DISSERTATION

MATCHING FOUNDERS AND FUNDERS IN EQUITY CROWDFUNDING

zur Erlangung des Doktorgrades (Dr. rer. pol.)

der Fakultät Wirtschaftswissenschaften, Wirtschaftsinformatik und Wirtschaftsrecht der Universität Siegen

vorgelegt von

Jonas Löher, M.Sc.

Erstgutachterin: Univ.-Prof. Dr. Friederike Welter

Zweitgutachter: Univ.-Prof. Dr. Arnd Wiedemann

Datum der Disputation: 09. Oktober 2019

Printed on aging resistant, wood-free and acid-free paper.

Abstract

For many innovative new ventures, access to capital is essential to enable growth. However, their specific characteristics often make it difficult to obtain the required financial resources. In recent years, equity crowdfunding has emerged as a new financing source for these ventures. Unlike established early-stage financing processes, ventures initiate an open call for funding over the Internet. In this way, private individuals can – with a relatively small financial commitment – invest in these firms and benefit from their growth. However, the online setting and the presumably limited experience of these investors raise various practical and theoretical questions.

In this dissertation, I explore how capital-seeking ventures and these presumably less experienced investors interact with each other and match their interests in this new setting. Therefore, this dissertation considers perspectives and interactions from both sides of the market. More specifically, it analyses the ventures' motivation to use equity crowdfunding, the investors' funding behaviour and the role of specific Internet portals in connecting both sides. The results are presented in three empirical papers.

On the demand side, I reveal specific motivational drivers of crowdfunded ventures and link these with individual decision-making backgrounds. In this way, four different motivational types are developed, showing a differentiated picture of the ventures' motivation. On the supply side, this dissertation shows that investors assess the financial commitment of the entrepreneurs as relevant for their investment decision. Thus, entrepreneurs with comparatively more ex ante financial commitment achieve significantly higher funding success. The findings also reveal the critical role that crowdfunding platforms play in this context. Hence, these platforms support both sides in numerous activities to mitigate information asymmetries and to reach agreement.

Based on the literature and the empirical findings, an early-stage matching model is developed and applied. In this way, differences are revealed between equity crowdfunding and established early-stage matching scenarios. Taken together, this dissertation illuminates important theoretical and practical peculiarities of this new investment process. Furthermore, it raises several questions for future research seeking to understand this process more comprehensively.

Acknowledgements

Writing this dissertation was a continuous learning process. I am very grateful for the support that I received during this process from my supervisors, colleagues, family and friends. I would like to take the opportunity to thank them for their commitment.

First, I would like to thank my supervisor Prof. Dr. Friederike Welter. Her experience and extensive feedback enabled me to substantially improve this dissertation and learn tremendously. She believed in my skills through the entire process and encouraged me to stay calm and see the respective status and the upcoming challenges from a positive point of view. I am also thankful to Prof. Dr. Arnd Wiedemann for his support as a second supervisor.

Furthermore, I would like to thank those, that discussed parts of the project with me. First of all, this includes the academic staff of the University of Siegen, namely Prof. Dr. Arndt Werner, Prof. Dr. Kerstin Ettl, Prof. Dr. Petra Moog and especially my former colleague Ulrike Hietsch. Moreover, I would like to particularly thank my colleagues Dr. Stefan Schneck and Dr. Susanne Schlepphorst, who frequently helped me with their valuable feedback and patience.

Besides, I would like to thank the entire IfM Bonn team for the moral support, understanding, and positive work environment during the last years. I would also like to express my gratitude to my interview partners who took the time to share their experiences with me, and my former colleague Dr. Sabrina Schell for her help in conducting the survey. Furthermore, I am thankful for the support of different student assistants in Siegen and Bonn.

Finally, I would like to express my special thanks to my family for their continuous encouragement. This includes my parents, especially my father Burkhard, my brother David and my sister Judith. Writing a dissertation besides the job limits the opportunity to maintain relationships. I would also like to thank my friends for their understanding and support during the last years.

Above all, I would like to thank my girlfriend Eva. She contributed to this project in many ways. I am especially grateful for her patience, tolerance and confidence. This dissertation would not have been possible without her never-ending support.

Table of contents

List of tables

List of figures

List of abbreviations

BA	Business angel
BVK	Bundesverband Deutscher Kapitalbeteiligungsgesellschaften
B2B	Business-to-business
B2C	Business-to-consumer
CEO	Chief executive officer
CF	Crowdfunding
CVC	Corporate venture capital
E	Expert
EBAN	European business angel network
EC	Equity crowdfunding
Eds.	Editors
e.g.	Exempli gratia (for example)
et al.	Et alii (and others)
EY	Ernst & Young
GVC	Governmental venture capital
IC	Investment conditions
IfM	Institut für Mittelstandsforschung (IfM) Bonn
IPO	Initial public offering
k	Thousand
LL.M	Master of Laws
m	Million
No.	Number
n.a.	Not available
OECD	Organisation for economic cooperation and development
OLS	Ordinary least squares

P	Platform
p./pp.	Page/s
PE	Private equity
Phd	Doctor of philosophy
UK	United Kingdom
R & D	Research & development
S	Start-up
SME	Small and medium-sized enterprise
VA	Value-add
VC	Venture capital

1 Introduction

1.1 Motivation

Technology-based ventures are commonly considered as a critical source of innovation, job creation and productivity growth (Lerner, 2010; Mason, 2009). Nevertheless, especially in the early stages of their development, huge uncertainties about the future success of these firms exist, restricting their access to conventional bank financing (Berger & Udell, 1998; Cassar, 2004). Risk capital providers, such as business angels (BAs) and venture capitalists (VCs), are known specialists in addressing these early assessment problems. They are assumed to either select – through sophisticated screening mechanisms – or build winning firms (Croce, Martí, & Murtinu, 2013).

Consequently, it is not surprising that the five publicly traded firms with the highest market capitalisation at the end of 2017 – Apple, Alphabet/Google, Microsoft, Amazon, and Facebook (EY, 2017) – received venture capital or angel investments before their IPOs.[1] Given the remarkable success stories and the financing history of these and other high-tech businesses, it is also not surprising that the development of the national risk capital market for early-stage ventures regularly captures the attention of entrepreneurs, politicians, and media. Especially in Europe, which is characterised by a significant scarcity of risk capital, facilitating access to capital for high growth ventures has become a constant concern for policymakers (Kelly, 2011; Lerner, 2010; OECD, 2017).

In recent years, the capital supply side and thus, the ventures' access to risk capital have undergone significant changes. The financial crisis, technological changes, and numerous policy interventions have led to the emergence of multiple new resource providers for these firms (Block, Colombo, Cumming, & Vismara, 2018a; Bruton, Khavul, Siegel, & Wright, 2015). Emerging accelerators, incubators, university seed funds, and online crowdfunding are thereby heterogeneous in their requirements,

[1] See the investment histories of Apple, Google, Microsoft, Amazon, Facebook at crunchbase.com, e.g., https://www.crunchbase.com/organization/facebook#section-funding-rounds [accessed 11 November 2018]

resources, and benefits that they provide for all involved parties, raising various questions for theory and practice.

One of these new financing sources is equity crowdfunding, which has recently become increasingly popular for numerous capital-seeking high-tech ventures (Vulkan, Åstebro, & Sierra, 2016). Equity crowdfunding involves an open call for funding, mostly through the Internet, in which funders receive equity or equity-like shares in return for their financial commitment (Bradford, 2012). The investment setting is unique in many respects: Investors that have no risk capital experience can – with a relatively small financial commitment – participate in the growth of young and innovative ventures. In this way, these investors obtain access to investment opportunities that were primarily reserved for angel investors or VCs. However, crowdinvestors are also confronted with the severe risks that come along with investments at these early stages (Fiet, 1995). On the other hand, ventures obtain capital under entirely new circumstances. Thus, the ventures can presumably benefit from their numerous investors in a new and distinctive way, using them to obtain product or service feedback or benefit from the increased public awareness (Macht & Weatherston, 2014). Finally, equity crowdfunding involves specialised Internet portals, that play a decisive role in connecting capital-seeking ventures and presumably less experienced early-stage investors (Heminway, 2013).

Despite the recent popularity of equity crowdfunding, our knowledge about the specific interests and behaviour of investors, capital-seeking ventures and intermediating portals in this emerging context is limited. In contrast, we have a detailed picture of how investors and ventures come together in established early-stage risk capital settings, such as BA- and VC-financing. Hence, nowadays practitioners, policymakers, and researchers know about the different motives, roles, and duties in these established investment processes and, thus, have a clear understanding of the setting in which they act. So far, this basic understanding about why and how ventures and investors come together in equity crowdfunding is missing. In this context, the online environment requires new strategies from all actors to overcome the severe information asymmetries that exist between founders and numerous potential investors (Ahlers, Cumming, Günther, & Schweizer, 2015). Practices might therefore considerably deviate from the early-stage financing mechanisms we already know.

This dissertation aims to understand the peculiarities of this new matching process. Improving this understanding is critical for various reasons: To establish equity crowdfunding as a reliable new source of financing in the long-run, the funding process needs to be constructed in a way that it allows beneficial transactions for all parties involved (Hagiu & Rothman, 2016). However, so far it is not clear how this process should be modelled in a desirable way to satisfy the interests of ventures, investors and intermediaries. Nevertheless, despite this uncertainty, governments have been challenged globally to shape legal frameworks for this new setting, leading to different levels of regulation for the involved parties (Cumming & Johan, 2013). The policymakers' decision-making during the last years has therefore often been based on minimal theoretical knowledge about this young form of financing. Consequently, one aim of this dissertation is to improve this decision-making basis. Furthermore, to connect ventures and funders, both sides need to understand each other's processes, evaluation criteria and priorities (Polzin, Sanders, & Stavlöt, 2018). Thus, another aim is to contribute to more awareness about the different roles between the acting parties.

Regardless of the practical and theoretical importance, early research in equity crowdfunding has focused mainly on campaign success factors, analysing how different signals influence the funding behaviour of investors (see, e.g., Mochkabadi & Volkmann, 2018 for an overview). However, to make progress on various practical and theoretical aspects, it is essential to broaden the research focus. This dissertation assumes that further research about existing motives and practices is necessary to improve our understanding of the peculiarities of this specific new matching process. Therefore, it seeks to contribute to the following main research question:

How do ventures and investors find each other in this specific financing context?

To respond to this question, this dissertation analyses motivations and ongoing practices in this new setting from different viewpoints. Unlike previous and often one-sided entrepreneurial finance literature (Amatucci & Sohl, 2004; Rasmussen & Sørheim, 2012), it considers the demand-side perspective (capital-seeking ventures), the supply-side perspective (crowdinvestors), and the interaction between both sides (through crowdfunding portals). These three angles build the red line of the dissertation. Three sub-questions that contribute to the main research question have

been formulated and analysed.

1.2 Research goals

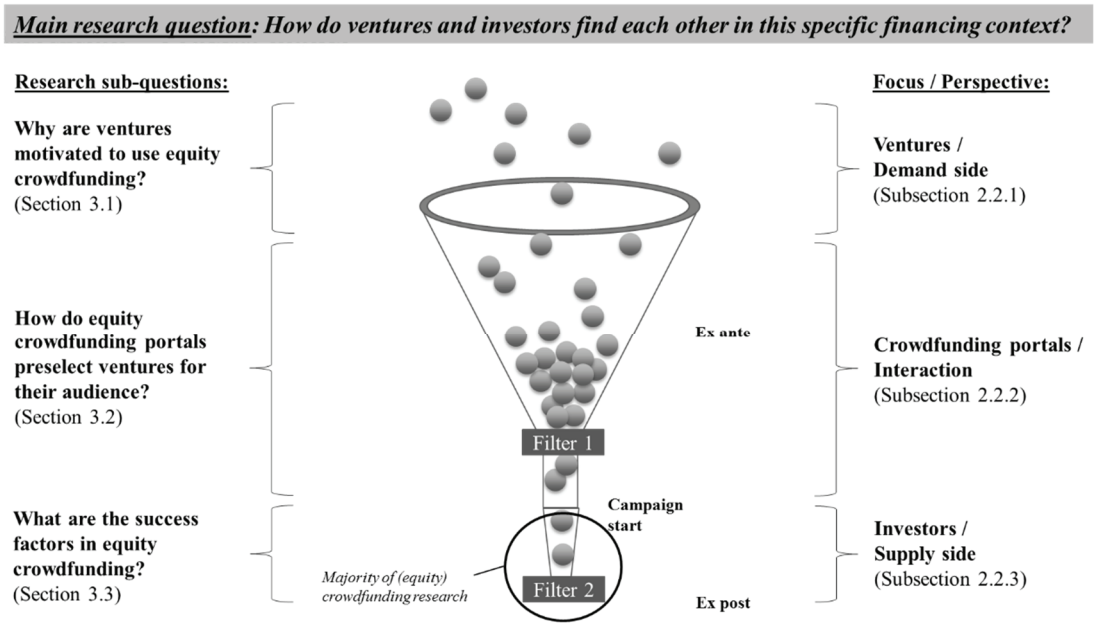
The main intention of this dissertation is to explore how ventures and investors find each other in this new setting. Figure 1 provides an overview of the three different research questions and the structure of the two main chapters, namely Chapters 2 and 3:

Chapter 2 reveals what we already know about the ventures' and investors' decision-making and their interaction in different early-stage financing contexts. This chapter lays the basis for the later analyses about the peculiarities in equity crowdfunding.

Chapter 3 provides the empirical part of this dissertation. In sequential order, it explores how both sides match their interests and come together in this new setting. Thus, the chapter starts with the capital demand side. To initiate the crowdfunding process, ventures need to consider equity crowdfunding as a potential way to finance their business. Hence, Section 3.1 responds to the research question: *Why are ventures motivated to use equity crowdfunding?* This section analyses the specific decision-making backgrounds of capital-seeking ventures. However, not all ventures that seek to use equity crowdfunding obtain the opportunity. Equity crowdfunding portals restrict access to their platform and filter out ventures that they do not assess as appropriate. Section 3.2 responds to the question: *How do equity crowdfunding portals preselect ventures for their audience?* More specifically, this section thoroughly reveals the underlying preselection process and explores the specific role that portals have in later interaction with potential investors. Finally, after each crowdfunding campaign has started, investors decide whether they want to finance the venture. Thus, Section 3.3 answers the question: *What are the success factors in equity crowdfunding?* More precisely, this section investigates the influence of the founding team's financial commitment on funding success.

All sections of Chapter 3 contribute to the main research question. Different practical and theoretical considerations motivated the three sub-questions. In the following, these questions will be explained in more detail:

Figure 1: Overview of the research questions



Source: Own illustration.

Section 3.1 focuses on the capital demand side, with start-ups as the main unit of analysis. More specifically, the objective is to understand the ventures' decision to use equity crowdfunding. First crowdfunding literature has stressed the multiple non-monetary benefits that this form of financing offers to entrepreneurs, including the opportunity to receive product or service feedback, the ability to assess market demand or the ability to increase the awareness for the product or service (Beier, Früh, & Wagner, 2014; Belleflamme, Lambert, & Schwienbacher, 2013; Gerber, Hui, & Kuo, 2012). However, this line of argumentation is mainly based on findings from reward-based crowdfunding. Contrary, other authors raise various concerns about the smartness of the provided capital, difficulties in follow-up funding rounds, and problems in communicating and managing relationships with numerous investors. They stress the danger that equity crowdfunding creates a 'market for lemons', that systematically attracts low-performing businesses that see it as their last resort instead of their first choice (Akerlof, 1970; Ibrahim, 2015; Tomboc, 2013). Nevertheless, the arguments of these authors so far remain theoretical. Moreover, entrepreneurial finance research about ventures' financing decisions was mainly driven by cost and control arguments (e.g., Valliere & Peterson, 2007; Vanacker & Manigart, 2010),

oversimplifying the often complex individual decision-making background of these young firms.

In Section 3.1, these stereotypical push and pull as well as cost and control arguments about ventures' partnering decisions will be challenged. Based on case studies of crowdfunded ventures, motivational drivers will be identified and linked with their organisational backgrounds. This section thus responds to the following research question:

(1) Why are ventures motivated to use equity crowdfunding?

Section 3.2 deals with the interaction between both sides. This interaction takes place on specialised Internet portals that play a special role in mitigating the pronounced information asymmetries between ventures and potential investors. On these portals, ventures try to convince investors by using a short video and a standardised campaign profile that provides critical information about the founders, the business model, and its prospects (Estrin, Gozman, & Khavul, 2018). Since their emergence, a remarkable share of the initiated equity crowdfunding campaigns on these portals has been successful (see, e.g., Kleinert, Volkmann & Grünhagen, 2018). This success is contrary to other early-stage financing settings where just a small minority of equity-seeking firms finally receive funding. Thus, numerous studies have documented the BAs' and VCs' highly selective and labour-intensive screening and evaluation processes and practices, in which most of the capital-seeking ventures were sorted out (see, e.g., Baum & Silverman, 2004; Mason & Harrison, 2002). These intensive efforts to distinguish investable from non-investable businesses might also take place in equity crowdfunding. Thus, equity crowdfunding portals restrict access to their platforms and seem to conduct different preselection activities.

Despite their importance for the overall investment process, the portals' screening and selection practices and thus, their specific role within this investment process are largely unknown. Consequently, based on semi-structured interviews, the precise role of these portals in preselection and later communication with investors will be explored. The second section of Chapter 3, therefore, seeks to answer the following question:

(2) How do equity crowdfunding portals preselect ventures for their audience?

Section 3.3 deals with the supply side of capital and analyses the funding behaviour of investors. Early research in equity crowdfunding has focused mainly on its success factors (Mochkabadi & Volkmann, 2018; Moritz & Block, 2016). These papers were often embedded in signalling literature, analysing which information help to mitigate the severe information asymmetries that exist in this new setting. They suggest that educational degrees (Ahlers et al., 2015), network relationships (Ahlers et al., 2015; Vismara, 2016a), or the provision of financial information (Ahlers et al., 2015; Lukkarinen, Teich, Wallenius, & Wallenius, 2016) function as reliable signals that impact funding success. Furthermore, the dynamics during the campaign, such as information updates and communication (Block, Hornuf, & Moritz, 2018b; Moritz, Block, & Lutz, 2015), and information cascades (Vismara, 2016b), have been demonstrated to be influential.

However, the analysed signals in these early papers are often not costly, which is not in line with the signalling theory (Spence, 1973). Furthermore, a major prerequisite for funding in other financial settings is the personal financial commitment of the entrepreneurs (Busenitz, Fiet, & Moesel, 2005; Eddleston, Ladge, Mitteness, & Balachandra, 2016; Prasad, Bruton, & Vozikis, 2000). In this way, the founding team has something to lose or, in other words, ‘skin in the game’. In practice, the financial commitment of the entrepreneurs is, therefore, essential to receive funding from experienced early-stage investors. However, in this new context, the influence of the financial commitment on financing success with presumably less experienced investors is not known. The study thus analyses the relationship between ex ante financial commitment and the funding outcome. It contributes to the following question:

(3) What are the success factors in equity crowdfunding?

These research sub-questions will be answered in three studies that build the core of the dissertation. Table 1 gives a structured overview of the authors, the research question, essential information about the methodology, publication details and the exact contribution of this dissertation’s author.

Table 1: Overview of the integrated studies

Author(s)	Research sub-questions	Methodology and data	Publication status	Own contribution
Paper 1: First choice, last resort or something else? The expected roles of equity crowdfunding in financing new ventures				
Löher, Jonas; Welter, Friederike	Why are ventures motivated to use equity crowdfunding?	Qualitative; 10 Case Studies	Work in progress	In this paper, I was in charge of developing the research question, conducting and analysing all interviews, developing the model, and writing most of the paper.
Paper 2: The interaction of equity crowdfunding platforms and ventures: An analysis of the preselection process				
Löher, Jonas	How do equity crowdfunding portals preselect ventures for their audience?	Qualitative; 21 Semi-structured interviews with portals, start-ups, and experts	Published (2017) in Venture Capital, 19(1–2), 51–74.	In this paper, I was in charge of everything from idea generation to publication. This includes, e.g., conducting and analysing all interviews, developing and writing the entire paper and managing the review process.
Paper 3: A research note on entrepreneurs' financial commitment and crowdfunding success				
Löher, Jonas; Schneck, Stefan; Werner, Arndt	What are the success factors in equity crowdfunding?	Quantitative; Survey data from interviews with ventures	Published (2018) in Venture Capital, 20(3), 309–322.	In this paper, I conducted most of the data collection, wrote most parts of the paper and guided through the entire review process.

1.3 Research context and methodology

All three research sub-questions will be answered with data that has been gathered in Germany, considering the country's specific market conditions. Like many other bank-based economies in Europe, Germany is characterised by thin venture capital markets (Kelly, 2011). In these markets, a limited number of investors and growth firms have problems finding and contracting with each other at reasonable costs (Nightingale et al., 2009). In 2015, private equity firms invested €780 million into seed, start-up or

later-stage firms (BVK, 2016). Angel investors, who usually engage in earlier development stages, are assumed to have annually invested a similar amount (Egeln & Gottschalk, 2014). In relation to the gross domestic product, the amounts that both groups of investors, namely BAs and VCs, invest are below the European average (Invest Europe, 2017; EBAN, 2016).

Furthermore, the German early-stage financing landscape is substantially influenced by many public financing programmes, including numerous governmental VCs that engage at the federal and state level. Against this background, the rise of (equity) crowdfunding has nurtured the hopes of an increasing private market volume. Equity crowdfunding in Germany emerged in 2011 and constantly grew during the first years (Dorfleitner, Hornuf, Schmitt, & Weber, 2016). In Germany and many European economies, it has become an increasingly important source of financing for multiple new ventures (Wardrop, Zhang, Rau, & Gray, 2015).

Consequently, equity crowdfunding is a relatively young phenomenon. So far, a basic understanding of the underlying mechanisms in theory and practice is missing. The main research question and the sub-questions of this dissertation, which were motivated by different practical and theoretical considerations, are intended to explore this new financing form. The research design and methodology considered these preconditions. Contrary to most early equity crowdfunding research, this dissertation mostly follows, a deductive research approach and engages in theory building (Eisenhardt, 1989). To answer the ‘how’ and ‘why’ questions that exist at this early research stage, qualitative methods, including case study analysis and interview data, are mainly used in this dissertation. An exception of this inductive approach is Section 3.3, in which signalling theory is deductively tested in this new context. The article thereby addresses a topic (success factors) that has already received substantial research attention.

The research strategy was driven by the different questions (Yin, 1994). This includes the selection of the appropriate data sources and the structured collection of data within these sources. Data from different perspectives and with different methods were collected to increase the validity and to obtain a comprehensive overview of the market in which the phenomenon takes place (Denzin, 1970). Table 2 provides an overview and a description of the main sources of data collection.

Table 2: Main sources of data collection

Data source	Description	Time of data collection
Database	Hand-collected database of all 163 campaigns that have been launched by 145 companies between 8/2011 and 11/2014 on four German portals. The collection consisted of different campaign and company characteristics – See 3.3.3.1 for database construction and key market figures.	01/2014 - 03/2015
Semi-structured interviews	Qualitative interviews with experts (2), key decision makers of portals (9) and crowdfunded ventures (10) – See 3.2.3 for details about data collection and sampling strategy.	10/2014 - 05/2015
Telephone survey	A telephone survey with CEOs of 45 ventures out of a total of 145 ventures – The questionnaire included questions about the general company background, the founding team, the financing background and motivational aspects.	03/2015 - 05/2015
Additional data sources including the following: newsletters, press releases, ventures' websites and social media profiles	Collection of additional data – especially investor history and further investor developments – on the ten interviewed ventures (in semi-structured interviews).	10/2014 - 12/2017

In addition, different theoretical concepts were used to analyse and interpret the findings and to explain the broader theoretical context of the research. Among others, these included the signalling and the agency theory, the financial lifecycle paradigm, the pecking order theory and different forms of resourcefulness (Akerlof, 1970; Baker & Nelson, 2005; Jensen & Meckling, 1976; Myers & Majluf, 1984; Spence, 1973).

1.4 Structure of the dissertation

Following the introduction, the second chapter describes the framework and the broader theoretical background of this dissertation. This chapter starts with an introduction of the concept of 'investment readiness', which considers supply,

interaction and demand-side challenges in matching capital-seeking ventures and investors. Subsequently, the chapter analyses what exactly drives the capital supply side and the demand side in the established early-stage financing contexts. Besides, an overview of how both sides interact and come together is given.

The third chapter consists of three empirical studies that answer the above-stated research sub-questions. The last chapter discusses the implications of the findings of the dissertation for research and practice. Furthermore, the concept of investment readiness will be extended against the background of the dissertation's findings.

2 Matching founders and funders in entrepreneurial finance

2.1 The concept of investment readiness

A significant shortcoming in entrepreneurial finance research is the often one-sided view that is either focused on the investors' or the ventures' perspective (Amatucci & Sohl, 2004; Rasmussen & Sørheim, 2012). The concept of investment readiness addresses this shortcoming and incorporates demand- and supply-side considerations. More specifically, this concept includes all aspects of the venture that are related to the investor's perception of investability (Mason, 2009).

The concept has its origin in public policy intervention. In the past decades, numerous public programmes have been initiated to increase the supply of early-stage risk capital (Nightingale et al., 2009; Veugelers, 2011; Wilson & Silva, 2013). The initiation of these programmes is grounded on the assumption that severe market failures exist, leading to an equity gap for early-stage ventures. These market failures were related to the fixed (and regardless of the small venture size) evaluation and monitoring costs for investors, the generally higher risk of failure of early-stage ventures, the uncertainty about exit options and the comparably higher returns for later-stage investments (Colombo, Cumming, & Vismara, 2016; Mason & Harrison, 2004a).

After numerous activities of public policy intervention to enhance capital supply (e.g., through tax incentives for high net worth individuals or by promoting governmental VC funds), BAs and VCs were unable to invest as frequently as they would like to because they had difficulties in identifying an adequate number of promising investment opportunities (Mason, 2009; Mason & Harrison, 2002; Paul, Whittam, & Johnston, 2003). This shortness of a high-quality 'deal flow' triggered researchers to think more about the potential deficiencies of the capital demand side and design programmes for policymakers to match both sides of the market better. Consequently, the concept of investment readiness emerged, addressing several shortcomings of the demand side in relation to the supply-side requirements. Investment readiness consists of three core elements, namely (1) equity aversion, (2) presentational failings and (3) investability (Mason & Harrison, 2001; 2004; Mason & Kwok, 2010):

(1) Equity aversion is related to the willingness of ventures to partner with potential risk capital investors. It is a prerequisite that founders select their business as a possible

candidate for external equity investment (Eckhardt, Shane, & Delmar, 2006). However, in line with the pecking order theory (Myers & Majluf, 1984), many firms are not willing to lose part of their ownership and control of their business. Consequently, many ventures that risk capital investors might perceive as investable are not willing to accept BA or VC offerings. In some cases, these ventures may lack information about the possible non-financial support that risk capital investors provide. A better understanding of the different roles of risk capital investors in new firms can increase the willingness of ventures to partner (Mason & Kwok, 2010; Van Auken, 2001).

(2) Presentational failings refer to shortcomings in the information that capital-seeking ventures submit to potential investors. These shortcomings can include deficiencies in written documents (e.g., business plan, management presentations) or oral presentations, such as elevator pitches, short presentations in business angel foundations or business plan competitions (Mason & Harrison, 2001). Written documents such as the business plan can reflect the cognitive preparedness of the entrepreneur and therefore serve as an essential indicator of the ventures' later success (Chen, Yao, & Kotha, 2009). Furthermore, poor oral presentations can be perceived as a warning signal for a potential investor to refrain from financing (Clark, 2009; Grégoire, de Koning, & Oviatt, 2008). A common mistake is that entrepreneurs often leave out relevant information or focus on the product and technical issues instead of the business development side (Mason & Harrison, 2001).

(3) Investability is about whether a business generally meets the requirements of external investors. Thus, the ventures that are not yet investable can become investable with company-specific business development support. In this way, ventures can improve their probability to pass the investors' evaluation process, which has at least two steps: First, ventures need to meet the personal investment criteria of the investor, including factors such as sector, stage, size of the investment or location (Mason & Kwok, 2010). Subsequently, investors assess the entrepreneur and the business and may reject the proposed venture due to factors such as the entrepreneurs' lack of knowledge, vision and commitment, or poor market and profit potential (Croce, Tenca, & Ughetto, 2017; Feeney, Haines, & Riding, 1999).

The concept of investment readiness is a valuable starting point to understand how investors and ventures find and partner with each other because it incorporates demand-side motivational aspects (equity aversion), supply-side investment criteria (investability), and how both sides interact (presentational failings). However, what investment readiness really means varies from one investee to another and largely depends on the beholder's perception (Gregory, Hill, Joy, & Keen, 2012). Hence, investors vary in their assessment regarding what is investable and what they perceive as convincing during interaction (Mason & Stark, 2004). Furthermore, the best ventures can nowadays often select between multiple resource providers (Smith, 2001).

Consequently, there is no one-size-fits-all solution in matching the interests of ventures and investors. Thus, the concept's elements have investor- and investee-specific requirements. It is therefore helpful to develop a much more differentiated understanding of how investors and ventures find each other and interact in different circumstances. The next section summarises from a demand- and supply-side perspective our recent knowledge about different early-stage matching processes. Furthermore, the interaction between both sides will be discussed. This review focuses on high-growth ventures and two of the most common investor types for these ventures, namely, BAs and VCs (see Appendix 1 to receive an overview of the main early-stage risk capital providers).

2.2 How investors and ventures find each other in different contexts

2.2.1 The demand side: What drives ventures to partner with a specific investor?

Prior research has thoroughly revealed the investment preferences and practices of different kinds of early-stage investors (see, e.g., Mitteness, Baucus, & Sudek, 2012; Paul, Whittam, & Wyper, 2007; Tyebjee & Bruno, 1984). The capital demand side is comparably under-researched. The following lines present an introduction into the theoretical background of the demand side, discussing (1) the specific challenges for

early-stage ventures in financing their business and (2) the different theoretical frameworks that explain the financing and partnering decisions of these firms.

(1) Specific challenges of early-stage ventures: Obtaining financial means is often decisive for young and emerging high-tech businesses to realise their business plans and enable growth (Cassar, 2004). However, compared to large and more established firms, early-stage ventures share some characteristics that make it often more challenging to acquire financial means.

First, young firms struggle with the severe information asymmetries that exist at early development stages. Due to their short operating history, outsiders (such as banks or potential equity investors) have no reliable information about the past, ongoing developments and future growth perspectives of these businesses (Cosh, Cumming, & Hughes, 2009). Thus, there is no track record or historical data that banks usually require to evaluate these firms and reliably forecast their development. Consequently, Cassar (2004) describes start-ups as the most informationally opaque firms in the economy.

Second, the internal financing of young firms is problematic because early cash flow often does not cover initial expenses. In addition, start-ups have limited tangible assets that might serve as the collaterals that banks usually require. Entrepreneurs, therefore, need to provide sufficient private guarantees to bear the considerable risks a young company faces. Accordingly, early-stage ventures heavily rely on owner-backed debt financing (Robb & Robinson, 2012). This owner dependence is even enhanced in innovative high-tech start-ups because innovativeness is generally associated with comparably more asset intangibility (Kortum & Lerner, 2000).

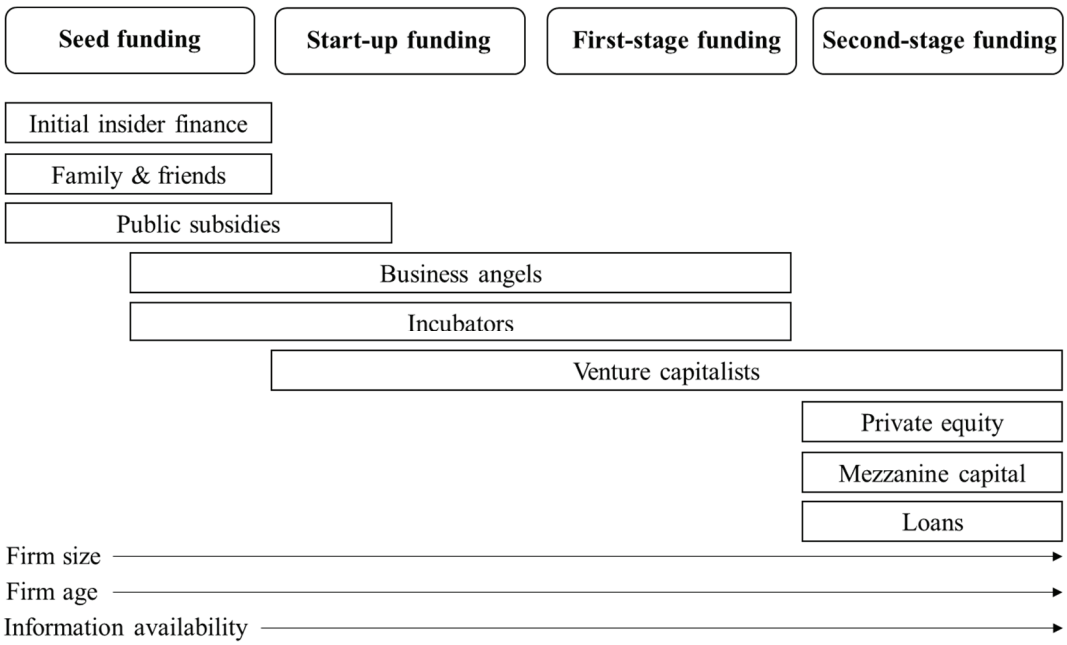
Third, compared to large and established firms, young ventures are disproportionally dependent on the networks and preferences of the owner (Åstebro & Bernhardt, 2003). Entrepreneurs have different personal connections and levels of self-determination. Their decisions are therefore difficult to forecast because these are often determined by these idiosyncratic forces (Cassar, 2004). In summary, asymmetric information, a lack of internal cash flow and collaterals, and agency problems are therefore the main reasons for the young ventures' difficulties in raising external capital (Carpenter & Petersen, 2002). For entrepreneurs, the costs of financing increase with higher information asymmetries, as more effort is required to resolve these asymmetries (e.g.,

through costly signalling). Some forms of financing are therefore either not available or have high transaction costs.

Compared to large and established firms, given their specific characteristics, young ventures need to develop different strategies to finance their operations. In addition to their financial commitment, entrepreneurs deeply rely on financial and non-financial resources that are provided by family and friends or through different bootstrapping mechanisms (Bygrave, Hay, Ng, & Reynolds, 2003; Ebben, 2009).

As the firm grows, outside investors gain more and more confidence in the business model and its founders. Due to the decreasing information asymmetries between entrepreneurs and their potential financiers, it is assumed that ventures can access different means of finance over their life-cycle, represented in the so-called growth-cycle paradigm (Berger & Udell, 1998). After these firms receive support from family, friends and public subsidies, specialised early-stage investors become increasingly relevant for them as partners, including BAs and different kinds of VCs. Figure 2 provides an overview of the different sources over the growth-cycle.

Figure 2: Stages of financing and main capital providers



Source: Own illustration based on Berger and Udell (1998) and Wilson (2015).

However, the model does not apply to all high-growth firms. The linear relationship between investor type and development stage that Berger and Udells' original growth-cycle paradigm suggests can be questioned because ventures currently bypass some forms of financing or bundle different financing sources simultaneously (Schwienbacher, 2014). Furthermore, availability also depends on the specific regional risk capital market. Entrepreneurial finance research needs to consider this spatial context (Cumming & Vismara, 2017). Investors thus differ in their importance and the role they fulfil in different regions.

(2) Different theoretical frameworks: In addition to the growth-cycle paradigm that gives an orientation regarding the corridor in which entrepreneurs decide, different theoretical frameworks suggest that the ventures' financing and partnering decisions are determined by cost and control arguments especially.

In line with this argumentation, the pecking order theory has particularly encouraged the interest of researchers in the past. The theory states that the costs of financing rise with increasing information asymmetries. Consequently, firms follow a pecking order in their financing decision. Accordingly, they prefer internal over external financial means. If external financing is required, they prefer debt to equity (Myers & Majluf, 1984). Although the theory was developed in the context of larger firms, multiple studies partly support the applicability of the pecking order in the context of small and high-growth businesses (Achleitner, Braun, & Kohn, 2011; Berggren, Olofsson, & Silver, 2000; Cassar, 2004; Vanacker & Manigart, 2010). Some researchers claim the existence of a diverted pecking order in the context of technology-based firms. They state that if external financing is required, firms prefer equity to debt (Garmaise, 2007; Minola, Cassia, & Criaco, 2013).

This change in rank-order might be explained by the fact that investors may add value to the firm (Cosh et al., 2009). In fact, compared to larger and more established firms, young ventures possess different kinds of resource constraints (Stinchcombe & March, 1965). Therefore, they can disproportionally benefit from obtaining access to resources, such as different networks, expertise, and managerial support, which these investors provide (Politis, 2008; Rosenbusch, Brinckmann, & Müller, 2013). Investors can thus give ventures access to resources that might justify the dilution of ownership and control in their specific situation. Consequently, other frameworks – such as the

resource-based view that puts financial means into the broader context of resources – might be helpful to develop a realistic understanding of why entrepreneurs finally decide to partner with a specific investor.

In addition to theoretical frameworks that view the entrepreneurial process as a linear process with an entrepreneur that makes rational, goal-driven decisions, there are also concepts, such as bricolage or the related effectuation logic, which see the entrepreneurial process itself as non-linear and entrepreneurs as less rational (Landström, 2017). According to their arguments, entrepreneurs prefer to use resources that are at hand and therefore already under their control (Baker & Nelson, 2005). Furthermore, there are individual preferences of entrepreneurs, such as different levels of self-determination or prior experiences with risk capital providers, which might influence their behaviour.

In summary, the financing and partnering decisions of early-stage ventures are complex and difficult to predict. Regarding the described investment readiness concept, this means that more than just overcoming equity aversion or having a general openness is required for ventures to partner with a specific investor. Thus, the investor needs to be considered as suitable for the business in the entrepreneurs' eyes. The broader circumstances of this assessment and their influence on the financing decision have not yet been sufficiently examined.

This understanding is also missing in equity crowdfunding. The literature review has shown the specific hurdles that innovative ventures encounter when raising financing and has identified different factors that influence decision-making. This emerging form of financing seems to offer innovative ventures its own mixture of cost, control and value-added arguments. However, why and under which circumstances entrepreneurs evaluate equity crowdfunding as suitable for their business is not understood. Thus, Section 3.1 explores this demand-side decision-making background and analyses why ventures finally decide to use equity crowdfunding. However, a convinced demand side is not sufficient for a transaction. Another prerequisite is a successful interaction between ventures and investors.

2.2.2 Interaction: How do both sides interact with each other?

Before ventures and investors partner, their interactions must lead to the desired outcomes for both sides. From the literature on early-stage investment processes and practices, three main challenges for these interactions between the supply and demand side were identified: (1) the establishment of contact, (2) the transfer of information, and the (3) negotiation (which includes contracting and due diligence). The following lines give an overview of these challenges from the perspective of both sides.

(1) Establishment of contact: From the start-ups' perspective, there are multiple ways to approach investors. As one of the first steps, the entrepreneurs need to identify potential investors and the investors' preferences. However, angel investors often value their privacy and are therefore difficult to locate (Mason & Harrison, 2000). In recent years, business angel networks and the Internet may have created more transparency (Zu Knyphausen-Aufseß & Westphal, 2008). In contrast, VCs and their investment preferences are generally easier to locate and identify. They usually illustrate their portfolio and specific investment preferences on their websites. In addition to submitting management presentations to business angel networks or directly to investors, entrepreneurs can use various networking activities – such as business plan competitions or specific matching events – to raise the investors' awareness of their business (Mason & Harrison, 2001).

On the other hand, angel investors use numerous formal and informal sources to identify investment opportunities, often referred to as their deal flow. Thus, they receive investment proposals from their network of friends, VCs, banks, tax consultants, business analysts, investment clubs and from their active search (Brettel, 2003; Reitan & Sørheim, 2000). In general, BAs prefer personal or informal sources (Kelly & Hay, 2000). Their network is often derived from prior investments. Sørheim (2003) showed that referrals come from a network of strong and weak ties. Strong ties are the result of previous involvement in a specific industry. He showed that more industry involvement leads to an improved track record and better referrals from an industry-specific network. Sørheim concluded that it is difficult for new investors to identify the best performing deals without having these ties.

This network reliance is also typical for VCs. They trust referrals from their network and screen the market actively for potential investment opportunities (Shepherd,

Armstrong, & Lévesque, 2005). Teten and Farmer (2010) revealed the general benefit of a proactive search strategy. They showed that due to a higher quantity and quality of generated investment opportunities, a proactive deal origination strategy leads to investments in better performing firms.

(2) Transfer of information: Regardless of how both sides establish contact with each other, entrepreneurs ultimately need to lower the severe information asymmetries between themselves and potential investors and demonstrate that their business is investable. It is therefore essential for entrepreneurs to send signals that convince investors about the quality of the firm. These signals can, e.g., be the information on the educational level of the entrepreneurs, the provision of private collaterals or the existence of different co-investors (Backes-Gellner & Werner, 2007; Busenitz et al., 2005). Ventures thereby need to demonstrate their organisational, strategic and technical readiness (Brush, Edelman, & Manolova, 2012). In practice, they usually submit an investment proposal that summarises the essential facts about the business model, followed by an extensive business plan. Finally, if they pass the first screening, they are invited to present their business directly.

On the other hand, investors screen investment proposals for specific signals. However, the interpretation of these signals depends on the receiver (Connelly, Certo, Ireland, & Reutzel, 2011). Consequently, Mason and Stark (2004) show, e.g., that different kinds of investors weigh aspects in the business plan differently. Accordingly, while bankers stress financial aspects, VCs and BAs look for the upside potential of the firm. Furthermore, Clark (2008) showed that the entrepreneurs' presentation skills are essential in convincing investors. Thus, besides investment-related substance-aspects, investors thoroughly observe the way the content is presented (e.g., clarity, structure, understandability) and the ability of the entrepreneur to sell himself and his business opportunity. Finally, if both sides can at least imagine a partnership, they can start to negotiate about terms and conditions.

(3) Negotiation: A critical step during the investment process is the negotiation about business valuation and other contractual details.

Practitioners often describe start-up valuation as being half art and half science and one of the main obstacles during the negotiation process (Mason & Harrison, 1996). Projections regarding future earnings are highly insecure because they rely

considerably on assumptions. Consequently, traditional valuation techniques of more established businesses cannot be applied (Mason & Harrison, 2004b). VCs often use different valuation techniques to determine the company value and finally decide on one of these methods (Wright & Robbie, 1996). Köhn (2018) argues that the valuation of start-ups is a three-sided interplay of factors related to start-ups (e.g., founder and team characteristics, intellectual properties and alliances), venture capitalists (e.g., reputation and value-add, valuation methodologies), and the external environment (e.g., market factors). Approaches undertaken by BAs to cope with valuation are comparably less sophisticated and rely more on intuition (Paul et al., 2007). At the opposite side, entrepreneurs often overvalue their company which frequently leads to a breakup of the negotiations (Haines, Madill, & Riding, 2003).

Moreover, the negotiation process entails discussions about detailed contractual arrangements. Thus, BAs and VCs have several options to reduce agency risks and costs that derive from adverse selection and moral hazard. Consequently, VCs make considerable use of convertible securities, different control rights, the syndication of investments and the staged infusion of capital (Gompers, 1995; Burchardt, Hommel, Kamuriwo, & Billitteri, 2016). Van Osnabrugge (2000) revealed that both groups of investors continuously try to reduce risks but with different approaches. VCs do it with a comprehensive contract approach. They place more emphasis on contractual control before they invest (ex ante). BAs have an open contract approach and put more importance on monitoring the entrepreneur after the investment is made. This was also confirmed by Wong, Bhatia, and Freeman (2009) who showed that BAs make less use of board seats, staging of investments and contractual clauses. Ibrahim (2008) gives different explanations for that phenomenon. He argues that VCs are not willing to invest in companies that have complex contractual agreements with previous investors. This restricts angels in their negotiation opportunities as they are themselves dependent on follow-up funding. Furthermore, he argues that angels prefer informal substitutes to control because their geographical proximity enables intimate and hands-on participation. His last argument is related to the relative costs for extensive contract formulation in comparison to the larger investment amounts and duration of VC investments.

To validate the given information and assumptions of the entrepreneur, BAs and VCs perform due diligence, which includes research about market information, background and reference checks of the entrepreneur or investigations about the reliability of the financial planning. Compared to VCs, BAs have been shown to spend less time on their due diligence (Van Osnabrugge, 2000). Thus, their due diligence is characterised as ad hoc and less sophisticated. Within the group of BAs, it has been shown that BAs that perform more due diligence receive more homerun exits (exits with greater than 100% internal rate of return), more negative exits and less moderate exits (Wiltbank, 2005; Wiltbank, Read, Dew & Sarasvathy, 2009).

This analysis has shown three core challenges for interaction and has discussed numerous activities that both sides conduct to establish contact, transfer information and negotiate. In equity crowdfunding, interaction takes place over the Internet. This raises multiple questions about if and how the numerous activities that both sides conduct in established settings can take place in this new setting. Many of the activities mentioned above require significant effort from both sides (e.g., direct interactions through meetings). Due to the often small investments per investor, it is economically not efficient to conduct activities, such as valuation or due diligence, on an individual level. Against this background, it can be assumed that portals play a decisive role in the interaction process. However, their specific role and duties in connecting founders and funders in equity crowdfunding is largely unknown. Section 3.2 explores how equity crowdfunding portals preselect ventures for their audience and act in later communication with investors. It thus provides insights on how both sides interact in this new context.

2.2.3 The supply side: What drives investors to invest in a specific business?

The decision-making processes of different kinds of early-stage investors, and especially those of BAs and VCs, have received considerable research attention during the last decades (see, e.g., Hsu, Haynie, Simmons & McKelvie, 2014; Mason & Stark, 2004; Van Osnabrugge, 2000). The following lines present an introduction into the decision-making processes of the demand side and focus on (1) the BAs' decision-making and (2) the VCs' decision-making.

(1) BAs' decision-making: Numerous studies have revealed the peculiarities in the decision-making processes and investment criteria of angel investors (see, e.g., Maxwell, Jeffrey, & Lévesque, 2011, for an overview). A general pattern that has been discovered is the often unsystematic and subjective nature of their decision-making. Thus, angel investors tend to trust their intuition or their gut feeling (Haines et al., 2003). The factors that determine their investment choices are mainly related to the entrepreneur's characteristics and their personal fit with the investment opportunity (Fiet, 1995; Mason & Stark, 2004; Van Osnabrugge, 2000). In addition, regional proximity often plays a role, as angel investors often try to play an active role in the company they have invested in (Harrison, Mason, & Robson, 2010).

The decision-making process often consists of an initial screening and a detailed screening phase (Paul et al., 2007). The relevance of different evaluation criteria depends on the stage of the investment process and therefore changes over time (Brush et al., 2012; Mason & Harrison, 2003). Thus, Smith, Harrison, and Mason (2010) argue that angel investors, after receiving an investment opportunity, first consider the fit with their personal investment criteria, such as location, stage, sector and their chance to add value. After passing this stage, they screen potential deals with a negative attitude, looking at reasons for rejection. Mitteness et al. (2012) revealed that during their evaluation angel investors change their focus from the business opportunity towards their personal fit with the deal. Nevertheless, BAs substantially differ in their preferences (Festel & De Cleyn, 2013; Sullivan & Miller, 1996). Currently, they are increasingly organised in large angel groups (Mason, Botelho, & Harrison, 2016). The implications of this new organisational form on the evaluation processes are still in its infancies (Croce et al., 2017).

(2) VCs' decision-making: The decision-making processes of VCs represent one of the most researched topics in entrepreneurial finance research. Compared to that of BAs, the VCs investment processes are characterised by more thoroughness and less by intuition or gut feeling. From the numerous deals they receive, they first identify those that deserve further consideration (Zacharakis & Meyer, 2000). Factors at this stage can be a different industry focus, the size of the investment, the development stage of the business and its location (Landström, 2017). The importance of decision-making criteria also varies during the evaluation process (Petty & Gruber, 2011). After

ventures pass the first screening, the VCs check for factors related to the experience and personality of the entrepreneur, the product or service as well as market and financial characteristics (for an overview of VC investment criteria see Kollmann & Kuckertz, 2010).

In summary, both types of investors place a huge emphasis on the entrepreneur. However, while strategic readiness for funding and affective passion matters more to angel investors, VCs put their focus more on economic potential (Hsu et al., 2014). Thus, VCs are more concerned about market risks, as they have learned to protect themselves with contracts from agency risks (Fiet, 1995). Furthermore, VCs act in the interest of someone else. Therefore, it is an intermediated form of financing (Cumming & Vismara, 2017). Diverging personal preferences should, theoretically, play a minor role in their investment decisions.

Regardless of whether they are BAs, VCs or other early-stage investors (see Appendix 1 for an overview), they all have different organisational structures, motivations and individual preferences that influence their assessment criteria. What investors might perceive as investable can therefore substantially differ. Regarding the investment readiness concept, this has implications: A venture must finally meet the individual investment criteria of the specific investor and demonstrate its investability in the investor's eyes. Therefore, it is essential to understand the motives and individual decision-making criteria of different kinds of early-stage investors.

Not much is known about the investors' behaviour and especially their decision-making process in equity crowdfunding. In this context, funders with presumably less risk-capital experience invest. Early research has shown that financial motives play a key role in their investments (Cholakova & Clarysse, 2015; Moysidou & Spaeth, 2016). However, their opportunities to exchange information with the capital-seeking entrepreneurs are comparably limited. Given their limited experience and the restricted opportunities to interact with the venture, it is important to understand what finally drives their investment decisions and which signals help to mitigate the pronounced information asymmetries in this new setting. The question arises: For their investment decisions, do the equity crowdfunding investors apply criteria similar to those of established early-stage investors? More specifically, Section 3.3 thus answers the question of whether one of these signals (the financial commitment of the founders)

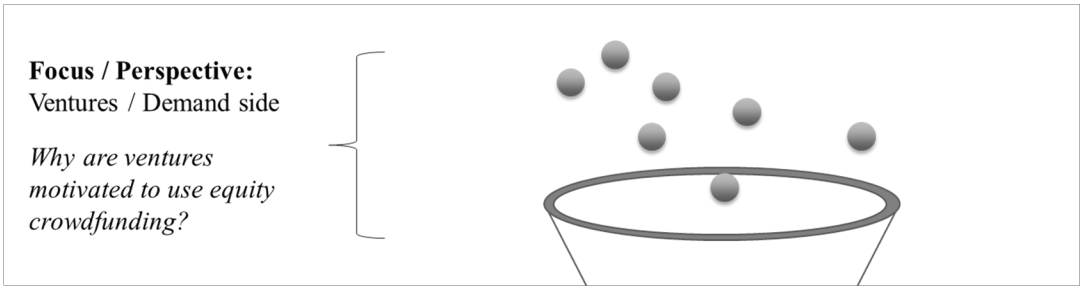
helps to mitigate information asymmetries in this new setting. In this way, the section contributes to the main research question by focusing on the supply side.

The review about on how ventures and investors come together in other more established early-stage financing contexts has shown the different decision-making factors and efforts of the demand and supply side. Furthermore, an overview of the various activities of interaction was given. The review raises several questions about how this matching of interests is organised in equity crowdfunding. To explore this new process, the next chapter will therefore answer the three research sub-questions: Why are ventures motivated to use equity crowdfunding (3.1)? How do equity crowdfunding portals preselect ventures for their audience (3.2)? What are the success factors in equity crowdfunding (3.3)?

3 Matching founders and funders in equity crowdfunding

3.1 First choice, last resort or something else? The expected roles of equity crowdfunding in financing new ventures

Figure 3: First research sub-question



Source: Own illustration.

3.1.1 Introduction

The early-stage financing landscape changed substantially during the last years. The financial crisis, technological changes, and numerous policy interventions led to the emergence of multiple new resource providers for capital-seeking ventures (Block et al., 2018a). This recent increase in diversity offers entrepreneurs more ways to customise and time their fundraising strategies according to their needs (Bellavitis, Filatotchev, Kamuriwo, & Vanacker, 2017). Given the resource-scarce world of young ventures and the need for rapid growth in many sectors, it is often essential for these actors to finance their business with partners that offer more than just financing. Rather the decision for the appropriate investor is often critical to unfold the entire growth potential of the firm.

Despite its practical importance, not much is known about how entrepreneurs choose their investors (Schwienbacher, 2013). During the last decades, most research in entrepreneurial finance had a supply-side focus, analysing how financiers select these firms (Rasmussen & Sørheim, 2012). The perspective on early-stage ventures' capital acquisition was mainly deficit-oriented, pronouncing the hurdles that these firms have in attracting external risk capital. Nevertheless, the best ventures can often select between alternatives (Smith, 2001). To successfully match founders and funders, both sides need to understand each other's interests in more detail (Polzin et al., 2018). Our

knowledge about demand-side motivations and the intended role of established and new risk capital providers is limited so far.

An emerging risk capital source that enriched the venture finance landscape recently is equity crowdfunding, in which funders receive equity or equity-like shares in return for their commitment. During the last years, it has become a prospering way to finance many young and innovative for-profit businesses (Bradford, 2012; Vulkan et al., 2016). However, despite its growing popularity in research and practice, it is not yet clear what drives entrepreneurs to use equity crowdfunding over other financial sources (Ahlers et al., 2015). On the one hand, literature stresses its multiple non-monetary benefits that are often seen as the motivating factors to initiate crowdfunding campaigns in general (Belleflamme et al., 2013; Gerber et al., 2012). On the other hand, it is argued that equity crowdfunding systematically attracts businesses that see it as their last resort instead of their first choice (Ibrahim, 2015; Tomboc, 2013).

However, so far research failed to develop a differentiated understanding of the different motivational backgrounds. To our knowledge, no study systematically analyses ventures' decisions to use equity crowdfunding, considering the individual context. Based on qualitative data of 10 German cases we, therefore, ask: Why are ventures motivated to use equity crowdfunding (see Figure 3 for an orientation about how this question contributes to the entire dissertation)? Our analysis links ventures' backgrounds with their decision to use crowdfunding. Thus, we compare ventures regarding (1) their reported motivations, (2) their access to alternative means of risk capital and (3) their broader organisational context.

We show that ventures are not solely pushed to this form of financing because they lack alternatives. Rather their motivation is considerably influenced by multiple different aspects related to investment conditions and specific value-add features. Our case analysis discusses the specific motivational backgrounds for each case and develops a theoretical framework of four different motivational types. In this way, we contribute to multiple theoretical discussions: Besides providing specific determinants of risk capital choices in the particular context of equity crowdfunding, our framework builds the foundation for further research of motivational backgrounds in other early-stage financing contexts. Furthermore, the paper calls for a more fine-lined discussion of the pecking order theory in the scarce resource context of young firms. Thus, while

some ventures make use of what is available when they approach external investors, others seem to follow a more goal-oriented resource acquisition and thus pursue an optimising strategy.

The section is structured as follows: Subsection 3.1.2 provides a literature review. Subsection 3.1.3 explains the methodology and describes the analysis. 3.1.4 presents the findings. The next subsections discuss the results and bring up future research questions. The last subsections draw a conclusion and respond to the first research sub-question of this dissertation.

3.1.2 Literature review: Early-stage ventures' investor selection

During the last decades, entrepreneurial finance research developed a detailed understanding about the evaluation processes and selection criteria of different types of risk capital providers (e.g., Fried & Hisrich, 1994; Mason & Stark, 2004; Tyebjee & Bruno, 1984). Our knowledge about the demand side in this respect is comparably limited and fragmented as it fails to systematically disentangle the different factors that determine ventures' investor choices. On the one hand, research stresses cost and control arguments, suggesting that ventures seek financial means with little dilution of ownership and authority. For example, Valliere & Peterson (2007) demonstrate that the valuation and the terms and conditions are the most critical aspects when entrepreneurs decide about investors. On the other hand, research emphasises the specific added values that different kinds of investors presumably provide (Zheng, 2011). Thus, their portfolio companies frequently receive coaching and managerial support or access to their broad network resources of customers, suppliers, investors or employees (Rosenbusch et al., 2013). Consequently, risk capital investors often play a multi-faceted role in the development of their investees (Sapienza, Manigart, & Vermeir, 1996; Kaplan & Strömberg, 2004).

However, the specific characteristics of different types of risk capital providers diverge substantially. Theoretical studies, therefore, focused on the particular decision between BAs and VCs from economic and behavioural perspectives. In this manner, Chemmanur & Chen (2014) assume that VCs are more capable of adding value to the firm, which is costly to provide. To efficiently use resources, they conclude that entrepreneurs who are themselves technologically sophisticated prefer BA-financing

in their first financing round. Fairchild (2011) developed a game-theoretic model in which entrepreneurs need to decide between the higher value-creating abilities of the VC and the closer, more empathetic and trusting relationship with the BA. He concludes that, based on the high empathy, entrepreneurs may choose the BA, even though the VC might provide greater value-add capabilities. Schwienbacher (2013) more broadly distinguished between specialist and generalist investors. He argues that specialists outperform generalists as they are more likely to perform value-adding services in early financing rounds. Other investor specific characteristics that have been shown to influence investor choice are VCs' reputation for past success and their ethical behaviour (Drover, Wood, & Fassin, 2014; Zheng, 2011).

Nevertheless, the way how these various aspects influence ventures' investor choices under different circumstances is not sufficiently understood. Capital-seeking ventures diverge substantially in their preconditions. A basic requirement is that ventures decide or can at least imagine using external equity financing (Eckhardt et al., 2006; Mason & Harrison, 2001). However, beyond this general willingness, multiple factors related to the business, the entrepreneur and the broader environment might influence how important they perceive cost, control, and value-add characteristics. Thus, aspects such as the experience of the entrepreneur (Valliere & Peterson, 2007), his technological skills (Chemmanur & Chen, 2014) or the development stage of the business (Schwienbacher, 2013) have been demonstrated to influence investor choice. Given the dynamic environment of early-stage ventures, their risk capital preferences might change over time. Furthermore, this choice is determined by their access to alternatives, which also evolves (Berger & Udell, 1998; Schwienbacher, 2014).

During the last years, this access to financing alternatives underwent significant changes. Multiple new players entered the scenery, including incubators and crowdfunding (Block et al. 2018a; Bruton et al., 2015). Entrepreneurs, who traditionally had few funding sources available, have nowadays more power to select, negotiate and manage relationships with investors (Drover et al., 2017). One of these new sources is crowdfunding, which is defined as an open call over the Internet for financial means for specific purposes (e.g., Belleflamme, Lambert, & Schwienbacher, 2014). Early research in this new setting focused on its success drivers and failed to explain its growing popularity for capital-seeking ventures (Short, Ketchen, McKenny,

Allison, & Ireland, 2017). However, crowdfunding provides a fruitful ground to discuss risk capital decisions of early-stage ventures in a narrow and broader sense. First exploratory studies imply that campaign creators use, e.g., reward-based crowdfunding to raise funds, establish relationships, receive validation, replicate successful experiences of others and expand awareness through social media (Gerber et al., 2012). Nevertheless, motivations to participate for campaign initiators and funders presumably diverge between the different crowdfunding types (see, e.g., Cholakova & Clarysse, 2015).

In an equity crowdfunding context, Walthoff-Bohm, Schwienbacher & Vanacker (2018) showed that firms that list on crowdfunding portals lack internal funds and additional debt capacity. Their findings support the pecking order theory in this specific context. They conclude that entrepreneurs use equity crowdfunding as a last resort. However, their findings do not show how entrepreneurs chose between equity crowdfunding and traditional sources of external equity for these firms. Brown, Mawson, Rowe, and Mason (2018) showed that entrepreneurs use this form of financing to access financial means quickly and with little dilution of equity and autonomy. Estrin et al. (2018) argue that entrepreneurs have mixed motives to use it. While it is for some strict financial exchange, others use it to test their products, develop their brand and customer base and turn customers to investors.

Although these preliminary findings give first insights about different motivational drivers, it is again not clear what determines ventures' investor choice under different circumstances. There is a need to systematically disentangle the organisational backgrounds of crowdfunded ventures and relate them to motivational aspects, which is the aim of this section. Thus, a more differentiated picture is needed to understand better why ventures use this form of financing.

3.1.3 Methodology

3.1.3.1 Research approach

As addressed in the literature review, a robust conceptual foundation about ventures' motivations to use equity crowdfunding is missing. We, therefore, made use of an exploratory and inductive research design to gain insights for later theory building. We decided to use multiple case studies as they allow us to identify key behavioural

patterns across cases (Eisenhardt & Graebner, 2007). Furthermore, their detail, richness and case variance help us to understand the relationship between outcome (motivational aspects) and different causes (contextual conditions of the venture) (Flyvbjerg, 2006). In addition, the selection of multiple cases instead of a single case builds a stronger base for subsequent theory building, based on replication logic (Eisenhardt & Graebner, 2007). Thus, we triangulated data from different sources to increase validity and strengthen the substantiation of constructs (Eisenhardt, 1989). We conducted three main activities to gather data from different sources for later analysis: First, we built a database of all ventures that made use of equity crowdfunding in Germany since its emergence in 2011. Subsequently, we conducted interviews with a selected subsample of these ventures and finally, we screened media coverage and additional sources to validate respondents' narratives and to receive further information about the selected cases.

3.1.3.2 Database and sampling

To obtain a comprehensive overview about the nascent market we first built a database with key information about all 163 funding rounds made by 145 ventures on four major German equity crowdfunding portals (Seedmatch, Companisto, Innovestment, Fundsters) between August 2011 and March 2015. Eighteen of these campaigns have been follow-up funding rounds, in which a venture gathered capital via equity crowdfunding for the second time. To convince potential investors, capital-seeking ventures create an online profile on one of the analysed portals. Besides a short video, this profile provides visitors with key information about the business model and its prospects. To build our database, we screened these company profiles for general information about each campaign (e.g., collected amount, number of investors, campaign duration) and specific information about the business (e.g., founding team, previous investors, valuation). We collected the same information for each campaign to enable later comparisons and to delineate main tendencies in the market. Furthermore, the detailed information of our comprehensive database served as the main foundation for our interview sampling strategy with campaign initiators.

For these interviews, we made use of purposeful variation-based sampling to identify key themes across heterogeneous cases (Patton, 1990). We saw the danger that the interview data might be influenced by hindsight bias. Thus, solely questioning

entrepreneurs retrospectively might not always lead to an appropriate reconstruction of the event. We modified our sampling and triangulated data from different sources to mitigate this risk. To make sure that respondents still possess detailed information about the entire background of their campaign we solely considered businesses that had realised one successful campaign within the last twelve months. From our database, we identified 52 ventures that met this time criterion. Out of these we purposefully selected and contacted key decision makers of 15 ventures that had heterogeneous characteristics regarding the platform they had used, the amount of capital they had raised, the number of funders of their campaign and their total number of conducted equity crowdfunding rounds. In addition, we contacted a CEO of a venture that initiated a campaign on a fifth platform (that was not in our database) but had diverging characteristics regarding our requirements. Finally, eleven key decision makers of ten ventures agreed on an interview (Table 3).

Table 3: Overview of the sample

Case	Industry/ Business model	Respondents' role	Amounts raised in €	No. of investors	Portal used
1	Portal for language trips	Managing Directors & Co-Founders (2)	101-200k	1-100	A
2	Online lottery broker	Managing Director & Co-Founder	401-500k	501-750	B
3	Search engine for apps	Managing Director & Co-Founder	201-300k	751-1000	C
4	E-book flat rate provider	Marketing & Sales Manager, Co-Founder	401-500k	1001-1500	C
5	Electric motor bikes producer	Shareholder & Founder	51-100k	1-100	D
6	Mobile payment system provider	Managing Director & Founder	301-400k	501-750	B
7	Retailer of homewares	CEO & Co-Founder	2000-3000k	1001-1500	E
8	Producer of wooden lifestyle products	Managing Director & Co-Founder	51-100k	101-200	A
9	Toy rental service	Managing Director & Co-Founder	401-500k	1001-1500	C
10	Fertility diagnostics	Managing Director & Co-Founder	201-300k	301-400	B

In total, the ten ventures they speak for had realised twelve crowdfunding rounds on five different German equity crowdfunding portals. On average, each of these ventures raised €569,481 in total (median: €350,000) and €474,567 per funding campaign (median: €300,000) from 609 investors. The ten ventures were founded between December 2010 and July 2013. Their campaigns have been conducted between January 2013 and June 2014. At their campaign start, these ventures were between three months and three years old.

3.1.3.3 Data collection of selected cases

The semi-structured interviews were conducted between December 2014 and February 2015. The interviews were made by phone (8) and in person (2) and lasted on average 52 minutes. The semi-structured interview guideline we used included three main blocks of questions about (1) the interviewee and his business, (2) the crowdfunding process, and (3) general assessments about recent developments in the market. Especially the first block contained detailed questions about motivational aspects, including the decision-making process, financing history and prior investors, motivation to use crowdfunding and the availability of alternative financing options (see Appendix 2 for an overview).

Table 4: Risk capital providers before, during and after the campaign

	# of risk capital providers before campaign launch			# of risk capital providers during and after the campaign		
Case	**BA**	**VC**	**Others**	**BA**	**VC**	**Others**
1		1				PE
2	4	1			1	PE
3						
4	1					GVC (2)
5			CF	2		
6						EC
7	3	3			3	PE (2)
8				1		
9	2			8	2	EC
10	2		GVC	1		GVC

BA = Business Angel, VC = Venture Capitalist, CF = Crowdfunding (Reward-based), GVC = Governmental VC, PE=Private Equity firm, EC=Equity Crowdfunding

The interviews were recorded for later transcription. To validate the respondents' narratives additional data for each of the ten cases were gathered. We therefore

screened their portals profile information in much more detail. In addition, each case was investigated using the DAFNE and MARKUS databases by Bureau van Dijk to receive more detailed information about the oftentimes changing ownership structures. Furthermore, we intensively screened different online media such as entrepreneurship newsletters, press releases, crowdfunding portals, ventures websites and social media profiles to obtain additional information about events that happened before and especially after our interviews (e.g., follow-up funding rounds, exits, liquidations). This additional information helped us to finally draw a clear investor history for each of the investigated cases (Table 4). Besides the interviews, this enabled us to assess their general attractiveness for external risk capital investors.

3.1.3.4 Data coding and analysis

Our aim during the analysis was to disentangle the organisational background of crowdfunded ventures and to understand why each of the selected ventures decided to use equity crowdfunding. In a first step, we therefore structured key information about the broader organisational context of the businesses. We employed numerous activities to aggregate the data for each case, screening interview transcripts, campaign profile information, database and media information to study the (1) general characteristics of the business model, (2) the business development status at the campaign launch, (3) the intended use of the collected capital. Furthermore, to understand the explicit financing decision to use equity crowdfunding we structured data about (4) the reasons for choosing a specific platform, (5) other funding rounds of the organisation before and after the campaign, (6) expressed motivations to use equity crowdfunding and (7) interactions with alternative risk capital investors (see Appendix 3 for an overview).

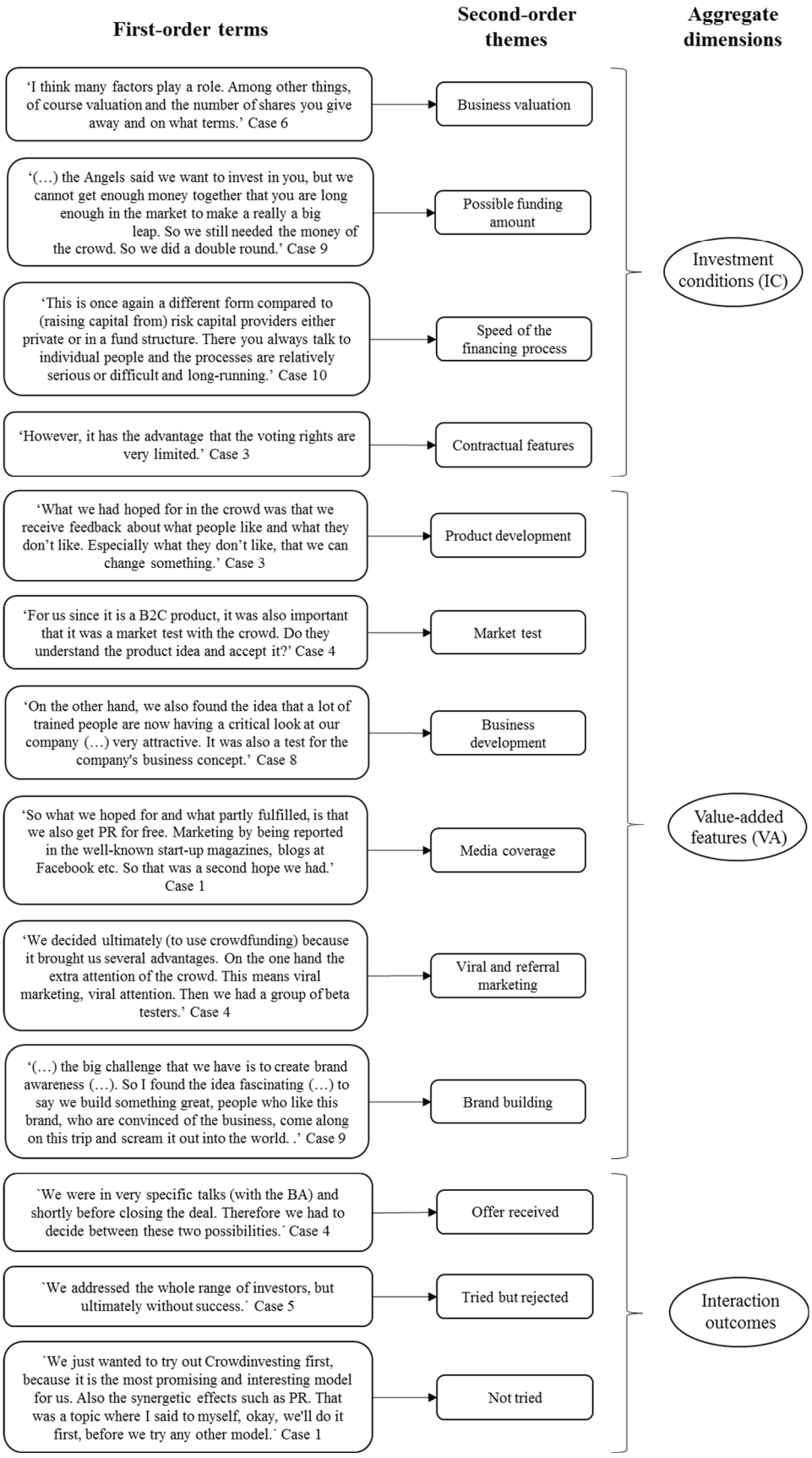
Like most other studies that follow a multiple case study approach, we used semi-structured interviews as our main source of information (e.g., Breugst, Patzelt, & Rathgeber, 2015; Davis & Eisenhardt, 2011). Thus, we went through each interview transcript several times and coded instances with an inductive coding strategy (Corbin & Strauss 1990). After studying each case individually and considering the exploratory cross-case overview, it turned out, that the motivations that entrepreneurs expressed are closely connected to the availability of alternative risk capital providers. We therefore assessed the expressed motivations and the availability of risk capital alternatives as the critical dimensions to understand why ventures decided to use equity

crowdfunding in a narrow context. All other aspects were considered as the broader organisational context.

We subsequently conducted first-order and second-order analysis to enhance the qualitative rigour and illustrate similarities and differences between the different cases (Gioia, Corley, & Hamilton, 2013). We first coded all instances about expressed motivation and interactions with other risk capital providers. Afterwards, we identified similarities between these instances, leading to our second-order themes. We finally identified ten distinct motivational drivers and three different interaction outcomes with investors. We further grouped these second-order themes into aggregate dimensions that emerged from these themes (Figure 4). Thus, motivational drivers were either allocated to ‘investment conditions’ and ‘value-add features’.

Subsequently, we categorised each venture into the core dimensions ‘expressed motivations’ and ‘access to alternative risk capital providers’. Ventures were therefore considered as motivated by investment conditions (IC), value-add (VA) or both if respondents mentioned at least one of the motivational drivers within these themes. Furthermore, we assessed ventures’ access to alternative risk capital providers, based on interaction outcomes with alternative risk capital investors and ex post financing rounds: Those ventures, that exposed that they had received a concrete offer from an investor and those, that did not try to attract external investors before campaign launch but received financing of external investors after the campaign, were categorised as ‘high’. In turn, ventures that unsuccessfully tried to convince external investors, and those that did not try and did not receive external investments ex post, were categorised as ‘low’ (Table 5). The interviews were coded and rated by two researchers to strengthen the validity of the results. Cases with disagreement were discussed.

Figure 4: Example of coding data from first-order terms to aggregate dimensions



Source: Own findings.

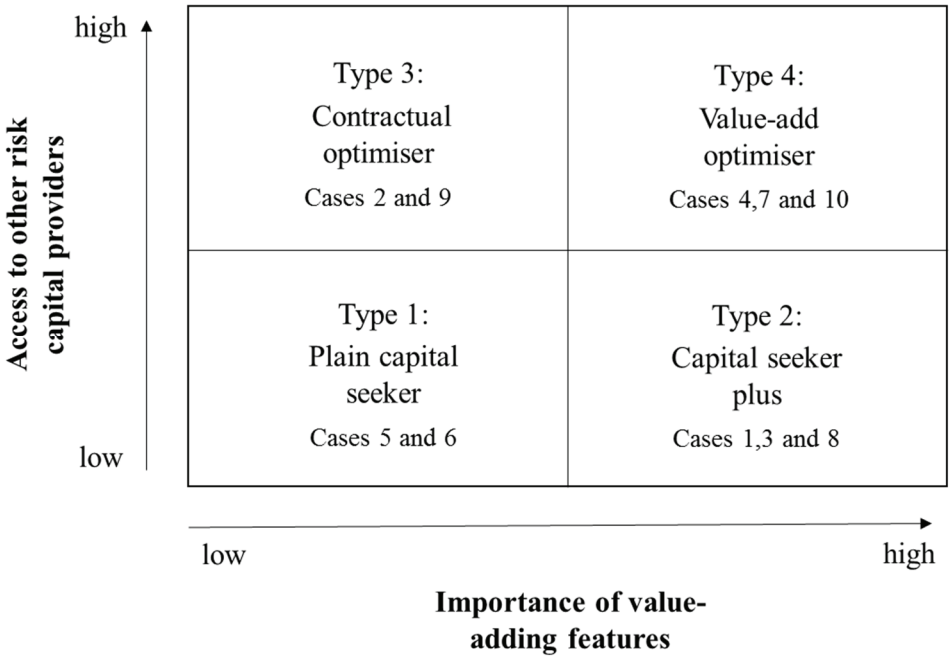
Table 5: Ventures' motivation and access to alternatives

Case	Motivation	Access to alternatives	Classification
1	VA	low	2
2	IC	high	3
3	IC+VA	low	2
4	VA	high	4
5	IC	low	1
6	IC	low	1
7	IC+VA	high	4
8	IC+VA	low	2
9	IC	low	3
10	IC+VA	high	4

3.1.4 Findings - Different types of crowdfunded ventures

We allocated ventures into four different types, based on the two dimensions that determine the decision-making context in a narrow sense (Figure 5). However, beyond motivations and access to alternative risk capital providers, there are also broader organisational conditions, that help to explain why entrepreneurs consider specific motivational drivers as essential and explain the attractiveness of the business for risk capital investors. In the following, we will therefore quickly describe the narrow decision-making context for each type, before we turn to similarities and differences in the broader organisational context.

Figure 5: Motivational typology



Source: Own findings.

Type 1: Plain capital seeker

Ventures that belong to this type have no other risk capital options available. In addition, potential non-monetary benefits of equity crowdfunding did not force their decision to use this funding source.

An example of this type is venture 5. Before they engaged in equity crowdfunding, the venture was financed with considerable financial means of the founders (€300k) and a successful Kickstarter campaign (€185k). Their intention in this very first (reward-based) crowdfunding campaign was also to create public awareness for their product. However, they conducted the subsequent equity crowdfunding campaign solely for financial reasons.

> 'It was a very different form of crowdfunding compared to Kickstarter. There was less now… we have published press releases and so on (…). But this time it really had the background solely to collect money again.'

The founder described difficulties in getting bank financing before the campaign. Furthermore, he talked to multiple early-stage equity providers and was rejected. The limited attractiveness of the venture for external capital providers might be related to

general business characteristics and the early development stage of the business. With its electric scooter, the venture developed a comparably expensive offline-lifestyle product for a narrow customer segment. At the campaign launch, a prototype was existing, but turnover was not in reach with the requested capital. Rather than introducing the product into the market, the capital was intended to finance further product development.

> 'The money was needed to finance various forms of (technical) development and, of course, to cover our operational costs.'

The equity crowdfunding can, therefore, be considered as a seed financing round. The platform selection was mainly driven by the belief in a reliable legal construct of the portal and investor specific aspects did not play a role.

Another venture that we allocated in this category is venture 6, a mobile payment system provider. Like venture 5 it had a technological foundation, the substantial financial commitment of its founders, was in a comparably early development stage and the first turnover was also in reach with the collected capital. However, different to venture 5, the business had a mobile payment system, that seemed more promising in terms of market size and generating scale-effects with every additional customer. Nevertheless, it had similar difficulties in attracting capital from risk capital investors and did not mention value-add features as relevant for their decision.

Type 2: Capital seeker plus

Ventures of this type also have no opportunity to access risk capital from other sources. However, different from the first type, they were encouraged in their decision by the multiple value-adding features that equity crowdfunding presumably provides.

An example in our sample is venture 8. Before the campaign, it was financed by the financial commitment (€25k) of its young founders and was rejected from different banks. Furthermore, the respondent stressed the limited success they had with established risk capital providers.

> 'We have been on a Venture capital-day. The problem is, that our company and our product is too boring for this kind of investor. We cannot promise 5,000 percent growth; we cannot say we are the new Facebook, we cannot say we do

> billions of turnover one day. That's all relatively unlikely. We are, regarding the venture capital sector, an extremely conservative company.'

The company develops and sells wooden lifestyle products, including glasses and watches. At the time of the campaign launch, the founding team had first sales and a new product that was close to market entrance. Most of the requested capital was gathered to finance the pre-production of this new product, for which they needed financial means quickly. Furthermore, they saw potential in using their crowdinvestors and had concrete ideas about how to realise that.

> 'We came to the idea of crowdinvesting, because we thought well, we could test the product and market directly and make customers or quasi-customers investors and vice versa. If the people out there, the lifestyle audience, feel that the product is great, then they will do both, buy and invest.'

They assessed the campaign as a market test and as a democratic confirmation to carry on their business activities. Furthermore, the respondent explained that they were motivated by the opportunity to receive feedback about the product and business development aspects.

Other ventures of this type are ventures 1 (online intermediary for language trips) and 3 (search engine for apps). Their business models were both online services with a more technological background. Thus, similar to type 1, business models within this type can broadly vary. However, compared to plain capital seekers, ventures of this type were in later development stages. All had at least a final product or service or generated already first sales. Thus, companies of this type were at the beginning or close to their market entrance and planned to spend part of the requested capital on launching their product or service. The crowdfunding can, therefore, be considered as a start-up financing round.

Also, marketing related aspects, such as media coverage or viral and referral marketing supported their financing decision. Ventures thus attribute their investors an active role ex post. Consequently, besides a reliable legal construct and the perceived portals competence, crowd specific aspects such as the total number of investors played a role in their platform selection.

Type 3: Contractual optimiser

Different from the former two types, the contractual optimiser can choose between different risk capital options. Their decision to use equity crowdfunding is determined by the investment conditions, while non-financial aspects play a neglectable role. Their aim is therefore to secure access to financial means with the best contractual conditions.

An example of this type is case 2 (online lottery service provider). Before the venture initiated an open call for funding, it was financed by the financial means of the founders (€50–100k), different angel investors and a VC. Furthermore, the team was in deep and long-lasting negotiations with another VC, that later invested in the firm. The CEO stated that crowdfunding offered the opportunity to access financial means quicker than other options. Besides, he argued that he was not satisfied with the general investment conditions that other investors offered.

> 'It turned out that most business angels in Germany are former founders that made millions somehow and seek large shares for small money (…). Of course, the valuation was important.'

Besides, the speed of the financing process and valuation, the founding team was inspired by a large amount of capital that a venture out of their local network raised on the same platform.

The venture provides an online-service, and their business has, therefore, a technological background that targets a mass market. The service was already functioning, and they generated the first turnover. Consequently, the venture planned to spend a considerable part of the crowdfunding capital in activities to penetrate the market.

This is also the case for venture 9 (toy rental service). Like venture 2, the young company provided an online-service. The venture also had a finalised product and planned to spend part of the crowdfunding capital into marketing activities to launch their product and penetrate the market. The development stages of these ventures are therefore similar to type 2. However, aspects related to investors did not play a role in their portal choice. While the potential investment volume was decisive for venture 2, venture 9 stressed the importance of a reliable legal construct. Furthermore, both

ventures had already experiences with different risk capital investors that previously invested in the firm.

Type 4: Value-add optimiser

Ventures that belong to the last category also have different risk capital options available. However, unlike the former group, they consider the value-adding features as decisive for their crowdfunding choice. Thus, contractual aspects play a role for these ventures, but they are more taken for granted. Consequently, they seek to secure access to financial means with the best mix of (acceptable) contractual conditions and value-adding features.

An example of this type is venture 4, a flat-rate e-book provider. Before the campaign, the venture was mainly financed by an incubator. Before their campaign initiation, the company had a concrete offer from an angel investor but decided to use equity crowdfunding instead.

> 'I think we would have had probably similar financial conditions with the business angel, but then we said crowdinvesting gives us added values that the angel could not give us.'

More specifically, the respondent stressed the importance of different added values, including market and product testing or raising awareness in the target group. At the campaign launch, the venture had a finished prototype and the capital was needed for further product development, advertising system development, expansion of the book catalog and service marketing. Their explicit decision to use the specific portal was influenced by aspects related to its audiences, such as the number of investors and sector focus.

Another example is venture 7, an online retailer of homewares. Before the campaign, the company had already conducted multiple financing rounds with different BAs and VCs. The reasons why the venture decided to use equity crowdfunding were mainly related to marketing aspects, including brand awareness, viral and social media support. The founder stressed these aspects multiple times.

> 'So, the core argument for me was always the marketing side, (…) the big challenge that we have is to create brand awareness (…). So I found the idea

> fascinating (…) to say we build something great, people who like this brand, who are convinced of the business, come along on this trip and scream it out into the world. This also includes components such as social media, or generally referral marketing. These were very central arguments why we tried it out. Together with the soft marketing side.'

The venture was already at a stage, where it received financing rounds, that were often in seven-digit dimensions. It was therefore also decisive that the funding round was financially worth the effort and that the contractual arrangement allowed follow-up financing rounds. The venture had already significant turnover, and the requested capital was intended to force market penetration and expansion.

Consequently, ventures of this type approach huge markets with scalable business models. All ventures had a finalised product and were at least close to their first turnover. The gathered capital was used to either launch the product or service or expand into new markets. Factors related to investors also influenced platform decisions. Thus, besides a reliable legal construct and perceived competence, aspects like the number of investors and the sector focus were considered as important. However, different from contractual optimisers, prior risk capital experience of the value-add optimisers substantially varies.

Table 6 summarises the findings, showing that there are differences in ventures backgrounds between typologies. Ventures thus follow different intentions with their decision. These intentions are influenced by multiple contextual factors, that are often related to the availability of alternatives or factors associated with the use of specific added values in the ongoing organisational context. Furthermore, our findings suggest that some ventures see crowdfunding as a complement and not as a substitute for other risk capital sources. Thus, during the campaign and ex post they realised additional funding rounds with additional equity investors.

Table 6: Motivational typology - comparative overview

	Type 1	Type 2	Type 3	Type 4
Name Typology	Plain capital seeker	Capital seeker plus	Contractual optimiser	Value-add optimiser
Intention to use Crowdfunding	secure access to financial means	secure access to financial means and make use of value-adding features	secure access to financial means with best contractual conditions	secure access to financial means with best mix of contractual conditions and value-adding features
Investors' role	passive	active	passive	active
Product/ Service characteristics	technological foundation, offline-lifestyle products with limited scalability possible, niche markets possible	technological and non-technological, offline-lifestyle products with limited scalability possible, niche markets possible	technological foundation, only online services with high scalability that target huge mass markets	technological foundation, only online or med-tech models with high scalability that target huge mass markets
Status	seed: finished prototype	start-up: final product/service–first sales	start-up: finished product–first sales	start-up–growth: final product–significant sales
Capital use	R & D: product development	R & D–expansion: further product development, marketing, internationalisation	R & D–Market penetration: further product development, marketing, enlarge product range/product features	R & D–expansion: further product development, marketing, enlarge product range, internationalisation
Organisations risk capital experience	low	low	medium–high	low–high
Platform selection based on	reliable legal construct, perceived competence	reliable legal construct, perceived competence, number of investors, sector focus	reliable legal construct, investment volume	reliable legal construct, perceived competence, number of investors, sector focus
Entrepreneurs financial commitment	high	medium	medium	low–medium

3.1.5 Discussion

In recent years, equity crowdfunding has become increasingly popular for many entrepreneurs. So far, research about their motivational background remained mainly superficial. The primary target of this study is to address this void. Our findings thereby have multiple implications for theory and practice.

First, we contribute to research about motivational drivers of crowdfunded ventures, developing a differentiated picture which role equity crowdfunding is expected to play in these firms. Different from previous studies we explored the relation between ventures' decision-making context and different motivational outcomes. So far, it was suggested, that equity crowdfunding is especially used by ventures, that have no alternative financing options available or that seek access to financial means quickly and with little dilution of equity and autonomy (Brown et al., 2018). Our findings link the motives with the organisational context. They show, that the commonly held assumption of necessity-driven ventures holds for those that were either in early development stages, have a non-technological foundation or target a very narrow customer segment. However, while some of them seek capital (type 1), others considered crowdfunding specific marketing and feedback related aspects as encouraging for their risk capital choice (type 2), suggesting that they are not solely necessity driven.

In contrast, part of the cases we analysed had access to alternative risk capital providers, but they purposefully selected equity crowdfunding, based on its specific characteristics. These ventures have a strong technological foundation, provide business models with huge scalability that target B2C-mass markets. However, even within this group the motivation, and thereby the expected role that crowdfunding plays diverge. While the some were motivated by the quick access to capital, its potential amount and the business valuation (type 3), others tried to benefit from crowdfunding specific value-add during and after the campaign (type 4). In this way, our study reveals a much more differentiated understanding of ventures' crowdfunding motivation.

Second, our paper contributes to the emerging stream of literature about how ventures generally evaluate and select their risk capital investors (e.g., Drover et al., 2014; Fairchild, 2011). Prior studies were mainly theoretical and focused especially on the

decision between VC or BA financing. However, the financing landscape changed substantially during the last years. Most of these potential partners provide entrepreneurs with access to a specific set of benefits and drawbacks. The perceived characteristics of these new actors and how they influence ventures' risk capital choice is not sufficiently understood. In this context, our findings explore investor choice in one of these emerging settings. They suggest that ventures without access to risk capital alternatives make use of what is available or at hand, which is in many respects in line with the concept of entrepreneurial bricolage (Baker & Nelson, 2005). However, the more alternatives they have, the more they seem to follow goal-oriented resource acquisition and therefore pursue an optimising strategy (Desa & Basu, 2013). Hence, some entrepreneurs have a clear idea of which specific role crowdfunding should play in their financing mix. The determinants of this behaviour are complex and call for a more diversified resource-based orientation in future research. We, therefore, developed a theoretical model of four different motivational types that could stimulate future research in other early-stage financing settings.

Third, in this way, our findings contribute to discussions about the pecking order theory in the context of innovative young ventures. In line with the theory entrepreneurs in our cases invested considerable own financial means (internal financing) in their venture and were either rejected or discouraged from bank financing (external debt financing). We, therefore, confirm the findings of Walthoff-Bohm et al. (2018), who suggested that crowdfunded ventures lack internal funds and additional debt capacity. However, the pecking order does not specify a rank-order between different external equity providers. Our findings suggest that, once entrepreneurs decided to access external equity financing, their preferences became much more individual. Entrepreneurs' choices inhibit (strategic) considerations that go beyond the cost and control arguments. We show that ongoing organisational challenges and the perceived added values that ventures can extract from a funding source also determine their partnering decision. Consequently, our paper calls for a more fine-lined discussion of the pecking order theory in the scarce resource context of young firms. The rank-order that ventures allocate to external equity providers is individual and not sufficiently understood. We would, therefore, recommend to combine the pecking order theory with particular forms of resourcefulness to better understand financing, or more specifically, partnering decisions in different contexts.

Practical implications and future research

Our findings have multiple practical implications. First, established risk capital providers gain insights into what is essential for capital-seeking ventures in this new setting and why some ventures might finally turn-down their offerings and instead prefer equity crowdfunding. Thus, although many innovative ventures complain about a financing gap, the most attractive ventures presumably receive offerings from multiple sides (see also Smith, 2001). Established investors can use this knowledge to convince entrepreneurs and stress the value of their services compared to equity crowdfunding. Furthermore, they can make use of crowdfunding for their portfolio companies in follow-up financing rounds when they perceive the expected characteristics as appropriate for these firms. Second, ventures can better assess if crowdfunding is the appropriate form of financing for their business. The expressed motivations show that equity crowdfunding provides more than just financing. We explored which organisational characteristics all crowdfunded ventures have in common. Like with established risk capital sources, equity crowdfunding does not seem to be a fruitful ground to finance ideas or very early research and development stages. Start-ups still need to rely on their own financial commitment or different bootstrapping mechanisms at these early stages, which nearly all crowdfunded ventures did before they initiated their campaign. Our results show that this still nascent form of financing is particularly used by ventures that seek capital for their market entrance or penetration, or those that are at late development stages and close to their market entrance. Third, platforms get insights into what ventures expect from their campaign. Consequently, they can work on their service to satisfy ventures' expectations. Thus, they need to come up with technical solutions that enable the realisation of the expected benefits (e.g. marketing or feedback tools). Fourth, our background findings are an important step to increase the predictability of why ventures decided to use equity crowdfunding. Potential investors therefore get a more differentiated picture about ventures motives and the roles they are expected play for their investees.

Our findings also raise questions for further research: Theory and practice would considerably benefit from a more precise understanding of the specific characteristics of emerging risk capital providers and how they influence ventures' partnering

decision. Therefore, research should first delve deeper into the variation within and across different financing sources regarding the financial and non-financial benefits they finally bring to the firm. Based on this understanding, more knowledge is needed about the trade-off that entrepreneurs make between these different financing sources under different circumstances. This is especially important given their increasingly heterogeneous nature. In this context, our findings give a detailed overview of specific motivational drivers in equity crowdfunding. However, the market is still in its infancy. Thus far, it is not clear how ventures perceive crowdfunding and the contribution of the crowd ex post. The real added values and under which circumstances these can be realised is needed (e.g. different platform structures and venture behaviour) is an interesting avenue for future research. Finally, a better understanding of the relation between the different motivations and performance is needed. Although some of our ventures did not seem to fall into the classic investment schemes of established early-stage investors (due to, e.g. limited growth potential), they developed into a profitable business unit. Thus, ventures that have no alternatives available do not necessarily perform poorly (or can automatically be considered as "lemons"). It might be that their only option is exactly what they need for their development. A more fine-lined discussion is necessary to match investors and investees better.

3.1.6 Conclusion

The financing landscape changed substantially during the last years, giving entrepreneurs nowadays access to a broader set of risk capital providers with different characteristics. Our knowledge about the demand-side perspective is limited. Against this background, the study delineates a detailed picture of ventures' narrow and broader decision-making context and the specific role that an emerging resource provider is intended to play in these firms. The findings and the developed model provide a starting point for further research that aims to enhance our understanding of ventures' investor choices in different settings.

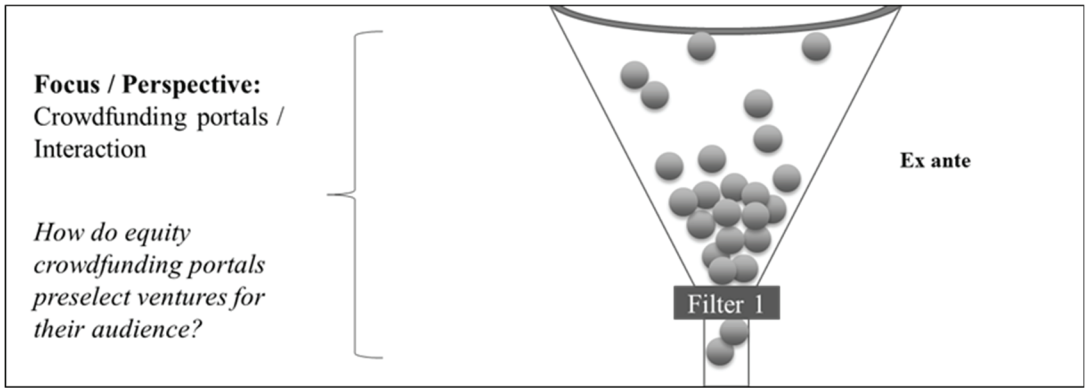
3.1.7 Response to the first research question

The study contributes to the first research question of the dissertation, analysing demand-side motivation in equity crowdfunding: Why are entrepreneurs motivated to use equity crowdfunding?

The study revealed a differentiated understanding of demand-side motivations in this new setting. It shows that ventures' risk capital choices are motivated by crowdfunding-specific investment conditions and value-add features, and their fit with ongoing organisational challenges. It thus provides insights about the specific role equity crowdfunding is expected play in new firms: While some entrepreneurs solely seek access to financial means or seek to optimise contractual conditions, others were encouraged in their decision by multiple non-monetary value-adding features that this form of financing presumably provides for their firm. Based ventures' decision-making context and different motivational outcomes a theoretical model of four motivational types was developed that illustrates the heterogeneous nature of ventures' decision.

3.2 The interaction of equity crowdfunding platforms and ventures: An analysis of the preselection process

Figure 6: Second research sub-question



Source: Own illustration.

3.2.1 Introduction

In recent years, the emergence of crowdfunding has enabled the funding and realisation of countless entrepreneurial projects via open calls over the Internet. The vast majority of the initiated campaigns are conducted on web-based platforms that serve as intermediaries between project initiators and potential funders (Tomczak & Brem, 2013). Thus far, equity-based crowdfunding portals have been particularly successful in preselecting and hosting ventures that match the interests of potential investors. Hence, since their start, UK market leaders Crowdcube (>50%)[2] and Seedrs (>40%)[3] as well as German front-runners Seedmatch (>90%) and Companisto (>90%)[4] have accounted for a remarkable share of successfully launched campaigns.

Therefore, a decisive step for many entrepreneurs when they plan to engage in this specific form of financing is seemingly to convince the platform and acquire access to

[2] See https://www.crowdcube.com/pg/businessfinance-3 (accessed 27 November 2015)
[3] See https://learn.seedrs.com/2014-infographic/ (accessed 27 November 2015)
[4] IfM Bonn database: Based on hand-collected data of the four most active equity crowdfunding portals in Germany between August 2011 and March 2015. The portals were selected based on the number of initiated campaigns and their content (mainly start-up-focused). The final dataset included 163 campaigns, of which 89% ultimately reached at least their minimum required funding volume. This was the case for all 34 campaigns launched on Companisto and 70 out of 72 campaigns launched on Seedmatch. These numbers are in line with the data of Hornuf and Schwienbacher (2014a, 38), who document similar success rates for Companisto (24/24) and Seedmatch (50/51) from August 2011 to March 2014.

its multiple investors. The way portals pursue their selection of ventures considerably shapes the market for entrepreneurs and investors. However, despite its key role in practice, a platform's selection of and later interaction with ventures is a black box in many ways. What exactly happens before a campaign is launched and publicly visible remains an open but critical question for potential investors, capital-seeking ventures, law-shaping institutions and researchers. Drawing on 21 in-depth interviews that analyse the processes and activities of nine German platforms, this study thus elucidates this black box by answering the following question: How do equity crowdfunding platforms preselect investment opportunities for their audience (see Figure 6 for an orientation about how this question contributes to the entire dissertation)?

The analysis reveals that portals take over multiple central functions for portal members throughout the entire investment process. Their structured preselection process shows major similarities with practices of established early-stage investors. The deals that they select for their portal derive from their network and own active search. Portals' assessment criteria change from financial and product characteristics in the beginning to factors related to the entrepreneur and his team at later stages of the selection process. However, besides conventional criteria known from BA or VC financing, their selection is driven by investors' expectations, which seem to diverge between the different platforms. After the portals agree with the start-up about terms and conditions, they pursue a unique role shift, supporting the entrepreneur in his efforts to reduce the information asymmetries between his venture and potential investors.

The findings of the present study contribute to ongoing research in crowdfunding and venture finance in several ways. First, they delineate a systematic picture of a platform's role and its specific activities. Due to the lack of accessible data, research on crowdfunding platforms has often provided little detailed knowledge about platform behaviour and often remained theoretical (e.g., Belleflamme, Omrani, & Peitz, 2015; Hagedorn & Pinkwart, 2016; Salomon, 2016). This study contributes to this underdeveloped stream of research by suggesting a process model that is based on broad empirical data. In this way, the findings systematically reveal how platforms

behave within each process step and explore how equity crowdfunding platforms act and differ in this specific two-sided market context.

Second, the results address discussions about how entrepreneurs can successfully engage in this new form of financing. Prior investigations have exposed how effective signalling (Ahlers et al., 2015; Vismara, 2016a) and investor communication (Moritz, et al., 2015) reduce information asymmetries between ventures and crowdinvestors. Nevertheless, equity crowdfunding is a multi-stage process that requires targeted communication at different stages to convince the portal and its audience. This study looks behind the scenes of a platform's activities and reveals what determines the assessment of these highly selective 'gatekeepers'. Moreover, interviewees provide insights into how platforms interact with ventures to reduce information asymmetries with potential investors. Based on these findings, recommendations have been developed for entrepreneurs who plan to engage in this form of financing.

Third, the results contribute to discussions about how equity crowdfunding can be embedded in our existing knowledge on established means of venture finance (e.g., Ley & Weaven, 2011). Hornuf and Schwienbacher (2016) compared crowdinvestors with BAs mainly based on legal concerns. The present study enriches existing research in the field by adopting a process perspective. It argues that platforms conduct various activities that reduce risks related to adverse selection throughout the entire process. Thereby, they fulfil an implicit agency function on behalf of their potential investors.

The section is structured as follows. Subsection 3.2.2 reviews the theoretical background, including a platform's role and activities, challenges for capital-seeking ventures, and already explored selection processes of established capital providers. Subsection 3.2.3 describes the methodology and context of the study. 3.2.4 presents the main results, including those derived from the process model and its specific steps. 3.2.5 discusses the results, while the 3.2.6 draws general conclusions about the findings. The last subsection quickly responds to the second research sub-question of this dissertation.

3.2.2 Theoretical background

3.2.2.1 The platform's role and activities

Research on crowdfunding and its main actors has grown considerably in recent years. A major shortcoming of this still nascent research is that analysis often falls short when a platform's role and activities are discussed (e.g., Belleflamme et al., 2014; Fraser, Bhaumik, & Wright, 2015; Harrison, 2013; Schwienbacher, 2014). This lack of knowledge is especially pronounced in equity crowdfunding, where multiple individuals invest in a limited amount of preselected investment opportunities in exchange for equity or equity-like shares (Bradford, 2012). In this specific setting, portals are assumed to provide the means for transactions, including the legal groundwork, the preselection of ventures and the ability to process financial transactions (Ahlers et al., 2015). The first studies that focused on equity crowdfunding portals discussed the general functioning of this new financing form and compared the decision-making process of equity crowdfunding with that of traditional VC funding (Hagedorn & Pinkwart, 2016; Salomon, 2016).

In a broader context, the debates have stressed the heterogeneous business models of different platform types and discussed their key functionalities across multiple dimensions (Belleflamme et al., 2015; Tomczak & Brem, 2013). Platforms have often been described as intermediaries in a two-sided market setting that moderate potential intra-group and cross-group effects (Belleflamme et al., 2015; Viotto, 2015). In this respect, Viotto (2015) notes multiple features that differentiate platforms in distinct crowdfunding markets. In addition to focusing on a certain platform model (e.g., donation, reward, lending, or equity) or a hybrid platform-type, she states that there is also room for differentiation within the selected model. Nevertheless, a detailed empirical understanding of how equity crowdfunding portals function, which roles they fulfil and how they are differentiated in this specific two-sided market context has thus far been lacking.

3.2.2.2 Crowdfunding and the associated challenges for capital-seeking ventures

Investors' funding behaviours have attracted comparatively ample research attention. Related findings provide capital-seeking entrepreneurs with a preliminary orientation

from which they can increase their probability of receiving funding, once they obtain access to multiple investors. In general, for innovative start-ups seeking external financing, reducing the comparably high information asymmetries with potential investors is always a major challenge (Cassar, 2004; Backes-Gellner & Werner, 2007). This problem is even more pronounced in crowdfunding, which often entails considerable regional distances between the project initiators and potential funders (Agrawal, Catalini, & Goldfarb, 2015). Research on established early-stage financing means provides insights into how ventures can effectively mitigate these asymmetries. Hence, investors generally consider different aspects in their evaluations, and the importance of these aspects varies throughout the entire assessment process (Hsu et al., 2014; Mason & Stark, 2004; Brush et al., 2012; Mitteness et al., 2012). Therefore, it seems essential that 'entrepreneurs present and communicate their investment case in a manner that corresponds with the investment process of a particular funding source' (Rasmussen & Sørheim, 2012, p. 85).

The first studies on the success factors in equity crowdfunding focused in particular on the relationship between the venture and the investor and examined how various kinds of hard and soft information effectively mitigates asymmetries under these new circumstances. In this regard, Ahlers et al. (2015) revealed that the provision of more risk information (in terms of financial forecasts), the retention of ownership after funding and a higher level of human capital have a positive influence on funding success. In a similar vein, Vismara (2016a) demonstrated that retained ownership and higher levels of human capital increase funding success, and Moritz et al. (2015) showed that an entrepreneur's personality is decisive for investors. Thus, perceived sympathy, openness and trustworthiness reduce information asymmetries, and pseudo-personal communication via videos or social media thereby replaces personal communication. These findings provide ventures with initial insights into investors' expectations. However, the equity crowdfunding process demands that capital-seeking businesses convince two distinct actors, namely, the platforms and their investors, in that order. Thus far, interactions with the platform have been practically ignored in the literature.

3.2.2.3 The selection processes of established sources of venture financing

In order to place the selection processes of equity crowdfunding in a context with our existing knowledge about the selection processes of venture financing, a deeper understanding of the behaviour of the main parties involved is required. The already explored investment processes of BAs (e.g., Haines et al., 2003; Paul et al., 2007) and VCs (e.g., Fried & Hisrich, 1994; Tyebjee & Bruno, 1984) reveal how established external capital providers identify and select investments. Although the procedures for BAs and VCs often consist of similar steps[5], their behaviour diverges based on different preconditions. Prior to the investment of their own financial means, BAs receive investment proposals from an informal network of friends, VCs, banks, tax consultants and investment clubs or from their own personal search (Brettel, 2003; Kelly & Hay, 2000; Reitan & Sørheim, 2000). Their selection is often characterised as unsystematic and based on their gut feelings (Haines et al., 2003). Because of their frequently active role in the venture's later development, investment criteria are often related to the management team and their personal fit within the team (Fiet, 1995; Harrison & Mason, 2002). When they perceive a business as attractive, their due diligence checks are ad hoc and not sophisticated (Van Osnabrugge, 2000). In addition, contracts are comparably less complex (Wong et al., 2009). However, recently, BAs have been frequently organised in angel investment groups, which offer multiple advantages, including transaction cost reduction and investment pooling (Carpentier & Suret, 2015; Croce et al., 2017).

By contrast, VCs act as intermediaries between the businesses that they finance and their limited partners, such as pension funds, investment banks and insurance companies (Kollmann, Kuckertz, & Middelberg, 2014). In general, their investment processes are characterised by extreme thoroughness. In addition to network referrals, they follow a proactive deal-origination strategy (Teten & Farmer, 2010), and the characteristics of the entrepreneur and his team are central in their investment choices (Kollmann & Kuckertz, 2010). Nevertheless, the economic potential of the business plays a more important role for VCs than for BAs (Hsu et al., 2014). In addition, VCs

[5] Similar process steps: Haines et al. (2003) BA investment process consists of seven sequential steps (deal origination, initial screening, due diligence, negotiation, decision-making, post-investment activity and exit), whereas Tyebjee and Bruno's (1984) VC investment process consists of five sequential steps (deal origination, screening, evaluation, deal structuring, and post-investment activity).

are commonly known for their extensive due diligence checks prior to investment (Fried & Hisrich, 1994; Jensen, 2002). They also use detailed contracts that manage potential agency conflicts that can occur over time (Burchardt et al., 2016; Kaplan & Strömberg, 2003). Thus, they extensively use, e.g., convertible securities, syndicated investments and staged capital infusion (Gompers, 1995).

Crowdinvestors seemingly cannot pursue these extensive activities before they invest because it is uneconomical in comparison with their often relatively small commitment. As crowdfunding platforms have access to more information than their audiences, it seems economically reasonable for the platforms to take over many of these tasks. However, a clear understanding of the roles and functions of platforms, ventures and investors with regard to the entire investment process is still lacking.

3.2.3 Methodology

3.2.3.1 Data collection and sampling

The comparably high success rates of crowdfunding campaigns have raised several questions about a platform's preselection and its role in the entire investment process. Information from various sources has been collected to obtain a clearer picture of a platform's activities and functions. In addition to sparse self-reported website content and short interviews, only a few non-empirical papers, mainly on a platform's role in legal concerns, have been identified (e.g., Heminway, 2013; Belleflamme & Lambert, 2014). Owing to this lack of empirical research and aggregated knowledge, an exploratory and inductive research design seems appropriate to understand the basic behavioural patterns (Corbin & Strauss, 1990). Research on equity crowdfunding, especially on the intermediaries in this process, is in its infancy. Qualitative methods are especially suitable for answering the 'how' and 'why' questions that occur during this nascent research stage (Edmondson & McManus, 2007). Moreover, for further investigations, a solid understanding of a platform's context is essential to avoid misleading interpretations. Multiple cases were used to deepen our understanding of the phenomenon's context and its boundaries (Yin, 1994). Furthermore, these cases foster the generalisation of replicating behavioural patterns, based on a series of distinct experiments (Eisenhardt & Graebner, 2007).

The sampling strategy aimed to provide deep insights into a platform's selection process and the activities and assessments that it entails. Purposeful criterion-based sampling was applied to ensure that the interviewees possessed rich information about the 'phenomenon of importance' (Patton, 1990, p. 176). In addition, multiple interview partners from different platforms were selected to reveal the similarities and differences within and across a variety of cases. I observed the risk that platforms would communicate their desired behaviour rather than their actual behaviour. The triangulation of data increased the validity of the conveyed information when different perspectives were relied on (Denzin, 1970). Finally, I decided to gather insights from platforms, start-ups and experts to gain insights into state-of-the-art processes in equity crowdfunding. Therefore, the participants had to match the following criteria:

1. All interviewed platforms offered equity or equity-like shares to a wide audience of potential investors. In addition, portals had hosted at least one successful campaign in the 12 months prior to the sample selection.

2. The interviewed ventures had completed a successful crowdfunding campaign on one of these platforms in the 12 months prior to the sample selection.

3. External experts had to be in a multiplier position that guaranteed a close connection with several businesses from at least one of the two sides (platforms or start-ups).

Fourteen platforms that met the sampling criteria were contacted. The final sample captured the internal views of nine platforms, including the most active ones. When the interviews took place, these nine platforms had hosted and successfully realised more than 90% of the funding rounds in Germany. In addition, 52 ventures matched the sampling criteria. Of these ventures, 15 ventures with heterogeneous characteristics regarding the platform used, the amounts raised, the number of investors and the number of crowdfunding rounds were selected. Finally, 10 interviews with managing directors of crowdfunded ventures were conducted. In this regard, I focused on successful project owners, as they help to understand state-of-the-art processes, which already include knowledge gained from campaigns that failed in the past. However, I additionally collected statements from interviews with two project owners of campaigns that did not reach their minimum funding goal to understand

what platforms led to their current behaviour. On average, the interviewed ventures raised €569,481 (median: €350,000) from 609 investors (median: 523). Two of them had already conducted two equity crowdfunding rounds. Moreover, I contacted and interviewed two external experts who were identified through desk research to obtain a more detached view of the process. One was a lawyer who consults with multiple equity crowdfunding platforms. The other expert supports start-ups that plan to realise a crowdfunding campaign. In total, the full sample consisted of 21 interviewees (Table 7).

3.2.3.2 Interview process and analysis

The semi-structured interviews were conducted between October 2014 and May 2015 and lasted, on average, one hour. Six interviews were conducted in person, while 15 were conducted by telephone. The interviews were recorded for later transcription. Based on the entrepreneurial finance literature, two slightly different interview guidelines with open-ended questions were developed for start-ups and ventures. These guidelines captured three blocks of questions about (1) the interviewee and his business, (2) the crowdfunding process and its steps and (3) general assessments about actors in the market and future development (see Appendix 2 for an overview). The respondents' answers and expressions, especially in the second block, guided the follow-up questions. At the beginning of the second block, the interviewees were asked to describe the crowdfunding process from their perspective. The major milestones mentioned guided the follow-up questions. Nevertheless, the interviews contained core questions for all the respondents to enhance comparability. The guidelines changed during the process when the interviewees mentioned aspects that seemed valuable for further exploration. Parallel to the interview process, quantitative and qualitative data on the platforms and the realised funding rounds were collected to better understand the context of the respondents' narratives.

Table 7: Overview of the sample

Interviewee	Role in the business	Age	Gender	Education degree	Funding rounds	Amounts raised in €	No. of Investors	Case relation: Start-ups/Platforms
P1	Former employee	20–30	male	Bachelor, Business	30+	10m+		S1, S2, S3
P2	Managing Director & Co-Founder	30–40	male	LL.M, Law	30+	10m+		S4, S5, S6
P3	Managing Director	30–40	female	Bachelor, Business	20+	1.0–2.5m		S7
P4	CEO & Founder	30–40	male	Master, Business	6–10	0.5–1.0m		S8, S9
P5	CEO & Co-Founder	50–60	male	PhD, Business	1–5	2.5–5.0m		S10
P6	Managing Director & Founder	40–50	male	Diploma, Business	6–10	0.1–0.5m		
P7	Managing Director & Co-Founder	30–40	male	PhD, Computer Science	6–10	0.1–0.5m		
P8	CEO & Co-Founder	30–40	male	Master, Business	1–5	0.1–0.5m		
P9	Shareholder & Co-Founder	30–40	male	Master, Economics	1–5	0.1–0.5m		
S1	Managing Director & Co-Founder	30–40	male	Master, Computer Sciences	1	401–500k	501–750	P1
S2	Managing Director & Co-Founder	30–40	male	Master, Culture & Politics	1	201–300k	301–400	P1
S3	Managing Director & Founder	20–30	male	Master, Sinology	2	301–400k	501–750	P1
S4	Managing Director & Co-Founder	30–40	male	Master, Business	2	401–500k	1001–1500	P2
S5	Marketing & Sales Manager, Co-Founder	40–50	male	n.a., Linguistics	1	401–500k	1001–1500	P2
S6	Managing Director & Co-Founder	40–50	male	PhD, Business	1	201–300k	751–1000	P2
S7	Shareholder & Founder	50–60	male	Diploma, Engineering	1	51–100k	1–100	P3
S8	Managing Director & Co-Founder	20–30	male	Bachelor, Business	1	51–100k	101–200	P4
S9	2 Managing Directors & Co-Founders	30–40	male	n.a.; Bachelor, Computer Sciences	1	101–200k	1–100	P4
S10	CEO & Co-Founder	30–40	male	Master, Business	1	>2m	1000–1500	P5
E1	Consultant, Self-Employed	40–50	male	No university degree				
E2	Lawyer, Employee	40–50	male	PhD, Law				

I simultaneously categorised the relevant data with an inductive coding strategy (Corbin & Strauss, 1990). Although the first coding scheme was mainly determined by the interview guidelines and prior knowledge, several categories, subcategories and dimensions emerged during the analysis and often led to a revised coding scheme. The final version consisted of four major categories (interviewee, business, process and assessments) and multiple subcategories, which allowed comparison across cases. The process coding, which entailed various sequential steps from the first interaction between the start-up and the platform to potential exit scenarios, is a particular focus of the following discussion.

3.2.3.3 Research context

The study took place in a German context, where the first equity crowdfunding campaigns started in 2011. In the following years, the market grew constantly. According to our secondary data, campaigns that were launched from November 2011 until the end of 2014 accounted for more than €42 million in total. During this time frame, the five largest platforms (in terms of realised funding amounts) had supported 164 crowdfunding campaigns, of which 146 (89.6%) succeeded in reaching at least their minimum funding volume.[6] Seventeen of those campaigns have had follow-up funding rounds, through which businesses have launched a second or third campaign, usually on the same platform. With a few exceptions, the offered investment opportunities were young businesses at their seed stage or start-up stage (Löher, Schell, Schneck, Werner, & Moog, 2015). In addition to its growth in volume, the market of platform providers became increasingly concentrated. When potential interview partners were identified, nearly half of the platforms did not meet the second criterion (one successful funding campaign within the last 12 months). Thus, the interviewed service providers had already survived a first shake-out in a competitive market. In addition, the general development of the market and the platform's activities were also influenced by the legal setting. Equity crowdfunding in Germany was not specifically regulated until mid-2015. Thus, platforms had to stick to an already established legal framework for banking, capital markets and trade regulations, with no detailed duties for crowdfunding platforms (Klöhn & Hornuf, 2012; Klöhn, Hornuf, & Schilling,

[6] Based on IfM Bonn database (including Companisto, Fundsters, Innovestment and Seedmatch) and an additional platform (Bergfürst).

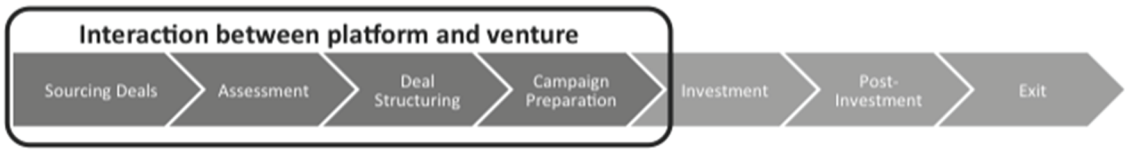
2015). However, platforms established different constructs over time to comply with the existing regulatory setting and market demands. When the first equity crowdfunding campaigns were launched in 2011, funders received silent partnerships for their commitment. This legal construct enabled funding rounds up to a limit of €100,000 without the publication of an expensive prospectus. By the end of 2012, contracts started to increasingly move towards subordinated profit-participating loans, allowing funding rounds far beyond the former limit without prospectus requirements. This development was a prerequisite for the significant increases in the average amounts raised per campaign in 2013 and 2014, in which several fundings reached seven-digit dimensions.[7]

3.2.4 Results

3.2.4.1 Process model

Each interviewee described the crowdfunding process by mentioning major milestones and activities. During the analysis, I looked for similarities across platforms and identified four recurring key functionalities, which served as categories for the final coding scheme and the sequential process model (Figure 7). Hence, a process step was defined as an interval of time during which multiple activities were bundled towards a specific functional target. These steps were (1) activities to receive investment deals, (2) activities to assess investment deals, (3) activities to determine investment conditions and (4) activities to support campaign preparation.

Figure 7: Equity crowdfunding investment process



Source: Own findings.

[7] IfM Bonn database: average amount raised per campaign and the year in which they were initiated: €83.218 (2011), €104.448 (2012), €214.013 (2013), and €631.985 (2014).

Table 8: Exemplary statements that illustrate the steps in the process

Process steps	Statements
1. Sourcing deals	'There are two ways. The first one is that they apply directly due to financing needs. The second one is that we identify them actively' (P8). 'It typically starts with a first contact, either active or passive' (P6). 'First, ventures need to apply or create awareness within the German start-up scene' (P1). 'A business comes to our platform under different circumstances' (P3). 'The first contact comes from different sources. On the one hand, there are start-ups that apply directly, so-called cold applications; on the other hand, they come from recommendations' (P2).
2. Assessment 2a) Screening	'No matter how information is transferred and how deep it is, we do a first quick assessment based on that initial information' (P6). 'We first analyse if the team fulfils certain preconditions at all. That is what I call our screening phase' (P7). 'At that point, the business analyst looks at the presentation and decides whether the case is basically interesting to follow' (P2). 'After that, applications that did not meet certain preconditions were filtered out' (P1). 'At that point, we internally pre-screen the investments...' (P3).
2b) Evaluation	'Then, we looked at 100 business plans more thoroughly. 20 out of 100 were invited into our office' (P1). 'After the one or two weeks that we use to conduct market research and analyse competitive situations (…), we invite the team for a workshop' (P4). 'When we are convinced that the case is basically interesting, we arrange a personal meeting...' (P2). '…and then we would have a personal meeting that is extremely important. Before that meeting, we do research about the business…' (P3). 'If the business passes that hurdle, we analyse its current situation, the business plan and other plans' (P6).
3. Contracting	'Then, it comes to the preparation of the term sheet. If the term sheet is signed, we start to set up a contract' (P2). 'You need to agree on the conditions, the company's value, the share that the venture is giving to the customer…' (P1). 'We end this meeting with three tasks. The first one is valuation; the second is contracts; and the third is campaign content. We always do it in the same order' (P3). 'Based on this rating and the other available documents (…), funding conditions can be structured…' (P6).
4. Campaign preparation	'Then, you start to set up a profile. This means that the start-up receives a template and information about the content that needs to be in the profile before it goes online…' (P2). 'Once the decision is made, it runs through the marketing team, which prepares with the start-up about how it will present itself' (P1). 'We go together with the start-up into the campaign preparation' (P7). 'If the formalities, such as valuation and contracts, are fixed, we start to develop the campaign. This means editing, creating the movie…' (P4). 'If everything runs smoothly, we support the business in the preparation of their project' (P6).

Theories and models are always simplifications (Siggelkow, 2007). Depending on the specific characteristics of the deal under evaluation, real-life situations involve iterative loops, skipped steps and diverging approaches. However, although the identified central milestones are not the same for all nine cases, they are rather similar for most, leading to a unified model (Table 8). The model involves different actors at different stages. The first four steps of the process are determined by the interaction between the platform and venture, which inhibits a platform's preselection and is thus part of the following analysis.

As a general behaviour throughout the entire process, platforms take on an active role that goes far beyond a passive intermediary function, as P3 explains:

> 'When we started, we experimented a lot, although we had doubts sometimes. We understood ourselves as a marketplace. After a while, we noticed that the investors also looked at us. This makes it necessary to work with thoroughness and to learn more about the people behind the business and their drive…'

> 'Platforms have a huge interest in protecting their reputation. (…) Currently, everything is fast moving, transparent and digital. If two projects fail, the platform is punished; we have had that in the past. That is why platforms proof projects thoroughly.' (E2)

Other platforms expressed their increasing thoroughness and efforts to identify and select the best available deals. Some even argued that the survival of their business model depends on their identification of appropriate ventures. All platforms stated that they use extensive standard selection processes to identify such ventures, which often start even before ventures apply.

3.2.4.2 Steps and activities

Step 1: Sourcing deals

Platform operators use numerous sources to identify suitable deals for their investors, which is often referred as their deal flow (Table 9). The quantity of incoming investment opportunities varies and seemingly depends upon a platform's history. Platforms with track records of more successfully launched campaigns obtain 75–100

investment opportunities each month (P1–P4), whereas the others receive 10–30 applications during the same time period (P5–P9). Regarding their origin, these deals can be assigned to one of three broad categories: (1) direct or cold applications, where no prior relationship between the venture and the platform exists; (2) network applications, where a previous relationship between the platform and the venture or an intermediary exists prior to the formal application process; and (3) deals that are generated via active search.

Platforms state that most deals derive from direct applications. Nevertheless, they are rather sceptical about the quality of these deals:

> ‘Initiative applications are the majority of the deals that we receive, but they are a huge minority of the deals that end up on the platform.’ (P4)

> ‘Every week, there are some applications coming in. Normally, they do not fit. It is like in real life – we know exactly what we are looking for. (…) Just a few of those companies are worth a serious discussion. There are exceptions – but they are rare.’ (P5)

By contrast, platforms considered the deals referred by their networks to be superior. Thus, they claimed to obtain referrals from their broad networks of corporate finance consultants, universities, incubators, BAs, BA networks, VCs, banks or formerly financed businesses. They also explained why they regard these incoming deals as superior:

> ‘It is logical that in companies in which an investor or a corporate finance consultant is already involved, both parties work together to professionalise the pitch deck. The quality of this application is higher compared with those of companies that use our contact form.’ (P2)

P4 based its argument on trust and prior experiences with its network partners:

> ‘In practice, it very much depends on the people. There are people who you know have knowledge. When those people come with a suggestion, it mostly makes sense. Then, there are those people who come with lots of things that you need to reject.’

Other explanations included that the network partners know the prerequisites, conditions and added value of their platform better and that their applications are thus more targeted.

In addition to these more passive approaches, some platforms emphasised actively seeking the best available deals in the market. This is often realised by visiting suitable fairs and other business meetings or by screening relevant media sources. As P1 states:

> ‘The really good ones are those that you contacted directly. You go to many events, observe the entrepreneur scene and screen the media. Afterwards, you write a short email, or you get in contact because you know someone who knows someone. That’s how you get the deals.’

This considerable reliance on network sources and activities in actively seeking potential deals was also confirmed by the funded companies that we interviewed. Their successful application process relied to a large extent on other intermediaries, such as corporate finance consultants (S6, S7, and S8), BAs (S5), VCs (S2) and other intermediaries with prior connections to the platform (S4). In addition, some talked directly to the platform at round tables or fairs for entrepreneurs and thus built a relationship before they applied (S3, S9). S10 was even directly called by a former student colleague who was working for the platform. S6 directly applied to P1 and P2 and got rejected on the first try. After half a year of finalising the prototype, S6 reapplied to both platforms:

> ‘At P1, we got rejected again. At P2, we were allowed to present after we acquired direct contact with the CEOs through a finance consultant.’

Just one of our interviewed ventures had no prior relationship with the platform or with an intermediary when it applied successfully (S1).

Table 9: Platforms' deal sourcing

Category	P1	P2	P3	P4	P5	P6	P7	P8	P9
Received deals per month	100	100	90	>75	10	15–20	25	10	20–30
Reported sources	Applications, media screening (own research), events	Applications, business angel groups, business angel, venture capitalists, corporate finance consultants	Applications, universities, fairs, incubators, business angels, venture capitalists, funded start-ups, own research	Application, business angels, business angel networks, universities, events	Own research, networks, investment companies, portfolio and media screening	Applications, fairs and events, network from former deals, universities, incubators	Applications, fairs and events, funded start-ups	Fairs and events, business consultant, foundation consultant	Events, presentation, tax-consultant, financial auditor, lawyers
Preferred / superior sources	Active search	Network	Network and direct contacts	Network	Active search	Active search	Funded start-ups	No preferred source	Network
Venture's way to the platform	Application (S1), venture capitalist (S2), fair (S3)	Intermediary from network (S4), business angel (S5), corporate finance consultant (S6)	Corporate finance consultant (S7)	Corporate finance consultant (S8), event (S9)	Former colleague (working for the platform) (S10)				

Step 2: Assessment (screening and evaluation)

A platform's assessment starts with a quick preselection of the incoming deals, which is based on the provided pitch-deck information. The respondents stated that more than half of the applications are rejected during this first screening. Platforms thereby control for certain basic preconditions, including an appropriate company form, the legal acceptability of the business model and the general profit orientation. In addition, entrepreneurs who have hardly more than an idea have no chance of passing this stage. For some platforms, the CEO or the whole team executes this task, while for others (particularly those that hosted the most realised funding rounds), a dedicated business analyst or project manager does so:

> 'With comparably low effort, he tries to get an idea and determine if it is professional, makes sense and is serious. This is because the things that we receive are of very different qualities.' (P4)

In addition to these more objective basic requirements, this preliminary view is particularly focused on aspects that relate to the business model, product characteristics and financial considerations. Hence, platforms frequently mentioned aspects such as the innovativeness of the business model, the current status of the product and the use of attained capital. The founding team seems to be of minor importance when intermediaries first scan the delivered material.

Nevertheless, to a certain extent, platforms generally target different business models. Investors' expectations seem to diverge between the different portals, and criteria are thus often determined by the experiences that platforms have with specific investors. Thus, how they weight different factors throughout the entire assessment process diverges considerably. Hence, platforms had different expectations regarding the expected degree of innovativeness, life cycle stages, comprehensibility of the product or service, the extent to which the business model should be scalable, technological orientation, geography, return and exit opportunities (Table 9). Moreover, they showed different levels of flexibility regarding the rigour applied to these criteria.

Table 10: Platforms' specific assessment factors

Platform	Exemplary statements
P1	'In the end, P1 doesn't look for usual start-ups. They look for scalable business models and entrepreneurs with a completely new idea. An idea where you don't know if it will work or not. Those businesses are supported with growth capital to bring them to a viable base' (S1). 'It was like a normal VC pitch. They wanted to understand the product, its market, IP and development potential, milestones, financial planning and, of course, to get to know the team' (S2). ➔ Key terms: innovative, scalable
P2	'It needs to be an idea where our analyst says that it has market potential. That's one thing. The other one is that it is basically suitable for crowdinvesting because laymen investors have to understand what it is about. This means that they don't need to understand every detail about the technology, but they need to understand what it is good for. Hence, it is twofold: the business case and its suitability for crowdinvesting' (P2). 'It is important for the platform that the business model is understandable for everyone. Often, there are no large-scale investors on the platform…' (S4). 'It was especially important that our product revealed the potential to inspire people and thereby attracted a wide number of people. It was also important that our product was ready and scalable. They also liked our international focus…' (S6). ➔ Key terms: comprehensible, inspiring, international
P3	'The platform was founded at a technical university…; we have a special clientele based on our background. We have plenty of engineers and entrepreneurs that are interested in technical businesses. That is our focus, and we want to develop our platform further in that direction' (P3). 'It was essential for the platform to present its investors with interesting products…that are implementable, interesting and suitable for its investor circle' (S7). ➔ Key term: technical
P4	'There are only a few absolute static criteria…. We have classical offline businesses, such as building material manufacturers with innovative products, as well as app producers and online businesses. We are flexible with that. The team is decisive for us' (P4). 'So the most important thing was that we could prove that our commercial model functions, (…) that we have our first customers, and that we have a functioning product. (…) That there was a strategic investor who had already given capital was a security for the platform' (S9). ➔ Key term: flexible
P5	'They don't need to have big turnovers; however, first, KPIs must be recognisable. It is important for us that 70% of the proceeds are invested into market development and market penetration…; it is necessary that the business already has investors, besides the management team, to pursue an advisory board function. (…) The selection process is based on these objective criteria…' (P5). 'And besides hard criteria, like a certain maturity of the enterprise, they look at the product. So, it is a product that is relatively simple to understand, something that has a certain mass appeal and the potential to inspire many people' (S10). ➔ Key terms: static criteria – capital usage, existing investors

P6	'The main criterion is – and we figure that out in a discussion with the business – if it is suitable for crowdinvesting. It is easier to offer a business with a tangible end product to the investor. (…) The topic is decisive to get mass on it. This is actually the main criterion – if we get mass on it. Of course, everything else must fit' (P7). ➔ Key terms: flexible, inspiring, mass on it
P7	'We always had a preference for conservative business models instead of the next Facebook or Instagram (…). We have a different approach compared with that of P1 and P2 and act much more on a regional level. Our businesses are not that exit driven; we look for organic growth' (P7). ➔ Key terms: regional, organic growth
P8	'We are positioned on a regional level in our federal state…. There is geographic proximity between the investor and the business. They can see each other within 2 hours. (…) It doesn't necessarily need to be B2C or high-tech or have extreme scalability (…); they need to show that they can quickly generate solid returns for the investors' (P8). ➔ Key terms: regional, quick return
P9	'We are focusing on existing business models, planning the next step of their growth…. We look relatively early if the business model can generate quick returns for the investors. If this is not the case, the case is rejected very quickly' (P9). ➔ Key terms: SMEs, quick return

If businesses pass the first screening, platforms conduct several activities to gather additional information. They often contact the capital-seeking business directly to ask for the business plan and additional material. They also frequently send out a standardised or individualised questionnaire or call the entrepreneur to obtain more specific information. In addition, desk research is conducted to study the underlying assumptions of the delivered documents. Several interviewees claimed that they obtain some kind of third-party perspective on investment proposals when considering them further with branch experts or a special board of experts. Other sources of information include existing investors in the businesses.

All the platforms declared that if a venture raises further interest, they have at least one physical meeting with the management team. This meeting serves several purposes. First, platforms want to fill informational voids:

> 'When we are convinced that a case is basically interesting, we arrange a personal meeting. My business partner and our business analyst participate in this meeting. Over a few hours, we grill the management team and ask questions that have not been answered in the delivered documents.' (P2)

The meeting's core function is to learn more about the collective personality of the founding team. In addition to requiring a convincing personality, crowdfunding presents specific challenges:

> 'Crowdfunding is about communication. With the presentation, we want to test if the founders can communicate.' (P4)

Furthermore, the meeting is helpful in providing businesses with further clarification. Hence, platforms answer questions posed by the venture and its existing investors. In this manner, legal constructs, the process and its challenges are discussed. In some meetings, broad valuation frames play a role.

In summary, during this deeper evaluation phase, the criteria mainly relate to the characteristics of the entrepreneur and his team. Furthermore, additional factors might play a considerable role during the entire assessment process. Additional data show that the average age of the funded ventures consistently increased over the investigated time period – from 1.2 years (2011) to 2.1 years (2014). Moreover, although platforms did not mention it as a prerequisite, the existence of professional investors seems to have a positive impact on the platforms' selection process. Hence, a substantial share of the ventures already had a BA or VC investor before the campaign launch.[8]

Due Diligence/Plausibility Check: As stated above, most platforms claim to perform some standardised research procedures to reveal important aspects beyond that which appears in the delivered documents. Some of these activities are part of what platforms described as plausibility checks; others even mentioned performing some kind of due diligence process using a standardised checklist. Nevertheless, because of legal considerations, this topic was treated with considerable sensitivity, and most platforms stated that they would not openly communicate their efforts to investors. Therefore, the answers that we received from the ventures led to a particularly clear picture that reflects the platforms' conduct.

One of the platforms (P1) uses an external service provider that conducts some kind of legal and financial due diligence. The ventures reported that a lawyer controls various contracts (e.g., investment contracts, patents, and licenses) and that a controller

[8] Based on a telephone survey with 40 crowdfunded ventures from the IfM database between March and May 2015: 13 had a BA, and three already had a VC investor prior to their campaign launch.

checks the financial planning. The ventures characterised this operation as intensive (S3) and comparable with VCs' due diligence (S2). Other platforms in our sample did not engage an external service provider to perform such checks, but they requested similar documents. Nevertheless, the extent of these activities differs across platforms and often depends on how platforms see their role:

> 'Our task is to bring companies to the platform, where we have a clear conscience when people invest in those companies. There are always business risks (…) in case things do not develop as expected.' (P4)

> '…their proof can just be limited because, at the end of the day, we are talking about a transaction-cost-efficient financial tool.' (E2)

However, only a small minority did not see such checks as one of their functions.

Step 3: Deal structuring

If a platform finds that a venture is suitable, both parties must agree upon terms and conditions. Many of these conditions are predetermined by the platform's structure. Hence, factors such as participation rights (e.g., silent partnerships, profit-participating loans and shares) or participation structures (e.g., pooling in special-purpose vehicles and direct investment) leave little flexibility by design. The platforms thereby make extensive use of standardised contracts. While a thorough legal analysis of these contracts goes beyond the scope of this paper, some recurring more or less flexible aspects are discussed during this phase:

(1) Valuation

The final pre- and post-money valuation is negotiated between the platform and the venture, where the latter usually makes the first suggestion.

> 'Most start-ups have a clear idea of their valuation and what percentage they want to give away. The platform tries to behave in the interest of the investor and to negotiate the valuation down.' (P1)

The platforms claimed to use multiple methods to determine a company's value, including different gross-rental methods and VC methods, thereby considering risk assessments and other valuations in the market. One of the platforms in our sample even used an auction mechanism and switched to an online valuation tool over time. Another portal used an external accountant to determine the company's value. In general, the platforms attempt to negotiate a valuation that lies within a realistic market frame. Nevertheless, although it is unusual, processes can still fail at this stage:

> 'We've had a situation in which we assessed the value between 500 and 600k, and the start-up expected a valuation of 2.5m…; then we stop that process…; that often happens.' (P4)

(2) Minimum and total funding amount

The venture needs to decide the minimum and maximum amount that it wants to raise. The platforms that we interviewed used the 'all-or-nothing-model', which requires entrepreneurs to determine a minimum goal and to keep nothing if that goal is not reached (Cumming, Leboeuf, & Schwienbacher, 2015). The minimum amount is often set low to increase awareness if a campaign is overfunded, and the maximum is determined by the venture's capital use. The platforms declared that entrepreneurs do not have an interest in raising more than they actually need, which was partly confirmed by the ventures:

> 'Basically, 80k would have been sufficient. When we had collected 100k, we were asked if we want to extend our maximum funding amount to 200k. We rejected this proposal, as it was effectively too expensive for us.' (S4)

The platforms thereby control whether the capital need is deemed plausible. Nevertheless, they possess a major incentive to raise the maximum amount possible because of the commission that they receive.

(3) Platforms' commissions/handling fees

In our sample, the platforms charge commissions between 5 and 10%, depending on the total funding amount. For some platforms, this commission is fixed, while for

others, it is part of the negotiation. In addition, some platforms charge additional maintenance fees after publication or a share of the amounts that ventures pay out to investors. It is common practice for ventures to provide updates every three months and to reveal basic facts about their development. Former investors often need further clarification at this stage.

Step 4: Campaign preparation

A step that is unique to the crowdfunding investment process is the preparation of the campaign that is launched to convince potential funders. The activities that it entails often start even before the final contract is signed. The basis of all funding is a company profile that is accessible to potential investors. This profile contains aggregated investor-relevant information about the business and a short video about the capital-seeking venture; therefore, it is a decisive means of convincing potential investors. The venture creates this profile. Nevertheless, the platforms pursue various supportive activities and guide the ventures through this profile-creation process:

> '…we were taken by the hand. It was an advantage that the platform had already conducted more than 20 campaigns. They have a lot of experience about what works and what doesn't work in such a campaign.' (S1)

Nearly all the platforms provide detailed manuals that contain information about the expected profile structure and the ways in which these expectations can be met. In addition, some platforms provide specific hints if the business withholds supportive information. Ventures normally run through multiple correction loops until both parties agree that the profile is complete.

> 'There are manuals where all the lessons learned are written down (…). The platform gives feedback, based on its knowledge about what makes investors tick.' (P1)

> '…sometimes they also said, "You have reached this and that, which is a great argument; why don't you bring that in?"' (S4)

For the platforms, it is especially important that the content is understandable for their audiences.

> ‘The goal was to keep the profile as informative as necessary and as entertaining as possible. This means that you satisfy people who possess knowledge without turning off unexperienced investors by using overly technical terms.’ (S8)

Along with the written information, the short pitch video is a central element of the crowdfunding campaign and seemingly has a major influence on investors’ decision-making. The platforms communicate that crucial role to their ventures. They recommend particular content and potential film production firms that can be used. The ventures can freely make their own choices. Nevertheless, some businesses reported that the platform checked the script and storyline of their so-called pitch video.

In addition, platforms and ventures use various sources to create awareness for the campaign. Part of the preparation involves a discussion of a detailed communication strategy that outlines the detailed duties of platforms and ventures. The main channels that platforms activate are community newsletters, affiliates, press releases and different social media activities. Platforms also give ventures several hints about how they can activate their personal networks.

3.2.5 Discussion

3.2.5.1 Platform behaviour in an emerging two-sided market context

The crowdfunding industry has grown considerably in recent years and has thereby increasingly drawn the attention of researchers and practitioners. Numerous platforms have emerged and enabled the funding and realisation of countless projects and businesses. Our limited knowledge about their behaviour is especially critical in equity crowdfunding, in which platforms play a decisive role, substantially restricting ventures’ access to this new form of financing. This study provides detailed insights into how intermediaries act in this new context and explores their core functions in this emerging two-sided market setting. Equity crowdfunding portals operate in a very sensitive financial environment with oftentimes inexperienced actors on both sides.

Thus, their mediating role is comparably multi-faceted and demands extensive efforts from these agents in at least three overlapping areas:

(1) Preselection: To reduce search costs, equity crowdfunding platforms conduct a very restrictive multi-stage process in which they evaluate a venture's economic potential and its fit with the investment interests of their audiences. During this process, platforms heavily rely on deal referrals from their networks and on active search. Their assessment is twofold, and criteria change over time, shifting from product and financial characteristics during their screening to factors related to the entrepreneur and his team in the later evaluation. In addition, they apply several crowdfunding and platform-specific aspects related to the likelihood of future funding. Although they claim to not be legally responsible for a venture's later development, the final success of the preselected ventures is critical for their long-term reputation. A platform that solely preselects ventures that fail will probably also fail, as it is simply unable to efficiently reduce search costs.

(2) Structuring: Portals provide agents with the required technical and legal infrastructure, leading to reduced transaction costs. They make extensive use of different standardised contracts that are in line with the existing legal framework. An in-depth analysis of these contracts goes beyond the scope of this paper. However, valuation within these contracts is flexible. Platforms attempt to negotiate a valuation that lies within an existing market frame by using different mechanisms and sources to shape their own picture of a fair market price. Failing to find a fair market price presumably leads to a lack of investments or complications in follow-up funding rounds or exit situations.

(3) Communication: Platforms help ventures to considerably reduce the extensive information asymmetries with investors. After they agree upon terms and conditions, platforms pursue a role shift and support the venture in effectively communicating with their audiences. They provide manuals and multiple feedback loops to prevent ventures from withholding factors that might positively influence investors' final assessments. Moreover, they agree with ventures on a unified campaign strategy. Portals thereby pursue multiple activities to facilitate positive effects and to circumvent negative cross- and intragroup effects. They also restrict the number of

simultaneous campaigns on their portals and facilitate direct interactions before and after the funding campaign.

The findings illustrate that portals have multiple incentives to behave in a desirable way for both groups (ventures and investors) throughout the entire process. If they want to succeed in this new context, they need to develop strategies that enable mutually beneficial transactions between both sides on a regular basis (Hagiu & Rothman, 2016). Failing to fulfil the aforementioned roles in a mutually beneficial way for investors and ventures damages a portal's reputation and leads to a lack of investments. Similar to other two-sided market intermediaries (e.g., Apple's iOS), they restrict the supply side of the market for quality and strategic concerns (Eisenmann, Parker, & Van Alstyne, 2008). However, their preselection efforts are comparably substantial. In addition, they play a decisive role in price setting (in comparison with Airbnb or eBay) and later communication.

Furthermore, the interviews provide preliminary insights into how platforms try to differentiate themselves within this specific two-sided market context. In addition to focusing on a specific crowdfunding model, the portals revealed explicit preferences in their preselection criteria. In this way, to a certain extent, platforms seem to attract different types of users on both sides. However, the market's future development will reveal the likelihood of attracting sufficient investors and the extent to which the coexistence of portals is possible within this setting.

3.2.5.2 Classification and practical implications for capital-seeking ventures

This analysis contributes to discussions on the similarities and differences between equity crowdfunding and established, already investigated sources of formal and informal VC (Hornuf & Schwienbacher, 2016; Salomon, 2016). Crowdfunding platforms seem to fulfil a somewhat implicit agency function for their audiences when they identify, assess and structure potential investments for their portals. Their selection practices display several similarities with those of established investors. As with BAs, their due diligence checks vary considerably, and their contracting is comparably standardised. Similar to VCs, they rely on their networks and proactive search to find deals. Their selection process is also systematic and structured. Furthermore, they act as intermediaries between ventures and investors. However,

their incentive structure is different. A portal's income is determined by its commission and thus depends less on the subsequent economic success of a selected venture. Hence, some obvious differences occur in assessments: VCs particularly focus on economic potential, and BAs consider their personal fit with the venture's management team. Platforms consider factors related to an investor's fit with the business to increase the likelihood of future funding. This aim is similar to that of an angel group, in which internal staff consider whether a business proposal fits within the investment criteria of a specific group (Croce et al., 2017).

A unique step with regard to the entire investing process is the campaign preparation phase, in which platforms pursue a role shift, in which they transition from active intermediaries that critically assess ventures to providers of lean business introduction services that assist ventures in reducing their information asymmetries with the crowd. Nevertheless, aligning the incentives of the two sides after the funding takes place remains a critical task for platforms with regard to the entire investment process. Important tools for established investors include individualised contracts or active roles in the venture to respond to different agency risks over time, which is difficult to imagine for numerous crowdinvestors.

Preliminary insights into how entrepreneurs can successfully engage in this new setting derive mainly from research on factors that influence funding behaviour (Agrawal et al., 2015; Ahlers et al., 2015; Mollick, 2014; Moritz et al., 2015). Equity crowdfunding campaigns have been rather successful in the past. However, entrepreneurs who plan to engage in this setting must understand that this form of financing is not based on completely new principles. Platforms have rejection rates that are comparable to those of VCs. Entrepreneurs must consider a platform's specific assessments and its audience separately, and those who plan to engage in equity crowdfunding should try to make personal contact with the platform before they formally apply. They can make themselves visible at events or attempt to make contact through a platform's network, and they should be aware that equity crowdfunding does not entail completely different criteria, as platforms' assessment criteria are similar to those VCs and BAs. Ventures must screen a portal's history and obtain an understanding of the kind of ventures that have been funded on a portal in the past. Hence, they should stress that their business model is appropriate for a specific portal.

Ventures that pass platforms' assessments receive considerable assistance in their efforts to convince potential investors. Platforms possess rich knowledge about the specific informational needs of their audiences, which they share with the entrepreneur.

3.2.5.3 Limitations and avenues for future research

This study is not without limitations. First, it is restricted to the German market and the specific institutional and temporal context in which it was conducted. A major institutional factor that determines platform behaviour is the regulatory setting, which can clearly define a platform's duties. This study was conducted in a setting with comparably few regulations for platform operators. Nevertheless, I am aware that regulations deviate considerably across countries. In addition, the exploratory and cross-sectional study captures the current status of a phenomenon that is constantly changing. The German equity crowdfunding market is evolving, and the assessed platforms were involved in major learning processes before our interviews and continue to be. Thus, interpretations of the results have to take this dynamic aspect into account.

Second, the findings are limited by the methodological aspects associated with qualitative research. One particular problem that I noticed is that platforms communicate their desired behaviours rather than their actual behaviours, and I tried to diminish this risk by triangulating data from different perspectives and sources. Nevertheless, for some activities within the process, I was able to rely only on the platforms' narratives (e.g., screening criteria and valuation methods). Therefore, further research could apply different research designs to increase the validity of specific results. In summary, this study is an adequate exploratory starting point that reveals the basic behavioural patterns of equity crowdfunding platforms, particularly with regard to their selection processes. Therefore, it leaves room for more in-depth analyses of individual steps in these processes. Moreover, the findings raise several additional questions for future research. First, although platforms diverge in their behaviour, the outcomes of the different platform models and practices are unclear. To provide orientation regarding desirable behaviour, research that relates process behaviour to funding and business performance would be of considerable value for practice and theory. Failed campaigns and their relation to the preselection process

might therefore be a fruitful source for further research. Second, exploring how platforms behave in other contexts with, for instance, different legal situations would be valuable to get a clearer picture about the impact of different regulatory settings and to increase the generalisability of the findings. Third, how crowdfunding platforms interact with other sources of venture financing is unclear. The interviews show that platforms' activities possess several similarities with established sources of venture financing. Many of the funded ventures also already had different investors. More research is thus needed to explore the interactions between platforms and established players in BA or VC financing. Fourth, the analysis in this paper examines the period before the funding takes place. Thus far, not much is known about the role and functions that the crowd fulfils with regard to the entire investment process compared with those of already known sources and the ways in which its role and functions vary between different platforms. Furthermore, an in-depth understanding of the composition of the crowd and their decision-making is lacking.

3.2.6 Conclusion

Within the growing body of crowdfunding research, equity crowdfunding in general and its intermediaries in particular have been under-researched. This study's goal was to learn more about a platform and its preselection of potential investment opportunities for its audience. To the best of my knowledge, this study is one of the first to systematically analyse the behaviour of multiple equity crowdfunding platforms. It was conducted in a liberal regulatory setting for these intermediaries. Encouraging future research in different contexts, this study provides valuable insights to various practitioners, including entrepreneurs, governments, platforms and investors.

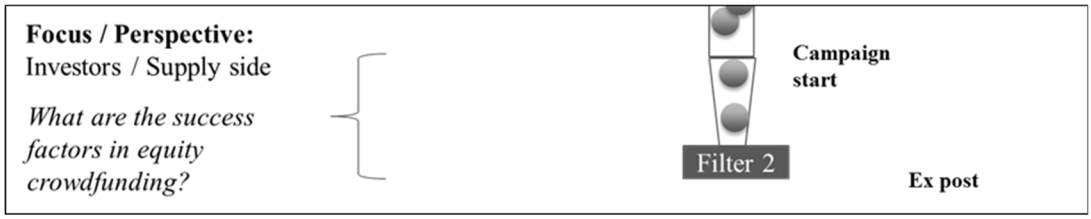
3.2.7 Response to the second research question

The study responds to the second research question of this dissertation, aiming to understand interaction activities in equity crowdfunding. This interaction is considerably influenced equity crowdfunding portals, that play a decisive role in connecting capital-seeking entrepreneurs and investors. The study responds to the research question: How do equity crowdfunding platforms preselect ventures for their audience?

The findings show that platforms' preselection activities are in many respects like those of established early-stage investors. Thus, the investment opportunities they consider for their portal derive mainly from network relationships and active search. Besides conventional assessment criteria, platforms' preselection decisions are driven by specific criteria related to later funding success. The findings thereby show the strong role that portals have in the interaction between both sides. Hence, once platforms preselected a venture, they support the entrepreneurs in effectively reducing information asymmetries with investors. Hence, they possess detailed knowledge about the information needs of their audiences, which they share with entrepreneurs.

3.3 A research note on entrepreneurs' financial commitment and crowdfunding success

Figure 8: Third research sub-question



Source: Own illustration.

3.3.1 Introduction

'There's a difference between interest and commitment. When you're interested in something, you do it only when it's convenient. When you're committed to something, you accept no excuses; only results.' (Kenneth H. Blanchard)

In recent years, equity crowdfunding or crowdinvesting, respectively, has become a popular way to finance new and emerging ventures (Ahlers et al., 2015; Vulkan et al., 2016). Compared to other sources of risk capital for these firms (e.g., business angel or venture capitalist financing) equity crowdfunding is unique in various ways: While it enables entrepreneurs to publish open-calls for funding in exchange for equity or equity-like shares, equity crowdfunding does not only address single investors but a magnitude of small investors who might want to participate in the growth of primarily young businesses (Belleflamme et al., 2014; Bradford, 2012). Moreover, the Internet-based environment makes direct interaction between investors and entrepreneurs difficult. The investors therefore have to rely considerably on the provided profile information on particular platforms. Consequently, capital-seeking ventures have an incentive to present only what is favourable for their funding on these platforms. In practice, this means that these new ventures publish campaign profiles that provide (favourable) key information about a highly standardised set of aspects of the business model and its prospects (Estrin et al., 2018; Section 3.2). Furthermore, some platforms offer various ways to ensure transparent communication between entrepreneurs and potential investors (e.g. forums and live-video conferences).

The key idea of this research note is that these standardised and comparably lean information procedures enhance problems of asymmetric information between investors and entrepreneurs regarding the evaluation of the projects, potentially causing problems of adverse selection (e.g., Akerlof, 1970; Hellmann & Stiglitz, 2000; Stiglitz & Weiss, 1981). Despite screening efforts conducted by the portals[9], investors still need to trust their own assessment and have to identify characteristics, which serve as signals indicating the likelihood of success of a firm. We therefore follow the signalling theory and ask whether investors interpret the entrepreneurs' own financial commitment as a quality signal and consequently reward it via funding (see Figure 8 for an orientation about how this contributes to the entire dissertation). Our basic rationale is that financially committed entrepreneurs signal that they are willing to lead a successful firm in the long run.

The crowdfunding literature recently made some progress about the ways how crowdinvestors rely on quality signals in form of ex ante observable characteristics, which are assumed to be significantly related to the ex post venture success. However, empirical research in the equity crowdfunding context is still very scarce (see Vismara, 2018 for an overview of the literature). The few studies in that particular field show that educational degrees (Ahlers et al., 2015), network relationships (Ahlers et al., 2015; Vismara, 2016a), information cascades (Vismara 2016b), quality disclosures through external credentials (Ralcheva & Roosenboom, 2016), update information during the campaign (Block et al., 2018b; Moritz et al., 2015), and the provision of financial information (Ahlers et al., 2015; Lukkarinen et al., 2016) seem to function as reliable signals and affect funding success.

The studies closest to ours are those by Ahlers et al. (2015) and by Vismara (2016a), who investigate the relationship between equity retention and campaign success. However, these articles focus on open equity shares evaluated by the firm as well as the platform and documented in financial forecast disclosure. Moreover, the results are mixed. Although Ahlers et al. (2015) find that social capital and intellectual capital

[9] Portals conduct a restrictive preselection process, in which they assess the economic potential of the firm and the specific fit with portals' investors. After they preselected a venture they pursue a unique role-shift, supporting the venture in setting up the company profile (see Section 3.2). This is beneficial for the Internet platform because its business model is usually based on commission. Screening and venture support vary between the different portals and details are not communicated to investors. Consequently, investors are still in need for an own assessment of the ventures.

have only little or no impact on funding success, Vismara (2016a) shows that ventures with more social capital had higher probabilities of funding success. In contrast to these studies, we straightforwardly examine the financial commitment of the founders as a credible quality signal. Specifically, the major objective of this paper is the analysis of the relationship between the founders' financial investments in their own venture at the very beginning and the later campaigns success. This central aspect for practitioners has not yet been addressed in detail in the emerging literature on quality signals in equity crowdfunding.

Following financial mainstream theory, we argue that founders will provide a greater proportion of the initial investment if they anticipate business success. As impressively indicated in the introductory quote, it is the amount of 'skin in the game' that can be understood as a reliable signal in the first place for entrepreneurial motivation, implicit engagement with business success as well as willingness to be successful. With publicly available as well as primary data from Germany, we show that the financial commitment of entrepreneurs is positively correlated with funding success. We therefore interpret the financial commitment as a quality signal in equity crowdfunding. Our results, moreover, suggest that the financial commitment of the entrepreneurs is the single most important determinant in explaining funding success, even when accounting for the firm's development stage or other financial indicators.

The remainder of this research note is structured as follows: The next subsection provides the theoretical background. Subsection 3.3.3 describes the data sources, the operationalisation, and methodology. Subsequently, 3.3.4 presents the results. 3.3.5 summarises the findings and discusses their implications. Finally, the last subsection responds to the third research sub-question of this dissertation.

3.3.2 Theoretical background

During the last years, crowdfunding became increasingly popular in academia and practice. Although the idea of crowdfunding was not new and took previously place in multiple offline contexts (see e.g., Gras, Nason, Lerman, & Stellini, 2017), the Internet enabled the substantial growth of the phenomenon during the last years. Multiple online-platforms emerged, that brought together campaign initiators and funders under different circumstances. What funders receive in return for their financial contribution

thereby diverges considerably, leading to four different typologies, namely donation-, lending-, reward- and equity-based crowdfunding.

Early research focused primarily on reward-based crowdfunding and discussed the success determinants in this context (e.g., Colombo, Franzoni, & Rossi-Lamastra, 2015; Mollick, 2014). Factors determining the success of crowdfunding campaigns are still by far the most investigated stream in crowdfunding research (Short et al., 2017). However, findings are sometimes contradictory as contexts in which studies have been conducted considerably diverge (McKenny, Allison, Ketchen. Short, & Ireland, 2017). It is therefore important to investigate, which signals work under which conditions. In equity crowdfunding, the interests of funders are primarily of financial nature (Cholakova & Clarysse, 2015). Thus, like with established sources of early-stage financing, funders seek financial returns for their investment. This setting therefore provides a fruitful ground to investigate the applicability of established concepts of early-stage financing. More specifically, we embed our study in financial mainstream theory and entrepreneurial finance literature focusing on information asymmetries that may arise between entrepreneurs and capital providers, which greatly affect the possibilities to acquire financial capital.

A key aspect in entrepreneurial finance research is to understand why some new ventures are more successful than others in raising capital (e.g. Landström, 2017; Mason & Stark, 2004; Sudek, 2006; Van Osnabrugge, 2000). One reason – especially in early development stages – is that entrepreneurs and their potential investors face severe problems of asymmetric information regarding the evaluation of entrepreneurial capabilities due to the lack of a production history and reputation (Backes-Gellner & Werner, 2007; Landström, 2017; Vismara, 2018). Consequently, many new ventures typically start small and with restricted financial resources (e.g. Binks & Ennew, 1996). However, the adverse effects of these problems may in part be counteracted by the reliance on signalling mechanisms reducing the information asymmetry between capital providers and capital seekers. Accordingly, founders of high quality start-ups have an incentive to reveal the true quality of their venture to capital providers and to distinguish themselves in credible ways from less promising counterparts. In other words, founders of high quality new ventures will send any credible quality information via signalling, which indicates that they will run their new

venture successfully in the future (for an overview of the literature, see Parker, 2004). The economic rationale for this behaviour is that the best entrepreneurs are then able to acquire external finance to much better financial conditions than low quality entrepreneurs.

Information asymmetries are existent in the equity crowdfunding setting. Therefore investors will price the capital at a premium to compensate for this unresolved uncertainty. Capital providers, however, have an incentive to screen the market for observable and credible signals about the underlying quality of the venture. Especially, in the market of equity crowdfunding, the signals must be easy to interpret because crowdinvestors usually lack the financial sophistication and experience of professional investors (Ahlers et al., 2015; Freear, Sohl, & Wetzel, 1994). In fact, in the context of equity crowdfunding with the platforms as intermediaries, experienced as well as inexperienced investors have limited access to information as they are usually unable to conduct thorough screening and due diligence checks ex ante because these instruments are too costly in relation to their oftentimes small investment.

Entrepreneurs are able to signal their true belief in the business prospects via their commitment. Cardon, Mitteness, and Sudek (2017), e.g., refer to the time and money they dedicate to their business. In this line, we consider the entrepreneurs' financial contribution as signal of the perceived potentials of the business from the entrepreneurs' point of view. Several studies have already stressed the importance of entrepreneurs' financial commitment in other financial environments, such as bank financing (Eddleston et al., 2016), venture capital (Busenitz et al., 2005), and business angel financing (Prasad et al., 2000). These analyses are theoretically backed up by Leland and Pyle (1977), who provide a sound theoretical basis that founders anticipating greater success are more likely to provide a greater proportion of the initial investment. The precondition for this implication is that founders have better private information on the probability of success of the enterprise than outside investors.

Credible signals need to be binding and must be distinguishable from cheap talks (Vismara, 2018). Cheap talks consist of costless, nonbinding, and nonverifiable messages (Farrell & Rabin, 1996). We interpret the financial commitment of the entrepreneur as a quality signal. At first, the magnitude of financial means provided by the entrepreneur clearly reveals the own confidence in the business model. Second,

as entrepreneurs will lose their initially invested capital in case of failure, it meets the conditions of reliable signals because it is difficult to distort. It is, furthermore, costly which prevents 'bad' companies from imitation. Campaigns conducted by entrepreneurs, who invested little or no capital in their own business might be perceived as an attempt to 'sell a lemon'. Consequently, investors abstain from backing these businesses. We therefore expect, ceteris paribus, a positive correlation between the amount of capital invested by the founders in their new ventures and funding success.

3.3.3 Data and procedure

3.3.3.1 Data

We utilise the crowdinvesting database of the IfM Bonn (Löher et al., 2015) to explore the relationship between entrepreneurs' financial commitment and funding success in Germany. We combine publicly available data with primary data. At first, we started with the identification of all campaigns that have been conducted on the four leading equity crowdfunding platforms Companisto, Fundsters, Innovestment, and Seedmatch. In total, 163 funding rounds of 145 firms launched between August 2011 and November 2014 were identified. Some firms already launched follow-up campaigns: In detail, 16 firms conducted one, while one firm realised two follow-up campaigns. Our main source of information was the campaign page published on the Internet, which capital-seeking ventures use to promote their business and to convince potential investors. We screened each campaign for the same information, including the age of the firm, final funding outcome and the individually chosen pre-announced funding threshold. If investors invested at least the funding threshold, the platforms pass the funding sum to the firms. If the invested sum falls short of the investment threshold, then the campaign was not successful, and investors retain their investments. In our data, the pre-announced funding threshold was exceeded in nine in ten initiated campaigns (89%, see Table 11 for descriptive statistics). Among the 145 first-round campaigns, the share of successful campaigns was almost identical (88%). The average funding amount during the considered time horizon was €1.559, which is in line with

literature on the investment structure in crowdinvesting campaigns (Hainz et al., 2017).[10]

Table 11: Descriptive statistics about equity crowdfunding campaigns in Germany

Year of campaign start	Number of initiated campaigns	% of successful campaigns	Amount raised in total in €	Average amount per successful campaign in €
2011	9	100.0	748,964	83,218
2012	52	84.6	4,595,730	104,448
2013	64	90.6	12,414,281	214,039
2014	38	89.5	21,487,487	631,985
Total	163	89.0	39,246,462	270,665

In a second step, we also collected primary data to augment our database. In fact, we contacted the CEOs of the entire 145 ventures by telephone and asked for participation in a telephone interview. In total, 45 were willing to participate. The interviews have been conducted between March and May 2015. During the interviews, we gathered information about the fundraisers' own financial commitment, venture capital involvement, and financial alternatives before funding start. As some businesses participated in more than one funding round, our questions concentrated on the very first campaign. Questions regarding their own financial commitment in Euro were answered by 36 respondents. Among the 36 ventures, most ventures were successfully funded (94%).

3.3.3.2 Operationalisation and methodology

The funding success of campaigns can be examined in various ways. A binary outcome variable indicates whether a firm was successful in reaching its minimum funding goal. Alternatively, the finally achieved funding sum in € reveals information about the extent of the campaign success. In this paper, we examine cardinal information

[10] Hainz et al. (2017) analysed data in a similar context. According to their data 77% of the funders invested less than €1,000. Less than 2% invested €10,000 and more. This is an amount where angel investing therefore normally starts.

because it provides deeper insights about funding success than a binary variable. In comparison to other studies, which analyse the (log of the) raised funding sum in € (see, e.g., Hornuf & Schwienbacher, 2014b), we examine the funding level (see equation 1) as dependent variable. Our main argument for choosing this dependent variable is that the funding sum is interrelated with the minimum threshold value that is needed to successfully finish the funding.

$$funding\ level = \frac{funding\ sum\ in\ €}{investment\ threshold\ in\ €} * 100 \quad (1)$$

The core explanatory variable *fundraisers' financial commitment in €* refers to the sum of own financial means (equity) plus private collaterals (debt) of the founding team before the start of the first campaign.[11] Thus, the value shows the maximum amount of capital that the team would personally lose in case of business failure. As our central explanatory variable, we examine the *own commitment level* (see equation 2), which relates the own financial commitment in € to the investment threshold in €. As respondents were asked to report their own financial commitment in € before the campaign was started, this information can be regarded as exogenous.

$$\text{own commitment level} = \frac{fundraisers\prime\ financial\ commitment\ in\ €}{investment\ threshold\ in\ €} * 100 \quad (2)$$

The own commitment level provides insights about the relation between entrepreneurs' financial commitment and the minimum expected crowdinvestors' commitment. Specifically, if the own commitment level of entrepreneurs is lower than 100, then the crowd has invested more than the entrepreneurs. When the own commitment equals 100, then entrepreneurs and investors are committed equally. In case of values exceeding 100, entrepreneurs' commitment exceeds the one of crowdinvestors and fundraisers are willing to bear a higher financial risk than investors. With the funding level as cardinal dependent variable, we are able to estimate the effect of the own commitment level with OLS.

[11] Telephone interview question: With how much own funds were the founders invested in the company (equity + private collaterals)?

Table 12: Control variables

Variable name	Description	Source	Original question
Age at time of funding	Calculated as: Year of campaign start minus the founding year of the business	Hand-collected database	
Market entry activities	Dummy variable which takes the value 1 if investment was used to finance market entry; 0 else.	Telephone interview	What have you done with the crowdfunding capital? (multiple answers possible) • Market launch / finance first series (market entry) • Initiation of first marketing and sales activities (market entry)
Market penetration stage	Dummy variable which takes the value 1 if investment was used to finance market penetration; 0 else.	Telephone interview	What have you done with the crowdfunding capital? (multiple answers possible) • Penetration of an already existing market (market penetration) • Extension of first marketing and sales activities (market penetration)
Venture capital	Dummy variable which takes the value 1 if business angle(s) or venture capitalist(s) involved at time of funding; 0 else.	Telephone interview	Which sources of capital did you use before and after the crowdfunding? (multiple answers possible) At the time of funding: • Own means • Family, friends and fools • Business angels • Venture capitalist • Subsidised loan • Bank loan • Other public subsidies
Business valuation in €	Business valuation in €	Hand-collected database	
Financial alternatives available before funding start	Dummy variable which takes the value 1 if financial alternatives available; 0 else.	Telephone interview	Were other sources of financing available before the campaign start? • no • yes "Don't know" and "no answer" were not considered
Funding goal achieved	Dummy variable which takes the value 1 if maximum funding sum was achieved; 0 else.	Hand-collected database	

Not all businesses are in comparable developmental stages at the time of funding. This might also affect the perception of risks and the willingness to invest. We therefore include control variables to account for the developmental stage of the business (see Table 12). In addition, the evaluation of risks and potentials of the various crowdinvesting campaigns are reflected in the control variables. Finally, we also account for an implicitly set upper investment limit, which was set at the beginning of the campaign.

3.3.4 Results

The average own commitment level of entrepreneurs at the beginning of the funding campaign is equal to 148 (see Table 13, column 2). It therefore exceeds 100 which indicates that entrepreneurs are willing to take higher financial risks than their crowdinvestors. This, however, only holds when the final funding sum equals the investment threshold. The average funding level at the end of the campaign, however, exceeds the value of 100 by the factor of 3.9 (see the notes in Table 13). Furthermore, we find that the financial means of entrepreneurs are lower than the financial involvement of the crowd in 29 of the 36 finished campaigns. One crowdfunding project was successfully financed with even financial commitments. The median ratio between funding sum and fundraisers' financial commitment equals 2.5, which implies that the crowd invests more than twice the amount of the entrepreneurs.

Our baseline specification (Specification 1 in Table 13) reveals a significantly positive coefficient of the own commitment level. The positive relationship between own financial commitment of entrepreneurs and the funding level suggests that higher own commitment significantly increases investors' willingness to invest more into the venture. Thus, our expectations were supported by the data. The perceived risk of investors and the willingness to invest in the venture is clearly affected by the business development or achieved milestones, respectively. Our first robustness check therefore includes the age of the venture, as it can be interpreted as a signal for being established in the market. Specification 2 reveals that the coefficient of own commitment does not change substantially, which implies robustness of the results. In general, our considered firms are fairly young and were founded, on average, less than two years ago. To further disentangle the effects of the business development, we also include information regarding the stated utilisation of the funding sum. All firms reporting

market entry activities, first series of production, and/or first marketing and distribution activities are classified to be in the market entry phase. We classify firms to be in the market penetration phase if they reported exploitation of an established market and/or extension of marketing and distribution activities.

In line with the young average age of the firms, the majority of firms are engaged in market entry activities (53%). Inclusion of the information regarding developmental stages (Specifications 3 and 4) even lead to an increase of the coefficients of own commitment. The positive relationship remains highly robust to these changes in specifications.

Professional and non-professional investors alike are expected to carefully analyse the potentials of their investments. Especially in the case of (equity) crowdfunding, where information about business prospects is restricted due to the limited information provided on platforms, the investment behaviour of peers or experts can be utilised as additional source of information about business potentials. When we include the involvement of institutional venture capitalists, the estimated effect of the own commitment level remains almost identical, which implies robustness of the coefficient of main interest (Specification 5).[12] The effect of the involvement of experts is positive but statistically insignificant. Cholakova and Clarysse (2015) suggest that investors in equity crowdfunding are financially motivated. We therefore include the business valuation in € as a control variable because this specific variable provides information about business potentials (Specification 6). The positive coefficient of business valuation implies that higher valuations are associated with higher funding levels, which is in line with the literature on financially motivated funding behaviour. The coefficient of the financial commitment of entrepreneurs, again, remains highly robust to this alternative specification.

[12] Another indicator of peer effects is the number of already involved investors or accumulated capital (see, e.g., Agrawal, Catalini, & Goldfarb, 2014). We, however, have no data on the number of investors at different stages of the crowdfunding campaign to precisely control for herding. This is the reason why our robustness check in Specification 5 only concentrates on the peer effect of experts.

Table 13: Descriptive statistics and OLS estimation results with dependent variable funding level

Variables	Mean (std. dev)	(1) Baseline specification	(2)	(3)	(4) Stages of business development (milestones)	(5)	(6)	(7) Financial indicators	(8)	(9) Full model
Own commitment level	147.87	1.25*	1.21*	1.28*	1.28*	1.26*	1.24*	1.27*	1.23	1.29*
	(141.77)	(0.72)	(0.62)	(0.74)	(0.73)	(0.73)	(0.71)	(0.73)	(0.79)	(0.66)
		[0.48]	[0.46]	[0.49]	[0.49]	[0.48]	[0.47]	[0.48]	[0.47]	[0.49]
Age at time of funding	1.72		-105.93**							-139.43**
	(1.16)		(47.59)							(56.02)
			[-0.33]							[-0.43]
Market entry activities	0.53			-31.94						-56.81
	(0.51)			(105.02)						(92.46)
				[-0.04]						[-0.08]
Market penetration stage	0.36				82.81					144.18
	(0.49)				(102.48)					(101.81)
					[0.11]					[0.19]
Institutional venture capital[A]	0.31					25.58				20.99
	(0.47)					(123.91)				(178.14)
						[0.03]				[0.03]
Business valuation in €	1,561,209.53						6.27e-05***			7.94e-05
	(1,225,375.04)						(2.19e-05)			(5.15e-05)
							[0.21]			[0.26]
Financial alternatives available before funding start[B]	0.81							93.72		-147.13
	(0.40)							(116.82)		(127.88)
								[0.10]		[-0.16]
Funding goal achieved[C]	0.50								51.13	51.09
	(0.51)								(128.27)	(119.19)
									[0.07]	[0.07]
Constant		201.15**	389.62***	213.52**	167.53*	192.66**	104.70	122.70	179.41**	432.83**
		(82.78)	(96.05)	(87.35)	(91.31)	(79.11)	(103.36)	(141.64)	(68.81)	(172.78)
Number of observations					36					
R^2		0.227	0.335	0.228	0.238	0.228	0.269	0.237	0.231	0.468

Funding level: Mean: 386.34, Std. dev.: 372.90.
Heteroscedasticity robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.
Standardised (BETA) coefficients in brackets.
Details about the control variables in in Table 12

Frequent discussions about crowdinvesting suggest that the entrepreneurs are not capable to raise capital from other sources of capital, which might be interpreted as a reason, why the business is perceived as a lemon. We also asked fundraisers about whether alternative financial means were available before the start of the campaign. Four in five respondents surveyed that alternative financial sources had been available.[13] This implies that these entrepreneurs voluntarily opted for utilisation of crowdinvesting. In addition, in Specification 7, the coefficient of the own commitment level remains comparable to the ones estimated in the former specifications.

The funding level is bounded from above by the maximum funding sum, the so-called funding goal. The funding goal is of importance to the entrepreneurs because it enables them to limit the equity ratio held by investors. For this reason, the funding level is co-determined by the funding goal. We observe that the maximum funding level was likely to be obtained if the own commitment level exceeded 100. Specifically, 11 in 17 ventures with own commitment levels greater than 100 have been funded maximally. The funding goal was less likely to be obtained when the commitment of entrepreneurs did not exceed 100: In this case seven in 19 businesses were maximally funded. We therefore conducted a robustness check by controlling for a dummy variable indicating that the funding goal was achieved. The coefficient of the own commitment level is again fairly robust to the inclusion of this particular dummy variable (Specification 8) and comparable in size with the one presented in the baseline specification. It is, however, not statistically significant any longer because the standard error is largest in this specification.[14]

Finally, when we included all the variables into our full model (Specification 9), we find a statistically significant and robust effect of the own commitment level. We additionally learn from this specification that, according to the presented BETA coefficients, the own commitment is the single most important variable. In sum, the results are in line with the characteristics of a significant signal effect of the own financial commitment in the equity crowdfunding process.

[13] Own financial means, classical bank loans, promotional loans, and public funds are surveyed seldom, while the most frequent alternative has been business angel financing (Löher et al., 2015, p. 22).

[14] Note that funding level and funding goal are simultaneously determined. The dummy variable funding goal achieved is therefore not exogenous.

3.3.5 Summary and reflection

Our paper augments the growing literature about success factors in equity crowdfunding, whereas our focus is on the extent entrepreneurs are financially committed (or have 'skin in the game'). The results clearly indicate a positive relationship between the financial commitment of entrepreneurs and crowdinvesting success. Raising too much capital compared to own commitment might be perceived as an attempt to 'sell a lemon' and therefore investors decide against investment. Moreover, a large proportion of outside capital may point to perk consumption and effort problems influencing agency costs of the investors. High own financial means of entrepreneurs, in turn, clearly send the signal that entrepreneurs have confidence in their business model and that they are willing to lead the venture into a prosperous future (also see the introductory quote by Kenneth H. Blanchard). It therefore aligns the ex post incentives between entrepreneur and investors. Our findings contribute to scientific debates about effective signalling in equity crowdfunding. Prior studies of Ahlers et al. (2015) and Vismara (2016a) have documented the positive effect of equity retention on campaign success. Our findings show that entrepreneurs, who are willing to bear more personal financial risk, have better chances to be funded.

Our results clearly have practical implications. Entrepreneurs are advised to reveal their personal financial commitment when communicating with potential investors. If entrepreneurs are not capable or willing to communicate their full financial commitment, then asymmetric information between investors and entrepreneurs prevails, which potentially causes adverse selection in the crowdinvesting market. Equity crowdfunding portals can use these findings to improve their services in ex ante investor communication. One of the tasks is to prevent ventures from withholding relevant information, e.g. through detailed manuals and multiple feedback loops (see Section 3.2). Our findings suggest that founders' financial commitment is relevant for the investment decision of potential funders and that portals are therefore encouraged to integrate this aspect into their consultancy process.

Commitment, however, is shown to be a multi-faceted concept, which refers to the moment in which an individual starts to devote most of his or her time, energy, and financial, intellectual, relational and emotional resources to his or her project (Fayolle, Basso, & Tornikoski, 2011). We therefore hypothesise that the effect of monetary

commitment is highly correlated with other forms of commitment, such as high working hours or flexibility, which are clearly communicated and observable to investors. As an example, highly committed entrepreneurs might reveal their commitment also by working night shifts to attract customers or investors in different time zones. For this reason, our statistical significant effects of financial commitment might be due to other forms of individual commitment with business success, which are not surveyed in our data. We have therefore not been able to disentangle the effects of different dimensions of commitment in this paper. It thus remains a challenge for future research to analyse effects of various facets of commitment in crowdinvesting success.

We furthermore consider empirical research about the nexus between financial commitment and firm performance after the funding as a promising avenue for future research. Hereby, one might, among others, hypothesise that entrepreneurs do not 'jump ship' when they are confronted with difficulties (Zott & Huy, 2007). Finally, the extent to which financial commitment is a valid signal about later firm performance is yet an open question in entrepreneurial finance.

3.3.6 Response to the third research question

The study responds to the second research question of this dissertation, aiming to understand the capital supply side of the market. More specifically, it seeks to understand funding behaviour in this new setting by answering the question: What are the success factors in equity crowdfunding?

The study focuses on one specific success factor. Despite its key role in practice, the entrepreneurs' own financial commitment has not yet been discussed in equity crowdfunding. The findings show, that entrepreneurs with comparatively more ex ante financial commitment in their venture, achieve significantly higher funding success. The findings, therefore, suggest that crowdinvestors consider the financial commitment of the founding team in their investment decision. The study contributes to research about which signals influence demand-side decision in this context.

4 Discussion

4.1 Reflection on the results

In recent years, equity crowdfunding emerged and became increasingly popular in many European economies. While it offers capital-seeking entrepreneurs a new way to obtain financial means, presumably inexperienced investors get the opportunity to invest with relatively small contributions in innovative new firms and to participate in these firms' growth. However, the specific online environment raises several questions about how founders and funders come together in comparison to other, more established early-stage financing settings. The intention of this dissertation was therefore to explore the peculiarities of this new matching process, by responding to the main research question: *How do ventures and investors find each other in this specific financing context?*

The dissertation started with a description of the main research question and the three sub-questions, that build the core of the empirical part. Furthermore, an overview of the research context and core methodological considerations was given. The second chapter introduced the concept of investment readiness, which is the theoretical starting point of this dissertation. Subsequently, how ventures and investors come together in other early-stage financing settings was analysed. Thus, the theoretical background regarding ventures' and investors' decision-making and their interaction were discussed. The third chapter comprised three empirical articles that in the following chronological order revealed some of the peculiarities of this matching process:

The first section of Chapter 3 examined why entrepreneurs are motivated to use equity crowdfunding. The study identified different motivational drivers and linked them with the ventures' organisational background, showing the different roles that this new form of financing is intended to play in these firms. The developed model of four different motivational types structures the heterogeneous nature of the ventures' decision-making. The findings thereby contribute to a much more differentiated understanding of demand-side motivations in this setting. More specifically, it became clear that crowdfunding does not only attract 'last resort ventures'. Thus, despite

alternatives, some ventures used equity crowdfunding to optimise their financing strategy according to their needs.

The second study of Chapter 3 explored the specific role that equity crowdfunding portals play in this context. They intermediate in a two-sided market and try to arrange processes in a way that is beneficial for both sides. Compared with other early-stage financing processes, the way how the portals try to achieve this is unique and goes far beyond merely enabling information exchange. Thus, they conduct various work-intensive services to connect both sides: More specifically, for its investors, they conduct deal-flow management and screening in which most applicants are sorted out. During this process, they evaluate a venture's economic potential and a venture's fit with the investment interests of their portals' audience. They also negotiate and structure the investment deal. Consequently, they take over many activities that BAs and especially VCs would consider as their core competence. After the portals negotiate and agree with the venture about the investment conditions, they change sides and act similar to a business introduction service in many respects, providing advice for the enterprise in convincing investors.

The third section of Chapter 3 dealt with the success factors of campaigns and thus with the funding behaviour of the crowd. It was made clear that investing through equity crowdfunding platforms is comparably challenging for funders, as there is no negotiation or face-to-face meeting between both sides. To make their decision, investors need to rely on the provided profile information and limited interaction opportunities they have. Against this background, the study revealed that ventures with greater financial commitment from the entrepreneurs received significantly higher funding outcomes. Consequently, the findings suggest that investors take into account the personal financial commitment of capital-seeking entrepreneurs in their evaluation.

In summary, the findings contribute to a better understanding of this matching process by exploring the motivational background of crowdfunded ventures, revealing the portals' preselection process and analysing the investors' funding behaviour. Nevertheless, these findings can just be a starting point to develop a comprehensive picture of how both sides come together in this new setting. Furthermore, they need to be embedded in a broader conceptual context. The next section will thus more specifically discuss the theoretical implications of the findings. The investment

readiness concept is used as a basis to explain the peculiarities of equity crowdfunding on a conceptual level. For this purpose, the model is first extended to a universal early-stage matching model and afterwards applied within the scope of equity crowdfunding.

4.2 Theoretical contributions

4.2.1 Development of an early-stage matching model

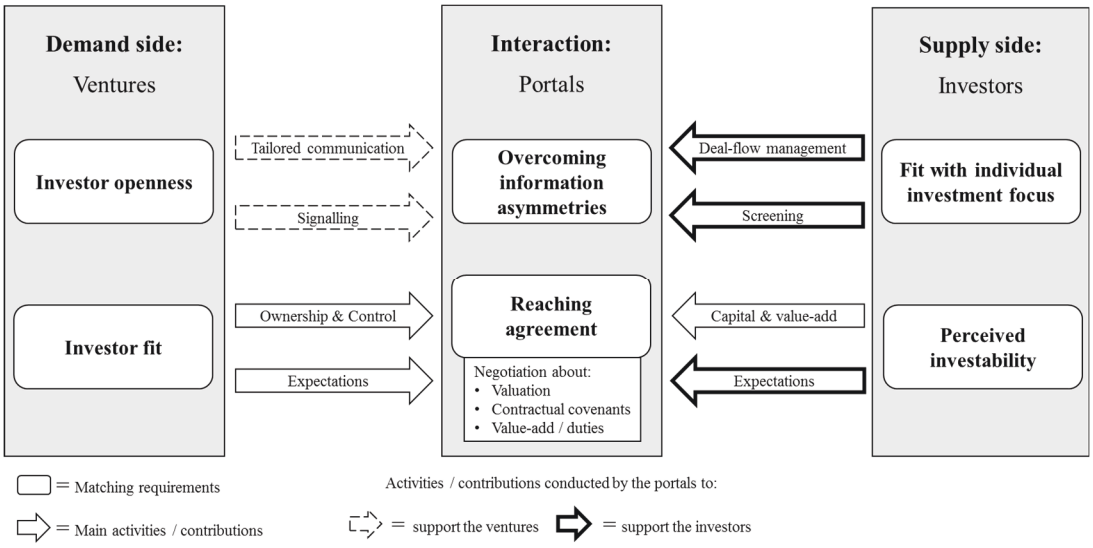
From a theoretical perspective, the concept of investment readiness provided the starting point to analyse how ventures and investors come together in this new setting. The concept emerged in a financing landscape with a limited number of different providers of early-stage risk capital. Especially during the last decade, new sources of financing appeared, that vary considerably in their requirements and properties: among these was equity crowdfunding (Bruton et al., 2015). Investors differ in the potential benefits they bring to their investees, their motivation and their decision-making (Block et al., 2018a). Moreover, the market has become much more transparent. Entrepreneurs currently know more about the role of different financing sources, and they have access to an increasing set of financiers. Accordingly, they have more knowledge and opportunities to tailor their financing strategy concerning their needs (Bellavitis et al., 2017).

Consequently, supply- and demand-side interactions take place under new circumstances. The concept of investment readiness, therefore, needs to be updated and extended to more clearly address specific demand-side, supply-side, and interaction hurdles. The initial concept was intended to connect entrepreneurs and potential investors more efficiently and mitigate the risk of market failure (Mason & Harrison, 2001). Its three core components, therefore, addressed several demand-side shortcomings from an investor's perspective. However, to support the required match, the individual preferences of both sides and the complexity of their interaction need to be considered.

Based on the theoretical background discussed in Chapter 2 and the empirical findings of Chapter 3, I developed an early-stage financing matching model that considers demand-side, supply-side and interaction requirements. The model assumes that severe information asymmetries between capital-seeking ventures and investors exist before the investment (Cassar, 2004). The model thus adopts different theories and

concepts, which are known from the principal-agent theory, that deal with ex ante challenges and solutions, including signalling theory and adverse selection (Akerlof, 1970; Jensen & Meckling, 1976; Spence, 1973). Figure 9 provides an overview of the model and shows the peculiarities of the matching model in equity crowdfunding. The model consists of **six requirements** that need to be fulfilled to connect ventures with investors. These are grouped into demand-side, interaction and supply-side requirements. In the following, these requirements will be defined, and my deduction of the model's components from literature and the empirical findings explained.

Figure 9: Early-stage financing matching model: Equity crowdfunding



Source: Own findings.

(1) Demand-side requirements *(former concept: equity aversion)*

To successfully partner with investors, two critical demand-side requirements need to be fulfilled, namely, **(a) investor openness** and **(b) investor fit**. The term 'investor openness' refers to a venture's general willingness to accept external equity investors under certain circumstances. The second condition, 'investor fit', refers to a venture's willingness to use a specific funding source, based on the specific properties that the source provides.

Deduction from literature and findings: In line with the pecking order theory (Myers & Majluf, 1984), the former concept of investment readiness stressed the existence of equity aversion in young ventures as a crucial hurdle in connecting both sides (Mason

& Harrison, 2001; 2004a; Mason & Kwok, 2010). However, the literature review in 2.2.1 and Section 3.1 has shown that the ventures' decisions regarding investors are more complex. Ventures can often decide between multiple investors that have different characteristics and provide different benefits. In equity crowdfunding, the analysed ventures perceived the specific characteristics of this financing form as suitable for their ongoing organisational situation (leading to a perceived 'investor fit'). More specifically, findings have shown that these were factors related to investment conditions and feedback- and marketing-related aspects.

Consequently, the general acceptance of equity investors (referred here as 'investor openness' and in the former concept described as 'equity aversion') is a prerequisite, but not sufficient to predict the ventures' willingness to agree upon a particular investor. Hence, the ventures' investor selection is multifaceted, as it depends on numerous contextual factors and is, therefore, difficult to anticipate (see Subsection 2.2.1). From a theoretical perspective, it thus needs further research to understand what determines the ventures' perceived investor fit under different circumstances. Concepts of resourcefulness might, therefore, be a fruitful avenue for future research to explore what determines this investor fit in different contexts.

(2) Interaction requirements (former concept: presentational failure)

To successfully connect ventures with investors, two interaction requirements also need to be fulfilled. These are **(c) overcoming information asymmetries**, which refers to the outcome of different efforts that both sides conduct to lower asymmetric information including signalling and screening, and **(d) reaching agreement**, which refers to the outcome of the negotiation process between both sides about terms and conditions, including, e.g., valuation, contractual covenants, and different duties.

Deduction from literature and findings: The investment readiness concept considers the ventures' presentational failings as a major explanation of why some interactions fail. Nevertheless, the literature in Section 2.2 has shown that 'overcoming information asymmetries' is a two-sided process.

On the one hand, ventures try to send convincing information to investors (through 'signalling'). In addition to content, ventures need to consider how and where they want to communicate with specific investors ('tailored communication'). In this sense,

Section 3.2 has shown that equity crowdfunding portals assist ventures in tailored communication and signalling. Thus, portals support ventures in developing and pursuing a communication strategy that considers the online setting and the specific audience. More specifically, portals determine the standardised investment profile and support ventures in identifying and submitting relevant signals to investors. Furthermore, they develop a schedule and a marketing plan for every campaign.

On the other hand, investors try to mitigate the risk of adverse selection. The review in Section 2.2. suggests that one of their major challenges is obtaining access to the best firms. Therefore, investors actively search for investment opportunities and use their network (‘deal-flow management’). Furthermore, they look out for reliable signals to identify the most promising ventures (‘screening’). Subsection 2.2.3 has shown the numerous activities that they conduct to identify and evaluate potential investment opportunities. The findings in Section 3.2 have revealed, that these activities also take place in equity crowdfunding, but in a different manner. In this context, portals assist investors in both activities. Hence, to preselect ventures for investors, portals pursue an active deal-flow management strategy. Furthermore, they intensively screen the identified ventures.

Furthermore, both sides have expectations that need to be balanced in order to ‘reach agreement’. Subsection 2.2.2 has shown that both sides usually negotiate directly with each other regarding terms and conditions. Investors conduct due diligence to validate the given information and assumptions of the entrepreneur. However, in equity crowdfunding, portals take over the negotiation for its investors. More specifically, they discuss with the venture the terms and conditions, including aspects such as valuation and contractual covenants. Furthermore, some portals engage in due diligence activities. Consequently, investors finally decide if they want to invest in the venture under predetermined conditions.

In summary, this dissertation’s findings show that the interaction in equity crowdfunding is different from established early-stage financing processes in many respects. Thus, it is considerably shaped by the platforms that assist or even take over numerous activities on behalf of both sides. With numerous work-intensive activities, they play a key role in balancing the interests of both parties. Consequently, knowing

their behaviour is central to understand how founders and funders come together in this context.

(3) Supply-side requirements (former concept: investability)

To successfully partner with ventures, there are also two critical supply-side requirements that need to be fulfilled. These are **(e) fit with individual investment focus,** which refers to the general investment preferences that the investor has, and **(f) perceived investability,** which is closely linked to business development issues and refers to the progress that the business has made and whether the founding team is considered as capable of successfully developing the business model further.

Deduction from literature and findings: The former concept of investment readiness stressed the importance of a venture's investability in terms of business development. However, the literature review in Subsection 2.2.3 has shown that investors, even before assessing the investability of the venture, evaluate whether the business is within their individual focus. Thus, some investors are solely interested in, e.g., specific sectors, technologies or regions. Consequently, they quickly screen investment opportunities and thereby consider those further that 'fit with their individual investment focus'.

The findings in Section 3.2 have shown that this is also the case in equity crowdfunding. Still, the assessment is conducted in a specific manner: The portals' initial screening depends on their audience's expectations, which seem to differ between platforms. Consequently, they target different business models to address the expectations of their portals investors. Thus, the findings show that platforms differ in their expectations regarding, e.g., the degree of innovativeness, comprehensibility of the product or service, the extent to which the business model should be scalable, technological orientation, geography, return or exit opportunities.

When a venture meets the specific investment criteria of a potential investor, it leads to a more in-depth evaluation of the firm. Thus, investors thoroughly screen the venture to evaluate if it is investable. What investable means is thereby subjective and might be influenced by the investors' organisational structures, motivations, and individual preferences (see Subsection 2.2.3). In equity crowdfunding, this more in-depth evaluation is restricted to the online environment. The portal conducts a pre-

assessment of this investability. However, based on the provided information investors finally decide if they perceive the venture as investable. An aspect that positively influences their final investment decision is the financial commitment of the founders.

If these six requirements are fulfilled, the interests of ventures and investors are matched, leading to a successful transaction. Table 14 provides an aggregated overview of the new early-stage matching model and the findings.

Table 14: Overview of the concept and findings

	Demand side	**Interaction**	**Supply side**
Main actors / activities	Venture	Communication / both sides	Investor
Investment readiness concept	(1) Equity aversion	(2) Presentational failure	(3) Investability
New matching model	(a) Investor openness (b) Investor fit	(c) Overcoming information asymmetries (d) Reaching agreement	(e) Fit with individual investment focus (f) Perceived investability
Findings in crowdfunding context	Equity investor acceptance is a prerequisite but not a sufficient condition; some ventures can choose and decide based on a perceived fit with organisational challenges; feedback- and marketing-related aspects are decisive besides cost and control arguments; different motivational types exist.	Crowdfunding is a two-sided matching process; portals play a decisive role in this context and conduct numerous activities on behalf of both sides – assistance in many respects to overcome information asymmetries and reaching agreement; ventures run through a two-step matching process with different requirements to convince portals and investors.	Platforms conduct an extensive preselection in which they assess investment fit and perceived investability on behalf of their investors; platforms thereby have specific foci, investors seem to accept comparably earlier development stages and prefer B2C-businesses generally; entrepreneurs' financial commitment influences funding success.

4.2.2 Research implications

This dissertation' findings have several theoretical implications for research bout entrepreneurial finance and crowdfunding. These are the following:

Entrepreneurial finance: The question of how different kinds of financiers invest in new ventures has a long history in entrepreneurial finance research, revealing a

detailed picture of the different investment practices (e.g., Haines et al. 2003; Paul et al., 2007; Tyebjee & Bruno, 1984; Van Osnabrugge, 2000; Wiltbank, 2005). This dissertation's findings contribute to this research stream. It shows how presumably less experienced funders invest in new ventures in a very specific online-setting. Considering the entire investment process the findings reveal the important role that portals have. They preselect and structure the investment, and thus, determine the corridor in which these investors finally make their investment decision.

Furthermore, this dissertation considers, different from most previous research, both sides of the market and their interaction. Especially the demand side is underresearched so far (Amatucci & Sohl, 2004; Rasmussen & Sørheim, 2012). A theoretical early-stage matching model was developed and applied. The demand-side and supply-side requirements of this model stress the importance of individual preferences in matching both sides. Furthermore, the model provides an overview of the main activities that need to be conducted. Consequently, it can also be used as a framework to analyse other early-stage financing matching processes from a theoretical perspective.

Crowdfunding and equity crowdfunding research: Prior research on crowdfunding and equity crowdfunding focused mainly on campaign success factors (e.g., Ahlers et al., 2015; Colombo et al, 2015; Mollick, 2014; Vismara, 2016a). This dissertation contributes to this most dominant research stream by analysing the influence of a practically relevant aspect, namely the financial commitment of the founders.

Nevertheless, the dissertation broadens the scope of crowdfunding research and focused on two underresearched actors in this context, namely equity crowdfunding portals and capital-seeking ventures. More specifically, this dissertation contributes to research about motivational aspects in crowdfunding research, by revealing a much more differentiated, less stereotypical picture why entrepreneurs use this form of financing (e.g., Beier et al., 2014; Belleflamme et al., 2013; Gerber, et al., 2012). Furthermore, it shows the specific role of portals in equity crowdfunding. Prior research about these actors was mainly theoretical (e.g., Belleflamme et al., 2015).

Consequently, the findings provide a basis to receive a comprehensive picture of the specific challenges in this context, providing different avenues for further research.

4.3 Practical implications

Multiple practical implications for ventures, crowdfunding platforms, investors, and policymakers can be derived from this dissertation.

Ventures: From a venture's perspective, equity crowdfunding seems to provide a fruitful ground to gather capital for market entrance and penetration. In addition to financial means, equity crowdfunding appears to offer multiple marketing- and feedback-related added values. The process of obtaining capital has its peculiarities that ventures need to consider. Equity crowdfunding portals function as selective gatekeepers with rejection rates that are similar to those known from VCs or BAs. Given the high success rates of the initiated campaigns, a major challenge for entrepreneurs is particularly to convince the portal before they get access to its investors. Consequently, entrepreneurs need to consider the platform's preselection criteria that are influenced by investors' expectations. Capital-seeking ventures, therefore, need to screen a portal's past offerings to understand if their business model fits on a specific platform. Once the portal is convinced, the venture will receive considerable support in communicating in a persuasive way with portals' investors.

Platforms: Equity crowdfunding platforms receive a detailed overview of how other intermediaries act in this context. This dissertation explores the core functions and activities of portals in this new setting. Currently, portals pursue specific duties in preselection, structuring, and communication. Therefore, they conduct multiple operations to lower information asymmetries and reaching agreement between ventures and investors. Furthermore, the findings give portals a differentiated picture of ventures' expectations during and after the campaign. Thus, some of them seek more than financial means and see their investors in an active role after the funding. Portals can adjust their service to meet these expectations and enable the desired ex post interaction, and thereby contribute to the above mentioned 'investor fit'. Finally, portals get insight into what drives financing choices of their investors. It seems to be influential for the campaign success that capital seeking entrepreneurs are financially committed in their business. This could be considered in the preselection of ventures and later communication with investors.

Investors: Regarding the start-ups' motivational backgrounds, potential funders receive a more differentiated picture that goes beyond existing stereotypes.

Furthermore, the behind-the-scenes view of portals has shown the detailed activities they perform. The findings also suggest that investors should still be sceptical about the provided information. Thus, even though equity crowdfunding portals conduct multiple activities to present investable businesses on their portal, they are mainly dependent on campaign success and not the success that the venture has ex post. In addition, most portals do not take over any responsibility for the described activities and the provided information. Thus, investors should, therefore, remain critical about the presented content. Besides, the investors obtain insight regarding the different levels of support that start-ups expect from their investors. Thus, they can ex ante question the entrepreneurs about their detailed expectations in order to assess their role as an investor and consider if they are satisfied with that role.

Policymakers: Governmental institutions get a clearer picture of how the matching process of ventures and investors works in this specific context, with limited regulation. However, the analysis of different investment practices has shown that investments in new ventures consist of multiple work-intensive steps. During this investment process, it is essential to make clear who takes over which duties to manage this process efficiently. This clarity is also valid for equity crowdfunding. However, the findings show that there still seems to be confusion about who takes over responsibility at which point. The matching model gives policymakers an overview of who currently fulfils which function in this specific setting. Furthermore, the model can be used as a tool to develop and support state of the art investment processes that enable high growth ventures access to capital and prevent investors from fraud.

4.4 Future research and limitations

The findings raise multiple research questions about the matching of founders and funders in a narrow and broader sense.

The crowdfunding investment process needs to be structured in a way that allows beneficial transactions for all sides involved. This dissertation has focused on the matching process and is, therefore, ex ante. However, the investors' return is an outcome of the full investment process. What happens ex post remains an interesting avenue for future research. From a practical and theoretical perspective, it would be valuable to link investment processes with venture performance and especially

investment returns. A critical question that should, therefore, stimulate future research is the following: *How does the process need to be structured that ventures, investors and portals benefit in the long-run?*

Furthermore, our findings have provided insights into how this specific process is conducted in Germany's specific regulatory framework and market conditions. It would be beneficial to learn more about how capital-seeking entrepreneurs and crowdinvestors find each other in different contexts. Against this background, more research is needed that is triggered by practical or theoretical considerations rather than by the availability of data. Among other aspects, this could include discussions about different regulatory frameworks, specific duties of all parties involved and contracting. The question therefore is: *How does this matching process work in different (regional) context?*

Regarding the six requirements of the developed early-stage matching model, further fine-lined research is needed. This is especially true for the demand side. The trade-off between value-add and cost and control aspects under different circumstances is, therefore, an important avenue for future research to connect both sides successfully. In addition to the mentioned organisational challenges and access to alternatives, future research might consider specific characteristics related to the entrepreneur and his team, including resources at hand, knowledge about and experience with risk capital providers, certain personality traits or the personal chemistry between both sides. Instead of asking entrepreneurs attitude towards equity finance, future research should go one step further and question: *What is entrepreneurs´ attitude towards different equity financing sources and, more precisely, what drives this attitude?*

In conclusion, this dissertation's findings helped to develop a better understanding of the peculiarities of this new matching process. It thus provides a starting point to illuminate how ventures and investors find each other in this specific context.

5 References

Achleitner, A.-K., Braun, R., & Kohn, K. (2011). New venture financing in Germany: Effects of firm and owner characteristics. *Zeitschrift für Betriebswirtschaft, 81*(3), 263–294.

Agrawal, A., Catalini, C., & Goldfarb, A. (2014). Some simple economics of crowdfunding. *Innovation Policy and the Economy*, *14*(1), 63-97.

Agrawal, A., Catalini, C., & Goldfarb, A. (2015). Crowdfunding: Geography, social networks, and the timing of investment decisions. *Journal of Economics & Management Strategy*, *24*(2), 253–274.

Ahlers, G. K. C., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice, 39*(4), 955–980.

Akerlof, G. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, *84*(3).

Amatucci, F. M., & Sohl, J. E. (2004). Women entrepreneurs securing business angel financing: tales from the field. *Venture Capital*, *6*(2–3), 181–196.

Åstebro, T., & Bernhardt, I. (2003). Start-up financing, owner characteristics, and survival. *Journal of Economics and Business*, *55*(4), 303–319.

Backes-Gellner, U., & Werner, A. (2007). Entrepreneurial signaling via education: A success factor in innovative start-ups. *Small Business Economics, 29*(1–2), 173–190.

Baum, J. A. C., & Silverman, B. S. (2004). Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology startups. *Journal of Business Venturing*, *19*(3), 411–436.

Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly, 50*(3), 329–366.

Beier, M., Früh, S., & Wagner, K. (2014). Crowdfunding für Unternehmen – Plattformen, Projekte und Erfolgsfaktoren in der Schweiz [Crowdfunding for companies - platforms, projects and success factors in Switzerland]. Retrieved from http://ssrn.com/abstract=2430147 [accessed 10 September 2018].

Bellavitis, C., Filatotchev, I., Kamuriwo, D. S., & Vanacker, T. (2017). Entrepreneurial finance: new frontiers of research and practice: Editorial for the special issue embracing entrepreneurial funding innovations. *Venture Capital, 19*(1–2), 1–16.

Belleflamme, P., & Lambert, T. (2014). Crowdfunding: Some empirical findings and microeconomic underpinnings. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2437786 [accessed 13 October 2018].

Belleflamme, P., Lambert, T., & Schwienbacher, A. (2013). Individual crowdfunding practices. *Venture Capital*, *15*(4), 313–333.

Belleflamme, P., Lambert, T., & Schwienbacher, A. (2014). Crowdfunding: Tapping the right crowd. *Journal of Business Venturing*, *29*(5), 585–609.

Belleflamme, P., Omrani, N., & Peitz, M. (2015). The economics of crowdfunding platforms. *Information Economics and Policy*, *33*, 11–28.

Berggren, B., Olofsson, C., & Silver, L. (2000). Control aversion and the search for external financing in Swedish SMEs. *Small Business Economics, 15*(3), 233–242.

Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance, 22*(6-8), 613–673.

Bertoni, F., & Tykvová, T. (2015). Does governmental venture capital spur invention and innovation? Evidence from young European biotech companies. *Research Policy*, *44*(4), 925–935.

Binks, M. R., & Ennew, C. T. (1996). Growing firms and the credit constraint. *Small Business Economics*, *8*(1), 17–25.

Block, J. H., Colombo, M. G., Cumming, D. J., & Vismara, S. (2018a). New players in entrepreneurial finance and why they are there. *Small Business Economics, 50*(2), 239–250.

Block, J., Hornuf, L., & Moritz, A. (2018b). Which updates during an equity crowdfunding campaign increase crowd participation? *Small Business Economics*, *50*(1), 3–27.

Bradford, S. C. (2012). Crowdfunding and the federal securities laws. *Columbia Business Law Review*, *2012*(1), 1–150.

Brettel, M. (2003). Business angels in Germany: A research note. *Venture Capital, 5*(3), 251–268.

Breugst, N., Patzelt, H., & Rathgeber, P. (2015). How should we divide the pie? Equity distribution and its impact on entrepreneurial teams. *Journal of Business Venturing*, *30*(1), 66–94.

Brown, R., Mawson, S., Rowe, A., & Mason, C. (2018). Working the crowd: Improvisational entrepreneurship and equity crowdfunding in nascent entrepreneurial ventures. *International Small Business Journal, 36*(2), 169–193.

Brush, C. G., Edelman, L. F., & Manolova, T. S. (2012). Ready for funding? Entrepreneurial ventures and the pursuit of angel financing. *Venture Capital, 14*(2–3), 111–129.

Bruton, G., Khavul, S., Siegel, D., & Wright, M. (2015). New financial alternatives in seeding entrepreneurship: Microfinance, crowdfunding, and peer-to-peer innovations. *Entrepreneurship Theory and Practice, 39*(1), 9–26.

Burchardt, J., Hommel, U., Kamuriwo, D. S., & Billitteri, C. (2016). Venture capital contracting in theory and practice: Implications for entrepreneurship research. *Entrepreneurship Theory and Practice*, *40*(1), 25–48.

Busenitz, L. W., Fiet, J. O., & Moesel, D. D. (2005). Signaling in venture capitalist—New venture team funding decisions: Does it indicate long-term venture outcomes? *Entrepreneurship Theory and Practice, 29*(1), 1–12.

BVK (2016). BVK Statistik: Das Jahr 2015 in Zahlen – Vorläufige Ergebnisse. Retrieved from https://www.bvkap.de/sites/default/files/page/20150222_bvk-statistik_das_jahr_in_zahlen2015_final.pdf [accessed 17 November 2018].

Bygrave, W., Hay, M., Ng, E., & Reynolds, P. (2003). Executive forum: A study of informal investing in 29 nations composing the Global Entrepreneurship Monitor. *Venture Capital*, *5*(2), 101–116.

Cardon, M. S., Mitteness, C., & Sudek, R. (2017). Motivational cues and angel investing: interactions among enthusiasm, preparedness, and commitment. *Entrepreneurship Theory and Practice*, *41*(6), 1057–1085.

Carpenter, R. E., & Petersen, B. C. (2002). Capital market imperfections, high-tech investments, and equity financing. *The Economic Journal, 112*(477)*,* F54–F72.

Carpentier, C., & Suret, J. M. (2015). Canadian business angel perspectives on exit: A research note. *International Small Business Journal, 33*(5), 582–593.

Cassar, G. (2004). The financing of business start-ups. *Journal of Business Venturing, 19*(2), 261–283.

Chemmanur, T. J., & Chen, Z. (2014). Venture capitalists versus angels: The dynamics of private firm financing contracts. *Review of Corporate Finance Studies*, *3*(1–2), 39–86.

Chemmanur, T. J., Loutskina, E., & Tian, X. (2014). Corporate venture capital, value creation, and innovation. *Review of Financial Studies*, *27*(8), 2434–2473.

Chen, X.-P., Yao, X., & Kotha, S. (2009). Entrepreneur passion and preparedness in business plan presentations: A persuasion analysis of venture capitalists' funding decisions. *Academy of Management Journal*, *52*(1), 199–214.

Cholakova, M., & Clarysse, B. (2015). Does the possibility to make equity investments in crowdfunding projects crowd out reward-based investments? *Entrepreneurship Theory and Practice*, *39*(1), 145–172.

Clark, C. (2008). The impact of entrepreneurs' oral 'pitch' presentation skills on business angels' initial screening investment decisions. *Venture Capital, 10*(3), 257–279.

Colombo, M. G., Cumming, D. J., & Vismara, S. (2016). Governmental venture capital for innovative young firms. *The Journal of Technology Transfer*, *41*(1), 10–24.

Colombo, M. G., Franzoni, C., & Rossi-Lamastra, C. (2015). Internal social capital and the attraction of early contributions in crowdfunding. *Entrepreneurship Theory and Practice*, *39*(1), 75–100.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management*, *37*(1), 39–67.

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative sociology*, *13*(1), 3–21.

Cosh, A., Cumming, D., & Hughes, A. (2009). Outside entrepreneurial capital. *The Economic Journal*, *119*(540), 1494–1533.

Croce, A., Martí, J., & Murtinu, S. (2013). The impact of venture capital on the productivity growth of European entrepreneurial firms: 'Screening' or 'value added' effect? *Journal of Business Venturing, 28*(4), 489–510.

Croce, A., Tenca, F., & Ughetto, E. (2017). How business angel groups work: Rejection criteria in investment evaluation. *International Small Business Journal*, *35*(4), 405–426.

Cumming, D., & Johan, S. (2013). Demand-driven securities regulation: evidence from crowdfunding. *Venture Capital*, *15*(4), 361–379.

Cumming, D., Leboeuf, G., & Schwienbacher, A. (2015). Crowdfunding models: Keep-it-all vs. all-or-nothing. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2447567 [accessed 13 October 2018].

Cumming, D. J., & Vismara, S. (2017). De-segmenting research in entrepreneurial finance. *Venture Capital, 19*(1-2), 17–27.

Davis, J. P., & Eisenhardt, K. M. (2011). Rotating leadership and collaborative innovation: Recombination processes in symbiotic relationships. *Administrative Science Quarterly, 56*(2), 159–201.

De Clercq, D., Fried, V. H., Lehtonen, O., & Sapienza, H. J. (2006). An entrepreneur's guide to the venture capital galaxy. *Academy of Management Perspectives*, *20*(3), 90–112.

Denzin, N. K. (1970). *The research act: A theoretical introduction to sociological methods*. Chicago: Aldine Pub. Co.

Desa, G., & Basu, S. (2013). Optimization or bricolage? Overcoming resource constraints in global social entrepreneurship. Strategic Entrepreneurship Journal, 7(1), 26–49.

Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (2016). The fintech market in Germany. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2885931 [accessed 15 September 2018].

Drover, W., Busenitz, L., Matusik, S., Townsend, D., Anglin, A., & Dushnitsky, G. (2017). A review and road map of entrepreneurial equity financing research: Venture capital, corporate venture capital, angel investment, crowdfunding, and accelerators. *Journal of Management, 43*(6), 1820–1853.

Drover, W., Wood, M. S., & Fassin, Y. (2014). Take the money or run? Investors' ethical reputation and entrepreneurs' willingness to partner. *Journal of Business Venturing*, *29*(6), 723–740.

EBAN (2016). European early stage market statistics 2015. Retrieved from http://www.eban.org/wp-content/uploads/2016/06/Early-Stage-Market-Statistics-2015.pdf [accessed 17 November 2018].

Ebben, J. J. (2009). Bootstrapping and the financial condition of small firms. *International Journal of Entrepreneurial Behavior & Research*, *15*(4), 346–363.

Eckhardt, J. T., Shane, S., & Delmar, F. (2006). Multistage selection and the financing of new ventures. *Management Science*, *52*(2), 220–232.

Eddleston, K. A., Ladge, J. J., Mitteness, C., & Balachandra, L. (2016). Do you see what I see? Signaling effects of gender and firm characteristics on financing entrepreneurial ventures. *Entrepreneurship Theory and Practice*, *40*(3), 489–514.

Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, *32*(4), 1246–1264.

Egeln, J., & Gottschalk, S. (2014). Finanzierung von jungen Unternehmen in Deutschland durch Privatinvestoren. Mannheim: Zentrum für Europäische Wirtschaftsforschung (ZEW). Retrieved from https://www.econstor.eu/bitstream/10419/110576/1/823371522.pdf [accessed 16 September 2018]

Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, *14*(4), 532–550.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *The Academy of Management Journal, 50*(1), 25–32.

Eisenmann, T., Parker, G., & Van Alstyne, M. (2008). Opening platforms: how, when and why? *Harvard Business School Entrepreneurial Management Working Paper No. 09-030*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1264012 [accessed 13 October 2018]

Estrin, S., Gozman, D., & Khavul, S. (2018). The evolution and adoption of equity crowdfunding: entrepreneur and investor entry into a new market. *Small Business Economics*, *51*(2), 425–439.

EY (2017). Marktkapitalisierung 2017: Analyse der wertvollsten Unternehmen der Welt. Retrieved from https://www.ey.com/Publication/vwLUAssets/EY_Analyse_zur_Marktkapitalisierung_Dezember_2017/$FILE/EY%20Analyse%20Marktkapitalisierung%20Dezember%202017.pdf [accessed 10 September 2018].

Fairchild, R. (2011). An entrepreneur's choice of venture capitalist or angel-financing: A behavioral game-theoretic approach. *Journal of Business Venturing, 26*(3), 359–374.

Farrell, J., & Rabin, M. (1996). Cheap talk. *Journal of Economic Perspectives*, *10*(3), 103–118.

Fayolle, A., Basso, O., & Tornikoski, E. T. (2011). Entrepreneurial commitment and new venture creation: a conceptual exploration. In K. Hindle, K. Klyver (Eds.), *Handbook of research on new venture creation (pp. 160–182)*. Cheltenham: Edward Elgar Publishing.

Feeney, L., Haines Jr, G. H., & Riding, A. L. (1999). Private investors' investment criteria: insights from qualitative data. *Venture Capital: An international journal of entrepreneurial finance*, *1*(2), 121–145.

Festel, G. W., & De Cleyn, S. H. (2013). Founding angels as an emerging subtype of the angel investment model in high-tech businesses. *Venture Capital*, *15*(3), 261–282.

Fiet, J. O. (1995). Risk avoidance strategies in venture capital markets. *Journal of Management Studies*, *32*(4), 551–574.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry, 12*(2), 219–245.

Fraser, S., Bhaumik, S. K., & Wright, M. (2015). What do we know about entrepreneurial finance and its relationship with growth? *International Small Business Journal*, *33*(1), 70–88.

Freear, J., Sohl, J. E., & Wetzel, W. E. (1994). Angels and non-angels: Are there differences? *Journal of Business Venturing*, *9*(2), 109–123.

Fried, V. H., & Hisrich, R. D. (1994). Toward a model of venture capital investment decision making. *Financial Management, 23*(3), 28–37.

Garmaise, M. (2007). Informed investors and the financing of entrepreneurial projects*, UCLA Anderson School of Management, Working paper*. Retrieved from http://personal.anderson.ucla.edu/mark.garmaise/ii.pdf [accessed 29 September 2018].

Gerber, E. M., Hui, J. S., & Kuo, P. Y. (2012). Crowdfunding: Why people are motivated to post and fund projects on crowdfunding platforms. In *Proceedings of the International Workshop on Design, Influence, and Social Technologies: Techniques, Impacts and Ethics*. Retrieved from http://www.juliehui.org/wp-content/uploads/2013/04/CSCW_Crowdfunding_Final.pdf [accessed 10 September 2018].

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods, 16*(1), 15–31.

Gompers, P. A. (1995). Optimal investment, monitoring, and the staging of venture capital. *The Journal of Finance*, *50*(5), 1461–1489.

Gompers, P., & Lerner, J. (2001). The venture capital revolution. *Journal of Economic Perspectives*, *15*(2), 145–168.

Gras, D., Nason, R. S., Lerman, M., & Stellini, M. (2017). Going offline: broadening crowdfunding research beyond the online context. *Venture Capital*, *19*(3), 217–237.

Grégoire, D. A., de Koning, A. J., & Oviatt, B. M. (2008). Do VCs evaluate "live" presentations like they evaluate business plans? *Frontiers of Entrepreneurship Research, 28(3)*, 1–13.

Gregory, D., Hill, K., Joy, I., & Keen, S. (2012). Investment readiness in the UK. Big Lottery Fund. Retrieved from www.biglotteryfund.org.uk/er_invest_ready.pdf [accessed 11 November 2018]

Grilli, L., & Murtinu, S. (2014). Government, venture capital and the growth of European high-tech entrepreneurial firms. *Research Policy*, *43*(9), 1523–1543.

Hagedorn, A., & Pinkwart, A. (2016). The financing process of equity-based crowdfunding: An empirical analysis. In D. Brüntje, O. Gajda (Eds.), *FGF studies in small business and entrepreneurship: Crowdfunding in Europe—State of the art in theory and practice* (pp. 71–85). Springer: Cham.

Hagiu, A., & Rothman, S. (2016). Network effects aren't enough. *Harvard Business Review*, *94*(4), 64–71.

Haines Jr, G. H., Madill, J. J., & Riding, A. L. (2003). Informal investment in Canada: financing small business growth. *Journal of Small Business & Entrepreneurship*, *16*(3–4), 13–40.

Hainz, C., Hornuf, L., Klöhn, L., Brauer, B., Ehrenfried, F., & Engelmann, G. (2017). Die Befreiungsvorschriften des Kleinanlegerschutzgesetzes. *ifo Schnelldienst, 70*(06), 26–35.

Harrison, R. (2013). Crowdfunding and the revitalisation of the early stage risk capital market: Catalyst or chimera? *Venture Capital, 15*(4), 283–287.

Harrison, R. T., & Mason, C. (2002). Backing the horse or the jockey? Agency costs, information and the evaluation of risk by business angels. *Frontiers of Entrepreneurship Research, 22*. Retrieved from http://fusionmx.babson.edu/entrep/fer/Babson2002/XII/XII_P3/XII_P3.htm [accessed 13 October 2018].

Harrison, R., Mason, C., & Robson, P. (2010). Determinants of long-distance investing by business angels in the UK. *Entrepreneurship and Regional Development*, *22*(2), 113–137.

Hellmann, T., & Stiglitz, J. (2000). Credit and equity rationing in markets with adverse selection. *European Economic Review*, *44*(2), 281–304.

Heminway, J. (2013). The new intermediary on the block: Funding portals under the crowdfund act. *UC Davis Business Law Journal, 13*, 177– 205.

Hornuf, L., & Schwienbacher, A. (2014a). Should securities regulation promote crowdinvesting? Retrieved from https://ssrn.com/abstract=2412124 [accessed 6 July 2015].

Hornuf, L., & Schwienbacher, A. (2014b). The Emergence of Crowdinvesting in Europe. *Munich Discussion Paper* 2014-43. Retrieved from https://epub.ub.uni-muenchen.de/21388/ [accessed 6 July 2015].

Hornuf, L., & Schwienbacher, A. (2016). Crowdinvesting – Angel Investing for the Masses? In C. Mason, & H. Landström (Eds.), *Handbook of Research on Business Angels* (pp. 381–398). Cheltenham: Edward Elgar Publishing.

Hsu, D. K., Haynie, J. M., Simmons, S. A., & McKelvie, A. (2014). What matters, matters differently: a conjoint analysis of the decision policies of angel and venture capital investors. *Venture Capital, 16*(1), 1–25.

Ibrahim, D. M. (2008). The (not so) puzzling behavior of angel investors. *Vanderbilt Law Review*, *61*, 1405–1452.

Ibrahim, D. M. (2015). Equity crowdfunding: A market for lemons. *Minnesota Law Review*, *100*, 561–607. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2539786 [accessed 10 September 2018].

Invest Europe (2017). 2016 European private equity activity: statistics on fundraising, investments & divestments. Retrieved from https://www.investeurope.eu/media/651727/invest-europe-2016-european-private-equity-activity-final.pdf [accessed 16 September 2018].

Invest Europe (2018). 2017 European private equity activity: statistics on fundraising, investments & divestments. Retrieved from https://www.investeurope.eu/media/711867/invest-europe-2017-european-private-equity-activity.pdf [accessed 16 September 2018].

Jensen, M. (2002). Securing venture capital: Today's realities. *Financial Executive, 18*(6), 43–46.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, *3*(4), 305–360.

Kaplan, S. N., & Strömberg, P. (2003). Financial contracting theory meets the real world: An empirical analysis of venture capital contracts. *The Review of Economic Studies*, *70*(2), 281–315.

Kaplan, S. N., & Strömberg, P. (2004). Characteristics, contracts, and actions: Evidence from venture capitalist analyses. *Journal of Finance*, *59*(5), 2177–2210.

Kelly, R. (2011). The performance and prospects of European venture capital. *EIF Working Paper, 2011*(09). Retrieved from https://www.econstor.eu/bitstream/10419/176639/1/eif-wp-09.pdf [accessed 10 September 2018].

Kelly, P., & Hay, M. (2000). 'Deal-makers': Reputation attracts quality. *Venture Capital: An International Journal of Entrepreneurial Finance*, *2*(3), 183–202.

Kleinert, S., Volkmann, C., & Grünhagen, M. (2018). Third-party signals in equity crowdfunding: The role of prior financing. Small Business Economics (forthcoming).

Klöhn, L., & Hornuf, L. (2012). Crowdinvesting in Deutschland [Crowdinvesting in Germany]. *Zeitschrift für Bankrecht und Bankwirtschaft*, *24*(4), 237–266.

Klöhn, L., Hornuf, L., & Schilling, T. (2015). The regulation of crowdfunding in the German small investor protection act: content, consequences, critique, suggestions. SSRN. Retrieved at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2595773 [28 August 2016].

Köhn, A. (2018). The determinants of startup valuation in the venture capital context: a systematic review and avenues for future research. *Management Review Quarterly, 68(1)*, 3–36.

Kollmann, T., & Kuckertz, A. (2010). Evaluation uncertainty of venture capitalists' investment criteria. *Journal of Business Research*, *63*(7), 741–747.

Kollmann, T., Kuckertz, A., & Middelberg, N. (2014). Trust and controllability in venture capital fundraising. *Journal of Business Research*, *67*(11), 2411–2418.

Kortum, S., & Lerner, J. (2000). Assessing the contribution of venture capital to innovation. *The Rand Journal of Economics, 31*(4), 674–692.

Landström, H. (2017). Advanced introduction to entrepreneurial finance. Cheltenham: Edward Elgar.

Leland, H. E., Pyle, D. H. (1977). Informational asymmetries, financial structure, and financial intermediation. *The Journal of Finance, 32*(2), 371–387.

Lerner, J. (2010). The future of public efforts to boost entrepreneurship and venture capital. *Small Business Economics*, *35*(3), 255–264.

Ley, A., & Weaven, S. (2011). Exploring agency dynamics of crowdfunding in start-up capital financing. *Academy of Entrepreneurship Journal, 17*(1), 85–110.

Löher, J. (2017). The interaction of equity crowdfunding platforms and ventures: an analysis of the preselection process. *Venture Capital, 19*(1-2), 51–74.

Löher, J., Schell, S., Schneck, S., Werner, A., & Moog, P. (2015). *Unternehmensgründungen und Crowdinvesting [Entrepreneurship and crowdinvesting]*. Bonn: Institut für Mittelstandsforschung (IfM-Materialien Nr. 241). Retrieved from http://www.econstor.eu/handle/10419/122300 [accessed 13 October 2018].

Löher, J., Schneck, S., & Werner, A. (2018). A research note on entrepreneurs' financial commitment and crowdfunding success. *Venture Capital, 20*(3), 309–322.

Lukkarinen, A., Teich, J. E., Wallenius, H., & Wallenius, J. (2016). Success drivers of online equity crowdfunding campaigns. *Decision Support Systems*, *87*, 26–38.

Macht, S. A. (2011). Inexpert business angels: how even investors with 'nothing to add' can add value. *Strategic Change*, *20*(7–8), 269–278.

Macht, S. A., & Weatherston, J. (2014). The benefits of online crowdfunding for fund-seeking business ventures: The benefits of online crowdfunding. *Strategic Change*, *23*(1–2), 1–14.

MacMillan, I., Roberts, E., Livada, V., & Wang, A. (2008). Corporate venture capital (CVC): Seeking innovation and strategic growth. Recent patterns in CVC mission, structure, and investment. National Institute of Standards and Technology, US Department of Commerce.

Mason, C. M. (2009). Public policy support for the informal venture capital market in Europe: A critical review. *International Small Business Journal*, *27*(5), 536–556.

Mason, C., Botelho, T., & Harrison, R. (2016). The transformation of the business angel market: Empirical evidence and research implications. *Venture Capital, 18*(4), 321–344.

Mason, C. M., & Harrison, R. T. (1996). Informal venture capital: a study of the investment process, the post-investment experience and investment performance. *Entrepreneurship & Regional Development*, *8*(2), 105–126.

Mason, C. M. & Harrison, R. T. (2000). Informal venture capital and the financing of emergent growth businesses. In D.L. Sexton & H. Landström (Eds.), *International state of the art of entrepreneurship* (pp. 221–239). Oxford: Blackwell.

Mason, C. M., & Harrison, R. T. (2001). “Investment readiness”: A critique of government proposals to increase the demand for venture capital. *Regional Studies, 35*(7), 663–668.

Mason, C. M., & Harrison, R. T. (2002). Barriers to investment in the informal venture capital sector. *Entrepreneurship & Regional Development, 14*(3), 271–287.

Mason, C. M., & Harrison, R. T. (2003). "Auditioning for money": What do technology investors look for at the initial screening stage? *The Journal of Private Equity*, 6(2), 29–42.

Mason, C. M., & Harrison, R. T. (2004a). Improving access to early stage venture capital in regional economies: A new approach to investment readiness. *Local Economy*, *19*(2), 159–173.

Mason, C. M., & Harrison, R. T. (2004b). Does investing in technology-based firms involve higher risk? An exploratory study of the performance of technology and non-technology investments by business angels. *Venture Capital*, *6*(4), 313–332.

Mason, C., & Kwok, J. (2010). Investment readiness programmes and access to finance: a critical review of design issues. *Local Economy, 25*(4), 269–292.

Mason, C., & Stark, M. (2004). What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels. *International Small Business Journal*, *22*(3), 227–248.

Maxwell, A. L., Jeffrey, S. A., & Lévesque, M. (2011). Business angel early stage decision making. *Journal of Business Venturing, 26*(2), 212–225.

McKenny, A. F., Allison, T. H., Ketchen Jr, D. J., Short, J. C., & Ireland, R. D. (2017). How should crowdfunding research evolve? A survey of the entrepreneurship theory and practice editorial board. *Entrepreneurship Theory and Practice*, *41*(2), 291–304.

Minola, T., Cassia, L., & Criaco, G. (2013). Financing patterns in new technology-based firms: an extension of the pecking order theory. *International Journal of Entrepreneurship and Small Business, 19*(2), 212–232.

Mitteness, C. R., Baucus, M. S., & Sudek, R. (2012). Horse vs. Jockey? How stage of funding process and industry experience affect the evaluations of angel investors. *Venture Capital*, *14*(4), 241–267.

Mochkabadi, K., & Volkmann, C. K. (2018). Equity crowdfunding: a systematic review of the literature. *Small Business Economics* (forthcoming).

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, *29*(1), 1–16.

Moritz, A., & Block, J. H. (2016). Crowdfunding: A literature review and research directions. In D. Brüntje, O. Gajda (Eds.), *FGF studies in small business and entrepreneurship*: *Crowdfunding in Europe—State of the art in theory and practice (pp. 25–53)*. Cham: Springer.

Moritz, A., Block, J., & Lutz, E. (2015). Investor communication in equity-based crowdfunding: a qualitative-empirical study. *Qualitative Research in Financial Markets*, *7*(3), 309–342.

Morrissette, S. G. (2007). A profile of angel investors. *Journal of Private Equity, 10*(3), 52–66.

Moysidou, K., & Spaeth, S. (2016). Cognition, emotion and perceived values in crowdfunding decision-making. Paper presented at the Open and User Innovation Conference, Boston, USA.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221.

Nightingale, P., Murray, G., Cowling, M., Baden-Fuller, C., Mason, C., Siepel, J., Hopkins, M. & Dannreuther, C. (2009). From funding gaps to thin markets: UK government support for early-stage venture capital. London: Nesta. Retrieved from https://ore.exeter.ac.uk/repository/bitstream/handle/10036/106659/Thin-Markets-v9.pdf?sequence=2&isAllowed=y [accessed 15 September 2018].

OECD (2017). *Entrepreneurship at a Glance 2017*. OECD Publishing, Paris. Retrieved from https://doi.org/10.1787/22266941 [accessed 10 September 2018].

Park, H. D., & Steensma, H. K. (2012). When does corporate venture capital add value for new ventures? *Strategic Management Journal, 33*(1), 1–22.

Parker, S. C. (2004). The economics of self-employment and entrepreneurship. Cambridge: Cambridge University Press.

Patton, M. (1990). *Qualitative Evaluation and Research Methods*. Beverly Hills: Sage Publishing House.

Paul, S., Whittam, G., & Johnston, J. B. (2003). The operation of the informal venture capital market in Scotland. *Venture Capital*, *5*(4), 313–335.

Paul, S., Whittam, G., & Wyper, J. (2007). Towards a model of the business angel investment process. *Venture Capital*, *9*(2), 107–125.

Petty, J. S., & Gruber, M. (2011). "In pursuit of the real deal." *Journal of Business Venturing*, *26*(2), 172–188.

Politis, D. (2008). Business angels and value added: What do we know and where do we go? *Venture Capital*, *10*(2), 127–147.

Polzin, F., Sanders, M., & Stavlöt, U. (2018). Do investors and entrepreneurs match? – Evidence from The Netherlands and Sweden. *Technological Forecasting and Social Change*, *127*, 112–126.

Prasad, D., Bruton, G. D., & Vozikis, G. (2000). Signaling value to business angels: The proportion of the entrepreneur's net worth invested in a new venture as a decision signal. *Venture Capital: An international journal of entrepreneurial finance*, *2*(3), 167–182.

Ralcheva, A., & Roosenboom, P. (2016). On the road to success in equity crowdfunding. SSRN. Retrieved from https://doi.org/10.2139/ssrn.2727742 [accessed 13 October 2018].

Ramadani, V. (2009). Business angels: who they really are. *Strategic Change: Briefings in Entrepreneurial Finance*, *18*(7-8), 249–258.

Rasmussen, E., & Sørheim, R. (2012). Obtaining early-stage financing for technology entrepreneurship: reassessing the demand-side perspective. *Venture Capital, 14*(2-3), 77–89.

Reitan, B., & Sørheim, R. (2000). The informal venture capital market in Norway? Investor characteristics, behaviour and investment preferences. *Venture Capital: An international journal of entrepreneurial finance*, *2*(2), 129–141.

Robb, A. M., & Robinson, D. T. (2014). The capital structure decisions of new firms. *Review of Financial Studies*, *27*(1), 153–179.

Rosenbusch, N., Brinckmann, J., & Müller, V. (2013). Does acquiring venture capital pay off for the funded firms? A meta-analysis on the relationship between venture capital investment and funded firm financial performance. Journal of Business Venturing, 28(3), 335–353.

Salomon, V. (2016). Emergent models of financial intermediation for innovative companies: from venture capital to crowdinvesting platforms in Switzerland. *Venture Capital*, *18*(1), 21–41.

Sapienza, H. J., Manigart, S., & Vermeir, W. (1996). Venture capitalist governance and value added in four countries. *Journal of Business Venturing*, *11*(6), 439–469.

Schäfer, D., & Schilder, D. (2006). Informed capital in a hostile environment: The case of relational investors in Germany. *Discussion Papers of DIW Berlin, No. 549*. Retrieved from https://www.econstor.eu/bitstream/10419/18442/1/dp549.pdf [accessed 7 March 2019].

Schwienbacher, A. (2013). The entrepreneur's investor choice: The impact on later-stage firm development. *Journal of Business Venturing*, *28*(4), 528–545.

Schwienbacher, A. (2014). Financing the business. In T. Baker & F. Welter (Eds.), *The Routledge Companion to Entrepreneurship* (pp. 193–206). London: Routledge.

Shepherd, D. A., Armstrong, M. J., & Lévesque, M. (2005). Allocation of attention within venture capital firms. *European Journal of Operational Research*, *163*(2), 545–564.

Short, J. C., Ketchen Jr, D. J., McKenny, A. F., Allison, T. H., & Ireland, R. D. (2017). Research on crowdfunding: Reviewing the (very recent) past and celebrating the present. *Entrepreneurship Theory and Practice*, *41*(2), 149–160.

Siggelkow, N. (2007). Persuasion with case studies. *Academy of Management Journal*, *50*(1), 20–24.

Smith, G. (2001). How early stage entrepreneurs evaluate venture capitalists. *The Journal of Private Equity, 4*(2), 33–45.

Smith, D. J., Harrison, R. T., & Mason, C. M. (2010). Experience, heuristics and learning: The angel investment process. *Frontiers of Entrepreneurship Research*, *30*(2), 3.

Sørheim, R. (2003). The pre-investment behaviour of business angels: A social capital approach. *Venture Capital*, *5*(4), 337–364.

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 355–374.

Sudek, R. (2006). Angel investment criteria. *Journal of Small Business Strategy*, *17*(2), 89–104.

Sullivan, M. K., & Miller, A. (1996). Segmenting the informal venture capital market: Economic, hedonistic, and altruistic investors. *Journal of Business Research*, *36*(1), 25–35.

Stiglitz, J. E., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *The American Economic Review*, *71*(3), 393–410.

Stinchcombe, A. L., & March, J. G. (1965). Social structure and organizations. *Handbook of organizations, 7*, 142–193.

Teten, D., & Farmer, C. (2010). Where are the deals? Private equity and venture capital funds' best practices in sourcing new investments. *The Journal of Private Equity*, 14(1), 32–52.

Tomboc, G. F. B. (2013). Lemons problem in crowdfunding. *John Marshall Journal of Information Technology and Privacy Law, 30*, 253–280.

Tomczak, A., & Brem, A. (2013). A conceptualized investment model of crowdfunding. *Venture Capital*, *15*(4), 335–359.

Tyebjee, T. T., & Bruno, A. V. (1984). A model of venture capitalist investment activity. *Management Science*, *30*(9), 1051–1066.

Valliere, D., & Peterson, R. (2007). When entrepreneurs choose VCs: Experience, choice criteria and introspection accuracy. *Venture Capital*, *9*(4), 285–309.

Vanacker, T., & Manigart, S. (2010). Pecking order and debt capacity considerations for high-growth companies seeking financing. *Small Business Economics, 35*(1), 53–69.

Van Auken, H. E. (2001). Financing small technology-based companies: The relationship between familiarity with capital and ability to price and negotiate investment. *Journal of small business Management, 39*(3), 240–258.

Van Osnabrugge, M. (2000). A comparison of business angel and venture capitalist investment procedures: an agency theory-based analysis. *Venture Capital: An International Journal of Entrepreneurial Finance, 2*(2), 91–109.

Veugelers, R. (2011) 'Mind the gap: Europe's early stage venture capital deficit', *Review of Business and Economics, 56*(2), 206–223.

Viotto, J. (2015). Competition and regulation of crowdfunding platforms: A two-sided market approach. *Communications & Strategies, 99*(3), 33–50.

Vismara, S. (2016a). Equity retention and social network theory in equity crowdfunding. *Small Business Economics*, *46*(4), 579–590.

Vismara, S. (2016b). Information cascades among investors in equity crowdfunding. *Entrepreneurship Theory and Practice (forthcoming)*.

Vismara, S. (2018). Signaling to overcome inefficiencies in crowdfunding markets. In D. Cumming & L. Hornuf (Eds.), *The Economics of Crowdfunding (pp. 29–56).* Cham: Palgrave Macmillan.

Vulkan, N., Åstebro, T., & Sierra, M. F. (2016). Equity crowdfunding: A new phenomena. *Journal of Business Venturing Insights*, *5*, 37–49.

Walthoff-Borm, X., Schwienbacher, A., & Vanacker, T. (2018). Equity crowdfunding: First resort or last resort? *Journal of Business Venturing, 33*(4), 513–533.

Wardrop, R., Zhang, B., Rau, R., & Gray, M. (2015). Moving Mainstream. *The European Alternative Finance Benchmarking Report*. London: Wardour Drury House. Retrieved from https://ey.mobi/Publication/vwLUAssets/EY-and-university-of-cambridge/$FILE/EY-cambridge-alternative-finance-report.pdf [accessed 16 September 2018].

Wilson, K. E. (2015). Policy lessons from financing innovative firms. *OECD Science, Technology and Industry Policy Papers No. 24*, Paris: OECD Publishing.

Wilson, K. E., & Silva, F. (2013). Policies for seed and early stage finance: Findings from the 2012 OECD financing questionnaire. *OECD Science, Technology and Industry Policy Papers No. 9*, Paris: OECD Publishing.

Wiltbank, R. (2005). Investment practices and outcomes of informal venture investors. *Venture Capital, 7*(4), 343–357.

Wiltbank, R., Read, S., Dew, N., & Sarasvathy, S. D. (2009). Prediction and control under uncertainty: Outcomes in angel investing. *Journal of Business Venturing*, *24*(2), 116–133.

Wong, A., Bhatia, M., & Freeman, Z. (2009). Angel finance: the other venture capital. *Strategic Change: Briefings in Entrepreneurial Finance*, *18*(7-8), 221–230.

Wright, M., & Robbie, K. (1996). Venture capitalists, unquoted equity investment appraisal and the role of accounting information. *Accounting and Business Research*, *26*(2), 153–168.

Yin, R. K. (1994). *Case Study Research: Design and Methods* (2nd ed.). Thousand Oaks: Sage Publishing House.

Zacharakis, A. L., & Meyer, G. D. (2000). The potential of actuarial decision models: can they improve the venture capital investment decision? *Journal of Business Venturing*, *15*(4), 323–346.

Zheng, Y. (2011). In their eyes: How entrepreneurs evaluate venture capital firms. *The Journal of Private Equity*, *14*(2), 72–85.

Zott, C., & Huy, Q. N. (2007). How entrepreneurs use symbolic management to acquire resources. *Administrative Science Quarterly*, *52*(1), 70–105.

Zu Knyphausen-Aufseß, D., & Westphal, R. (2008). Do business angel networks deliver value to business angels? *Venture Capital, 10*(2), 149–169.

6 Appendix

Appendix 1: Different investor types (Chapter 2)

During the last decades, numerous actors with different characteristics emerged that specialised in financing young and innovative ventures. They distinguish from each other, e.g., regarding their organisational structure and investment motivation or the amount of capital and support they provide. The following lines give a short description of the most common ones, focusing on their main characteristics:

Venture capitalists are the most discussed form of early-stage equity finance in research and practice. According to Gompers and Lerner (2001, p.146), these are 'independent, professionally managed, dedicated pools of capital that focus on equity or equity-linked investments in privately held, high growth companies'. The venture capital firm (general partner) thereby acts on behalf of its limited partners, usually private equity funds, pension funds, family offices, investment banks, insurance companies and endowments (Kollmann, Kuckertz, & Middelberg, 2014). Through their investments, VC firms build a portfolio of young and innovative firms. Compared to other early-stage investors they invest larger amounts and at later stages (Morrissette, 2007). Besides financial means, they provide their investees a broad-set of value-add, including managerial support, network access and reputation (Rosenbusch et al., 2013; De Clercq, Fried, Lehtonen, & Sapienza, 2006). The only intention of the venture capital firm is to generate financial returns for its investors after a pre-defined time-span. VCs generate this return when they exit their investment after some years, and when the price they receive is above the price, they have paid for their share.

Business angels can be defined as 'high net worth individuals (HNWIs) who invest their own money, either alone or with others, directly in unquoted businesses in which there is no family connection. They normally invest in the form of equity finance in the hope of achieving a significant financial return through some form of exit' (Mason et al., 2016, p. 322). Furthermore, their investments are primarily focused on early-stage high-tech ventures, in which they typically play an active role after their investment (Freear et al., 1994; Macht, 2011). Business angels are very heterogeneous in their activities and their investment intentions (Ramadani, 2009). Often, they are

organised in specific investment groups (Mason et al., 2016). Different to VCs where only financial considerations determine investments, business angels often pursue hedonistic and altruistic motives with their investments (Sullivan & Miller, 1996). Furthermore, depending on their background, they often possess industry-specific expertise that they bring to the firm (De Clercq et al., 2006).

Corporate venture capitalists invest in new ventures on behalf of their parent companies. Different from VCs they do not only pursue financial returns (Chemmanur, Loutskina, & Tian, 2014). Instead, CVCs often have a strategic mission that aspires to finally enhance the competitive advantage of their parent company by bringing new ideas or technologies to these firms (MacMillan, Roberts, Livada, & Wang, 2008). Accordingly, CVCs often pursue strategic and financial objectives. Different from VCs they do not have a pre-defined time-span in which they need to generate profit for their capital providers, or more specifically, their parent company. Furthermore, they provide their investees with a different and often more practical kind of support. Thus, they help the venture in accessing complementary assets, such as expertise and infrastructure for product development, manufacturing, handling legal issues, sales, and distribution or customer services that are important to commercialise the new technology (Park & Steensma, 2012).

Governmental venture capitalists (see Colombo et al., 2016 for an overview) can be defined as funds that are managed by a company that is entirely possessed by governmental bodies (Grilli & Murtinu, 2014). GVCs intend to correct capital supply-side failures that exist because of the high information asymmetries at the very early development stages. GVCs, therefore, differ from independent VCs substantially regarding objectives, skills, and acquaintances (Bertoni & Tykvová, 2015). Thus, their main intention is not only to generate financial returns. Instead, their purpose is to foster innovation and thereby support regional development. Therefore, they intend to complement existing sources of financing, such as independent and corporate venture capital, or crowd-in their investments (Colombo et al., 2016). Research suggests that GVC managers are less involved in value-add activities compared to VCs as they often have more firms in their portfolio (Schäfer & Schilder, 2006). In practice, GVCs activities have huge impact on the risk capital landscape in Europe. Thus, recent statistics document that 29% of all funds raised by venture capital investors in Europe

came from governments, making taxpayer's money the single largest source of funds to VCs (Invest Europe, 2018).

Appendix 2: Interview guide on equity crowdfunding (Sections 3.1 and 3.2)

For this dissertation interviews with crowdfunded ventures (10), platforms (9) and experts (2) were conducted. The full interview guideline developed over time. Thus, aspects that were considered as relevant were added. Depending on the respondent, the interview guideline was customised. Experts followed mainly the interview guideline that was designed for platforms. The final version included the following aspects:

(1) The interviewee and his business

Basic information about interviewee and his business
- Professional and academic background
- Interviewee's role in the company
- Company's business model
- Size of the founding team

Financing background (for crowdfunded ventures)
- Origin of the idea to use crowdfunding
- Motivation to use crowdfunding
- Development stage at campaign initiation
- Financing alternatives towards crowdfunding
- Other channels / financing sources tried
- Investors before campaign initiation
- Financial commitment of the founding team
- Use of the requested capital

Specific business information (for crowdfunding platforms)
- Number of full-time employees
- Division of tasks
- Ownership structure
- Businesses financing
- Revenue model
- Unique selling proposition
- Short-term, medium-term, long-term goals

(2) The crowdfunding process

Description of the crowdfunding process (for crowdfunded ventures)
- Contact to used crowdfunding platform
- Contact to other crowdfunding platforms
- Description of the funding process steps
- Determination of capital requirements
- Platform's selection criteria
- Platform's due diligence activities
- Negotiation about business valuation
- Online profile creation in general
- Platforms role in online profile creation

Ex post activity of investors
Added values compared to VCs/BAs
Potential exit options
Follow-up financing rounds

Description of the crowdfunding process (for crowdfunding platforms)

Description of the funding process steps
Time horizon of the single process steps
Changes in the process

Deal-flow sources
Preferred / superior deal-flow sources
Number of deals received per month
Competition about deals with other platforms

Description of the preselection process
Preselection criteria
Involved actors
Meeting with the venture
Changes in preselection

Due diligence activities
Existence of checklists
Time taken to verify provided information
Assessment about the role of the crowd / platform in due diligence

Description of negotiation
Applied procedures to determine the business valuation

The process of online profile creation
Support of ventures in online profile creation
Communication channels for campaign

Communication between ventures and investors ex post
Information requirements for ventures
Added values that crowd delivers
Potential exit scenarios

(3) General assessments

Assessment about general aspects (for crowdfunded ventures)

Reflection about the decision to use crowdfunding
Costs of crowdfunding
Key learnings
Interaction with other investors in follow-up financing
Existing regulatory framework in Germany

Assessment about investors, ventures perspectives and legal situation (for crowdfunding platforms)

Typical investor
Investor’s motivation

Interaction with other investors in follow-up financing
Characteristics of applying companies
Venture's motivation
Outlook about future market development
Biggest hurdles for market development
Existing regulatory framework
Current changes in the regulatory framework

Appendix 3: Exploratory cross-case overview (Section 3.1)

Case	Characterisation	Status at campaign launch	Crowdfunding capital use	Platform selection based on	Motivational drivers	Interaction outcomes with alternative investors	Financing rounds (ex ante/ex post)
1	Education / Service / B2B+B2C / Online	1, 2, 3	6, 7	reliable legal construct perceived competence investment amounts per investor	product development media coverage viral and referral marketing	not tried	yes/no
2	Gambling / Service / B2C / Online	1, 2, 3	6	potential investment volume	business valuation possible funding amount speed of financing process	offer received	yes/yes
3	Software / Service / B2C / Online	1, 2	4, 5	reliable legal construct number of investors sector focus	contractual features product development viral and referral marketing	tried but rejected	no/no
4	Literature / Service / B2C / Online	1, 2	4, 5	number of investors sector focus	product development business development viral and referral marketing	offer received	yes/yes
5	Lifestyle / Product / B2C / Offline	1	4	reliable legal construct	possible funding amount	tried but rejected	no/yes
6	Finance / Service / B2B+B2C / Online	1	4	reliable legal construct perceived competence	business valuation possible funding amount contractual features	tried but rejected	no/no
7	Retailing / Service / B2C / Online	1, 2, 3	6, 7	reliable legal construct potential investment volume number of investors	possible funding amount contractual features viral and referral marketing brand building	offer received	yes/yes
8	Retailing / Service / B2C / Online	1, 2, 3	5, 6	perceived competence	speed of financing process product development market test business development	tried but rejected	no/yes
9	Toys / Service / B2C / Online	1, 2	4, 5	reliable legal construct	business valuation possible funding amount	offer received	yes/yes
10	MedTech / Product / B2C / Offline	1, 2	5	reliable legal construct potential investment volume	speed of financing process media coverage	not tried	yes/yes

Status at campaign launch: 1 = Existing prototype, 2 = Final product/service 3 = Existing turnover; Crowdfunding capital use: 4 = R & D, 5 = Market launch, 6 = Market penetration, 7 = Expansion