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Abstract

A start-up can be seen as legitimate if other actors see the venture as desirable, proper, or appropriate. A significant body of research has examined how start-ups gain legitimacy and how gaining legitimacy affects their access to resources, such as funding. However, less research has focussed on how reputable actors can provide start-ups with legitimacy in the eyes of different audiences. Start-ups have to be perceived as legitimate in the eyes of external audiences – in our case venture capitalists (VCs) – for them to provide a start-up with the resources and support they need. Based on prior research we argue four reputable actors to have an effect on the certification of start-ups in the eyes of external stakeholders, thereby increasing their chances of receiving VC funding. These are: the media, business accelerators, angel investors and governments. This paper quantitatively investigates these effects using a binary logistic regression to assess whether non-VC-backed and VC-backed start-ups differ in terms of their affiliations with our proposed actors. Our sample consists of 183 start-up funding deals in the Netherlands, in the years 2015, 2016 and 2017. Our findings suggest that government funding and positive media coverage increases the likelihood of a start-up receiving VC funding, whereas having an angel investor on board decreases the likelihood of receiving VC funding. Furthermore, after combining our four different actors, the predictive power of our model improves significantly. Our results contribute to the existing legitimacy theory as they show how affiliations by different actors can positively or negatively legitimise a start-up in the eyes of a VC.

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1. Introduction

Start-ups often rely on financing to start and scale-up their business (Gompers & Lerner, 2001). Many financing opportunities exist for start-ups, e.g.; bank loans, crowdfunding, informal/angels investors, equity investments, buyouts, etcetera. However, venture capital (VC hereafter) is becoming increasingly popular as a funding mechanism in the Netherlands, with growing numbers of VC deals over the last few years (Kleverlaan¹, 2018; De Witte², 2018) and VCs being involved in 63%³ of all equity deals in the Netherlands in the year 2017. VC funding is considered to be an attractive form of financing for a specific group of start-ups that have high risk and growth potential. VCs can be important in bringing these start-ups to the market quickly and accelerating them, thereby fostering economic growth and innovation (Jeng & Wells, 2000; Gompers & Lerner, 2001; Brettel, Mauer & Appelhof 2013). For this reason, drivers of VC funding decisions have been a popular subject of research over the years (Tyebjee & Bruno, 1984; Siskos & Zopounidis, 1987; Deephouse, 2000; Uberbacher, 2014; Fischer, Kuratko, Bloodgood & Hornsby, 2017)

Start-ups have to be perceived as legitimate in the eyes of external audiences – in our case VCs – for them to provide a start-up with the resources and support they need (Aldrich & Fiol, 1994; Zimmerman & Zeits, 2002 Fischer, Kotha & Lahiri, 2016; Fischer et al., 2017). A start-up can be seen as legitimate if other actors see the venture as “desirable, proper, or appropriate” (Suchman, 1995, p. 574). Legitimacy has shown to; lead to more credibility (Suchman 1995), accelerate venture growth (Khair 2010), provide better access to high-quality employees (Williamson, 2000; Williamson, Cable & Aldrich, 2002) and better access to financial resources and investments (Deeds, Mang & Frandsen, 2004). Even though the literature on the effect of legitimacy is extensive, studies focussing on the different actors that bestow legitimacy are limited.

Legitimacy can be conveyed through affiliations by actors that are perceived to be reputable. These “prestigious” affiliations can legitimise a start-up by signalling to finance providers - like VCs - that this start-up is of sufficiently high quality to merit affiliation (Deeds et al., 2004;

¹ From NVP (Nederlandse Vereniging van Participatiemaatschappijen), which is the Dutch Association for VCs and private equity funding.

² From StartupJuncture, a Dutch start-up news and insights company

³ Calculated based on data collected by StartupJuncture of all the start-up equity funding deals in the Netherlands in the year 2017.

Fischer et al, 2017). This means that these high-status actors are providing the new venture with legitimacy because they are perceived as capable evaluators, who will only affiliate themselves with high-quality start-ups because affiliating themselves with low-quality start-ups could negatively influence their reputation (Stuart, Hoang & Hybels, 1999; Deeds et al., 2004). Our empirical research focusses on who these legitimising “high-status” actors are and how affiliations with them can influence the chances of a start-up receiving VC funding.

This research will focus on *evaluative* and *audience centred* legitimacy as developed by Uberbacher (2014) who categorised sixty existing articles on new venture legitimacy. *Audience centred* legitimacy focusses on how new ventures gain legitimacy towards a certain audience, in our case: VCs. The *evaluative legitimacy* view argues that legitimacy is gained by high-status actors or organizations affiliating themselves with a start-up, thereby showing that - in their eyes - it is of high quality. These actors can for example be, positive attention by the media (Pollock & Rindova, 2003; Sine, David & Mitsuhashi., 2007), the authentication of the start-ups’ products and services by legitimate authorities, e.g.: governments (Rao, 1994; Söderblom, Samuelsson, Wiklund & Sandberg, 2005; Woolley & Rottner, 2008), or strong network ties with other organizations that are considered legitimate (Higgins & Gulati, 2006). Based on the existing theory on evaluative and audience centred legitimacy (Uberbacher, 2014) we chose a combination of four actors to have an effect on the likelihood of receiving a VC investment, namely:

- Media
- Accelerators
- Angel investors
- Government

Other legitimising factors that have been studied before include: top management ties/network, new venture storytelling, crowdfunding, awards and social media (Higgins & Gulati, 2006; Ruebottom, 2012; Nagy, Pollack, Rutherford & Lohrke, 2013; Frydrych, Bock, Kinder & Koeck, 2014; Castelló, Etter & Nielsen, 2016). However, these are not included in our research as their legitimising effects are either not established, as is the case with social media, crowdfunding and awards. Or because information and data are simply not available, as is the case with data about entrepreneurial backgrounds and entrepreneurs’ networks. Therefore, we chose media, accelerators, governments and angel investors, as these actors have been researched separately as having an legitimising effect on resource providers (Appendix A).

Existing literature does not take into account multiple actors that could have an effect of VC funding. Prior studies either do not systematically distinguish the legitimacy judgments of the different audience types that a new venture faces (Zott & Huy, 2007; Fisher et al, 2017), or focusses on the legitimising effects of one type of actor with an unspecified audience (Uberbacher, 2014). This means that previous studies mostly look at the effect of only one actor, for example: the government on a start-ups chances of receiving VC funding, or that studies look at the effect of a number of actors but do not specify the audience. In other words, research on the legitimising effects of a combination of actors on one specific audience, like VCs, is lacking (Fischer et al., 2017; Uberbacher, 2014). Therefore, our **research question** is:

To what extent do the media, accelerator programmes, angel investors and governments have an effect on Dutch start-ups' likelihood of receiving VC funding?

To answer our research question we quantitatively investigate these legitimising effects using a sample that consists of start-up funding deals in the Netherlands during the years 2015, 2016 and 2017. The data set was constructed based on three databases from the Golden Egg Check, RVO⁴ and StartupJuncture. For our data analysis we use a binary variable stating “1” if a start-up had received VC funding and “0” if not. We use a binary logistic regression to assess whether non-VC-backed and VC-backed start-ups differ in terms of their affiliations with our proposed actors. This brings forth five different models. A separate model for each of the legitimacy actors and a combined of model of all four actors. Additionally, we conduct several robustness test amongst which an ordinary least square (OLS) regression, to check whether our data remains robust.

We found that positive media coverage and receiving funding by the Dutch government has a positive effect on the likelihood of receiving VC funding. Next, where most prior research describes a complementary relationship between angel investors and VCs our findings indicate that it might be more substitutional, as receiving an angel investment has a strong negative effect on the likelihood of receiving VC funding. The classification table of our logistic regression shows that the predictive value of our model increases significantly after

⁴ The RVO (Rijksdienst Ondernemend Nederland), is part of the Dutch Ministry of Economic Affairs and a government agency that fosters innovation and entrepreneurship in the Netherlands.

adding our independent and control variables. Additionally, after testing the robustness of our analysis by using an OLS regression, controlling for time effects and after rerunning the regression with a random subsample, our results remain robust.

This research contributes to the start-up legitimacy theory in a number of ways. Firstly, to our best knowledge, this is the first empirical research that combines theory on different legitimacy actors into a framework which helps start-ups understand how affiliations with certain actors can help them building legitimacy towards receiving VC funding. Secondly, this research is one of the first studies looking at the legitimising effects of accelerator programmes⁵ on start-ups (Hallen, Bingham & Cohen, 2014; Fischer et al, 2017). Furthermore, this research will focus on start-ups in the Netherlands, a country that has been subject to no previous legitimacy studies and very few investor readiness studies. This while the Netherlands are rising on the world list of most innovative countries and start-up hubs in the world (Horn, 2018). Lastly, this research uses a unique data set constructed by the Dutch Ministry of Economic Affairs, StartupJuncture and Golden Egg Check⁶ that comprises publicly available start-up equity funding deals in the Netherlands during the years 2015, 2016 and 2017.

This research is structured as follows: in chapter 2, a literature review discussing the different legitimising actors that we hypothesise to have an effect on VC funding will be discussed. In chapter 3 the research design, methods of analysis, our variables as well as the sample and data collection will be provided. In chapter 4 we present and discuss our findings as well as several robustness tests, after which we provide the theoretical and practical contribution of our research. Lastly, chapter 6 will provide a conclusion, as well as the limitations and future directions of this study.

⁵ Business Accelerators help nascent firms, and particularly high-tech startups succeed in the early stages of development by providing services such as office spaces, mentoring, networking and a variety of educational programs (Cohen, 2014; Miller & Bound, 2011)

⁶ Golden Egg Check is an organisation that helps investors find and assess start-ups. StartupJuncture is a Netherlands based start-up insights and data company. Together they constructed a database containing all start-up funding deals in the Netherlands between the years 2015 and 2017.

2. Theory and hypothesis development

In this chapter, we will discuss legitimacy and the different legitimising actors that can have an effect on a start-up receiving VC funding in further detail. We will start with legitimacy in general and thereafter explain more about the effects of the media, angel investors, accelerators and the government on a start-ups likelihood of receiving VC funding. For each of the four actors, we will start with describing the existing theory and findings after which we will develop our hypotheses. Thereafter, we provide our conceptual model, based on the our hypotheses.

2.1 Legitimacy

Gaining legitimacy is important for start-ups to become interesting to VCs. It can reduce the information asymmetry of the venture, caused by the liability of newness (Stinchcombe & March, 1965). Early stage start-ups have no reputable information available and do not have much of a track record, which makes it difficult for VCs to value them (Stuart et al., 1999; Fischer et al. 2016; Navis & Glynn, 2011). If the direct information is not available, VCs have to rely on indirect observations by other actors or organizations as a source of information (Stuart et al., 1999). These could be: financial analysts, governments who provided a grant to the new venture, organisations with close network ties to the start-up, the media, etcetera. If these actors are viewed as reputable or of high-status by VCs, their affiliations with the start-up can be perceived as a reliable source of information for the VC and thereby provide the start-up with legitimacy.

We will dive deeper into which high-status actors could bestow legitimacy upon VCs when affiliating themselves with start-ups following Uberbacher (2014), who created an extensive literature review categorising all the different forms of new venture legitimacy. Following this framework, legitimacy theory can be divided into *actor-centred* and *audience-centred* research. *Actor-centred* views focus on the actions of the entrepreneurial team that can contribute to the legitimacy of a start-up, whereas *audience-centred* research focusses on gaining legitimacy towards a certain audience. We will focus on audience-centred legitimacy as we want to discover how start-ups can gain legitimacy towards a certain audience: VCs.

Uberbacher (2014) recognises two main dimensions in his legitimacy theory: *cognitive* and *evaluative*. *Cognitive legitimacy* studies argue that new ventures gain legitimacy by ensuring their actions are understandable and perceived as desirable and proper to outsiders (Suchman,

1995). *Evaluative legitimacy* focusses on the legitimising effects that other reputable actors have on start-ups when they affiliate themselves with a start-up.

Furthermore, Uberbacher recognises two main dimensions in legitimacy theory: *cognitive* and *evaluative*. *Cognitive legitimacy* studies argue that new ventures gain legitimacy by ensuring their actions are understandable and perceived as desirable and proper to outsiders (Suchman 1995). *Evaluative legitimacy* focusses on the legitimising effects that other reputable actors have on start-ups when they affiliate themselves with a start-up. Again, we focus on the latter as this research aims to find how a number of different actors can provide a start-up with legitimacy. Our research will focus on the third quadrant of Uberbachers framework - displayed in Figure 2 - of new venture legitimacy views; the organisational judgement view. The framework divides legitimacy theory by their “Locus of Control”, being Audience-centred or Actor-centred and their “Level”, divided in legitimacy on a firm level (Micro) and on an industry level (Macro). As we focus on the legitimacy on a firms level and towards a certain audience, we follow the organisational judgement view.

Organisational judgment legitimacy research looks into the legitimising effects of affiliations by certain high-status actors towards a certain audience on a firm level. A great deal of new venture legitimacy research focusses on organisational judgement legitimacy (Uberbacher, 2014), however these studies

Micro	Contextual Judgement view	Collective action view
	Organisational Judgement view	Strategic action view
Macro	Audience Centred	Actor centred

Figure 1: Types of views on new venture legitimacy (Uberbacher, 2014)

only focus on one legitimising actor (Rao, 1994; Pollock & Rindova, 2003; Nasra & Dacin; 2010) or focus on legitimacy towards an audience of unspecified resource providers (Choi & Shepperd, 2005; Khaire, 2010; Uberbacher, 2014), rather than a focussed audience, like VCs. According to organisational judgement legitimacy research, legitimising actors can increase the perceived legitimacy of a start-up in the eyes of a VC, which brings us to our first hypothesis:

In the next few sections, we will theorise the four most important legitimising actors and elaborate on how they can provide a start-up with legitimacy in the eyes of a VC.

2.2 Media

As described in the previous sections legitimacy is of great importance to start-ups. However, for start-ups to gain legitimacy they should first be noticed and recognised by relevant stakeholders. Media attention can facilitate the start-up's ability to share their ideas and business proposition to a wider audience of relevant stakeholders and potential investors (Petkova., Rindova & Gupta, 2013). Start-ups can only to a limited extent reach these relevant parties directly (Hallen, 2008). Therefore, a start-up needs exposure. Exposure is a result of information transmission by the media and makes it possible for a broader audience of potential stakeholders, investors and other resource providers to “experience” otherwise distant events (McLeod, Kosicki & Pan, 1991).

Research has shown that the volume of exposure and its repetition can increase the acceptance of the topic under coverage, because it makes people and relevant stakeholders more familiar with the topic (Zajonc, 1968; Pollock & Rindova, 2003). More importantly, a higher volume of media coverage on a certain topic is found to reduce its perceived riskiness (Heath & Tversky, 1991). They found that, all other things being equal, more information exposure about a firm could reduce its perceived riskiness, which is especially important for start-ups because of their liability of newness (Stinchcombe, 1965). Media coverage of a start-up and its volume are an important first step for legitimacy and receiving attention from relevant parties. This especially holds for VCs, as they can only direct their resources and attention towards the most reliable high potential start-ups in an ambiguous and complex environment (Ocasio, 1997). Media coverage is therefore important for early-stage ventures. As both the amount of exposure as well as the volume of coverage on a start-up can increase its acceptance and even reduce its perceived riskiness.

Several scholars researched the legitimising effects of the media. Where, Petkova et al. (2013), Zacharakis and Boguslavskaya (2013) and Deephouse (2000) investigated the relationship between the media and VC investor readiness. Similarly, Pollock and Rindova (2003) and Pollock and Gulati (2007) have studied the effects of media on IPO underpricing. In their research Petkova et al. (2013) focussed on the effects of media attention on the amount of venture capital received, whereas Rindova and Gupta investigated the effects of analyst press coverage on IPO underpricing. Both studies take the number of articles that is written about a start-up as one of their independent variables. Both of them found positive significant effect. Petkova et al. (2013), found, using serie path modelling that the number of articles has a positive

significant effect on the level of VC funding a start-up receives. This is in line with the notion of Heath and Tversky (1991), who found that higher levels of information exposure can reduce riskiness.

Because of the theory and previous findings stating that repetition can legitimise a start-up by increasing its familiarity and reducing its perceived riskiness, we formulate the following two hypotheses:

***Hypothesis 1a:** The number of media coverage has a positive effect on a start-up's likelihood of receiving VC funding*

***Hypothesis 1b:** The average length of the article covering the start-up has a positive effect on a start-up's likelihood of receiving VC funding*

Media coverage and its volume of a start-up are an important first step for legitimacy and receiving attention from relevant parties. Media coverage is therefore important for early-stage ventures.

However, not all media channels are the same. Research by Petkova et al. (2013) suggests that media attention has a significant positive effect on a start-up's investor readiness and that industry-specific media attention has a greater legitimising effect than that of general media. Industry-specialised media are coverages that focus on audiences with a special interest or expertise. They often have journalist writing about specific areas or topics (e.g; Finance, information technology, farming, etcetera), which requires more in-depth knowledge of that area by the journalist (Petkova et al., 2013).

Additionally, industry media are not just observers of a firm or industry, but rather they shape innovate industries or fields (Petkova et al., 2013). They are active on a field-level and have more in depth knowledge which makes that they are regarded as experts in the field they are covering (Rao, 1994). As a result, the certification effects of industry media are greater than that of the general media. Because of their expertise positive mentions by industry specific media can reduce the information asymmetry between a start-up and its external stakeholders. Petkova et al. (2013) validated this, using series path modelling. They hypothesize that both general and industry media have a significant positive effect on receiving VC funding. Media exposure was categorised using the Lexis Nexis database. They found that industry specific

media was indeed significantly and positively related to the level of VC funding that a start-up received. This, where exposure by the general media that not significantly effect VC funding amounts. This corresponds with earlier work of Slater and Rouner (1996), who found that message credibility influences its believability as well as its impact of the receivers of the message. These findings lead us to the following hypothesis.

Hypothesis 1c: Industry specific media has a positive effect on a start-ups likelihood of receiving VC funding that is greater than that of the effect of the general media.

Lastly, next to the importance of the amount of coverage, the tone of the news mentions is an important factor as well. The media tends to frame start-ups through the selection and interpretation of information available to them. Framing often happens positively or negatively and public expressions of approval or disapproval could influence the public opinion in both a positive and a negative way. Since media mentions often contain a high degree of information by a number of opinion leaders, such as journalist and industry experts, the information that it provides, either positive or negative, could certify as social proof of the legitimacy of a firm. (Pollock & Rindova, 2003).

Deephouse (2000), uses the coefficient of media favourableness, which is the same measure as the Janis-Fadner (1965) coefficient of imbalance used by Petkova et al., (2013) and Zacharakis and Boguslavskaya (2013), to investigate the effect of media favourableness on companies' ROA .He finds a positive and significant relationship between favourable media coverage of a company and its return on assets.

$$\text{Coefficient of media favorableness} = \begin{cases} (f^2 - fu)/(\text{total})^2 & \text{if } f > u; \\ 0 & \text{if } f = u; \\ (fu - u^2)/(\text{total})^2 & \text{if } u > f; \end{cases}$$

$$\text{Tenor} = (P^2 - PN)/V^2 \text{ if } P > N; 0 \text{ if } P = N, \text{ and } (PN - N^2)/V^2 \text{ if } N > P;$$

This measure: is used to check whether, on average, the coverage of a start-up was positive (between 0 and 1), negative (between -1 and 0) or neutral (0). Both Deephouse (2000) as well as Pollock and Rindova (2003), find a positive significant result. Even though, Pollock and

Rindova (2003), looked at the effect of a positive media tenor on a firms turnover after an IPO, rather than the amount of VC funding, it still indicates that positive exposure could certify a start-up in the eyes of external stakeholders. Therefore, we hypothesize the following relationship between media tenor and the likelihood of receiving VC funding

Hypothesis 1d: *A positive media tenor has a positive effect on a start-ups likelihood of receiving VC funding.*

2.3 Accelerators

Next, we look at accelerators as a high-status actor in the start-up ecosystem. While incubators

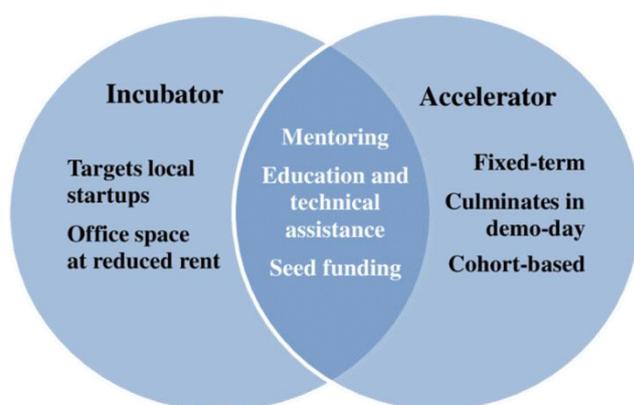


Figure 2: incubators and accelerators Dempwolf, Auer, and D'Ippolito (2014)

have been an important factor for regional economic development for a few decades (Wadid, 2016), a relatively new phenomenon has caught the interest of researchers over the last few years; the accelerator. Although there are many similarities between the two, we will start by illustrating the differences and providing

a definition of the two. Figure 3, displays the shared goal of both

incubators and accelerators, which is to mentor, provide technical assistance, educate and sometimes provide seed funding to start-ups (Dempwolf, Auer, & D'Ippolito, 2014). However, the accelerator is more short-term than the incubator and aims for a fast validation of the start-up's idea and its team. *"Business accelerators are 3-6 month programmes that help new ventures in early stages of development by providing support services such as office spaces, coaching and mentoring, a small amount of financial support and a subset of education programs."* (Wadid, 2016, p, 36). In return, the accelerator generally receives some shares into the start-up which makes them inclined to help the start-up find a follow-up investment, so that they can make a profit.

We only include accelerators as a legitimising actor for two reasons 1) information about start-ups participation in incubators is not available from our dataset or through additional desk research, as the participation in an incubator is not that often publicly reported and 2) As

accelerators have stricter selection criteria (Yusubova & Clarysse, 2016), often hold a stake in the company (Kramer, 2017) and are aiming for a follow-up investment, the motivation for accelerators to affiliate themselves with high-quality start-ups is greater than that of incubators, indicating that their legitimising effect should be larger.

Accelerators have very strict and unique selection criteria resulting in a higher success rate for their graduates as shown by Hoffman and Radojevich-Kelley (2012). Their research has shown that accelerators have a positive effect on start-up teams, because they rapidly learn to create valuable networks and become more successful entrepreneurs. As accelerators are a relatively new phenomenon, that has been a subject of research for just a few years, accelerators have not very often been included in legitimacy models or theory.

When looking at previous research we see that both Miller & Bound (2011) as well as Hallen et al., (2014) find a positive significant effect between the participation in an accelerator program by a start-up and their success. Where Miller and Bound (2011) take a qualitative approach by using a case study, following the outcome of different accelerators. Hallen et al., (2014) take a quantitative approach using a binominal logistic regression. Additionally, research by Kramer (2017) has shown that accelerators have a positive effect on start-up teams because they rapidly learn to create valuable networks and become more successful entrepreneurs. As accelerators are a relatively new phenomenon, that have been a subject of research for just a few years, accelerators have not very often been included in legitimacy models or theory.

This is surprising because, as mentioned earlier, some results have showed that accelerators have a positive impact on start-ups. Hoffman and Rojevich-Kelly (2012), who investigated the effects of accelerators by a case study following several accelerators and their results around Europe, found that start-ups who had been through an accelerator programme had greater success rates. Where 50% of small business failed on average (SBA, 2007), almost 70% of start-ups that had been in the accelerator TechStart, managed to get a positive cash flow (Rojevich-Kelly, 2012). Additionally Kramer (2017), who used an online survey, questioning graduates of accelerator programmes finds that the accelerator programmes lead to a significant increase in several “objective outcomes”, like venture success, follow-up funding and sales. Lastly, Smith and Hannigan (2013), who compared the effects of participating in a top rated accelerator programme relative to being backed by a top rated angel group found using a probit

regression model that the time until acquisition and follow-up funding for start-ups was significantly shorter for start-ups that participated in an accelerator programme than for start-ups that were backed by an angel investor group. Due to these results we hypothesise:

Hypothesis 2a: *Start-ups that participated in an accelerator programme are more likely to receive funding from VCs.*

In addition, research by Yusubova and Clarysse (2016), who investigated 41 different accelerators in Berlin, Paris and London found that, because of their newness, accelerators are struggling with legitimacy themselves. Accelerators that are more established and gained more legitimacy in the eyes of their stakeholders, report their selection process to be their biggest success factor. Therefore, the quality of the accelerator could have an effect as well on the VC funding amount. Data about the quality of the different accelerators in our sample is not available and therefore is suggested for further research.

However, we do look at whether or not the accelerator has a “demo day” or a similar event during or at the end of their program. Demo days are used to connect the start-ups in the programme with potential customers, partners and investors, like VCs (Yusubova & Clarysse, 2016). Accelerators who have such an event in their programme should thus have stronger ties with investors indicating that their start-ups are more likely to receive VC funding.

Subsequently, demo days put pressure on VCs to invest in start-ups as there is competition present. Presenting the start-up to a group of investors creates a feeling of urgency for investors to get in touch with the start-up, if that start-up is perceived to be of high potential. This concurs with research by Smith and Hannigan (2013), who found that start-ups who had participated in an accelerator with a demo day were more likely to receive VC funding on the short term than those start-ups who were backed by angel investors.

Having a demo day in an accelerator could thus increase the chances of a start-up to find follow-up funding, as they are prepared to pitch their business to investors, who otherwise might be hard to get in contact with. This results in the following hypotheses:

Hypothesis 2b: *Start-ups that presented their idea via a demo day are more likely to receive VC funding than those who did not.*

2.4 Angel investors

Business angels have become increasingly important in funding start-ups in very early stages (Van Osnabrugge, 2000) They provide both funding as well as managerial experience, which increases the likelihood of success (Bilau & Sarkar, 2015).

Furthermore, the use of business angel networks has increased. These networks further facilitate the funding and growth of very early ventures by providing funding to start-ups in very early stages. Angel investors and VCs have a very complimentary relationship as they often sequentially invest in business in different stages (Timmons & Sapienza, 1992; Harrison & Mason; 2000). The informal capital market often provides very early stage financing to risky firms with high growth potential, where formal capital investors, like VCs, invest larger amounts of funding in subsequent stages (Harrison and Mason; 2000). This is also illustrated by Berger and Udell (1998), who created a framework (Appendix B) for different stages of financing for start-ups. They combine the Pecking order theory, which described the preferred order of financing by firms (internal financing, then debt and at last equity), with a continuum ranging from very small, young and opaque firms on the left end to more established firms on the right end. Based on this, initial financial injections by angels should then move firms more to the right legitimising them and making them less opaque and more attractive for follow-up finance providers

A clear link can be distinguished between VC funding for start-ups that have an angel investor on board and evidence that angel investors provide sufficient financial resources as well as entrepreneurial experience, knowledge and a valuable network to start-ups.

Previous research by Harrison and Mason (2000) already showed that the funding by angels significantly contributes to a start-ups access to further financing rounds. They used surveys to ask both VCs and angels about their complementariness and found that 50% of the 38 responding VCs invested in start-ups that had received angel investments in an earlier funding round. Furthermore they find that 24% of the VCs state that they are more likely to invest in a start-up when they have an angel on board. Additionally, 18% states that it depends on the business angel, 50% says it doesn't matter and only 5% state that they are less likely to invest in a start-up that previously received funding by an angel investor. Moreover, angel investors

contribute to start-ups' access to both non-financial as well as financial resources (Ardichvili, Cardozo Tune and Reinach, 2000). They find that between 43 and 77% of angels that invested in a start-up, provide either access to networks or follow-up financing opportunities.

This evidence suggests that the involvement of an angel investor can provide a start-up with legitimacy because an angel investor, who often has a track record as an entrepreneur as well, could certify a start-up by investing in it. This leads us to our next hypothesis:

***Hypothesis 3a:** Angel-backed start-ups are more likely to receive VC funding than those who do not.*

Additionally, research by Ardichvili et al., (2000), who investigated both the financial and non-financial impact of angel investors, found that when angel investors co-invest with other angels they spend more time on their due diligence process and contribute more time for non-financial support. However, a larger number of angel investors also results in more conflicting interests, which makes it less attractive for a VC to invest in the start-up.

Van Osnabrugge (2000) and Hsu et al., (2014), who researched the differences between angel investors and VCs found that angel investors and VCs have significantly different interests. Where VCs act more professional and focus on outcome oriented performance measures such as return by having a strict due diligence process, in order to minimise the information asymmetry. As angel investors often do not have the resources to go through a lengthy and strict due diligence process, they focus more on team and people characteristics, such as passion and entrepreneurial experience (Van Osnaburgge, 2000). Additionally, angel investors try to reduce the information asymmetries by becoming closely involved with the start-up, often becoming co-entrepreneurs with the founder(s). Having multiple angel investors on board can create a situation of conflicting interests. Additionally, VCs would have more trouble negotiating terms with multiple angel investors, which could decrease their appetite in start-ups that have been backed by multiple angel investors. Therefore, we hypothesise the following.

Hypothesis 3b: A larger number of business angels that invested in the start-up decreases a start-ups likelihood of receiving VC funding

2.5 Government

Research about the effects of subsidies and grants on a firm's investor readiness or access to further resources have already shown that innovation policies focussing on facilitating new ventures by providing financial stimuli for innovative projects increases the number of start-ups and reduces the time until the next funding round, as funding by the government certifies a start-up in the eyes of external stakeholders. (Woolley & Rottner, 2008; Nasra & Dacin, 2010; Söderblom et al., 2015). They argue that the legitimising effect of subsidies and grants that are given based on the potential of a new ventures technology by the government will provide the firm with legitimacy in the eyes of VC investors. Additionally, Colombo, Giangelli and Grilli (2012) found governmental support through subsidies to have a positive effect on attracting employees. They found that selective subsidies, that are given based on a selection process by specialist, could certify a start-up by reducing the information asymmetry between the start-up and its external stakeholders.

Research on government subsidies on start-ups' access to resources by Söderblom et al. (2015) underlines this line of thought by noting that the money provided by governments certifies the quality of a start-up in the eyes of potential investors, rather than only constituting an important financial contribution. Moreover, they found that subsidies are especially valuable in the very early stage as then, the mitigation against the liability of smallness and newness (Stinchcombe, 1965) and the reduction in information asymmetry is greater than for more developed firms. Sine et al., (2007) underlines this as he notes that, when a start-up holds a certificate from, or has earned affiliation with, a "high-status" institutional actor, external stakeholders and other constituents are more likely to accept the new business as a viable risk.

Additionally, Söderblom et al. (2015) tested, using a OLS regression if the effect of a government provided by the Swedish government had a positive effect on a start-ups ability to attract subsequent capital and employees. Both of these hypotheses where supported and found to be positive and significant. Their findings thus suggest that governmental support legitimises a firm in the eyes of follow-up finance providers like VCs. Similar results were found by Colombo et al., (2012) Who used a quasi-experimental design, comparing start-ups who applied

and received a Belgian R&D subsidy with start-ups that did not receive the subsidy. In accordance with Söderblom, they found that the R&D subsidy provided by the Belgium government had a positive significant effect on a start-ups ability to accumulate further financing, both long term debt as well as private equity. These effect became greater when information asymmetries were larger, again indicating that the subsidy functions as a legitimising actor, certifying the start-up.

The abovementioned theory and findings provides enough evidence to believe that both Dutch as well as European subsidies could provide a start-up with legitimacy in the eyes of follow-up finance providers. Because of this, we hypothesise the following:

***Hypothesis 4a:** Start-ups receiving Dutch government funding have a higher likelihood of receiving VC funding than those start-ups who do not.*

Next, we differentiate between Dutch and European subsidies. As mentioned in the previous section, the certification effects are greater when the reduction of information asymmetries is large. Because of this we believe that subsidies with stricter selection criteria for providing the subsidy could have a greater certification effect on start-ups than subsidies with lower selection criteria. For European subsidies, we look at the SME instrument which is a European subsidy provided to start-ups in different phases. The SME instrument has a budget of 1.6 billion euro which is available for a start-up's feasibility assessment, innovation projects or business acceleration.

As the SME instrument provides larger funding amounts and has stricter funding criteria we hypothesise that the effect of this subsidy is stronger than that of subsidies provided by the Dutch government. Research comparing the effect of different subsidies on a start-ups likelihood of receiving VC funding, is to our best knowledge, not existent. However, Sine et al., (2007), Colombo et al., (2012) and Rao (1994) did find that when selection criteria are stricter the legitimising effects of government support for new ventures could have a greater effect than those that have criteria that are less strict. Therefore we hypothesise the following:

Hypothesis 4b: *The effect of start-ups receiving European programme funding on the likelihood of receiving VC funding is greater than that of start-ups receiving Dutch government funding.*

2.6 Theoretical model

In the previous sections we developed hypotheses stating the relationship between our four actors and the likelihood of receiving VC funding. In this section we will combine these hypotheses into a framework, summarising the different actors and their relation to the likelihood of receiving VC funding. Figure 3 shows the four actors as well as their underlying variables and the proposed effect they have on a VCs investment decision. Based on previous theory, which we will further highlight in the theoretical framework, we argue that the legitimising effects of the four different actors on the likelihood of receiving a VC investment are positive. The (1/0) indicates that the provided variable is a dummy/binary variable indicating either “1” if yes and “0” if no.

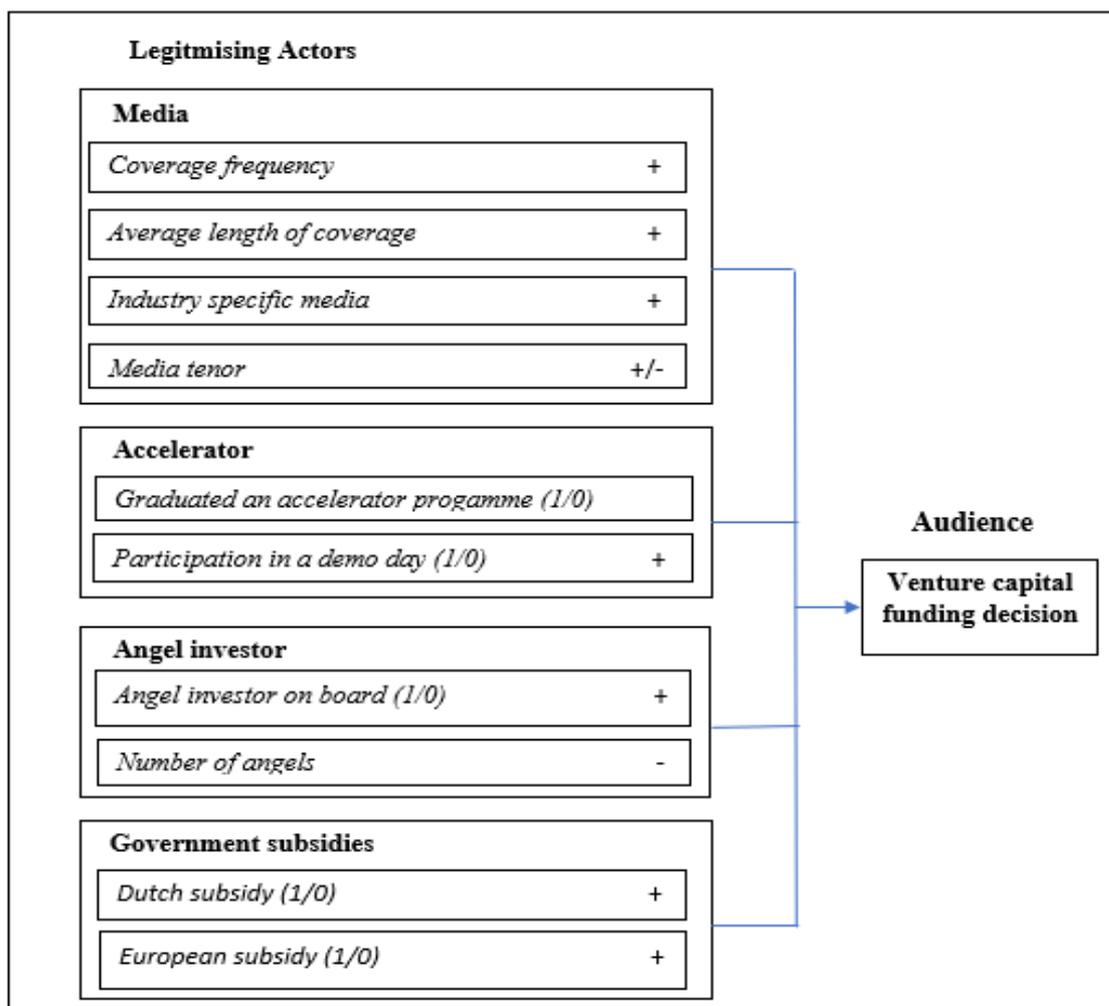


Figure 3: a conceptual model on the effect of the media, accelerators, angel investors and the government on a start-ups likelihood of receiving VC funding.

3. Methods and sample

We will start by describing the research design and econometric model. Thereafter, the dependent and independent variables will be explained followed by the data analysis, sample and data collection.

3.1 Research design

This research was set out to investigate why some firms do receive VC funding while other firms do not, based on their affiliations with reputable actors. Measuring the effect of such actors is challenging as it is difficult to address the counterfactual. How would the start-ups have performed if they did not receive the affiliations from reputable actors? Generally, two approaches dominate this field of research. The first approach is using **an ordinary least square (OLS) regression approach**, where the amount in VC funding or the performance of the start-up after receiving affiliations by reputable actors, are used as continuous dependent variables. (Deeds et al., 2004; Zacharakis & Boguslavskaya, 2013). The second approach is the use of a **binary logistic regression** to investigate the effect of legitimising actors on a VCs investment decision (yes/no). This approach is used by (Madill et al., 2005; Van Gelderen, Thurik & Bosma, 2005, Kessler & Frank, 2009) and is either done by using a matched set of start-ups based on characteristics such as age and industry, or by controlling for these firm and industry-specific characteristics. Which approach is most appropriate is partially dependent on the data (availability). We will first describe the benefits and disadvantages of both approaches.

The coefficients of *Ordinary least square (OLS) regressions* are easier to interpret than those of Binary logistic regression. Their outcomes are easier to explain as with binary logistic regression the predictor coefficients outcomes are provided in log-odds. However, OLS regression has assumptions that are stricter than that of a binary logistic regression. The dependent and independent variables must for example meet the homoscedasticity assumption and be normally distributed. As our data was not normally distributed, due to a strong presence of “0” counts for the amount invested and because our data does not meet the homoscedasticity assumption, we chose a binary logistic analysis to estimate the likelihood of receiving VC funding predicted by our legitimacy actors. However, as mentioned earlier, OLS has advantages as well, being better interpretable. Therefore, we will include the OLS

regression as a subsequent robustness test to validate the results from our binary logistic regression. Before we do so, we normalise our variables using a square root transformation method.

Binary logistic regression. We analysed if the likelihood of receiving VC funding increased as a result of affiliation with the media, angel investors, accelerators and governments. We did this by taking a binary dependent variable and checking whether there is a significant difference between VC-backed and non-VC-backed start-ups (Madill et al., 2005; Kessler & Frank, 2009) in terms of their interaction with our proposed legitimising actors. To demonstrate that the legitimising effects are truly there, other plausible predictors were controlled for. We discuss these in section 3.3.3.

As we use a binary logistic regression model (Madill et al., 2005; Kessler & Frank, 2009) with one dichotomous dependent variable and multiple independent and control variables we developed the following logistic regression model:

$$\begin{aligned} \text{Ln}[Y/1-Y] = & \alpha_0 + [\beta_1 \text{CoverageFrequency}_{it-12} + \beta_2 \text{AvgWords}_{it-12} + \\ & \beta_3 \text{Media_Industry}_{it-12} + \beta_4 \text{Media_National}_{it-12} + \beta_5 \text{MediaTenor}_{it-12}] + \\ & [\beta_6 \text{Acceleratory}_{it} + \beta_7 \text{Demoday}_{it}] + [\beta_8 \text{AngelAmount}_{it-18} + \\ & \beta_9 \text{NumberOfAngels}_{it-18}] + [\beta_{10} \text{Government_Funding}_{it} + \beta_{11} \text{SME}_{it}] + [\beta_{12} \text{Age}_{it} + \\ & \beta_{13} \text{Industry}_{it} + \beta_{14} \text{Linkages_Other_Finance_Providers}_{it}] e_i \end{aligned}$$

Where Y is the predicted probability of receiving an investment by a VC. α is the constant, 1 until 11 are the predictor variables and 12 until 14 are the control variables. Additionally, t is the time in months, -12 and -18 indicating the lag in months and e_i is the error term.

3.2 Variable definitions

3.2.1 Dependent variable

The likelihood of receiving a VC investment was measured by a dichotomous (dummy) variable stating whether the start-up received a VC investment "1", or not "0". As mentioned in section 3.1 we only look at the first VC funding round, also referred to as the series A funding round. The first venture funding round is seen as the first start-up round of growth financing (Petkova et al., 2013). Our goal was to find the effect of the predictor variables, on our dependent variable

“VC investment decision” to see if these have an effect on the likelihood of receiving VC funding.

3.2.2 Independent variables

For **media** we collected the number of articles that were written about the start-up, the average length of the article, the sort of media channel, categorised as industry-specific media, national media, regional media and website related media and the average tone of the coverage, all of which were measured one year prior to the start-up receiving a VC investment. The mining of media mentions was done via the Lexis Nexis database, using the name of the start-up as the search term. This database contains a large number of Dutch media outlets both online and offline both regional and national articles. Following the work of Pollock and Gulati (2007) relating media attention and investor readiness, we only looked at media mentions twelve months prior to the reported moment that the start-up received VC funding.

The number of articles is measured by the number of articles that were published about the start-up and are available in the Lexis Nexis database (Petkova et al., 2013). *Average length* will be measured by taking the average number of words per article written about a start-up. Next, we look at the number of different channels the start-up has been mentioned by. Based on previous research (Pollock et al, 2008; Petkova et al., 2013) and the data available in the LexisNexis⁷ database we create three categories⁸:

- *Industry-specific media* (industry news)
- *General media* (National news, journals and magazines)
- *Regional media* (regional newspapers)

From these categories we construct two variables following Petkova et al. (2003): *Industry-specific media*, which are articles that are written by industry specific newspapers or magazines and *General media* which combines general media, regional media mentions. As mentioned in

⁷ We use the LexisNexis database to measure our variables relating media attention as this database contains over 75 Dutch news sources amongst which all the big national newspapers, as well as regional newspapers, websites and magazines. The LexisNexis database automatically categorises news mentions in the categories: industry news, national media, magazines and websites.

⁸ The data was hand checked to see whether the news mentions were appropriately categorised in the Lexis Nexis database.

hypothesis 1c we expect industry specific media to have a significant positive effect on a start-ups chances in receiving VC funding.

Lastly, we investigated the average *media tenor* of the articles following Janis-Fadner's (1965) coefficient of imbalance. This measure, which is used in other media and legitimacy related studies (Deephouse, 2000; Pollock & Rindova, 2003), provides an estimate on the proportion of positive, neutral and negative articles. It will be measured using one of the following three equations, depending on whether there are more positive ($P > N$), negative ($N > P$) or equal amount of positive and negative articles ($P = N$) (Deephouse, 2000: Janis & Fadner, 1965):

$$\begin{aligned} \textit{Tenor} &= (P^2 - PN)/V^2 \text{ if } P > N; 0 \text{ if} \\ &P = N, \text{ and } (PN - N^2)/V^2 \text{ if } N > P, \end{aligned}$$

Where P is the number of positive media mentions, N is the number of negative media mentions and V is the total volume of articles including the neutral articles. that are published about the start-up.

We code the articles following Deephouse (2000) and Zacharakis and Boguslavskaya (2013). Articles describing certain milestones or achievements about the start-up, for example: winning an award, or receiving a grant, are coded as being positive. Additionally, positive prospects about the start-up, its founder or its industries, that are mentioned by the author, were also denoted as positive (Deephouse, 2000). Mentions about the risks, failures or uncertainties of the start-up, the industry or its founder were noted as negative. Interviews with the founders, or simple explanations about what the start-up does, without mentioning milestones, achievements or failures of a start-up, were categorised as being neutral.

If the coefficient is greater than 0 this means that on average the articles have a more positive tone, with 1 as all articles being positive. A negative coefficient indicates that the tone on average is more negative with a value of -1 when all the articles are negative. Furthermore the media tenor is 0 when $P = N$, meaning that when the number of positive articles is equal to the number of negative articles, the tenor is neutral.

Next, we hand-collect data about the **accelerator programmes**. For every start-up in our database we investigated whether it had been through an accelerator programme. We denoted "1" if the start-up graduated/finished an accelerator programme prior to the reported moment that the start-up received their investment and denoted "0" if the start-up did not participate in an accelerator (Hallen et al., 2014; Smith & Hannigan, 2012). We measured our second dichotomous variable for demo days similarly, denoting "1" if the start-up had participated in a demo day of an accelerator and "0" otherwise.

For **angel investor**, we looked at whether an angel had invested in the start-up in the eighteen months (Quintero, 2017) prior to the date that the start-up received VC funding. This variable is documented as a dummy variable (Madill et al., 2005). Lastly, we denoted the number of angel investors as we wanted to know if an investment by a larger group of angels has an effect on the likelihood of receiving an investment as well.

For **government funding**, we looked at Dutch and European subsidies/grants. We operationalised this variable following the work of Sine et al. (2007) and Söderblom et al. (2015). For the *Dutch subsidy*, we looked whether the start-up received a subsidy or grant from the Dutch government prior to its VC investment. This means that we denote "1" if the start-up received a Dutch subsidy/grant and "0" if not.

Next, we looked at the *European subsidy*, for which we will use the SME instrument, a EU subsidy that is available for every start-up in every industry and awards funding to start-ups in different phases, which makes it appropriate for our sample of start-ups in different industries. We denoted "1" if the start-up received the SME instrument and "0" otherwise. This method is similar to the one used in Söderblom et al. (2015), who uses a dummy for a Swedish government subsidy.

Our analysis of the effects of media, accelerators, angel investors and governments resulted in five different models. Each of the four legitimacy actors was regressed against VC investor readiness as well as one model where each of the constructs was added to investigate the combined effect of our proposed legitimising actors.

Figure 4 provides an overview of all the dependent and independent variables:

Dependent variables:

VC investment (1/0): This dummy variable measures whether the start-up has received an investment “1” or not “0”.

VC amount: The amount invested by a VC in a start-up in euros.

Independent variables:

Media

Media coverage: The amount of articles that have been written about a start-up

Average length: The average length in words of all the articles that have been written about a start-up

Industry specific media: The number of times that a start-up was mentioned in industry specific media

General media: The number of times that a start-up was mentioned in general media

Media tenor: This variable is calculated using the Janis-Fadner measure and results in a value between -1 (negative tenor) and 1 (positive tenor)

Angel investors

Angel investment (1/0): This dummy variable measures whether the start-up has received funding by an angel investor “1” or not “0”

Angel amount: The amount invested by the angel investor in euros

Number of angels: The number of angels that have invested in a start-up

Accelerators:

Accelerator (1/0): This variable indicates whether a start-up has been accepted into an accelerator programme “1” or not “0”

Demo day (1/0): This variable indicates whether a start-up has participated in a “demo day” during an accelerator programme “1” or not “0”.

Government

DutchEuropean government funding (1/0): This variable indicates whether a start-up has received government funding “1” or not “0”

European government funding (1/0): This variable indicates whether a start-up has received government funding “1” or not “0”

Figure 4: Dependent and independent variable definitions

2.3 Control variables

The range of factors influencing a VCs funding decision is extensive. Therefore, it is important to include control variables, to make sure the found results of our regressions are robust and merely the effect of our chosen high-status actors. Following a number of control variables reported in studies on VC investor readiness (Baum & Silverman, 2004; Madill et al., 2005; Hsu, 2007) we looked at the following control variables: start-up age, linkages with finance providers and the industry of the start-up and a dummy for other types of funding. Start-up age and industry, have been investigated extensively in prior research as having an effect on investor readiness. We included a dummy for "Linkages with other finance providers" as there are many different sources of funding possible for start-ups, some of which only occur occasionally. As we only want to measure the legitimising effects of our four actors we controlled for other types of funding, such as crowdfunding, money brought in by founders, convertible notes and loans in our regression.

The **age** of the start-up will be measured in years. **Linkages with other finance providers** will be a dummy variable measuring whether the start-up has received financing from alternative sources, such as bank loans, crowdfunding or money brought in by founders. Furthermore, control for **industry** effect by categorising our data in six different industries and adding five of these in our analysis as control variables. Following the Industry Classification Benchmark (IBC) (FTSE, 2005), we first categorised our start-ups in their corresponding subsector and later combined certain subsectors that fall under the same industries to have larger subgroups of industries. Start-ups in alternative energy (cleantech), for example, fell under the category “oil & gas”. Retail, travel and service start-ups were paired under consumer services. Financial (fintech) and insurance (insuretech) start-ups were put under Financial services. Software (SaaS) and internet start-ups under software and high tech and electronics start-ups under technology hardware. Lastly, pharmaceutical and healthcare start-ups were categorised under healthcare.

Even though generally more control variables would be included in comparable studies (Baum & Silverman, 2004; Hsu, 2007) we used the abovementioned three; industry, age and linkages with other finance providers due to a lack of data availability, which is a result of limited reporting rules for start-ups and the fact that little reputable information about them is available.

An overview of the control variables can be found in figure 5.

Control variables

Age: The age of the start-up in years

Linkages with other finance providers: This variable denotes “1” if the start-up has received previous funding from other sources than angel investors, accelerators, government funding prior to receiving VC funding and “0” if not.

Industry dummies: Based on our six industries we created six dummy variables stating “1” if the start-up falls in that industry category and “0” otherwise. The six industry categories are:

1. *Healthcare (1/0)*
 2. *Software (1/0)*
 3. *Consumer services (1/0)*
 4. *Financials (1/0)*
 5. *Technology hardware (1/0)*
 6. *Oil & Gas (1/0)*
-

Figure 5: Control variable definitions.

3.3 Sample and data collection

As our sample, we took all start-up deals in the Netherlands in the years 2015, 2016 and 2017 which brings us to a total sample of 492 start-ups. Next, we filter out deals that involved non-Dutch VCs, follow-up funding rounds (late growth)⁹ and deals that had no information about the type of investment, which brings us to a total sample of 182 start-ups. We filter out VCs outside of the Netherlands as they will most likely not be effected by Dutch media outlets or accelerators, which could diminish the effects of these actors. The data set was constructed based on three databases from the Golden Egg Check, RVO¹⁰ and StartupJuncture. The sample size is similar to other start-up related studies (Madill et al., 2005; Becker-Blease & Sohl, 2015), who used sample sizes of 176 and 184 start-ups respectively.

The data comes both from primary and secondary data sources. The data about angel investors and VC investments comes from the databases constructed by the Golden Egg Check, RVO and StartupJuncture. This database was constructed based on public sources and news reports about start-up deals in the Netherlands. In some cases, information about the amount invested, participation in an accelerator programme, number of angels that invest or the amounts that was invested was not disclosed. Some of this missing information was complemented by using a number of additional databases (e.g.; Crunchbase, Pitchbook and Dealroom)¹¹ and public sources such as the SME instrument and the Dutch ministry of Economics websites.

⁹ The first funding round by a VC is often referred to as series A funding. This is the first funding the start-up receives in its growth stage. We excluded later growth funding stages (B, C, D, E), as we only wanted to measure how our legitimising actors influenced the first investment decision a VC.

¹⁰ The RVO (Rijksdienst Ondernemend Nederland), is part of the Dutch Ministry of Economic Affairs and a government agency that fosters innovation and entrepreneurship in the Netherlands.

¹¹ Crunchbase, Pitchbook and Dealroom are three start-up insight companies, who provide information about start-up deals in Europe.

3.4. Data analysis

The effect of the four legitimising actors, as well as their combined value, was assessed using a binominal logistic regression, which allowed for the use of a dichotomous dependent variable und multiple binary independent variables. We used IBM SPSS Statistics v24.0 to analyse our data. The logistic regression was used to check whether our proposed legitimacy actors have an effect on a start-ups chances of receiving VC funding. Similar studies have used a logistic regression as well (Van Gelderen et al., 2005; Madill et al., 2005)

We tested several assumptions to assess the appropriateness of the use of a logistic regression. First, we applied the Box-Tidwell (1962) test to check whether the relationship between the continuous independent variables and the natural log of the dependent variable is linear. Next, we conducted a Hosmer and Lemeshow (1983) test, to check whether the expected event rates match the real event rates in subgroups in the sample. The Hosmer and Lemeshow test is a goodness of fit test, where a p-value lower than 5% indicates that the model is a poor fit. Lastly, we assessed the outcomes and significance of our model using the Wald's Chi-Square value which is significant at the $p < 0.10$ level. The explained variance of the dependent variable by our predictor variables was measured by the Nagelkerke R-Square, which takes a value between 0 and 1.

Furthermore, we conducted several robustness tests. As an additional analysis, we controlled for the year in which the start-up had received funding, as the total amount of funding and the supply of funding differed over the three years. Next, we took a random subsample of 60% of our total sample to see if our results remained the same (Söderblom et al., 2015). Lastly, we used an OLS regression to check whether the found effects still existed after using a different model specification. Instead of a dummy for receiving a VC, we used the amounts invested.

4. Discussions, contribution and implications

4.1 Main results

In this section we will describe the main results of our analysis. In **Table 1** we present our descriptive statistics for our dependent, independent and control variables. In **Table 2** we compare the descriptive statistics of VC-backed and non-VC-backed start-ups to see if they differ. **Table 3** provides the correlation statistics of all our variables. In **Table 4** the results of our binary logistic regression are presented and in **Table 5** the results of our additional robustness test, using an OLS regression are provided.

4.1.1 Descriptive statistics

In Table 1 the descriptive statistics of the total sample are presented. The total sample is 183 start-ups which is similar to the study by Madill et al. (2005), who had a total sample of 184 start-ups.

<i>Variables</i>	Total sample (N = 183)					
	#Obs	Mean	Median	St.dev	Min	Max
Investor readiness						
<i>VC (1/0)</i>	183	0.680	1	0.467	0	1
<i>VC amount in €</i>	169	2,799,508	500,000	5883962	0	45,000,000
Media						
<i>Number of articles</i>	183	2.763	1	8.628	0	127
<i>Average length</i>	183	434	243	756	0	6593
<i>Industry media</i>	183	0.472	0	1.620	0	19
<i>General media</i>	183	1.060	0	4.382	0	55
<i>Media tenor</i>	183	0.098	0	0.267	-0.010	1
Accelerator						
<i>Accelerator (1/0)</i>	183	0.298	0	0.464	0	1
<i>Demo day (1/0)</i>	166	0.180	0	0.379	0	1
Angel investor						
<i>Angel investor (1/0)</i>	180	0.40	0	0.491	0	1
<i>Angel amount in €</i>	164	256,866	0	582,569	0	3,500,000
<i>Number of angels</i>	170	0.602	0	1.106	0	5
Government						
<i>Dutch subsidy (1/0)</i>	183	0.080	0	0.228	0	1
<i>European subsidy (1/0)</i>	183	0.051	0	0.267	0	1
Control variables						
<i>Age of start-up in years</i>	183	5.10	4.50	2.711	1	25
<i>Other types of funding (1/0)</i>	183	0.194	0	0.393	0	1
<i>Industry:</i>	183					
Healthcare	11%					
Software	57%					
Financial services	4%					
Consumer services	14%					
Technology hardware	8%					
Oil & Gas	7%					

* For a complete overview of all variable definitions see Figure 5 & 6.

From Table 1 we see that in most cases the variables do not have missing cases (n=183). However, for the investment amount, angel investment amount and the number of angels this is not the case, as information about the exact funding amount was not always disclosed even as the number of angels.

When we compare the media related variables with similar studies of Zacharakis and Boguslavskaya (2013) and Petkova et al. (2013), we see that the average amount of articles, average length and the number of times mentioned in industry papers is considerably lower

29.68% participated in an accelerator programme, corresponding with 54 start-ups that have been through an accelerator programme. This is a relatively large sample size compared to other accelerator related studies (Smith and Hannigan, 2013). Furthermore, the percentage of start-ups that participated in a demo day is 18%. This means that more than 50% of the accelerators have a demo day, where they offer start-ups the opportunity to present their start-up.

When we look at the angel investor amount invested we see that VCs invest on average almost 2.8 million euros in a start-up during their first round. This is significantly higher than the 256.000 on average that is invested by angel investors, indicating that angel investors provide funding in an earlier stage, whereas VCs provide money in a later growth stage (Berger & Udell, 1998, Fischer et al., 2017)

Noteworthy is that the amount of start-ups that received a Dutch or European government subsidy is low, only 8% received a Dutch subsidy and only 5,1 % received European subsidy. These findings are difficult to compare with the findings by for example Söderblom et al., (2015), as they look at the applications for a subsidy (yes/no), whereas this study looks at the amount of start-ups that received government funding out of all start-ups.

Furthermore, when looking at the different industries, we see that software is somewhat overrepresented in the sample with almost 57% of the start-ups in our sample being part of this category. Very few start-ups are active in the financial industry and in the oil and gas industry.

In Table 2 we divide the total sample into two groups: the start-ups that received funding from a VC and the start-ups that did not receive VC funding. For both groups, we reported the different variables relating our four legitimising actors in the same way as in Table 1.

Table 2: Descriptive statistics: VC-backed compared to Non-VC backed start-ups

Variables	VC Backed (N=123)						Non VC backed (N=60)					
	#obs	Mean	Median	St.dev	Min	Max	#obs	Mean	Median	SD	Min	Max
Media												
<i>Number of articles</i>	123	3.050	1	12.701	0	127	60	2.152	1	408	0	23
<i>Average length in words</i>	123	492.93	230	889.74	0	6593	60	320	246	355.701	0	1323
<i>Industry media</i>	123	0.512	0	1.868	0	19	60	0.401	0	0.972	0	6
<i>Media tenor</i>	123	0.103	0	0.272	-0.01	1	60	0.090	1	0.256	0	1
Accelerator												
<i>Accelerator (1/0)</i>	123	0.271	0	0.448	0	1	60	0.361	0	0.491	0	1
<i>Demo day (1/0)</i>	113	0.144	0	0.348	0	1	53	0.229	0	0.430	0	1
Angel investor												
<i>Angel amount €</i>	110	122,075	0	541,521	0	3,500,000	46	512,035	350,000	579,808	0	2,500,000
<i>Angel (1/0)</i>	123	0.24	0	0.429	0	1	57	0.56	1	0.513	0	1
<i>Number of angel investors</i>	117	0.276	0	0.708	0	4	53	1.301	1	1.462	0	5
Government												
<i>Dutch subsidy (1/0)</i>	123	0.100	0	0.313	0	1	60	.021	0	0.261	0	1
<i>European subsidy (1/0)</i>	123	0.051	0	0.216	0	1	60	.073	0	0.129	0	1
Control variables												
<i>Age of startup</i>	123	5.55	5	2.890	1	25	60	4.11	4	12	1	12
<i>Other types of funding (1/0)</i>	123	0.213	0	1.419	0	1	60	0	0	1	0	1
Industry:	123						60					
Healthcare	14%						7%					
Software	53%						66%					
Consumer services	5%						2%					
Financial services	15%						10%					
Technology hardware	7%						9%					
Oil & gas	6%						7%					

* For a complete overview of all variable definitions see Figure 5 & 6.

Notable about the descriptive statistics is that, on average, VC-backed firms have a higher number of articles (3.05 vs 2.15) and longer articles (492.93 vs 320 words) written about them. Furthermore, the Janis-Fadner (1965) measure, which we use for measuring the average tone of a start-ups coverage is higher for VC-backed firms than for non-VC-backed firms, indicating that VC-backed firms – on average – have a more positive media attention than non-backed firms prior to their investment. On the other hand, when looking at the participation rate in accelerator programs by start-ups, we see that a higher percentage of non-VC-backed start-ups (36%) participated in an accelerator than start-ups who did receive a VC investment (27%).

Start-ups that are backed by VCs less often have an angel on board (24%), than start-ups that have not received VC funding (56%). Additionally, the amounts invested by angel investors is higher for start-ups that did not receive VC funding than for start-ups who have.

When looking at the government subsidies we see that 10% of the start-ups that later received VC funding received a government by the Dutch government where this was only 2.1% for start-ups that did not receive VC funding.

Furthermore, when looking at the industries, we see that in the group of VC backed start-ups 14% is active in the healthcare industry, as to only 7% of the start-ups that is not backed by a VC. Software start-ups on the other hand received VC funding less often, with 53% of the VC funded start-ups being active in the software sector, as to 66% of the start-ups that are not backed by VCs. As can be seen from Table 2, large differences exist between the industries in terms of VC funding. As mentioned in our data analysis section, we will control for the industry effects.

4.1.2 Correlation matrix

In Table 3 we report the correlation matrix of the dependent, independent and control variables. Using the Pearson correlation measure we want to detect correlation between our independent variables.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. VC (1/0)														
2. VC amount in €	0.269**													
3. Number of articles	0.065	0.005												
4. Average length	0.109	0.051	0.99											
5. Industry media	0.022	0.087	0.923**	0.117										
6. General Media	0.079	0.003	0.990**	0.099	0.898**									
7. Media tenor	0.047	-0.041	-0.034	0.150	0.017	-0.016								
8. Accelerator (1/0)	-0.144	-0.114	0.130	0.076	0.065	0.109	0.031							
9. Demo day (1/0)	-0.202*	-0.074	.189*	0.153*	0.127	0.164	0.039	0.697**						
10. Angel investor (1/0)	0.503*	-0.176*	-.061	-0.057	-0.012	-0.038	0.113	-0.112	-0.017					
11. Number of angel investors	0.420**	-0.135	-.051	0.046	-0.056	-0.034	-0.034	-0.083	-0.025	0.119				
12. Dutch gov funding (1/0)	0.122	0.83	.030	0.085	0.070	-0.032	0.010	0.080	0.088	-0.199	-0.056			
13. SME instrument (1/0)	-0.116	-0.060	-.017	-0.013	-0.010	-0.020	-0.009	0.052	0.083	-0.011	-0.045	-0.069		
14. Age of startup	0.244**	0.046	.064	0.80	0.093	0.040	0.060	-0.049	-0.098	-0.152	-0.191*	0.048	-0.074	
15. Other type of funding (1/0)	0.049	0.030	.120	0.133	0.102	0.120	0.007	0.050	0.003	-0.154	-0.154*	0.019	-0.055	-0.012

** Correlation is significant at the 0.01% level

* Correlation is significant at the 0.05% level

* For a complete overview of all variable definitions see Figure 5 & 6.

As suspected, there is some collinearity between our media related independent variables, which is no surprise as more media coverage generally also leads to a higher number of industry and general media articles. We further investigate the effect of these correlations during our regression by looking at the variance inflation factor (VIF) in our regression analysis.

4.1.3 Regression analysis

Next, in table 4, the results of our logistic regression are depicted. The first four models are models of each legitimising actor on the likelihood of receiving a VC investment and the fifth model combines all four actors. For all models, we conducted a Hosmer and Lemeshow (1983) test, which tests whether the expected event rates match the real event rates in subgroups in the sample. As all the p-values were above the 5% level, there is no evidence that the model is a poor fit.

Next, a Box-Tidwell (1962) test was used to check whether the relationship between the continuous independent variables, which in our model are: number of articles, average length, industry mentions, general media mentions, the number of angels and the natural log of the dependent variable is linear, which was the case. Additionally, in every model, we controlled for the effects of the industry of the start-up, its age and whether the start-up has received funding prior to its VC funding other than government subsidy and angel investments. In Figure 4 and 5 we present the 0 and 1 model and discuss the ability of our model to correctly predict the outcome of our combined model (model 5).

<i>Variables</i>	<i>Expected sign</i>	Model 1		Model 2		Model 3		Model 4		Model 5	
		B	S.E	B	S.E	B	S.E	B	S.E	B	S.E
Media											
<i>Number of articles</i>	+	0.011	0.205							-0.396	0.332
<i>Average length in words</i>	+	0.000	0.000							0.001	0.001
<i>Industry media</i>	+	-0.274	0.308							-0.335	0.441
<i>General Media</i>	+	0.044	0.230							0.592	0.378
<i>Media tenor</i>	+/-	0.176	0.764							2.836*	1.116
Accelerator											
<i>Accelerator (1/0)</i>	+			0.009	0.573					-1.014	0.764
<i>Demo day (1/0)</i>	+			-0.659	0.661					-0.482	0.899
Angel investor											
<i>Angel investor (1/0)</i>	+					-2.130***	0.608			-2.620***	0.766
<i>Number of angels</i>	-					-0.130	0.249			-0.184	0.305
Government											
<i>Dutch subsidy (1/0)</i>	+							1.022	0.910	2.078*	1.247
<i>European subsidy (1/0)</i>	+							1.055	11.202	0.240	0.127
Controlled for:											
<i>Age of startup in years</i>		0.359***	0.109	0.359		0.359***	0.109	0.359***	0.106	0.240*	0.127
<i>Other type of funding dummy</i>		Yes		Yes		Yes		Yes		Yes	
<i>Industry dummies</i>		Yes		Yes		Yes		Yes		Yes	
Number of observations		166		169		159		171		153	
Hosmer and Lemeshow test		Not significant		Not significant		Not significant		Not significant		Not significant	
Correctly predicted 1 (%)		72.65		76.92		82.90		73.61		86.70	
Correctly predicted 0 (%)		44.74		58.79		66.66		44.44		80.00	
Nagelkerke R-squared (%)		20.10		10.80		41.10		19.40		53.9	

Significance at the 10%, 5%** and 1%*** percent level*

* For a complete overview of all variable definitions see Figure 5 & 6.

Media

Both in the single model (model 1), as well as in the combined model (model 5), there were not much significant results. Hypothesis 1a-c are rejected based on the outcomes of our binary logistic regression. Hypothesis 1d however, is accepted as the likelihood of receiving VC funding indeed increases significantly as a result of a more positive media tenor in the combined model.

Accelerator

Where previous studies found an increased success rate for start-ups that have been through an accelerator, we do not find evidence to support this. Start-ups that went through an accelerator programme, did not have an increased likelihood of receiving VC funding, not even when they were presented to investors during a demo day. This, leads to a rejection of hypothesis 2a and 2b.

Angel investors.

Conflicting with most previous studies, having an angel on board actually has a significant negative effect on a start-ups chances of receiving VC funding. These results, even though they are interesting, are conflicting with our hypothesis 3a. Hypothesis 3b was rejected as well, as the number of angels did not significantly decrease the likelihood of receiving VC funding.

Government.

Lastly, hypothesis 4a was supported, with a significant increased likelihood of receiving VC funding after receiving Dutch government funding in the combined model. However, this was not the case for the European subsidy, which lead to a rejection of hypothesis 4b.

Next we will discuss the predictive power of both the single models as well as the combined model. Correctly predicted 1 (%) indicates when the percentage the model correctly predicted the outcome as 1 “receiving a VC investment”, whereas correctly predicted “0” indicates the percentage of how often the model outcome predicted 0 “not receiving a VC investment”. As can be seen from table 4 all the individual models have a lower predictive power than the combined model. The total model including all the independent and control variables predicts “receiving an investment” correct 86% of the time and “not receiving an investment” 80% of the times. Additionally we notice that the individual model for the Angel investor actor,

outperforms the other single models in terms of predictive power, indicating that the angel investor actor has the biggest effect on the predictive power of the total model.

4.2 Robustness

Additionally, to test the robustness of our results we used a set of additional tests. First, we controlled for the year of funding to control for the fact that supply and demand for early growth funding vary over the years. The results of our binary logistic regression remained robust to time effects. Next, we drew a random sub sample using the “random sample of cases” option in SPSS. We decided to take a random subsample of 60% of our total sample and reran our logistic regression analysis, which led to the same outcomes, except for government funding, which we suspect was now insignificant due to a limited number of cases. Lastly, we used an ordinary least square regression to see if the found effects still existed after using the amount of funding as the dependent variable rather than a dichotomous variable for receiving an investment. This, however, led to a lower sample size as the amounts invested were not always disclosed. Furthermore, we removed outliers and normalised our variables to make them more appropriate for a linear regression. Lastly, we removed variables that had a significantly high VIF (Variance inflation factor), as provided by SPSS, to reduce multicollinearity amongst our independent variables. This was the case for the “average length” and “general media” variable.

In Table 5. the results of our regression analysis are shown, where B is the regression coefficient and S.E the standard error. We used the adjusted R-square measure to assess how much of the variance in the amount invested by VCs is explained by the predictor variables. (Deeds et al., 2004). Similar to the logistic regression we created 5 models, to test the individual effect of the four actors as well as their combined effect.

Table 5: OLS regression VC funding amount

<i>Variables</i>	<i>Expected sign</i>	Model 1		Model 2		Model 3		Model 4		Model 5	
		B	S.E	B	S.E	B	S.E	B	S.E	B	S.E
Media											
<i>Number of articles</i>	+	0.478	1.738							0.186	1.601
<i>Industry media</i>	+	-0.151	2.949							-0.295	2.682
<i>Media tenor</i>	+/-	-2.442	5.544							-1.121	4.972
Accelerator											
<i>Accelerator (1/0)</i>	+			-0.806	4.349					-3.885	3.974
<i>Demo day (1/0)</i>	+			-6.106	5.364					-0.370	4.989
Angel investor											
<i>Angel investor (1/0)</i>	+					-16.034***	3.676			-12.666***	5.128
<i>Number of angels</i>	-					-1.283	1.638			-4.434	3.959
Government											
<i>Dutch subsidy (1/0)</i>	+							-7.949	6.646	-4.269	5.763
<i>European subsidy (1/0)</i>	+							8.889	5.700	6.002	5.033
Controlled for:											
<i>Age of startup</i>		7.868***	2.845	7.189***	2.816	3039***	2.591	7.699***	2.806	2.624***	2.664
<i>Other type of funding dummy</i>		Yes		Yes		Yes		Yes		Yes	
<i>Industry dummies</i>		Yes		Yes		Yes		Yes		Yes	
<i>Number of observations</i>		153		148		157		159		141	
Adjusted R-square		15.10%		33.10%		17.30%		17.10%		34.20%	

Significance at the 10%, 5%** and 1%*** percent level*

** For a complete overview of all variable definitions see Figure 5 & 6.*

From Table 5 we see that the results of having an angel investor on board are robust in our regression analysis as the result remains significant and negative, indicating that, when an angel has invested in a start-up this will negatively affect the amount of VC funding the start-up will receive in the 18 months following after. Media tenor and government funding are less robust as they do not have a significant effect on the amount of VC funding received by a start-up, but only on the likelihood of receiving a VC investment. We will further discuss these findings in the following section.

4.3 Discussion and interpretation of the results

In this section, we will discuss the findings of our logistic regression, where the goal of our research was to find the legitimising effect of our four proposed high-status actors on VCs funding decision. We found that, in the eyes of VCs, only two of these actors seem to have a positive legitimising effect, and that the involvement of a business angel even has a negative effect. Our results remained robust after a number of additional tests.

However, only having an angel investor on board remained robust after using an (OLS) regression. Next, we will follow the structure of our literature review, looking at the hypotheses

relating to the different actors and matching these with our results, followed by a further elaboration and a comparison with existing theory.

4.3.1 Media

The first variable is media attention, where we had four variables; the amount of coverage, the length of the articles, the number of times mentioned in industry and general media outlets and the media tenor. We find that only the media tenor has a positive significant effect on a VCs funding decision. As mentioned earlier the media tenor is taken by looking at the amount of positive, negative, neutral and total amount of articles, by using the Janis-Fadner (1965) coefficient of imbalance: We find that an increase in media tenor will significantly increase the probability of receiving a VC investment. These results are supported by Pollock and Rindova (2003) as well as Zacharakis and Boguslavskaya (2013), who found similar results. However, looking at the media coverage, average length and type of media (industry-specific or general media), we find different results. An explanation could be that the amount of coverage in the Netherlands, in general, is lower than countries like the UK, Canada and the US, which deducted similar research using media as a legitimising factor. When looking at the average amount of articles in a year prior to a VC investment, we see that this is indeed lower compared to other studies (Pollock, Rindova & Maggitti, 2008; Petkova et al., 2013; Zacharakis & Boguslavskaya, 2013). As a result of the low average media coverage of Dutch start-ups, the exposure and possible legitimising effects are reduced to the point where they are no longer significant. However, positive coverage (media tenor > 0), for example about the entrepreneurial team, the start-up or its industry does have a significant effect on a start-ups likelihood of receiving VC funding, but not on the amount of VC funding.

4.3.2 Accelerators

Even though there is no significant effect found between the acceptance into an accelerator programme or the participation in a demo day and an increased likelihood of receiving VC funding, this is still an interesting result, as research on the effect of accelerators is limited (Yusubova & Clarysse, 2016; Kramer, 2017). Most accelerator-related research focusses on the difference between accelerators and incubators, the effect they have on entrepreneurial teams and their assessment criteria (Miller & Bound, 2011; Dempwolf, Auer, & D'Ippolito, 2014; Mckevitt & Marshal, 2015). Few studies have looked into the effect that accelerators have on VC funding. Hallen et al. (2014) did investigate this relationship and found it to be insignificant as well. However, after looking at individual accelerators, they found that some had a positive

effect on funding where others had a negative effect. This suggests that the perceived quality or reputation of individual accelerator programmes positively mediates the relationship between accelerators and VC funding decisions (Hallen et al., 2014; Fischer et al, 2017). Unfortunately, as the amount of start-ups participating in an accelerator in our sample is relatively small, an additional analysis on the legitimising effect of individual accelerators is not possible due to a limited sample size.

Because accelerators mostly focus on helping the entrepreneurs with their storytelling, pitching and developing a convincing business plan, the effect on the actual value proposition might not be that large. Moreover, aside from their positive effects scholars have found some negative sides to accelerators as well. Research has criticised accelerator programs for focussing too much on preparing a start-up for the demo day and not maintaining close ties with the start-up afterwards (Isabelle, 2013). Additionally, accelerators are highly incentivised to find a follow-up investor. As they often provide the start-up with some money in return for shares in the company, venture capital investors might see through the positive portraying of the accelerators graduates, not perceiving the accelerator as an objective legitimising actor. Moreover, Weiblen and Chesbrough (2015) note that the lacking ability for start-ups in an accelerator programme to pivot or to collaborate with resource and finance providers outside of the accelerator's network, restricts them from collaborating with partners, customers and other resource providers outside of the accelerators' network.

Thus, even though accelerator programmes have strict selection criteria and contribute to a start-up by providing it with some small amounts of funding, active mentoring and a network, accelerators also have a risk of sheltering the start-up from open innovation (Kramer, 2017) or acting in their own interest by primarily focusing on preparing them for a follow-up investment during a demo day. This makes it difficult for a VC to assess the quality and actual effect the accelerator has on a start-up. Our results, which were insignificant, were in accordance with these notions and give reason to believe that, on average, VCs do not value accelerators as reputable evaluators of start-ups as their affiliation does not significantly increase the likelihood of receiving VC funding.

4.3.3 Angel investors

The most notable result was the negative effect of the angel investor on a start-ups likelihood of receiving VC investments. Even though our findings are conflicting with the majority of

research that looks into this relationship (Van Osnabrugge, 2000; Harrison & Mason, 2000; Madil et al., 2005), there are also studies underlining the large differences in interests and motives that exist between angel investors and VCs (Ardichvili, 2002; Hsu, Haynie, Simmons & McKelvie, 2014; Hellman & Thiele, 2013). These studies indicate that, even though they have different investment criteria and motives, angel investors and VCs are more and more competing, potentially becoming substitutes rather than complements of each other. This could result in a disincentive for VCs to invest in start-ups that have an angel on board as it could complicate the relationship due to conflicting interests between the VC and angel investor(s).

As the negative relationship suggest that indeed VCs and angels are more substitutional than complementary, we suggest that angel investors should be used as a separate audience (Fischer et al., 2017) in future research. Our results add to the angel and legitimacy literature as it sheds new light on the relationship between angel investors and VCs.

4.3.4 Government

For legitimacy by government funding we differentiated between Dutch and European subsidies. We did not find a significantly increased likelihood of receiving VC funding in our initial logistic regression, however as an extra test and to explore whether the non-significance of the two subsidies was due to a statistical issue of limited sample size, we aggregated the two variables into one variable (Hallen et al., 2014). This new dummy variable; government funding, did, in fact, result in an increased likelihood of receiving VC funding.

These results are in accordance with Söderblom et al. (2015), who looked at the effects of a specific government subsidy in Sweden (VINN NU) on resource accumulation of a start-up. They compared start-ups that did receive the subsidy with start-ups who did not. They found that the subsidy led to a higher amount of funding as opposed to the control group, as can be seen in (Figure 4). Because of this, we argue for the government to be a high-status actor that can provide a start-up with legitimacy by affiliating itself with the start-up by providing a subsidy or grant.

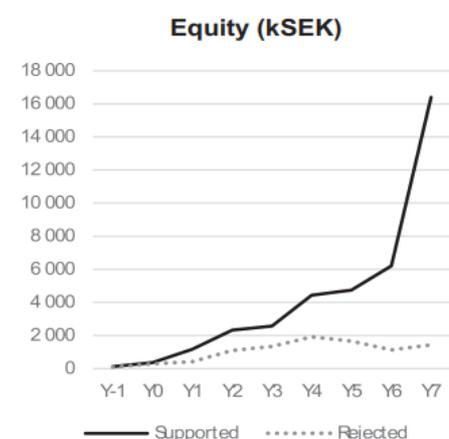


Figure 7: Söderblom et al. (2015): Equity accumulation after receiving the government subsidy

4.4 Academic implications

This research contributes to the existing legitimacy and investor literature in a number of ways. First, the outcomes of our logistic regression confirm that government funding and positive media coverage could indeed legitimise a start-up in the eyes of VCs, increasing their chances of receiving funding.

Furthermore, where most prior research highlights the complementary relationship between angel investors and VCs, our findings suggest their relationship to be more substitutional than complementary due to the difference in funding criteria and interests, making start-ups that have an angel on board less attractive for VCs.

Additionally, this is one of the first studies that looked at the legitimising role of accelerator programmes. Our findings show an insignificant result, indicating that, on average, start-ups who went through a 3-month accelerator programme, even if they pitched their idea during a "demo day", did not have a higher chance of receiving VC funding. These results could add to the limited amount of research on this topic.

Next, judging on the insignificance and negative signs of some of our legitimacy actors we could say that VCs, on average, might value themselves as more capable observers of a start-up's potential than other actors in the entrepreneurial ecosystem. We say on average because we did not take into account the reputation or quality of the angel investors, accelerators and media outlets, which is one of the limitations of this research. However, we can still say that on average accelerator programmes and angel investors are not valued as legitimising actors as their affiliation does not result in an increased likelihood of receiving VC funding.

Lastly, where previous research mostly discusses the positive effects of legitimising actors (Uberbacher, 2014; Fischer et al., 2016), this research indicates that affiliations by actors, even if they are reputable such as angel investors, can also have a negative effect on a start-up's likelihood of receiving VC funding.

4.5 Practical implications

This research shows that VCs do not only value a start-up by themselves but also take into account the affiliation of other parties. If these actors are perceived as legitimate they can have a positive effect on a VCs funding decision, like government involvement in the start-up.

However, negative legitimacy also exists when start-ups affiliate themselves with actors that have different incentives than themselves, like angel investors. Understanding which affiliations could increase or decrease the likelihood of receiving an investment can help start-ups identify whom to affiliate themselves with.

Furthermore, where angels were previously regarded as being complementary to VC investors, our research indicates a more substitutional relationship. Large differences in interests and goals between angel investors and VC investors could explain these findings. This research shows start-ups who are seeking funding that they should think closely about which type of investor fits best to both their funding needs as well as their personal interest. Where angel investors prefer close contact and often take a seat in the board, VCs strive for profit in the form of a follow-up investment or selling the company. These different goals could lead to different outcomes for the start-up, which should be taken into account by the entrepreneur.

Furthermore, this research helps start-ups to think closely about whom to affiliate themselves with if they want to receive VC funding. Receiving government funding as very early stage growth funding might be a more favourable option than receiving funding from angel investors if the start-ups strive for a VC investment for further growth.

Additionally, this research could help start-ups understand which paths to follow towards receiving VC funding. Where accelerators are a common path chosen to quickly become investor ready, this research finds that, on average, these accelerators do not increase the chances for a start-up to receive VC funding. Government funding on the other hand, does increase the chances of a start-up receiving VC funding, which could motivate start-ups towards first going for a subsidy before trying to receive VC funding.

As Uberbacher (2014) suggests in his research adding more legitimising actors and audiences can provide more insights into the legitimising effect that these actors can have on start-ups. Further building on our research, by adding other sources of legitimacy and other types of resource and finance providers could help start-ups understand which strategies they should undertake to become more legitimate.

5. Conclusion

5.1 Summary

Various scholars have called for more extensive studies on investigating the effects of a combination of legitimacy actors on a specified audience (Uberbacher, 2014; Fischer et al., 2017). This research was set out to find the legitimising high-status actors that have an effect on a start-ups chances of receiving VC funding. We followed the organisational judgement view by Uberbacher (2014), which looks into the legitimising effects of affiliations by certain high-status actors with a start-up towards a certain audience on a firm level. Based on prior research we identified four legitimising actors in the entrepreneurial ecosystem that could, by affiliating themselves with a start-up, increase their legitimacy in the eyes of VC. As start-ups have very little information available about them VCs often have to rely on secondary sources of information to reduce the information asymmetry. Reputable affiliations by other actors in the entrepreneurial ecosystem could therefore reduce this information gap between VCs and start-ups and increase the likelihood of a VC investment. Our **research question** therefore was:

To what extent do the media, accelerator programmes, governments and business angels have a legitimising effect on Dutch start-ups' likelihood of receiving VC funding?

To answer this question we developed several hypotheses, based on the existing theory on legitimacy. An overview of these hypotheses, together with their outcomes can be found in Appendix C.

For this research, we used a binominal logistic regression design, where the dependent variable was a dummy variable stating whether the start-up received VC funding or not. The predictors were both continuous and dummy variables relating to media attention, accelerators, angel investors and governments. Our sample included 182 Dutch start-ups both VC-backed and non-VC-backed that were funded between during the years 2015, 2016 and 2017. Our data stems from a database constructed by the Golden Egg Check, StartupJuncture and RVO and includes all publicly available start-up deals in the Netherlands during the years 2015, 2016 and 2017.

We find, that angel investors have a strong negative effect on the likelihood of receiving VC funding. Additionally, in our robustness test, we found that the amount invested by an angel investor has a negative effect on the amount invested by a VC. This indicates that angel investors and VC investors are becoming more substitutional in the Netherlands.

Additionally, a positive media tenor and receiving government funding had a positive effect on the likelihood of receiving funding.

5.2 Limitations and future research

Like every research, this one has its limitations. The biggest limitation to this research, as is the case with most start-up related studies is the data, or in fact the lack of availability data. As the database used for this research was hand collected from open start-up data sources like; pitchbook, StartupJuncture and Dealroom, there is a risk of these sources containing bias regarding the exact time and amount invested. Also, even though our sample size is comparable to other start-up and investor readiness studies, the number of cases for some variables are low due to a lack of public information. The invested amount by angels as well as the number of angels participating in a start-up funding deal is in many occasions undisclosed.

Next, the number of control variables that were included in the research were relatively low. Especially control variables for founder and team-specific characteristics, which are used in similar studies (Deeds et al., 2004; Petkova et al., 2013), were not included in this research as a result of lacking data availability. This has to do with the fact that start-ups have little to no reporting obligations and reputable information about these start-ups and their founders are thus difficult to obtain.

A third limitation of this research would be that the data regarding media tenor, being positive, negative or neutral, was coded by a single coder, which could potentially have created bias in observing whether an article was positive, negative or neutral.

Whereas a quantitative research with a relatively large dataset and multiple legitimising actors provides interesting insights, the dichotomous nature of most of our variables makes it hard to understand the underlying thought of the outcomes. Further investigating the found results by conducting a qualitative research with interviews could provide more reasoning as to why for example VCs do not view accelerators or angel investors as legitimate evaluators of start-ups.

Future research could focus on adding more legitimising actors and audiences to the model to make it complete and more exhaustive. (Fischer et al., 2016; Fischer et al., 2017).

Lastly, this research focussed on legitimacy at a certain point in time. Taking a more longitudinal approach, investigating how start-ups can build legitimacy over time and looking at legitimacy thresholds like Rutherford and Buller (2007) and Fischer et al. (2007), could provide a better picture of which legitimising actors could increase legitimacy in which phase of the start-up's existence.

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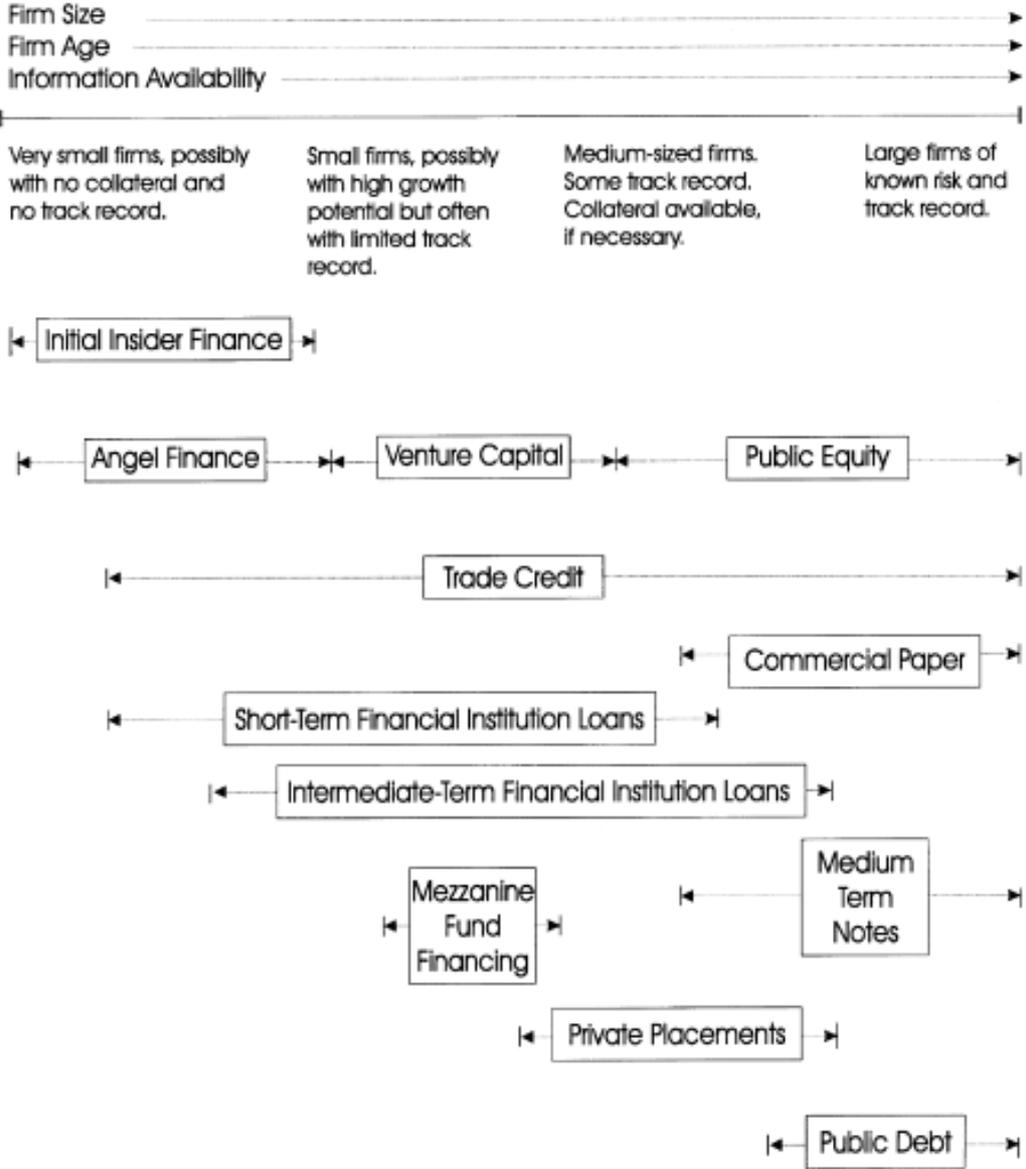
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7. Appendices

Appendix A: Overview of theory used for the legitimising actors towards VC investor readiness

Legitimising actors	Studies	Audience
Media	<i>Pollock & Rindova (203)</i>	<i>Investors</i>
	<i>Sine et al. (2007)</i>	<i>Unspecified resource providers</i>
	<i>Petkova et al. (2013)</i>	<i>IPO investors</i>
	<i>Rao (1994)</i>	<i>Unspecified resource holders</i>
Angel investors	<i>Fischer et al. (2016)</i>	<i>Investors, angels, IPO investors</i>
	<i>Madil et al. (2009)</i>	<i>Venture capitalists</i>
	<i>Mason (2005)</i>	<i>Investors</i>
	<i>Ardichvili et al. (2001)</i>	<i>Non-financial resource providers</i>
Start-up		
Accelerator programmes	<i>Hoffman & Radojevich-Kelley (2012)</i>	<i>Unspecified resource providers</i>
	<i>Miller & Bound (2011)</i>	<i>Unspecified resource providers</i>
	<i>Mckevitt & Marshall (2015)</i>	<i>Unspecified resource providers</i>
Government subsidies	<i>Söderblom et al. (2015)</i>	<i>Unspecified resource providers</i>
	<i>Woolley & Rottner (2008)</i>	<i>Unspecified resource providers</i>
	<i>Sine et al. (2005)</i>	<i>Unspecified resource providers</i>
	<i>Nasra & Dacin (2010)</i>	<i>Unspecified resource providers</i>

Appendix B: Framework by Berger and Udell (1998) portraying a continuum for start-up financing:



Appendix C: Hypotheses and their outcomes

Hypotheses	Description	Significant	Accepted/rejected
1a	<i>The number of media coverage has a positive effect on a start-ups likelihood of receiving VC funding</i>	No	Rejected
1b	<i>The average length of the articles written about a start-up has a positive effect on a start-ups likelihood of receiving VC funding</i>	No	Rejected
1c	<i>being mentioned in industry specific media has a larger effect on the likelihood of receiving VC funding than general media</i>	No	Rejected
1d	<i>A positive media tenor has a positive effect on a start-ups likelihood of receiving VC funding</i>	Yes	Accepted
2a	<i>Start-ups that participated in an accelerator are more likely to receive VC funding than those who did not</i>	No	Rejected
2b	<i>Start-ups that presented their business case during a "demo day" have a higher likelihood of receiving VC funding than those who did not</i>	No	Rejected
3a	<i>Angel-backed start-ups are more likely to receive VC funding than those who do not.</i>	Yes	Rejected
3b	<i>The number of business angels that invested in the start-up decreases a start-ups likelihood of receiving VC funding</i>	No	Rejected
4a	<i>Start-ups that received a government grant or subsidy are more likely to receive VC funding than those who did not</i>	Yes	Accepted
4b	<i>Start-ups that received a European grant are more likely to receive VC funding than those who received a Dutch government grant</i>	No	Rejected