	3	37,5%	5	62,5%	6	75,0%	2	25,0%	7	87,5%	1	12,5%	5	62,5%	3	37,5%
Enterprise software	18	46,2%	21	53,8%	23	59,0%	16	41,0%	21	53,8%	18	46,2%	31	79,5%	8	20,5%
Fashion	2	100,0%	0	0,0%	1	50,0%	1	50,0%	2	100,0%	0	0,0%	2	100,0%	0	0,0%
Fintech	3	37,5%	5	62,5%	6	75,0%	2	25,0%	3	37,5%	5	62,5%	3	37,5%	5	62,5%
Food	3	25,0%	9	75,0%	5	41,7%	7	58,3%	9	75,0%	3	25,0%	8	66,7%	4	33,3%
Gaming	1	100,0%	0	0,0%	0	0,0%	1	100,0%	0	0,0%	1	100,0%	0	0,0%	1	100,0%
Health	1	5,6%	17	94,4%	11	61,1%	7	38,9%	8	44,4%	10	55,6%	9	50,0%	9	50,0%
Home living	1	25,0%	3	75,0%	3	75,0%	1	25,0%	3	75,0%	1	25,0%	4	100,0%	0	0,0%
Jobs recruitment	2	40,0%	3	60,0%	2	40,0%	3	60,0%	5	100,0%	0	0,0%	5	100,0%	0	0,0%
Marketing	2	25,0%	6	75,0%	4	50,0%	4	50,0%	7	87,5%	1	12,5%	8	100,0%	0	0,0%
Media	1	25,0%	3	75,0%	2	50,0%	2	50,0%	1	25,0%	3	75,0%	4	100,0%	0	0,0%
Real Estate	1	20,0%	4	80,0%	3	60,0%	2	40,0%	3	60,0%	2	40,0%	2	40,0%	3	60,0%
Robotics	1	16,7%	5	83,3%	5	83,3%	1	16,7%	4	66,7%	2	33,3%	5	83,3%	1	16,7%
Security	0	0,0%	3	100,0%	2	66,7%	1	33,3%	3	100,0%	0	0,0%	2	66,7%	1	33,3%
Tourism	1	100,0%	0	0,0%	1	100,0%	0	0,0%	1	100,0%	0	0,0%	1	100,0%	0	0,0%
Transportation	2	40,0%	3	60,0%	3	60,0%	2	40,0%	5	100,0%	0	0,0%	4	80,0%	1	20,0%
Travel	0	0,0%	6	100,0%	3	50,0%	3	50,0%	4	66,7%	2	33,3%	4	66,7%	2	33,3%
Welness	0	0,0%	1	100,0%	0	0,0%	1	100,0%	1	100,0%	0	0,0%	1	100,0%	0	0,0%
Total	46	32.4%	96	67.6%	83	58.5%	59	41.5%	91	64.1%	51	35.9%	104	73.2%	38	26.8%

Table 32: Sources of Finance - Industry total overview one

Sources of Finance	per ]	Industry							-			
		<u>S</u>	F5			SI	<b>-6</b>			<u>S</u>	<b>F</b> 7	
Industry		No		Yes		No		Yes		No		Yes
Art	2	100,0%	0	0,0%	2	100,0%	0	0,0%	1	50,0%	1	50,0%
Dating	1	100,0%	0	0,0%	1	100,0%	0	0,0%	0	0,0%	1	100,0%
Education	3	100,0%	0	0,0%	2	66,7%	1	33,3%	0	0,0%	3	100,0%
Energy	5	62,5%	3	37,5%	7	87,5%	1	12,5%	0	0,0%	8	100,0%
Enterprise software	25	64,1%	14	35,9%	37	94,9%	2	5,1%	5	12,8%	34	87,2%
Fashion	2	100,0%	0	0,0%	2	100,0%	0	0,0%	2	100,0%	0	0,0%
Fintech	4	50,0%	4	50,0%	8	100,0%	0	0,0%	4	50,0%	4	50,0%
Food	8	66,7%	4	33,3%	10	83,3%	2	16,7%	3	25,0%	9	75,0%
Gaming	1	100,0%	0	0,0%	1	100,0%	0	0,0%	0	0,0%	1	100,0%
Health	1	5,6%	17	94,4%	17	94,4%	1	5,6%	5	27,8%	13	72,2%
Home living	1	25,0%	3	75,0%	3	75,0%	1	25,0%	2	50,0%	2	50,0%
Jobs recruitment	5	100,0%	0	0,0%	4	80,0%	1	20,0%	2	40,0%	3	60,0%
Marketing	2	25,0%	6	75,0%	7	87,5%	1	12,5%	1	12,5%	7	87,5%
Media	2	50,0%	2	50,0%	4	100,0%	0	0,0%	1	25,0%	3	75,0%
Real Estate	4	80,0%	1	20,0%	5	100,0%	0	0,0%	0	0,0%	5	100,0%
Robotics	2	33,3%	4	66,7%	5	83,3%	1	16,7%	2	33,3%	4	66,7%
Security	0	0,0%	3	100,0%	2	66,7%	1	33,3%	2	66,7%	1	33,3%
Tourism	1	100,0%	0	0,0%	1	100,0%	0	0,0%	1	100,0%	0	0,0%
Transportation	3	60,0%	2	40,0%	5	100,0%	0	0,0%	2	40,0%	3	60,0%
Travel	2	33,3%	4	66,7%	5	83,3%	1	16,7%	3	50,0%	3	50,0%
Welness	0	0,0%	1	100,0%	0	0,0%	1	100,0%	0	0,0%	1	100,0%
Total	74	52,1%	68	47,9%	128	90,1%	14	9,9%	36	25,4%	106	74,6%

# Appendix 7 - Influence of the Pandemic per Industry - Total overview

Table 34: Influence of the Pandemic - Industry 1

Influence of the Par	ıdemi	ic											
		IP	<u>'1</u>	IP	2	IP	3	I	P4	II	<b>25</b>	IP	<u>'6</u>
Industry	Ν	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Art	2	4,000	0,000	4,000	1,414	3,500	0,707	4,000	1,414	3,500	2,121	4,500	0,707
Dating	1	4,000		2,000		3,000		4,000		1,000		4,000	
Education	3	3,667	0,577	2,667	0,577	4,000	1,000	3,667	1,155	2,667	1,155	4,333	0,577
Energy	8	3,750	1,035	2,625	0,518	2,500	1,069	3,750	0,707	1,750	0,463	4,125	0,641
Enterpriste software	39	3,538	1,189	2,769	0,959	2,385	1,067	3,744	0,966	2,538	1,189	3,667	1,108
Fashion	2	3,500	0,707	3,500	0,707	3,000	1,414	4,000	0,000	3,500	0,707	3,000	0,000
Fintech	8	2,750	1,282	2,250	0,886	1,875	0,835	2,625	1,188	1,625	0,744	3,000	0,535
Food	12	3,333	1,557	2,750	0,866	2,833	0,937	3,833	1,115	2,167	1,030	3,500	1,168
Gaming	1	4,000		3,000		4,000		4,000		3,000		3,000	
Health	18	3,556	0,984	2,278	1,018	2,611	1,145	3,389	1,195	1,778	0,732	3,333	0,907
Home living	4	4,000	1,155	3,000	0,816	3,000	1,633	4,000	0,816	2,250	0,957	3,750	0,957
Jobs recruitment	5	3,600	1,140	3,000	0,000	3,000	1,000	3,800	0,837	2,800	0,447	3,400	0,894
Marketing	8	3,875	0,835	3,000	0,756	2,750	0,886	4,000	0,756	2,875	1,126	3,750	1,035
Media	4	3,750	0,957	3,000	0,816	2,750	0,500	3,000	1,155	2,750	0,957	3,250	0,957
Real Estate	5	4,200	1,304	2,800	1,304	3,000	1,000	4,000	0,707	2,000	1,225	3,600	0,548
Robotics	6	3,167	0,983	2,333	1,506	2,667	0,816	3,167	0,983	1,667	0,516	3,833	0,408
Security	3	4,333	1,155	3,000	0,000	2,333	0,577	3,333	1,155	2,000	0,000	3,333	0,577
Tourism	1	4,000		3,000		4,000		3,000		4,000		3,000	
Transportation	5	2,800	0,837	2,600	0,548	3,000	0,707	3,800	0,837	2,600	0,548	3,200	0,837
Travel	6	4,333	0,516	3,833	1,169	4,000	1,095	3,333	1,211	2,667	1,211	3,000	0,632
Welness	1	4,000		4,000		2,000		2,000		2,000		4,000	
Total	142	3,585	1,106	2,761	0,952	2,704	1,064	3,599	1,011	2,310	1,040	3,549	0,927

Table 35:	Influence of	of the	Pandemic -	Industry 2
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Influence of the Pandemic															
		IP7		IP8		<u>IP9</u>		<u>IP10</u>		<u>IP11</u>		<u>IP12</u>		<u>IP13</u>	
Industry	Ν	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Art	2	2,500	2,121	3,000	2,828	2,000	1,414	3,000	0,000	3,500	0,707	2,500	0,707	4,000	0,000
Dating	1	4,000		3,000		2,000		3,000		3,000		4,000		4,000	
Education	3	2,667	0,577	3,333	0,577	2,667	0,577	3,333	0,577	3,667	0,577	3,000	1,000	3,667	0,577
Energy	8	2,125	0,991	3,000	1,309	2,500	1,414	3,250	0,707	3,000	0,535	2,750	0,707	2,750	1,282
Enterpriste software	39	2,821	1,121	3,538	0,969	2,256	1,093	2,821	0,970	2,564	0,852	2,615	0,907	2,769	1,366
Fashion	2	2,500	0,707	3,500	0,707	2,500	0,707	2,500	0,707	3,000	0,000	3,000	1,414	2,500	2,121
Fintech	8	2,250	0,886	3,250	1,165	2,500	1,069	2,375	1,061	2,125	0,835	2,125	0,835	2,125	1,126
Food	12	2,667	0,778	3,833	0,835	2,583	0,900	3,333	1,073	2,583	0,515	2,750	0,622	2,583	1,084
Gaming	1	4,000		3,000		2,000		3,000		2,000		2,000		3,000	
Health	18	2,833	1,200	3,111	1,183	2,000	0,970	2,667	1,085	2,056	0,802	2,389	1,195	2,667	0,970
Home living	4	3,000	0,000	3,250	0,500	3,250	1,258	3,000	0,816	3,000	0,000	3,000	0,000	2,750	0,500
Jobs recruitment	5	3,000	1,581	2,200	0,837	1,800	1,095	2,600	1,517	2,400	0,894	3,000	1,225	2,800	1,789
Marketing	8	2,875	1,126	2,875	0,991	2,250	1,165	3,375	0,916	2,625	0,916	2,375	0,916	2,375	1,061
Media	4	2,500	0,577	3,750	0,500	1,500	0,577	2,750	1,708	3,000	0,816	2,750	0,957	2,000	0,816
Real Estate	5	1,800	1,304	3,800	1,304	2,000	0,707	3,200	0,837	3,000	0,707	3,000	0,707	2,000	0,707
Robotics	6	2,500	1,761	3,333	1,506	1,500	0,837	2,833	0,753	2,000	1,265	2,333	1,033	2,167	0,753
Security	3	3,000	2,000	3,667	1,528	2,667	1,528	1,667	0,577	1,667	0,577	2,000	0,000	2,667	0,577
Tourism	1	2,000		2,000		2,000		1,000		2,000		1,000		3,000	
Transportation	5	2,400	0,894	3,200	0,837	2,400	0,894	3,200	1,095	3,000	0,707	3,000	0,707	2,400	0,894
Travel	6	3,167	0,983	3,333	1,211	2,667	1,506	3,000	1,897	3,000	1,414	2,667	1,211	3,000	1,095
Welness	1	2,000		4,000		2,000		3,000		3,000		4,000		4,000	
Total	142	2,690	1,106	3,331	1,070	2,261	1,056	2,880	1,048	2,570	0,870	2,613	0,921	2,655	1,143
## Appendix 8 - Investment Capital per Industry – Total overview

Table 36: Investment Capital - Industry

<b>Investment Capital</b>															
		IC	<u>C1</u>	<u>I(</u>	C2	<u>I(</u>	<u>C3</u>	<u>I(</u>	C <b>4</b>	<u>I(</u>	<u>C5</u>	<u>I(</u>	<u>C6</u>	IC7	1
Industry	Ν	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Art	2	2,000	2,828	0,000	0,000	0,000	0,000	0,500	0,707	0,500	0,707	0,500	0,707	1,000	0,000
Dating	1	0,000		1,000		0,000		1,000		1,000		1,000		1,000 .	
Education	3	0,333	0,577	0,333	0,577	0,333	0,577	0,333	0,577	0,333	0,577	0,333	0,577	1,000	0,000
Energy	8	0,750	0,886	0,625	0,744	0,000	0,000	0,625	0,518	0,625	0,518	0,500	0,535	0,500	0,535
Enterpriste software	39	0,923	0,839	0,692	0,731	0,103	0,307	0,539	0,505	0,667	0,478	0,487	0,506	0,667	0,478
Fashion	2	0,000	0,000	0,500	0,707	0,000	0,000	1,000	0,000	0,500	0,707	0,500	0,707	0,500	0,707
Fintech	8	0,875	0,991	0,500	0,756	0,000	0,000	0,500	0,535	0,625	0,518	0,500	0,535	0,500	0,535
Food	12	0,917	0,793	0,833	0,718	0,167	0,389	0,667	0,492	0,667	0,492	0,667	0,492	0,833	0,389
Gaming	1	1,000		1,000		0,000		0,000		0,000		0,000		0,000 .	
Health	18	1,333	0,686	1,000	0,485	0,111	0,323	0,944	0,236	0,889	0,323	0,778	0,428	0,833	0,383
Home living	4	0,750	0,957	0,750	0,957	0,250	0,500	0,500	0,577	0,750	0,500	0,500	0,577	0,250	0,500
Jobs recruitment	5	0,600	0,894	0,600	0,894	0,200	0,447	0,400	0,548	0,600	0,548	0,400	0,548	0,400	0,548
Marketing	8	0,750	0,707	0,625	0,518	0,250	0,463	0,500	0,535	0,750	0,463	0,500	0,535	0,625	0,518
Media	4	2,250	1,708	1,500	1,732	0,000	0,000	0,750	0,500	0,750	0,500	0,750	0,500	0,750	0,500
Real Estate	5	1,800	1,095	1,200	0,837	0,000	0,000	0,800	0,447	0,800	0,447	0,800	0,447	0,800	0,447
Robotics	6	1,000	0,632	0,833	0,753	0,167	0,408	0,667	0,516	0,833	0,408	0,833	0,408	0,667	0,516
Security	3	1,333	0,577	0,333	0,577	0,000	0,000	0,667	0,577	0,667	0,577	0,667	0,577	0,667	0,577
Tourism	1	0,000		0,000		0,000		0,000		1,000		0,000		0,000 .	
Transportation	5	0,800	0,837	0,200	0,447	0,000	0,000	0,600	0,548	0,600	0,548	0,600	0,548	0,600	0,548
Travel	6	1,667	1,033	1,333	1,211	0,500	0,548	0,667	0,516	1,000	0,000	0,667	0,516	0,833	0,408
Welness	1	1,000		1,000		0,000		1,000		1,000		0,000		1,000 .	
Total	142	1,021	0,926	0,754	0,764	0,120	0,326	0,627	0,485	0,711	0,455	0,578	0,496	0,676	0,470

## Appendix 9 – Investing sources – Amounts used

Industry	Ν	Mean	SD	Var
Energy	<b>0</b> (8)			
Enterprise software	4 (39)	255000	430232,4953	1,851E+11
Fintech	<b>0</b> (8)			
Food	<b>2</b> (12)	25000	7071,067812	50000000
Health		50000		
Marketing	2 (8)	17000	18384,77631	338000000
Other industries	7 (49)	142142,8571	92279,33783	8515476190
Total	<b>16</b> (142)	134312,5	219697,2823	48266895833

Table 37: Investing sources - IC3

Table 38: Investing sources – IC4

Industry	Ν	Mean	SD	Var
Energy	5 (8)	4366600	8748787,219	7,65413E+13
Enterprise software	21 (39)	1516666,667	3720242,712	1,38402E+13
Fintech	<b>4</b> (8)	2828750	2351731,189	5,53064E+12
Food	8 (12)	209125	157780,5325	24894696429
Health	<b>17</b> (18)	2124705,882	3963649,467	1,57105E+13
Marketing	<b>4</b> (8)	121250	122363,8699	14972916667
Other industries	<b>30</b> (49)	267500	247726,7335	61368534483
Total	89 (142)	1250573,034	3317801,699	1,10078E+13

Table 39: Investing sources - IC6

Industry	Ν	Mean	SD	Var
Energy	<b>4</b> (8)	5210000	9864502,015	9,73084E+13
Enterprise software	<b>18</b> (39)	1374027,778	2034961,544	4,14107E+12
Fintech	<b>4</b> (8)	6103750	3111064,595	9,67872E+12
Food	8 (12)	209125	157780,5325	24894696429
Health	<b>14</b> (18)	1717857,143	2434575,239	5,92716E+12
Marketing	<b>4</b> (8)	118750	124791,4928	15572916667
Other industries	<b>29</b> (49)	349827,5862	428642,9641	1,83735E+11
Total	<b>81</b> (142)	1312722,222	2896221,784	8,3881E+12

Table 40: Investing sources - IC7

Industry	N	Mean	SD	Var		
Energy	<b>4</b> (8)	15337500	29777546,77	8,86702E+14		
Enterprise software	26 (39)	1831730,769	2859716,399	8,17798E+12		
Fintech	<b>4</b> (8)	18300000	21980900,8	4,8316E+14		
Food	<b>10</b> (12)	905000	816309,4457	6,66361E+11		
Health	15 (18)	7743333,333	13442215,84	1,80693E+14		
Marketing	5 (8)	631000	797452,1929	6,3593E+11		
Other industries	<b>32</b> (49)	1663437,5	2802150,51	7,85205E+12		
Total	<b>96</b> (142)	3789166,667	9778178,516	9,56128E+13		

## Appendix 10 – Investment sources per industry

Table 41: Investment sources per industry

Industry	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Energy	3	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	1	8
Enterprise software	13	3	1	0	4	1	0	1	2	0	1	0	5	2	0	4	0	2	0	0	39
Fintech	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	8
Food	4	3	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	12
Health	2	2	0	0	2	1	1	1	0	0	0	1	1	0	1	4	0	1	0	1	18
Marketing	2	1	0	1	1	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	8
Other industries	14	8	0	0	6	0	1	1	0	2	1	0	7	4	0	4	1	0	0	0	49
Total	41	19	1	1	15	3	2	4	2	2	2	1	15	7	1	16	2	5	1	2	142

Table 42:	Conversion	table type	of investing	source
			<i>cjcc</i>	

Type of investingsource	Code
0	1
3F's	2
3F'sConvertible Debt	3
3F'sPrivate Equity	4
Angel Investment	5
Angel Investment3F's	6
Angel InvestmentGrant	7
Bank	8
Bootstrapped	9
Convertible Debt	10
Crowdfunding	11
CrowdfundingConvertible Debt	12
Grant	13
Private Equity	14
Private EquityGrant	15
Venture Capital	16
Venture Capital3F's	17
Venture CapitalAngel Investment	18
Venture CapitalAngel Investment3F's	19
Venture CapitalPrivate Equity	20