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Financing of Small and Medium-Sized Enterprises in Europe -

Financing Patterns and ‘Crowdfunding’

DISSERTATION

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Dipl.-Kffr. Alexandra Moritz

Erstgutachter:	Univ.-Prof. Dr. Jörn H. Block Professur für Unternehmensführung Universität Trier
Zweitgutachter:	Univ.-Prof. Dr. Eva Lutz Riesner-Stiftungsprofessur für Entrepreneurship, insb. Gründungs- und Wachstumsfinanzierung Heinrich-Heine-Universität Düsseldorf

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Preface

Small and medium-sized enterprises (SMEs) play a vital role for the innovativeness, economic growth and competitiveness of the European Union. One of the most pressing problems of SMEs to ensure their survival and growth is access to finance. However, the availability of financing has considerably worsened since the start of the global economic crisis in 2008. Crowdfunding as a new online-based financing alternative started to emerge and downright explode during this time, a trend that can still be observed. These challenges motivated my dissertation, which investigates the financing patterns of European SMEs and focuses on crowdfunding as a new financing alternative.

My dissertation could not have been realized without the help of my supervisors, my colleagues, my family and friends. I would like to take this opportunity to thank those who helped me to realize this challenging project.

First of all, I would like to thank Prof. Dr. Joern Hendrich Block, who supervised my dissertation. He encouraged me to take on this project as a mother of two small children and believed in me throughout the entire process. I cannot thank him enough for his trust and his extensive support during this time. I am also very thankful to Prof. Dr. Eva Lutz, my second advisor. The conversations with her about this dissertation, together with her support and encouragement, were invaluable for the success of this project.

In addition to the support I received from my supervisors, I discussed the project with other experts in the field. I would like to thank Dr. Helmut Kraemer-Eis and Dr. Frank Lang from the European Investment Fund (EIF) and Annalisa Ferrando from the European Central Bank (ECB) for the fruitful exchanges about the financing situation of SMEs in Europe. Furthermore, I would like to thank my colleagues from the German Crowdfunding Network (GCN), especially Dennis Bruentje as well as various conference participants for their feedback on my working papers. In particular, I would like to express my gratitude to my interview partners, who took the time to provide me with their opinions about equity-based crowdfunding.

Throughout the entire dissertation, I had many discussions and workshops with my colleagues Christian Fisch, Dominik Wagner, Florian Khajeh Hosseini, Andreas Landgraf, Guoqian Xi, Jonas Eder and in particular with Stephanie Smith-Eckhardt from the University

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Countries

AT	Austria	FR	France	NL	Netherlands
BE	Belgium	GR	Greece	NO	Norway
BG	Bulgaria	HR	Croatia	PL	Poland
CY	Cyprus	HU	Hungary	PT	Portugal
CZ	Czech Republic	IE	Ireland	RO	Romania
DE	Germany	IT	Italy	SE	Sweden
DK	Denmark	LT	Lithuania	SI	Slovenia
EE	Estonia	LU	Luxembourg	SK	Slovakia
ES	Spain	LV	Latvia	UK	United Kingdom
FI	Finland	MT	Malta	US	United States

Other abbreviations

BA	Business angel
BLS	Business Longitudinal Survey
Bn	Billion
B2C	Business-to-consumer
CD	Compact disc
CFO	Chief financial officer
COO	Chief operating officer
Dipl.	Diploma
DK/NA	Don’t know / no answer
EC	European Commission
ECB	European Central Bank
Ed./eds.	Editor / editors
EEA	European Economic Area
E.g.	Exempli gratia (for example)
EIB	European Investment Bank
EIF	European Investment Fund
ENSR	European Network for SME Research
Esp.	Especially

List of abbreviations (continued)

Et al.	Et alii (and others)
Etc.	Et cetera (and so on)
EU	European Union
EVCA	European Private Equity and Venture Capital Association
Excl.	Excluding
FGF	Förderkreis Gründungs-Forschung e.V.
GCN	German Crowdfunding Network
I.e.	Id est (that is)
IT	Information Technology
IfM	Institut für Mittelstandsforschung
KMU	Kleine und mittelständische Unternehmen
M	Million
MBA	Master of Business Administration
MBE	Master of Business Engineering
No.	Number
N/a	Not available
OECD	Organization for Economic Co-Operation and Development
P.a.	Per anno
P./pp.	Page / pages
P2P	Peer-to-peer
P2B	Peer-to-business
PhD	Doctor of Philosophy
PP	Private Placement
PR	Public Relations
SABE	Sistema de Análisis de Balances Españoles
SAFE	Survey on the access to finance of enterprises
SEC	Securities and Exchange Commission
SD	Standard deviation
SME	Small and medium-sized enterprise
SSBF	Survey of Small Business Finance
VC	Venture capital
Vol.	Volume
Vs.	Versus
WBES	World Business Environment Survey

Zusammenfassung

Mehr als 95% aller Unternehmen weltweit und über 99% der Unternehmen in Europa sind kleine und mittelständische Unternehmen (KMU). Ihre Bedeutung für die Innovationsfähigkeit eines Landes, dessen Wachstum und internationale Wettbewerbsfähigkeit sind unbestritten. Damit KMU diese wichtige Aufgabe erfüllen können, benötigen sie Zugang zu externem Kapital. Dieser Zugang ist für KMU aufgrund ihrer speziellen Charakteristiken allerdings oftmals erschwert und hat sich während der Finanzmarktkrise weiter verschärft. Obwohl sich die wissenschaftliche Forschung in den vergangenen Jahren verstärkt mit der Finanzierung von KMU beschäftigt hat, ist immer noch wenig über die Finanzierungsmuster dieser Unternehmen bekannt. Studien befassen sich überwiegend mit einzelnen Finanzierungsinstrumenten oder konzentrieren sich auf einzelne Länder. Diese Betrachtung ist allerdings unzureichend, da die Finanzierungsinstrumente und ihre Einflussfaktoren verschiedenen komplementären und substituierenden Effekten unterliegen. Durch ihren ganzheitlichen und integrativen Ansatz trägt diese Dissertation dazu bei, die Transparenz in der KMU Finanzierung zu erhöhen. Zu diesem Zweck werden Daten einer Umfrage der Europäischen Zentralbank und der Europäischen Kommission (‚SAFE Survey') verwendet, die sich auf KMU in Europa fokussiert. Die Ergebnisse dieser Arbeit zeigen, dass KMU in Europa unterschiedliche Finanzierungsmuster mit unterschiedlichen Kombinationen von Finanzierungsinstrumenten aufweisen, die durch verschiedene firmen-, produkt-, industrie- und länderspezifische Charakteristiken gekennzeichnet sind. Die Ergebnisse unterstützen die Annahme, dass junge, kleine und innovative Unternehmen eine Finanzierungslücke aufweisen, die mit traditionellen Finanzierunginstrumenten anscheinend nicht geschlossen werden kann.

Eine Alternative zur Schließung dieser Finanzierungslücke ist Crowdfunding. Über die Einflussfaktoren dieser sich seit der Finanzmarktkrise rasant entwickelnden Finanzierungsalternative ist allerdings bislang wenig bekannt. Diese Dissertation beschäftigt sich zunächst mit der Frage, was genau Crowdfunding bedeutet, welche verschiedenen Ausprägungsformen existieren und wie sich der Crowdfunding-Prozess darstellt. Im Anschluss wird die vorhandene wissenschaftliche Literatur entsprechend den Akteuren im Crowdfunding (Kapitalnehmer, Kapitalgeber und Intermediäre) strukturiert und ihre zentralen Ergebnisse werden erläutert. Diese systematische Analyse ermöglicht es, bestehende Forschungslücken

aufzuzeigen. Insbesondere über die Entscheidungskriterien der Crowd im eigenkapital-basierten Crowdfunding, welches im deutschsprachigen Raum auch als ‚Crowdinvesting' bezeichnet wird, ist bislang wenig bekannt. Diese Dissertation geht der Frage nach, welche Rolle die Investorenkommunikation zum Abbau der Informationsasymmetrien der ‚Crowd' einnimmt. Um diese Forschungsfrage zu beantworten, wurden Interviews mit 24 Teilnehmern im Crowdinvesting (Investoren, Start-ups, Plattformen und Marktexperten) geführt. Die Ergebnisse zeigen, dass die wahrgenommenen Informationsasymmetrien der Crowdinvestoren durch eine überzeugende Persönlichkeit des Unternehmers – zum Beispiel durch empfundene Sympathie oder Vertrauenswürdigkeit – reduziert werden können. Allerdings kann in diesem ‚Massenmarkt' die Persönlichkeit des Unternehmers nur schwer durch eine persönliche Kommunikation vermittelt werden. Vielmehr scheint diese mit einer pseudo-persönlichen Kommunikation mittels Produktvideo, Social Media und Investor Relations Kanälen ersetzt zu werden. Zudem wird die Investitionsbereitschaft der Crowdinvestoren durch Dritte, insbesondere durch andere Crowdinvestoren, professionelle Investoren und die Plattformen, auf der die Projekte finanziert werden, beeinflusst.

Die Ergebnisse der empirischen Untersuchungen sind relevant für Theorie und Praxis. Aus theoretischer Sicht liegt der Wert dieser Dissertation darin, dass die Finanzierungsmuster von KMU unter Einbezug einer großen Anzahl von Finanzierungsinstrumenten analysiert und unter Berücksichtigung verschiedener bestimmender Faktoren charakterisiert werden. Zudem entwickelt diese Arbeit den aktuellen Forschungsstand zu Crowdfunding und insbesondere zu Crowdinvesting weiter. Sie charakterisiert die Rolle der Investorenkommunikation im Crowdinvesting und zeigt zugleich die Relevanz von Herdentrieb, Expertenmeinungen und Zertifizierungen für die Investitionsentscheidung der Crowd. Aus Sicht der Praxis ist diese Arbeit hilfreich für KMU, politische Entscheidungsträger, Investoren und Crowdfunding-Plattformen. Das Verständnis für die Finanzierungsmuster europäischer KMU kann politische Entscheidungsträger dabei unterstützen, ihre Finanzierungsprogramme an die spezifischen Bedürfnisse von KMU anzupassen. Die Rolle alternativer Finanzierungsinstrumente besser zu verstehen, kann Vertretern der Politik dabei helfen, die Regulierungsanforderungen dieser Finanzierungsarten zu erkennen und an die Bedürfnisse des Marktes anzupassen. Ein besseres Verständnis der Triebkräfte in Crowdinvesting-Märkten ist von großer Bedeutung für Unternehmen, Investoren und Plattformen und kann sie dabei unterstützen, mögliche Risiken dieser neuen Finanzierungsform frühzeitig zu erkennen und ihre Potentiale optimal auszuschöpfen.

1 Introduction

1.1 Motivation

The EU Framework Programme for Research and Innovation ('Horizon 2020')[1] as a flagship initiative under the EU 2020[2] program aims to secure the innovativeness and global competitiveness of the European Union. Small and medium-sized enterprises (SMEs) play a vital role to accomplish these objectives with more than 99% of all businesses in the EU being SMEs employing more than two thirds—almost 90 million people in 2013—of the working population in Europe (Archibugi et al., 2013; Belke, 2013; European Investment Bank, 2014). The OECD Bologna Charter on SME & Entrepreneurship Policies[3], adopted in the year 2000, also acknowledged the important role of SMEs for innovation and economic growth. This charter recognized that, to be able to facilitate the innovation process, SMEs need access to information, financing and networks. These objectives were jeopardized by the outbreak of the global economic crisis in the year 2008. SMEs in Europe were hit particularly hard, because a combination of economic, sovereign and debt crises deteriorated the access to finance situation of SMEs (Drakos, 2012; Ferrando and Griesshaber, 2011).

But why is access to finance such a challenge for SMEs? High information asymmetries and agency risks resulting from their smaller size, their less detailed financial statements and shorter track records as well as their insufficient collateral are often claimed to be the reasons for this situation (Beck and Demirgüç-Kunt, 2008; Berger and Udell, 1998; Jõeveer, 2012). Especially bank lending constraints have been found to affect SMEs—which depend significantly on bank loans (Kraemer-Eis et al., 2015)—more heavily in comparison to larger firms (Artola and Genre, 2011; Ferrando and Griesshaber, 2011; Holton et al., 2013). Government support programs have been put in place to counteract these market imperfections (Ayyagari et al., 2011; Beck et al., 2008; Belke, 2013). However, policy

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[1] For more information about Horizon 2020, please refer to http://ec.europa.eu/programmes/horizon2020/en/ (accessed 12 March 2015).

[2] For more information about EU 2020, please refer to http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/index_en.htm (accessed 12 March 2015).

[3] For more information about the OECD Bologna Charter, please refer to http://www.oecd.org/industry/smes/thebolognacharteronsmepolicies.htm (accessed 12 March 2015).

programs can only be effective, if they support access to financing instruments relevant for SMEs. To understand SME financing, the specific characteristics of SMEs have to be considered, in particular their ownership structure. SMEs are mostly privately owned and in the hands of a single entrepreneur, entrepreneurial teams or families (Ang, 1992). Hence, SMEs are often dominated by entrepreneurial interests of self-determination and the desire to maintain control of the firm (Achleitner et al., 2011; Cressy, 1995). This makes financing decisions highly complex, as they are based on an array of social, behavioral and financial factors (Romano et al., 2001).

Ongoing discussions in the practical and academic world are concerned with the question whether political interventions are appropriate to solve the access to finance problems of SMEs. Other non-bank alternatives are discussed as being more appropriate to ease the financing constraints of SMEs (Wilson and Testoni, 2014). Reducing the bank dependence of SMEs could also help to make them more resilient to economic shocks (Nassr and Wehinger, 2014). Even though various forms of non-bank alternative financing instruments have long existed, the combination of changing lending policies of financial institutions following the financial crisis, new technologies enabling the disintermediation of banks and socio-economic and cultural shifts, challenge the familiar ways of business financing. Crowdfunding is one of these new, non-bank financing alternatives which could be suitable especially for new and innovative SMEs. Although the idea of crowdfunding—people pooling money to support an idea, a project or a company—is not new and has been around for many years, the global digital revolution opened new forms for people to collaborate and communicate and enabled crowdfunding in its current form (Brabham, 2008; Kuti and Madarász, 2014). The tremendous growth rate of crowdfunding over the past years has gained the interest of practitioners and researchers alike. News headlines such as *"Start-ups pile into crowdfunding platforms"*[4] reflect the current market interest in this financing alternative. The US crowdfunding market (including all types of crowdfunding), for example, has grown from USD 780 million (m) in 2011 to approximately USD 1.6 billion (bn) in 2012 (Massolution, 2013). In Europe, the online alternative finance market (which consists to around 80% of crowdfunding[5]) over the past three years had an average annual growth rate of 146% to nearly EUR 3bn in 2014. It has been forecasted that the European online-based

[4] See Financial Times, 20 February 2015.

[5] For more details, please refer to Chapter 4.

alternative finance market alone will reach EUR 7bn in 2015 (Wardrop et al., 2015). In spite of these growth rates, little is currently known about the drivers in these markets.

Before focusing on crowdfunding as the most promising online alternative financing instrument, this dissertation looks deeper into the current financing patterns of European SMEs. Even though research in SME financing has markedly increased over the last years, a deeper understanding of financing patterns of SMEs in Europe is still lacking. Prior empirical studies have shown that firm-, product-, industry- and country-specific factors influence the financing of SMEs. However, there are only a few studies that integrate the different determinants and the different financing instruments into a single and comprehensive empirical analysis to understand the financing patterns and their determinants in detail. This understanding is the foundation to explore the opportunities for alternative forms of financing such as crowdfunding. Using different exploratory research methods, this dissertation aims to fulfill two purposes: It provides an integrative perspective of SME financing by developing an empirical taxonomy of SME financing patterns and by identifying their characteristics. Furthermore, it investigates crowdfunding—with a focus on equity-based crowdfunding—as a financing alternative, in particular for new ventures.

1.2 Research goals

Understanding SME financing patterns and examining alternative forms of finance have both theoretical and practical relevance. This dissertation uses quantitative and qualitative exploratory research methods to contribute to entrepreneurial finance in different ways. First, it contributes to research focusing on the substitutive and complementary effect of different financing instruments, the firm-, product- and industry-specific determinants of SME financing and to cross-country research on SME financing. Second, this dissertation extends the emerging literature on crowdfunding and in particular on equity-based crowdfunding. In this context, it contributes to different research streams to reduce information asymmetries in venture financing, primarily investor communication, herding behavior, certification and reputation in financial markets.

From a practical perspective, understanding SME financing patterns and their characteristics could support policy makers in assessing the impact of policy changes on SME financing and in designing financing programs tailored to the specific needs of SMEs. The role alternative financing instruments can play in SME financing is of relevance for the

different market participants. To improve the understanding of the drivers in crowdfunding markets can help ventures, investors and crowdfunding platforms to exploit the possibilities of this form of financing. For policy makers, it is relevant to understand the regulation requirements of new financing types. The next section describes the structure of this dissertation.

1.3 Structure of the dissertation

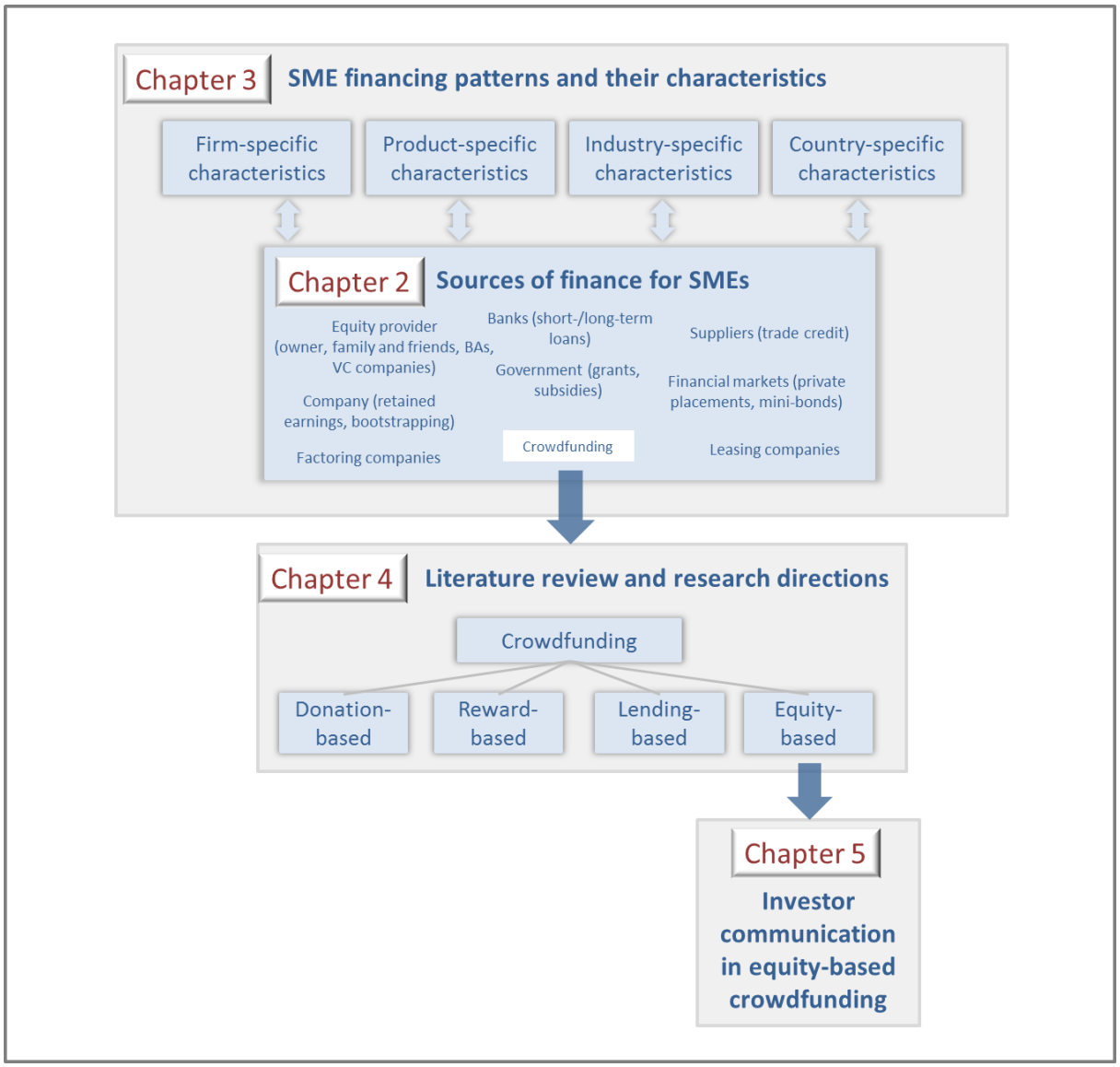
This dissertation comprises six chapters. Chapter 2 provides a basic understanding of SME financing and the available financing sources and instruments. In Chapter 3, an empirical taxonomy of SME financing patterns is developed and their characteristics are analyzed. Chapter 4 focuses on crowdfunding as a new trend in SME financing. The chapter provides an in-depth review of the scientific research about crowdfunding and derives further research directions. In Chapter 5, the focus will be on equity-based crowdfunding as a financing alternative for new ventures. The role of investor communication in equity-based crowdfunding as a way to reduce the perceived information asymmetries of investors will be analyzed. Chapter 6 summarizes the key findings and discusses the main theoretical and practical implications. Figure 1-1 provides an overview of the structure of this dissertation.

More precisely, **Chapter 2** describes the specific characteristics of SMEs and their effects on the financing of these firms. Furthermore, it provides a framework of SME financing sources and instruments and discusses the main aspects of each financing alternative. The financing sources and instruments are categorized as traditional financing on the one hand and alternative financing on the other hand. Subsequently, current trends in SME financing are discussed. Hence, this chapter provides the ‘groundwork’ for the following analysis.

Chapter 3 analyzes SME financing in detail by developing an empirical taxonomy of SME financing patterns in Europe, using the ‘Survey on the access to finance of enterprises (SAFE)’ conducted on behalf of the European Commission (EC) and the European Central Bank (ECB). The chapter starts with an overview of the existing literature on SME financing. Prior research has shown that a number of firm-, product-, industry- and country-specific factors influence the financing of SMEs. However, research so far has mainly focused on one or a few financing instruments, a small number of determinants or on a single country. This chapter taps into this research gap by taking a more holistic perspective to develop an

empirical taxonomy of European SME financing patterns, using cluster analysis as a multivariate data aggregation method. Afterwards, the SME financing patterns are analyzed according to their firm-, product-, industry- and country-specific characteristics.

Figure 1-1: Structure of the dissertation



Chapter 4 focuses on crowdfunding as a financing alternative. As this type of financing is relatively new, little is known about the drivers in this market. While the generic term 'crowdfunding' is used frequently, this financing alternative encompasses various heterogeneous financial models that vary in terms of their complexity and their inherent risks. The different types of crowdfunding will be discussed and the crowdfunding process will be described. Afterwards, a comprehensive literature review focusing on the main actors in crowdfunding—capital seekers, capital providers and intermediaries—will be provided. The chapter concludes with a discussion of future research directions.

Chapter 5 uses a qualitative research design to analyze the role of investor communication in equity-based crowdfunding as a way to reduce the perceived information asymmetries of crowd investors. The chapter starts with a brief review of findings from crowdfunding research, providing relevant information for the specific research question. Following this review, the data collected from 24 in-depth interviews with the key market participants in equity-based crowdfunding—investors (13), new ventures (six) and third parties (five), such as platforms—is described. The next section presents the findings and discusses them in regard to prior research. Six propositions about the role of investor communication in equity-based crowdfunding are derived. The final section of this chapter summarizes the results in a conceptual model, presents the theoretical and practical implications and discusses further research directions.

Chapter 6 concludes with a summary of the main results and contributions of this dissertation. Recommendations for SMEs, policy makers, crowd investors and crowdfunding platforms are derived from the results. The dissertation concludes with a brief description of promising avenues for further research.

2 Financing of small and medium-sized enterprises

How firms should finance their business and how they actually do it are important questions which occupied researchers in the past (Frank and Goyal, 2007; Myers and Majluf, 1984; Myers, 1977). However, most research focused on large corporations. Today, it is generally accepted that SMEs are different in many respects. The specific characteristics of SMEs not only influence their business strategy, but also their financing decisions (Ang, 1992; Michaelas et al., 1999). Financing instruments available to and used by SMEs vary in comparison to larger firms. To provide a basic understanding of the specifics in SME financing, this chapter discusses the characteristics of SME financing and presents the main sources of financing available to these firms.

2.1 Capital structure and determinants of SME financing

In a world without market imperfections, the financial structure of a company should not matter (Modigliani and Miller, 1958). However, real-world financial markets are not perfect. Economic theory suggests that several factors influence the debt/equity mix due to taxes, information asymmetries, bankruptcy costs and risks, issues of control and agency problems (Agarwal and Mohtadi, 2004; Ang, 1992; Jensen and Meckling, 1976; Michaelas et al., 1999). In view of these market imperfections, a number of different capital structure theories have evolved to solve the puzzle of companies' financing decisions (see Table 2-1). The two most common theories used to explain capital structure choices of firms are the trade-off theory and the pecking order theory (Frank and Goyal, 2007). The trade-off theory argues that firms have to choose between the advantage of a tax-shield offered by raising debt and the risks and costs of bankruptcy that highly leveraged firms face (Frank and Goyal, 2007; Klapper et al., 2002; Myers, 1977, 1984; Shyam-Sunder and Myers, 1999). Hence, the trade-off theory assumes that firms have an optimal debt ratio which they try to achieve (Myers, 1984). The pecking order theory claims that firms prefer internal over external financing. This preference is caused by information asymmetries between managers and capital providers, which result in higher costs for external capital (Frank and Goyal, 2007; Myers and Majluf, 1984; Myers, 1984). If internal financing is insufficient, companies prefer debt to equity, as external equity typically determines the highest information costs and in addition causes a dilution of control (Cosh et al., 2009; Myers, 1984).

Table 2-1: Main capital structure theories

Theory	Core content	Basic literature
Trade-off theory	Firms balance their tax shield benefits and growing costs of financial distress to achieve a target debt level. Tax-paying firms are expected to substitute debt for equity up to the point where potential bankruptcy risks start to be important.	Bradley et al. (1984); Fischer et al. (1989); Miller (1977); Myers (1977, 1984)
static	Single period without consideration of transaction costs and expectations.	
dynamic	Considers time, expectations and adjustment costs.	
Pecking order theory	Ranking of financing choices. Firms prefer cheaper internal financing, and if they have to use outside capital, they prefer debt over equity. This financing behavior is due to information costs, caused by asymmetric information and adverse selection. Other elements influencing the pecking order are agency conflicts, taxes and signaling effects.	Myers and Majluf (1984); Myers (1984)
Agency theory	Financing choices depend on conflicts of priorities of entrepreneurs and financiers. The agency problem of debt considers the risk-shifting incentive to choose higher-risk projects after receiving debt. Collateral as a solution to align interests of both parties.	Jensen and Meckling (1976)
Life cycle theory	Financing of firms changes over the life cycle. It depends on age and size of firms. The younger and smaller the firms, the higher the information asymmetries. Hence, firms prefer internal finance and outside equity. With increasing age and size, firms use external debt.	Berger and Udell (1998); Chittenden and Hutchinson (1996)
Market-timing theory	Firms attempt to 'time the market' and use a window of opportunity. Firms prefer to issue equity when the cost of equity is low and choose debt otherwise.	Baker and Wurgler (2002)

Even though the different capital structure theories and combinations thereof have been found helpful to explain capital structure of firms (Bulan and Yan, 2009; Frank and Goyal, 2003, 2007; Gregory et al., 2005; López-Gracia and Sogorb-Mira, 2008; Michaelas et al., 1999; Norton, 1991; Shyam-Sunder and Myers, 1999; Vanacker and Manigart, 2010; Watson and Wilson, 2002), they are not able to provide a full picture of firms' financing decisions (Cosh et al., 2009; Myers, 1984; Romano et al., 2001). In fact, it has been argued that financing decisions are a combination of entrepreneurial choices, specific company characteristics, industry characteristics, availability of financing instruments and macroeconomic, legal and institutional conditions (Fraser et al., 2013; Howorth, 2001; La Rocca et al., 2009).

To explain the financing choices of SMEs, these factors are likely to be of particular relevance due to their specific characteristics (Ang, 1992; Berger and Udell, 1998; Cosh et al., 2009). First, SMEs can be distinguished by their firm size. The European Commission uses three different size measures to identify SMEs: number of employees, annual turnover and/or

annual balance sheet total and differentiates between micro firms, small firms and medium-sized enterprises[6] (European Commission, 2005). Even though a number of size criteria and thresholds can be used to characterize SMEs (Sogorb-Mira, 2005), the size of the firm is one factor which determines its financial requirements and influences the access to different sources of financing.

Second, SMEs differ from larger corporations in their ownership structure. They are often privately held firms with a strong interrelation between management and ownership of the firm (Ang, 1992). They are typically owned and managed by a single entrepreneur, a small number of owners or families. It has been shown in the past that the personal characteristics of the owner-manager and family interests strongly influence the business strategy of the firm (Ang and Lawson, 2010; Ang, 1992; Miller et al., 2011; Spence and Rutherfoord, 2001). Different entrepreneurial target systems, business models, growth ambitions, degrees of risk tolerance and aspirations towards independence also directly influence the choices of financing sources of these companies (Cressy, 1995; Howorth, 2001; Vanacker and Manigart, 2010).

Third, based on their size and ownership structure, SMEs are characterized by a high degree of informational opacity (Berger and Udell, 1998; La Rocca et al., 2009). SMEs are typically not required to publish annual statements and contracts with their stakeholders are kept private. As a result, SMEs often have difficulties in signaling their quality and legitimacy to the market and hence to potential capital providers (Berger and Udell, 1998). This situation is particularly important for younger firms and is typically reduced over the business life cycle of the venture (Berger and Udell, 1998; Cassar, 2004; Walker, 1989). Berger and Udell (1998) have argued that the firm's financing is lying on a size/age/information continuum as information asymmetries are declining with the size and age of the firm. In the early stages of the business, firms are likely to be in need of different financing instruments compared to later stages (see Figure 2-1). In addition, the availability of financing instruments changes during the life cycle of firms (Berger and Udell, 1998). Empirical findings support this view and found that the financing instruments available to companies vary over the life cycle as a

[6] Micro firms are defined as companies with less than 10 employees and whose annual turnover or balance sheet total does not exceed EUR 2m. Small firms have less than 50 employees and their annual turnover or balance sheet total does not exceed EUR 10m. Medium-sized enterprises are defined as firms with less than 250 employees and whose annual turnover does not exceed EUR 50m or whose balance sheet total does not exceed EUR 43m (European Commission, 2005).

result of the degree of information asymmetries, but also as a result of their reputation, asset structure and available collateral (Berger and Udell, 1998; Bulan and Yan, 2009; Cassar, 2004; Cull et al., 2006; Gregory et al., 2005; La Rocca et al., 2009; Walker, 1989).

Finally, the financing of SMEs is not only determined by company-characteristics, but also by the environment such as the industry and the national financial markets in which they operate (Berger and Udell, 2006; Demirgüç-Kunt and Maksimovic, 1999; La Porta et al., 1997). Even though this is generally true for all firms, SMEs are more affected by these factors (see Chapter 3). For example, SMEs depend strongly on national financial markets, as the size of their financial requirements often is too small to facilitate cross-border transactions (Guiso et al., 2004; Mullineux and Murinde, 2010). Furthermore, SMEs typically can only access private equity and debt markets, but not public markets (Chittenden and Hutchinson, 1996). Information opacity is one reason why SMEs are mostly unable to enter public markets. Other reasons are the high costs associated with public due diligence, distribution of the securities and registration requirements. The issue sizes of securities required to justify these costs exceed the demand of most SMEs (Berger and Udell, 1998).

Overall, the financing of SMEs is highly complex (Romano et al., 2001) and depends on a number of demand and supply factors which have to be considered in conjunction with each other. The following section presents the most common sources and instruments in the context of SME financing and some recent trends to provide the groundwork for the following chapters.

2.2 Sources and instruments in SME financing

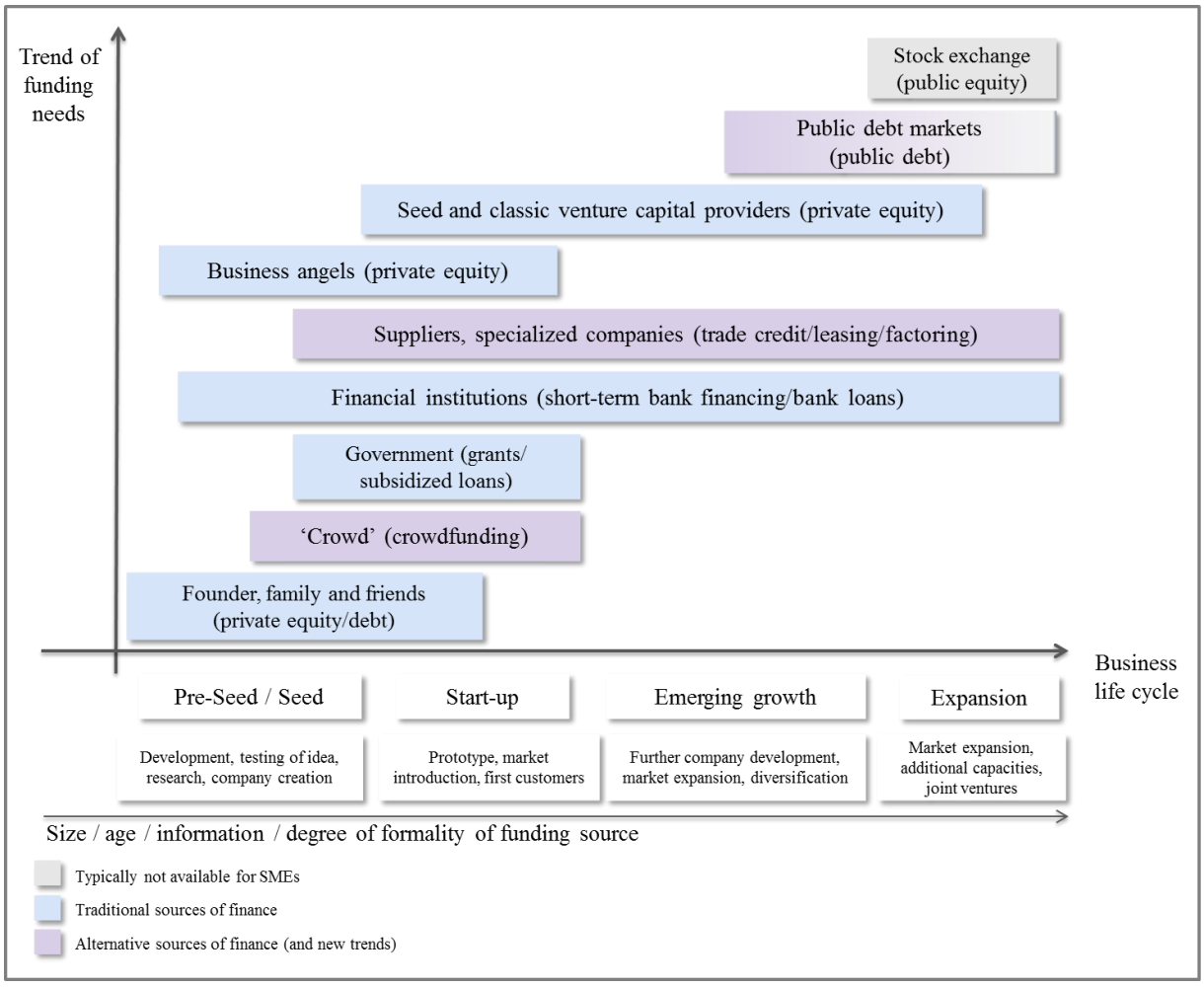
Even though the financing of SMEs differs from the financing of large firms due to their specific characteristics, SMEs can choose between a number of different financing sources and instruments[7]. These sources and instruments can have a substitutive and complementary

[7] Whereas financing source refers to the capital provider (e.g., financial institution, business angel), a financing instrument is the form of financing used (e.g., short- or long-term loans, private equity).

role in a company's financing (see Chapter 3). A framework of different external financing sources and instruments over the business life cycle of firms[8] is provided in Figure 2-1.

The stage in a company's business life cycle typically determines the funding requirement of the company and consequently the suitable sources of capital.[9] The financing sources and instruments typically available for SMEs (traditional and alternatives) will be introduced in the following sections. Afterwards, some trends in SME financing will be discussed (see Section 2.2.2).

Figure 2-1: Financing sources and instruments over the business life cycle



Source: Based on Berger and Udell (1998)

[8] Capital provided by the founder and his family and friends is included in the framework, even though financing provided by these sources is often understood as internal capital because of the (typically) non-existent or low information asymmetries and agency risks. However, this capital is not generated by the firm's operations and is therefore 'external' capital.

[9] The order of financing sources/instruments in this framework is not strictly determined, but should provide a general idea of the relation between life cycle stage, funding needs and financing sources/instruments.

2.2.1 Traditional and alternative sources of SME financing

Prior research often focused on the basic decision of firms to finance their company with equity or debt (Berger and Udell, 1998; Cosh et al., 2009). However, equity and debt financing comprises a number of different financing sources and instruments. In the following, it will be differentiated between traditional and alternative sources of financing. 'Traditional equity' is typically provided by the owner(s), family and friends, external venture capital providers and is generated through the firm's activities (i.e., retained earnings). 'Traditional debt' is mainly provided by financial institutions (short- and long-term) and the government (i.e., grants and subsidies). Alternative financing typically comprises trade-related and asset-based forms of financing but also more recent non-bank financing alternatives. It includes trade credit, leasing and factoring but also new trends such as crowdfunding (see Section 2.2.2).

Traditional sources of SME financing

Founders, family and friends and the firm: Setting up a firm is often motivated by the desire to be self-employed and to avoid outside control (Ang, 1992; Cunningham and Lischeron, 1991). Therefore, entrepreneurs are often willing to invest large parts of their own assets in the company (Walker, 1989). Hence, personal assets of the entrepreneur and the company are often intertwined, in particular in the early stages of a firm (van Auken and Neeley, 1996). Capital provided by family and friends (in form of equity or debt) can also help to develop the company further without requiring external and anonymous capital (Berger and Udell, 1998). Furthermore, especially in the early stages, companies might not have the possibility to use other external sources of capital. As information opacity and the risks involved for investors are particularly high in this stage, access to external capital is often difficult. Besides the capital provided by the entrepreneur and his family and friends, retained earnings can help to overcome these financial constraints. Retained earnings are internal capital which represent inside equity built up by firms (Frank and Goyal, 2007). However, this form of financing is often not available early in the ventures' life, as firms are not yet profitable. When firms mature and become profitable, retained earnings gain importance (Berger and Udell, 1998; Michaelas et al., 1999). Overall, capital provided by the owner, his family and friends and capital generated by the firm (see also Section 2.2.2) are important capital sources, in particular in the early stages of a firm, and might even be a

precondition to obtain other types of external financing (Berger and Udell, 1998; Walker, 1989).

Private equity investors: According to the pecking order theory, companies turn to external capital only after depleting their internal resources. They prefer external debt over external equity, as the costs and the risk of a dilution of control related to external equity are undesirable for many companies and in particular for SMEs (Cosh et al., 2009; Myers, 1984). However, external private equity investors like venture capital (VC) companies and business angels (BAs) often provide more than just financing. They offer managerial support and business contacts for new ventures (‘smart money’) (Mason and Harrison, 2015). These advantages might outweigh the disadvantages of this form of financing (Hsu, 2004; Landström, 1992; Macht and Weatherston, 2014; Mason and Harrison, 1996; La Rocca et al., 2009; Zacharakis and Meyer, 2000). Hence, contrary to the predictions of the pecking order theory, external equity might be preferred over external debt (Achleitner et al., 2011). From a supply-side perspective, it has been argued that private equity investors have higher incentives to accept the risks involved with new venture investments (Cosh et al., 2009; van Osnabrugge, 2000). The reasoning behind this argument is that providers of external capital for SMEs are faced with high information asymmetries and agency problems (Berger and Udell, 1998). The younger the firm, the less they are able to provide a track record, audited financial statements or assets which can be used as collateral (Berger and Udell, 1998; Gregory et al., 2005). Especially the business potential and the risks involved in regard to young firms with mainly intangible, intellectual property-based assets are difficult to evaluate for outside investors (Hsu, 2004). However, equity investors, in contrast to debt providers like banks, participate in the company’s success. Therefore, they have higher incentives to invest in these firms as they can compensate the higher risks with a potential higher return if the company is successful (Carpenter and Petersen, 2002a; Hall, 2010). Prior research has shown that VC companies and BAs—as two different types of private equity investors—use different approaches to evaluate a company and invest in different stages of a company’s life cycle (Berger and Udell, 1998; van Osnabrugge, 2000).

As VC companies are intermediaries investing the money of fund providers in start-up firms, they must demonstrate professional behavior in their investment process (Mason and Stark, 2004; van Osnabrugge, 2000). The evaluation involves extensive screening and due diligence procedures and comprehensive contracts to reduce the agency risks involved (van Osnabrugge, 2000). A number of studies have focused on the decision process and the

decision criteria of VC companies (Busenitz et al., 2005; Franke et al., 2006; Hall and Hofer, 1993; MacMillan et al., 1985; Mason and Stark, 2004; Muzyka et al., 1996; Shepherd and Zacharakis, 1999; Tyebjee and Bruno, 1984; Zacharakis and Meyer, 2000). It has been shown that VC companies seem to focus on a number of different criteria to make their investment decision, which can be summarized in four main groups: market-related criteria such as market potential and market growth rates, product-related criteria such as innovativeness and uniqueness of the product, management-related criteria such as the experience and personality of the entrepreneur(s) and financial criteria, in particular the expected rate of return (Franke et al., 2008; MacMillan et al., 1985; Tyebjee and Bruno, 1984). In addition, it has been found that it is important whether the new venture matches the overall investment strategy of the VC company (Hall and Hofer, 1993). Furthermore, to receive financial support from VC companies, a firm typically has to be able to provide some proof-of-concept (Petty and Gruber, 2011). Hence, VC companies usually do not invest in the very early stages of a company's life cycle (Berger and Udell, 1998).

The second type of private equity investors are BAs that have been profiled as wealthy individuals who are typically well-educated (Feeney et al., 1999; Wetzel, 1983). In contrast to VC companies, BAs invest their own money without an intermediary and often invest in the very early stages of a firm (Feeney et al., 1999; Freear et al., 1994). To control agency risks, BAs are typically more concerned with post-investment involvement and hence, prefer to invest in ventures 'close to home' (Feeney et al., 1999; Landström, 1992; van Osnabrugge, 2000). In comparison to VC companies, it has been shown that BAs do not use a comprehensive decision model evaluating a large number of attributes (Mason and Harrison, 1996; Maxwell et al., 2011). Instead, they use 'shortcut decision model heuristics' (Maxwell et al., 2011; Tversky and Kahneman, 1974) to be able to choose between the large number of potential investment proposals. Even though both VC companies and BAs are motivated by high financial return potentials of an investment, it has been shown that this is comparatively less important for BAs, as they often also have a number of intrinsic motivations to invest (Mason and Harrison, 1996; van Osnabrugge, 2000). BAs are often interested in non-financial returns like social responsibility, personal satisfaction and fun to support new ventures and are prepared to accept a lower financial return if these non-financial returns can be achieved (Mason and Harrison, 1996; Wetzel, 1983).

Financial institutions: The most important providers of outside capital for SMEs are financial institutions, even in the very early stages of a company (Berger and Udell, 1998; Cosh et al., 2009; Robb and Robinson, 2014; Robb, 2002). The core function of financial institutions is to provide two types of credit[10]: short-term financing in form of overdrafts, credit card overdrafts and credit lines and longer-term financing with different maturities (Ayadi, 2009; Huyghebaert and van de Gucht, 2007). Short-term credit is typically used to finance working-capital needs, whereas bank loans are used to finance specific assets (van der Wijst and Thurik, 1993).

Informational opacity, agency risks and moral hazard problems increase the risks for capital providers (Stiglitz and Weiss, 1981). Screening and monitoring can help financial intermediaries to reduce these risks (Diamond, 1984; Voordeckers and Steijvers, 2006). However, the typically small lending amounts of SMEs—with relatively small profit potentials for banks—often do not justify an in-depth evaluation of the firms (Carpenter and Petersen, 2002a; Huyghebaert and van de Gucht, 2007; Voordeckers and Steijvers, 2006). As a consequence, banks demand collateral to secure their claims in case the firms are not able to repay the loan and include covenants[11] in the loan contract (Ayadi, 2009; Berger and Udell, 1998; Voordeckers and Steijvers, 2006). These strategies mitigate the risks resulting from a lack of information and conflicts of interest with the owner-managers of SMEs (Chittenden and Hutchinson, 1996; Hall et al., 2000; Mason and Stark, 2004; Voordeckers and Steijvers, 2006). Established relationships between the creditor and the capital seeking firm have been found to reduce the collateral requirements, as existing relationships help banks to reduce information asymmetries (Berger and Udell, 2006; Brown and Degryse, 2012; Petersen and Rajan, 1994). As a consequence, younger firms with less tangible assets, high investment risks and less established relationships with banks face the greatest difficulties in accessing bank lending (Brown and Degryse, 2012; Canton et al., 2012; Carpenter and Petersen, 2002a; Petersen and Rajan, 1994). Personal guarantees and collateral provided by the firm's owner(s) have been found to help them to overcome these financing obstacles and obtain bank loans (Berger and Udell, 1998; Robb and Robinson, 2014; Voordeckers and Steijvers, 2006).

[10] The business model of most banks today reaches beyond providing loans. They also engage in different forms of commission business and alternative lending techniques such as leasing and factoring.

[11] Debt covenants are typically defined in terms of financial ratios, which have to be met by the borrower. Otherwise, the lender reserves the right to terminate the loan (Brealey et al., 2010; Cosh et al., 2009).

During the European financial market crisis, it has been shown that banks cut their high risk investments first and as a consequence, SMEs suffered the most under the tightened credit conditions (Artola and Genre, 2011; Drakos, 2012; Ferrando and Griesshaber, 2011). An alternative for banks to mitigate risks and reduce screening and monitoring requirements is to provide short-term instead of long-term debt. Short-term debt provides banks with a higher flexibility to terminate the contract, if the lending relationship does not evolve as expected (Huyghebaert and van de Gucht, 2007). From a demand-side perspective, flexible short-term financing can be very attractive to SMEs and in particular owner-managed firms, as long-term loans are more rigid, typically do not leave room for renegotiations, often require collateral and hence put more pressure on the firms' financing situation (Hutchinson, 1995). Furthermore, although banks do not take an equity stake in the company, undesired outside control might result from monitoring of activities and imposed covenants (Cressy, 1995; Holmes and Kent, 1991).

Government: The important role of SMEs for employment, innovation and economic growth (Ayyagari et al., 2007; Brown and Degryse, 2012) has been argued to justify government intervention to support SMEs access to finance (Beck et al., 2008). Especially the support of young, innovative firms by providing preferential tax treatments, establishing public venture capital funds or providing support through grants or subsidized loans has been an important policy target in Europe in recent decades (Revest and Sapio, 2010). The aim of these programs is to enable access to finance for credit rationed small firms and to reduce their financing costs (Achleitner et al., 2011; Revest and Sapio, 2010). Besides a direct financing effect for SMEs, the involvement of government agencies has been argued to increase the likelihood for SMEs to obtain other forms of financing due to a certification effect, a possible reduction of information asymmetries and reduced bankruptcy risks (Freel, 2006; Mina et al., 2013; Murray and Lott, 1995). Even though research on this relation is still scarce, first empirical evidence seems to support the positive effect of government support on SMEs access to finance. It has been found that firms that received government subsidies are more likely to obtain other forms of institutional debt (Beck et al., 2008; Demirgüç-Kunt and Maksimovic, 1999) and that this effect is even higher for smaller companies (Öztürk and Mrkaic, 2014).

Alternative sources of SME financing

Suppliers: Suppliers do not always expect direct payment for the goods and services sold but provide trade credit, the postponement of payments for a specified time period (Ayadi, 2009). The importance of trade credit as a financing tool in business relationships has attracted academic research in the past. Studies on trade credit discuss various reasons for this financing instrument, based on the advantages for suppliers and customers. From a suppliers' perspective, the provision of trade credit helps their customers to finance their purchases and decreases uncertainties about the product's quality, as the product can be tested before payment (Martínez-Sola et al., 2013; Schwartz, 1974). Hence, by providing trade financing, suppliers might be able to establish relationships, increase their sales and market share and even profitability through implicit interest rates included in the purchasing price (Emery, 1984; Fisman and Love, 2009; Martínez-Sola et al., 2013). From the customers' perspective, trade credit can help to overcome financial constraints as trade financing is a way to redistribute financial resources from financially stronger to weaker firms (Carbó-Valverde and Rodríguez-Fernández, 2008; Love et al., 2007; Petersen and Rajan, 1997; Schwartz, 1974). Furthermore, suppliers often have advantages in acquiring information, controlling the lender and salvaging value from existing assets (Fraser et al., 2013; Petersen and Rajan, 1997; Schwartz, 1974). It has been found that the provision of trade credit can even help firms to obtain bank loans, as it might be understood as a positive signal about a firm's creditworthiness (Biais and Gollier, 1997; Psillaki and Eleftheriou, 2014). It has been argued that the use of trade credit depends in particular on the payment period, the access to other forms of financing and the suppliers' own access to finance (Ayadi, 2009).

Even though trade credit is an important form of financing over the business life cycle of a firm (Berger and Udell, 1998), suppliers are often reluctant to provide trade credit to very young firms, as information asymmetries and default rates are very high (Ayadi, 2009). But, due to the fact that smaller and younger firms typically are more often financially constrained, they are more dependent on alternative forms of financing such as trade credit (Berger and Udell, 1998; Petersen and Rajan, 1997). Furthermore, SMEs often prefer trade credit in comparison to bank loans, as suppliers have been found to be less rigid in their liquidation policies (Huyghebaert and van de Gucht, 2007). Nevertheless, trade credit can be more expensive for customers in comparison with other types of lending—at least in some

countries[12] (Marotta, 2005; Taketa and Udell, 2007). Therefore, firms have been found to replace it with cheaper short-term financing, if possible (Garcia-Teruel and Martinez-Solano, 2010; Huyghebaert and van de Gucht, 2007). Overall, it has been found that trade credit is an important financing instrument for SMEs and can either be a complement or a substitute to traditional bank lending, depending also on the macroeconomic conditions (Casey and O'Toole, 2014; Demirgüç-Kunt and Maksimovic, 2001; Fisman and Love, 2009; Psillaki and Eleftheriou, 2014; Taketa and Udell, 2007).

Leasing companies: Leasing is a contractual agreement where the borrower (the 'lessee') rents a fixed asset from the lender (the 'lessor') for a certain period of time in exchange for a specified leasing fee. The leasing contract often contains a purchase option at the end of the lease against a pre-determined purchase price[13] (Berger and Udell, 2006; Oxfort Economics, 2011). Even though leasing companies are able to provide a broad range of asset types, the assets most often used for leasing are vehicles, machinery and industrial equipment (Oxfort Economics, 2011). Leasing is a type of investment financing where the legal and economic ownership of the asset are separated (Neuberger and Räthke-Döppner, 2013). The asset is in control of the lessee, whereas the lessor remains to be the legal owner (Eisfeldt and Rampini, 2007). The resulting agency risks for the lessor are reflected in the leasing fee (Eisfeldt and Rampini, 2007; Lasfer and Levis, 1998).

Access to leasing does not directly depend on the creditworthiness of the buyer as the leasing agreement is based on the underlying asset and the lessor remains the right to repossess the leased asset if the buyer fails to pay the lease (Berger and Udell, 2006; Deloof et al., 2007; Eisenhardt and Graebner, 2007). Empirical evidence has found that leasing is one of the most important financing instruments, in particular for SMEs (Eisenhardt and Graebner, 2007; Neuberger and Räthke-Döppner, 2013; Oxfort Economics, 2011). As leasing often does not require any additional collateral, leasing is particularly interesting for small, credit-constrained firms (Deloof et al., 2007; Gallardo, 1997; Sharpe and Nguyen, 1995). Furthermore, leasing does not involve the disclosure of private company information and

[12] For example, in Germany a 2% discount is typically granted for payments within 10 days. Later payments, for example 30 or 60 days after receiving the invoice, are often possible, but without receiving a discount.

[13] A specific type of leasing is a hire-purchase agreement. Hire-purchase means that the borrower builds up an equity-stake in the asset with each lease payment (typically involves an initial acquisition of an equity-stake in the asset). After all payments are made over the pre-arranged time period, ownership transfer in the asset takes place automatically (Gallardo, 1997; Oxfort Economics, 2011).

control diversion (Bathala and Mukherjee, 1995; Mehran et al., 1999). Capital requirements for the provision of the asset are spread over the agreed time period with the opportunity to upgrade the leasing equipment at the end of the agreed leasing period which avoids the risk of obsolescence (Bathala and Mukherjee, 1995; Deloof et al., 2007; Mehran et al., 1999; Oxfort Economics, 2011). An additional advantage of leasing can be possible tax benefits, which depend on specific national regulations[14] (Barclay and Smith, 1995; Deloof et al., 2007; Lasfer and Levis, 1998). Even though tax differences might be one explanation for the different utilization of leasing across countries, empirical evidence has shown that contract- and firm-specific characteristics are more important (Lasfer and Levis, 1998; Mehran et al., 1999; Neuberger and Räthke-Döppner, 2013). Lasfer and Levis (1998) found that in the UK small lessee firms are less profitable with higher growth rates and less bank lending whereas larger lessee firms tend to be more profitable with higher tax losses. Neuberger and Räthke-Döppner (2013) found in their study of the German leasing market, that the use of leasing also depends on socio-economic and demographic characteristics of the entrepreneur such as qualification, age, gender and marital status.

Factoring companies: Factoring is a transaction-based financing technique for firms to manage their accounts receivable and obtain working capital financing (Berger and Udell, 2006; Klapper, 2006). In a business transaction, after goods are delivered, the buyers typically expect a delayed payment target (mostly 30-90 days) (Klapper, 2006). During this time period, the supplier has to refinance his sales until the outstanding debt is received. Factoring allows the supplier to sell the invoice to a specialized factoring company or a bank (the 'factor') at a discount and in exchange receives direct liquidity. The discount contains the interest until payment date plus a service fee including a risk premium which can negatively influence the profitability of sales (Klapper, 2006; Martínez-Sola et al., 2013; Soufani, 2002). However, this negative effect can be offset by the earlier availability of liquidity and the savings obtained by transferring the credit management to the factor (Klapper, 2006; Summers and Wilson, 2000). Furthermore, factoring is often provided 'without recourse' which means that the factor cannot reclaim the invoice amount from the invoice seller (supplier), in case the debtor (buyer) defaults. Hence, factoring without recourse allows the

[14] Different accounting standards and fiscal regulations define and treat leasing in various ways. One common definition on the European level is provided by IAS 17 which distinguishes between financial and operating leases and determines the accounting principles for both types of leasing (Oxfort Economics, 2011).

supplier to transfer the credit risk to the factor (Klapper, 2006; Summers and Wilson, 2000). Empirical evidence has shown that especially small firms under financial pressure selling to large buyers use factoring as a source of financing (Martínez-Sola et al., 2013; Summers and Wilson, 2000). The reasoning behind this finding is that factoring is not a lending technique relying on the creditworthiness of the supplier, but is rather an asset-based financing technique[15] relying on the buyer's creditworthiness (Bakker et al., 2004; Beck, 2013; Berger and Udell, 2006). This effect is even more pronounced in the case of reverse factoring, as the factor enters directly into an agreement with a large high-quality company to finance accounts receivable from its small suppliers (Beck and Demirgüç-Kunt, 2006; Klapper, 2006).

It can be summarized that alternative financing techniques like trade credit, leasing and factoring can facilitate greater access to finance, in particular for smaller and younger companies, even in the absence of well-developed institutions (Beck and Demirgüç-Kunt, 2006). However, these financing alternatives require a legal framework which allows for governing the transactions (Beck and Demirgüç-Kunt, 2006; Beck, 2013; Demirgüç-Kunt and Maksimovic, 2001). It has been found that the degree to which alternative financing instruments are used varies significantly between countries (Bakker et al., 2004).

2.2.2 Trends in SME financing

The financial crisis and the problems of SMEs to access traditional financing instruments have fueled the discussion about SMEs' financing alternatives. Modifications of already existing financing techniques as well as new sources of financing have evolved over the past years. For example, private equity investors like BAs reduce the risks of their investments and increase the efficiency of their activities by working together in BA networks (Ayadi, 2009; Mason and Stark, 2004; Mason and Harrison, 2015). New government initiatives have been established to improve access to finance for smaller firms (Nassr and Wehinger, 2014). And firms themselves have tried to find creative ways to increase their financing capabilities. In the following, three promising trends of SME financing which are suitable in different life cycle stages of firms are discussed in more detail.

[15] In asset-based lending, specific assets of the borrower are used as collateral and considered as the primary source of repayment in case of default. Assets used as securities are typically accounts receivable and inventory. Under fixed-asset lending agreements, assets like equipment and machinery are used as collateral (Bakker et al., 2004; Berger and Udell, 2006).

Financial bootstrapping: SMEs' financing constraints have induced a push to investigate ways to reduce external financing requirements and increased the interest in internal financing techniques (Ebben, 2009; Malmström, 2014). Bootstrap financing is a way to use internal resources more efficiently (Bhide, 1992). However, a generally accepted definition of what bootstrapping comprises does not exist (van Auken and Neeley, 1996). Following the understanding of Freear et al. (1995, p.395), bootstrapping methods are *"highly creative ways of acquiring the use of resources without borrowing money or raising equity financing from traditional sources."*[16] It allows companies to grow without putting an additional strain on cashflows or incurring a loss of control in the company (Harrison et al., 2004). It has been found that different types of ventures engage in different types of bootstrap strategies (van Auken, 2005; Vanacker et al., 2011; Winborg and Landström, 2001). Winborg and Landström (2001) developed a typology of 'financial bootstrappers' to better understand the bootstrapping techniques used by small businesses. Based on these findings, at least four different types of bootstrapping can be distinguished: owner-related methods, including family and friends working below market salaries or withholding manager salaries, customer-related methods such as obtaining advance payments or charging interest on late payments, joint-utilization of resources with other companies and delaying payments to suppliers or leasing companies (van Auken, 2005; Ebben and Johnson, 2006; Winborg and Landström, 2001).

Ebben and Johnson (2006) found that the use of the different bootstrapping techniques changes over the business life cycle of firms. Whereas owner-related and joint-utilization bootstrapping decreases over time, customer-related methods increase. Contrary to their expectations, they also found that delaying techniques decreased over the business life cycle (Ebben and Johnson, 2006). Van Auken (2005) investigated bootstrapping in high- and low-technology industries and found that the bootstrapping techniques used depend on the specific industry characteristics. Malmström (2014) has shown that bootstrapping behaviors directly reflect the entrepreneurial strategy. He developed a taxonomy of three bootstrap financing strategies and gives insights into why different types of entrepreneurs use different bootstrapping strategies (Malmström, 2014). Mixed results have been found regarding the relationship between bootstrapping and firm growth. Some scholars indicate that

[16] According to this broad definition, bootstrapping can also mean delaying payments to suppliers and leasing companies but also using factoring (see Section 2.2.1).

bootstrapping is a last resort for firms facing financial constraints and might hamper growth (Carpenter and Petersen, 2002a; Cassar, 2004; Ebben, 2009). Others are convinced that firms which use bootstrapping use their resources more efficiently, find new ways to create value and are even more likely to grow (Baker and Nelson, 2005; Bhide, 1992). Vanacker et al. (2011) contributed to this discussion by discovering that it depends on the bootstrapping technique used. Whereas some bootstrapping strategies are positively related to firm growth, they found that others are not (Vanacker et al., 2011).

Market-based lending for SMEs: SME financing with external non-bank alternatives has been of great interest in recent years. Apart from trade- and asset-based alternatives discussed in the previous section, another option is the establishment of a direct connection between borrowers and lenders through financial markets without the intermediation of banks. However, it has been argued in the past that banks have an advantage over other lenders due to better information about the borrower and more efficiency in monitoring his activities (Chemmanur and Fulghieri, 1994; Diamond, 1984; Fama, 1985; Leland and Pyle, 1977). In the alternative finance market, non-bank capital providers such as insurance companies, pension funds, asset managers and retail investors need to make a credit decision without possessing the same information and abilities as banks (Chemmanur and Fulghieri, 1994; Landström, 1992). This situation is particularly difficult in the case of SMEs, as they are typically opaque with high information asymmetries, without credit ratings and other reliable company information to allow lenders to make a well-informed credit decision (Berger and Udell, 1998; Boocock, 1990; Holton and McCann, 2013; Storey, 1994). Apart from initiatives of banks and governments to reduce the risks involved with SME lending and to increase the lending volume in the market through instruments like securitization of SME loans and SME covered bonds[17], different alternatives have been established to facilitate market-based financing for SMEs (Nassr and Wehinger, 2014).

One possibility for SMEs is to issue private placements (PP). PPs are fixed interest, longer term debt instruments (maturity 5-7 years) which are arranged directly between the capital-seeking company and one or more institutional investors (TheCityUK, 2013). In the

[17] Both instruments are debt securities where a bank bundles a number of SME loans into a pool. Whereas in securitization, the SME loans are combined into a new security and sold to the market, SME-covered bonds are issued against the pool of SME loans. The main differences are the balance-sheet effect of banks (and hence the possibility to provide new loans to the market) and the regulatory requirements of both instruments (Kraemer-Eis et al., 2013; Nassr and Wehinger, 2014; TheCityUK, 2013).

US, the PP market is well-established, but in Europe markets are still comparatively small and highly fragmented. The lack of standardized information and documentation on the issuers' creditworthiness, the lack of liquidity in the secondary market and differences in insolvency laws are the main obstacles for this financing instrument (Nassr and Wehinger, 2014). Even though PPs are very flexible and have no minimum size limit, the costs to conduct such a placement require a minimum issuing amount, which is typically more interesting for larger firms (Nassr and Wehinger, 2014; TheCityUK, 2013).

Another market that has been established in some European countries is the retail bond market. Retail bonds (also called 'mini-bonds') are bonds issued by SMEs to retail investors via exchanges (i.e., the London Stock Exchange or the Stuttgart Stock Exchange) (TheCityUK, 2013). The main obstacles related to this type of financing are very similar to private placements, in particular the problem of information opacity about the issuing firms. To overcome these information deficiencies, companies are required to provide a credit rating and fulfill specific reporting requirements (Nassr and Wehinger, 2014). As a consequence, the costs and organizational requirements related to this source of financing are not attractive for small firms (Holton and McCann, 2013).

Crowdfunding: Crowdfunding is a new form of external non-bank financing for capital seeking parties by raising financial resources from a large number of capital providers ('the crowd') over the Internet to finance an idea, a project or a company (Belleflamme et al., 2010; Bruton et al., 2015; Hemer et al., 2011). Typically, crowdfunding is intermediated by a specialized platform which ensures a standardized procedure for market participants (see Section 4.2). Even though the generic term 'crowdfunding' is used frequently, various models of crowdfunding exist, which differentiate in complexity and risk. Four basic types of crowdfunding can be differentiated (Beck, 2012; Giudici et al., 2012): donation-based, reward-based, lending-based and equity-based crowdfunding. These crowdfunding types differ in the utilization of the financial resources and the returns to investors (see Chapter 4 and Moritz and Block, 2014). Donation-based crowdfunding is the collection of money over the Internet for a good cause. In reward-based crowdfunding, entrepreneurs have the possibility to pre-finance their production through the crowd. Investors receive no financial return, but in exchange for their participation, they receive a reward, often the finished product (Collins and Pierrakis, 2012; Hemer et al., 2011; Röthler and Wenzlaff, 2011). In contrast, lending-based crowdfunding comprises the provision of a loan by a large number of lenders against a financial return (Everett, 2014). For the provision of capital, investors will

receive a fixed interest rate and the repayment of the capital at maturity (Collins and Pierrakis, 2012). Equity-based crowdfunding refers to the selling of a company's equity to crowd investors. In most countries—among others in the EU—issuing shares through equity-based crowdfunding is either prohibited or, due to stringent legal requirements, associated with high transaction costs for the issuer (Hornuf and Schwienbacher, 2014a). An alternative is to use mezzanine financial instruments, which can be equipped with profit participation, but typically do not include granting voting rights to investors.

Crowdfunding is a financing instrument particularly suitable in the early stages of a firm (Hemer et al., 2011). It is not just a method to collect funds, but also to attract public attention to the product and the company (Belleflamme et al., 2013; Gerber et al., 2012). The company has the opportunity to test the product in the market and to receive feedback (Gerber et al., 2012; Schwienbacher, 2014). It has been shown empirically that crowdfunding increases the visibility and leads to higher consumption of the product (Burtch et al., 2013). In addition, investors can act as multipliers by communicating their experience with the product (or the company) in their social and professional networks (Gerber et al., 2012; Hienerth and Riar, 2013). Furthermore, the company can use the wisdom of the crowd as a resource for business purposes such as establishing contacts in the market, resolving corporate or legal questions, and involving the crowd in marketing activities (Hemer et al., 2011; Hienerth and Riar, 2013; Macht and Weatherston, 2014). Besides these advantages, crowdfunding involves a number of risks for the ventures. For a successful crowdfunding campaign, the company has to publish information about the idea, the product and/or the company. Establishing transparency is required to facilitate legitimacy and credibility and to convince the crowd to invest (see Chapter 5 and Moritz et al., 2015). However, this transparency creates risks for the company, such as imitation of the product or the idea (Agrawal et al., 2014a). In addition, the involvement of several hundred investors can result in negative word-of-mouth effects if the investment does not evolve as expected, time-consuming 'care' of investors and difficulties in relation to follow-up financings (Block and Moritz, 2014; Kuti and Madarász, 2014).

As crowdfunding is a new financing trend, little is known about the drivers in this market. Therefore, this dissertation focuses on this financing alternative in Chapters 4 and 5. Chapter 4 analyzes the scientific research on crowdfunding and identifies further research directions. Chapter 5 focuses on equity-based crowdfunding as a promising financing alternative for innovative new ventures. The role of investor communication in equity-based crowdfunding—as a way to reduce the perceived information asymmetries of investors and to

increase the likelihood of their investment—is in the center of this chapter. However, before the focus of this dissertation will be on crowdfunding, the next chapter investigates the current financing patterns of SMEs in Europe. The purpose of this approach is to provide a deeper understanding of SME financing, revealing the gap where crowdfunding as a new form of financing might provide an alternative for SMEs.

3 SME financing patterns in Europe

3.1 Introduction

SMEs' access to finance has received an increasing interest of academics and policy makers over the last years, in particular since the start of the financial market crisis in 2008. However, prior empirical studies mainly focused on a single financing instrument and its determinants (Berger and Udell, 1998; Cosh et al., 2009). However, this is unsatisfactory, as the different financing instruments and their determinants cannot be investigated in isolation from each other. Various substitutive and complementary effects exist between them. This chapter taps into this research gap by taking a more holistic perspective and by developing an empirical taxonomy of European SME financing patterns.

As already discussed in the previous chapter, SME financing differs significantly from the financing of larger companies. To understand the financing of SMEs, demand and supply factors have to be considered. To determine SMEs' financing decisions, cost arguments have to be put in the context of the entrepreneurial interest of self-determination and the desire to maintain control of their firm (Achleitner et al., 2011; Cressy, 1995). Hence, financing decisions of SMEs are highly complex, as they are based on an array of social, behavioral and financial factors (Romano et al., 2001). Furthermore, access to finance for SMEs is restricted by high information asymmetries, agency risks, insufficient collateral and small transaction volumes (see Section 2.1). In this context, prior research has shown that the utilization of financing instruments by SMEs depends on different firm- and product-specific characteristics such as firm size, firm age, ownership structure or innovativeness of firms (Artola and Genre, 2011; Berger and Udell, 1998; Ferrando and Griesshaber, 2011; Huyghebaert et al., 2007), the industry in which they operate (Degryse et al., 2012; Hall et al., 2000) and their macroeconomic and legal environment (Agarwal and Mohtadi, 2004; Beck et al., 2008; La Porta et al., 1997). However, to the best of the author's knowledge, no study currently exists which provides an integrative perspective of SME financing patterns using a large number of financing instruments and analyzes their characteristics in detail.

This chapter addresses this research gap by using firm level data of the SAFE survey, which is compiled on behalf of the ECB and the EC. The survey is well-suited for the research objective, as it has information on 14,859 companies in 37 countries in Europe (wave

2013H1) and most of the firms questioned in the survey are SMEs (around 90%). Furthermore, the SAFE contains information on a large number of financing instruments such as retained earnings or sale of assets, grants and subsidized bank loans, bank overdrafts, credit lines or credit card overdrafts, bank loans, trade credit, other loans (from related companies or family and friends), leasing, hire-purchase or factoring, equity, debt securities issued and subordinated/participating loans or preferred stock. To identify financing patterns of European SMEs, these financing instruments are used as active variables in a cluster analysis including 28 European countries and 12,726 SMEs (see Section 3.4.1). Afterwards, the financing patterns are analyzed according to various passive variables, including firm-, product-, industry- and country-specific variables.

The results of this chapter provide three main contributions to the literature. First, it contributes to prior research on SME financing by focusing on the substitutive and complementary effect of different financing instruments (Beck et al., 2008; Casey and O'Toole, 2014). Second, the results extend the research on firm-, product- and industry-specific characteristics of SME financing (Hall et al., 2004; Jõeveer, 2012). And third, it contributes to cross-country research of SME financing including a large number of European countries (Beck et al., 2008; Hall et al., 2004; Jõeveer, 2012). The understanding of SME financing patterns and their determinants is of great practical relevance and could support policy makers in assessing the impact of policy changes on SME financing and in designing financing programs tailored to the specific needs of SMEs.

The chapter is structured as follows: Section 3.2 reviews prior research on capital structure and financing determinants of SMEs. In Section, 3.3 the SAFE survey, the method used and the variables are described. Section 3.4 describes the sample, presents the results of the cluster analysis and investigates the characteristics of the financing patterns. In Section 3.5, the results are summarized, the theoretical and practical relevance of the main findings are discussed and further research directions are identified.

3.2 Review of the literature

Empirical evidence confirms that SMEs' demand for and access to finance is influenced by a number of different firm-, product- and industry-specific factors (Chittenden and Hutchinson, 1996; Ferrando and Griesshaber, 2011; Michaelas et al., 1999). Especially firm-specific characteristics such as firm size, firm age and ownership have been found to significantly affect SME financing (Beck et al., 2008; Chavis et al., 2011; Ferrando and Griesshaber, 2011; Romano et al., 2001). Several researchers discovered that small and young firms face more obstacles in accessing external finance in comparison to larger and more established firms (Artola and Genre, 2011; Canton et al., 2012; Ferrando and Mulier, 2013; Holton et al., 2014; Öztürk and Mrkaic, 2014). Especially in times of financial crisis, small and young firms seem to suffer disproportionately by deteriorating external financing conditions (Artola and Genre, 2011; Ferrando and Mulier, 2013). Furthermore, it has been shown that more innovative SMEs are more financially constrained. This is explained by the high failure risk of innovations, the informational opaqueness of the projects for external capital providers and the low diversification possibilities of SMEs (Ang, 1992; Carpenter and Petersen, 2002a; Fazzari et al., 1988; Hall, 2010; Magri, 2009; Mina et al., 2013). A number of studies in the past studied the effect of the industry on the capital structure of firms (Degryse et al., 2012; Hall et al., 2000; Harris and Raviv, 1991; La Rocca et al., 2009). It has been shown that different industries vary in asset types, asset risks, requirement for external capital and debt ratios directly affecting the financing structure of companies (Hall et al., 2000; Harris and Raviv, 1991; van der Wijst and Thurik, 1993).

However, most studies in the past only distinguish between equity and debt, and they do not take into account that firms can substitute and complement different forms of financing. Berger and Udell (1998) consider these effects and found that SMEs in the US use various sources of debt and equity capital. However, the financing instruments used vary over the business life cycle of firms. They found that small firms depend in particular on three funding sources: the principal owner, commercial banks and suppliers. Berger and Udell (1998) and Robb (2002) discovered that these sources accounted for over 70% of the total financing of small and young firms. Cosh et al. (2009) discovered that in the UK, the availability of different financing sources depends on a number of different firm characteristics. Banks are more likely to provide loans to larger firms with more assets, leasing and factoring firms and suppliers are more likely to provide capital to firms with higher profit margins and private

equity investors are more likely to finance smaller, younger and more innovative firms (Cosh et al., 2009). Huyghebaert et al. (2007) studied financing patterns of start-up companies in Belgium and found that young firms with less access to bank finance turn to leasing companies and their suppliers and hence substitute different sources of financing. In addition, access to and the demand for different financing instruments was found to be influenced by personal characteristics of the entrepreneur such as gender, ethnicity and education (Achleitner et al., 2011; Ang and Lawson, 2010; Cole and Sokolyk, 2013; Irwin and Scott, 2010) and the specific problems a firm is faced with (Fuller and Parker, 2008). Fuller and Parker (2008) found that SMEs with less problems[18] use a wider array of financing sources.

In addition, prior research has shown that the macroeconomic environment and a country's legal and financial system affect the financing and capital structure of companies (Ayadi, 2009; Booth et al., 2001; Cull et al., 2006; Demirgüç-Kunt and Levine, 1999; Fan et al., 2012; Levine, 2002; La Porta et al., 1997; Rajan and Zingales, 1995). However, most cross-country studies in the past concentrated on large and listed companies and only recently, cross-country studies on SME financing emerged (Ayyagari et al., 2007; Beck and Demirgüç-Kunt, 2006; Beck et al., 2008; Chavis et al., 2011; Hernandez-Canovas and Koeter-Kant, 2011; Jõeveer, 2012). It has been shown that SMEs in countries with a higher degree of institutional development and a better protection of property rights experience less financial constraints. Especially bank financing and the related conditions (e.g., interest rates, collateral requirements) depend significantly on the macroeconomic situation (Drakos, 2012; Hernandez-Canovas and Koeter-Kant, 2011; Holton et al., 2013).

Beck et al. (2008) studied the utilization of various financing instruments by SMEs at a cross-country level, using the World Business Environment Survey (WBES). They found that access to different sources of external financing depends in particular on firm size and financial market development of countries. Similar to this approach, Allen et al. (2012) have shown that alternative financing instruments defined as non-bank, non-market external sources of capital such as trade credit, leasing or loans from family and friends play an important role, both in developed and in developing countries. Chavis et al. (2011) found that around the world, younger firms use more informal finance rather than formal (bank) finance. They identified a substitution effect between different external financing sources: as firms

[18] Fuller and Parker (2008) performed a factor analysis including 18 dominant problem types and identified the factors: sales and marketing, organizational systems and external relations.

age, formal finance replaces informal finance. And this effect is robust across different firm sizes, countries and economic branches (Chavis et al., 2011). Furthermore, it has been shown that in times of financial crisis, SMEs suffering bank financing constraints are more likely to use alternative external financing instruments such as trade credit, factoring or leasing (Carbó-Valverde and Rodríguez-Fernández, 2008; Casey and O'Toole, 2014; Psillaki and Eleftheriou, 2014; Taketa and Udell, 2007).

Table 3-1 provides an overview of empirical literature, focusing on firm-, product-, industry- and country-specific aspects of SME financing and the substitutive and complementary effect of different financing instruments.

Table 3-1: Relevant empirical literature

Authors	Main findings	Main data source	Country	Main research focus[(a)]
Allen et al. (2012)	Utilization of a large range of financing instruments worldwide. Alternative financing channels have an important role in both developed and developing countries.	WBES	Worldwide	2, 4
Artola and Genre (2011)	Small and young firms suffer disproportionately by deteriorating financing conditions.	SAFE	Europe	1, 2, 3
Beck et al. (2008)	Firm size, financial development and property rights protection are important factors to determine financing patterns of SMEs.	WBES	Worldwide	1, 2, 4
Canton et al. (2012)	Size and age are positively related to perceived access to bank loans. Concentration of the banking sector in a country is negatively related to perceived credit constraints of SMEs.	Eurostat	Europe	1, 2, 3
Casey and O'Toole (2014)	SMEs are more likely to use alternative external financing instruments in times of financial crises.	SAFE	Europe	1, 2, 3, 4
Cassar (2004)	Positive relationship between sizes, asset structure and growth orientation on debt, outside financing, long-term debt and bank loans.	BLS	Australia	1, 4
Chavis et al. (2011)	Young firms use more informal finance in comparison to more mature firms, which use more bank financing. As firms age, they substitute informal finance with bank finance. Effect is stable for different firm sizes, sectors and countries.	WBES	Worldwide	1, 2, 4
Chittenden and Hutchinson (1996)	Profitability, asset structure, size, age and access to capital markets affect the capital structure of small firms.	U.K. Private+ database	United Kingdom	1
Cosh et al. (2009)	Most firms are able to get desired capital from one of the different external sources (data: 1996-97). Size, age, growth, innovativeness and profitability are important influence factors on availability of financing sources.	Survey	United Kingdom	1, 4

[(a)] Main research focus:
1. Firm-, product- and/or industry-specific characteristics
2. Country-specific characteristics
3. Changing macroeconomic conditions / financial market crises
4. Alternative financing instruments (one or more with substitutive/complementary effects)

Table 3-1: Relevant empirical literature (continued)

Authors	Main findings	Main data source	Country	Main research focus[(a)]
Degryse et al. (2012)	Firm-specific (profitability, growth, collateral) affect SME financing. Intra- and inter-industry differences in financing behavior. Evidence of maturity-matching strategies.	Bank data	Netherlands	1
Deloof et al. (2007)	Support that specific financing instruments are substitutes for SMEs (leasing vs. bank loans). Firms with low profits and high growth have more leases.	Bel-first database	Belgium	1, 4
Drakos (2012)	Lending conditions for SMEs deteriorated from 2009 to 2011, esp. for SMEs with increased interest expenses and decreased profits. Evidence of large country heterogeneity.	SAFE	Europe	1, 2, 3
Ferrando and Griesshaber (2011)	Age and ownership are robust predictors of perceived financing constraints of European SMEs. Mixed results for the influence of size and industry.	SAFE	Europe	1, 2, 3
Ferrando and Mulier (2013)	Matching of survey data with balance sheet information to examine if perceived financing constraints match actual financing constraints. Age and profitability important in explaining access to capital.	SAFE	Europe	1, 2, 3
Fuller and Parker (2008)	Number of funding sources used by small business owners depends on specific problems of firms.	Survey	United States	4
Hall et al. (2004)	Influence of both, firm- (profit, growth, asset structure, size and age) and country-specific factors on capital structure of SMEs (short- vs. long-term debt).	Dun & Bradstreet	Europe	1, 2
Hall et al. (2000)	Asset structure, firm size, age, growth and industry related to capital structure (long-term/short-term debt) of SMEs.	Lotus One-Source Database	United Kingdom	1
Hernandez-Canovas and Koeter-Kant (2011)	Positive relationship between protection of creditor rights and enforcement of existing laws and maturity structure of SME bank loans.	ENSR survey	Europe	2
Holton et al. (2014)	Effect of EU crisis on credit demand and supply (2009-2011). Age and size positively related to access to finance.	SAFE	Europe	1, 2, 3
Huyghebaert et al. (2007)	Start-ups consider not only financing costs but also different liquidation policies between suppliers and banks. Private benefits also considered (e.g., control).	Start-up data	Belgium	1, 4
Jõeveer (2012)	Leverage variation of small vs. large listed and unlisted firms. Country-specific factors are more important for small, unlisted firms in comparison to larger firms.	Amadeus database	Europe	1, 2
Klapper et al. (2002)	Eastern European SMEs very small, younger, more highly leveraged and more profitable firms. They borrow only short-term debt (high financial constraints).	Amadeus database	Eastern Europe	1, 2
López-Gracia and Sogorb-Mira (2008)	Pecking order and trade-off theory help to explain capital structure of SMEs. Size, age, tax-shields, growth and internal resources important determinants in SME financing.	SABE database	Spain	1
Mac an Bhaird and Lucey (2010)	Firm age, size, level of intangible activity, ownership structure and the provision of collateral important determinants of SME financing. Effects similar across industries.	Survey	Ireland	1

[(a)] Main research focus:
1. Firm-, product- and/or industry-specific characteristics
2. Country-specific characteristics
3. Changing macroeconomic conditions / financial market crises
4. Alternative financing instruments (one or more with substitutive/complementary effects)

Table 3-1: Relevant empirical literature (continued)

Authors	Main findings	Main data source	Country	Main research focus[(a)]
Michaelas et al. (1999)	Different capital structure determinants across time and industries (panel dataset). Influence on total level of debt and maturity structure. SMEs are highly sensitive to macroeconomic changes.	Lotus One-Source Database	United Kingdom	1, 3
Öztürk and Mrkaic (2014)	Increased bank funding costs and debt-to-asset ratio of borrowers negatively related to access to finance. Use of government subsidies improves access to finance. Access to finance positively related to firm size and age.	SAFE	Europe	1, 2
Psillaki and Daskalakis (2008)	Firm-specific (size, asset structure, profitability, risk) rather than country-specific characteristics explain differences in capital structure of SMEs.	Amadeus database	Europe	1, 2
Psillaki and Eleftheriou (2014)	Support for flight-to-quality hypothesis that in bad times, credit is granted to larger, higher grade firms. Trade credit for small firms in times of tightening conditions complement not substitute to bank loans.	Bureau van Dijk–Diane database	France	1, 3, 4
Robb (2002)	Young firms hold more bank loans than older firms, but have greater difficulties to acquire it. Firm age has no influence on the use of trade credit, but firm size does (the younger, the less trade credit).	SSBF survey	United States	1, 4
Robb and Robinson (2014)	Three most important financing instruments for start-ups: bank debt (mostly secured by personal collateral), personal equity and trade credit.	Kauffman Firm Survey	United States	1, 4
Romano et al. (2001)	Financing in family firms based on complex array of social, behavioral and financial factors. Size, industry, age of firm, business planning, owners' business objectives and growth ambitions important factors.	Survey	Australia	1
Sogorb-Mira (2005)	Firm size positively related to leverage, profitability negative. Spanish SMEs follow maturity matching principle.	SABE database	Spain	1
Taketa and Udell (2007)	Different reaction of lending channels in times of financial crisis. Evidence of complementarity instead of substitution (trade credit vs. bank loans).	Balance sheet information	Japan	3, 4

[(a)] Main research focus:
1. Firm-, product- and/or industry-specific characteristics
2. Country-specific characteristics
3. Changing macroeconomic conditions / financial market crises
4. Alternative financing instruments (one or more with substitutive/complementary effects)

Research on the substitutive and complementary use of a larger number of financing instruments in different countries is scarce. The following analysis taps into this research gap by developing an empirical taxonomy of SME financing patterns and analyzes how these groups of SMEs can be characterized according to their firm-, product-, industry- and country-specific factors.

3.3 Data, method and variables

3.3.1 The SAFE survey

To answer the chapter's research objective, the SAFE survey conducted on behalf of the ECB and the EC is used. As the SAFE covers both the needs of the EC for structural purposes and the ECB for its monetary policy, the survey is carried out on a bi-annual basis on behalf of the ECB and every two years (and since 2014 on an annual basis) as a joined survey on behalf of the ECB and the EC (ECB, 2013, 2014a; European Commission, 2013). The two waves differentiate by the number of questions included in the survey and the number of participating countries. The companies are randomly selected from the Dun & Bradstreet database and the survey is carried out by professional research companies using Computer Assisted Telephone Interviews (CATI).

The survey contains firm-specific information such as size (employees and turnover), firm autonomy, turnover, firm age and ownership. Furthermore, it contains information about the firms' main activity, their innovation activity and growth (joined waves), their recent financing sources used, their short-term development regarding the firms' financing needs and their assessment of the access to finance conditions. The size categories applied include micro (1-9 employees), small (10-49 employees), medium-sized (50-249 employees) and large firms (250+ employees). The sample is stratified by these firm-size classes (based on the number of employees), economic activity and country. In order to restore the artificially distorted proportions from the sampling process relating to company size and economic activity, post-stratification weights[19] are used. The SAFE survey used for this analysis was conducted between April and September 2013 (2013H1).[20] It includes 14,859 firms in 37 European countries. Of those firms, 92% have less than 250 employees. The sub-sample used for the taxonomy development will be described in Section 3.4.1.

[19] To calculate the appropriate weights, the data on company size, economic activities and countries reported by Eurostat are used: http://appsso.eurostat.ec.europa.eu/nui/show.do?wai=true&dataset=sbs_sc_sca_r2 (accessed 15 December 2014).

[20] For an excerpt of the questionnaire, please refer to Appendix 3-1. The complete questionnaire is available at https://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html (accessed 12 March 2014).

3.3.2 Method

To develop an empirical taxonomy of SME financing patterns in Europe, a hierarchical cluster analysis was performed.[21] Cluster analysis is a group of multivariate methods with the purpose to classify objects into groups according to their occurrences (Hair et al., 2010). This method has the advantage that it is an explorative statistical method, which does not require predefined assumptions (Sørensen and Gutiérrez, 2006). Cluster analysis is used for data reduction to develop a more understandable description of observations with minimal losses of information (Hair et al., 2010). Thus, cluster analysis is an appropriate method for the research objective, as it organizes the observed data about the utilization of financing instruments by European SMEs into taxonomies and facilitates a comparison of the different groups (Hair et al., 2010; Özari et al., 2013; Sørensen and Gutiérrez, 2006).

Several hierarchical cluster analysis[22] algorithms were tested (single linkage, complete linkage and Ward's method), using appropriate similarity measures to be able to identify groups of SMEs with similar financing patterns. Finally, the Ward's method was chosen as the results were more homogenous and the cluster sizes were more balanced (Bortz, 2005). The other clustering techniques produced very unbalanced results, with sometimes only one or a few observations in a cluster and a very large number of observations with high within cluster heterogeneity in another. Hence, they were not appropriate for the research objective (Bortz, 2005). The Ward's method has the advantage that it combines objects which increase the within group variation as little as possible and therefore optimizes the homogeneity of the clusters (Backhaus et al., 2013). As the similarity measure, the squared Euclidean distance was used (Hair et al., 2010). Squared Euclidean distance is the most commonly used measure of proximity and optimal in combination with the Ward's algorithm.[23] Different cluster solutions of SME financing patterns were calculated, compared and analyzed according to the number of objects in each cluster as well as the objects' characteristics. Finally, the six cluster

[21] For the discussions and support in this section, I would like to thank Dr. Andreas Heinz.

[22] An agglomerative hierarchical cluster analysis is a stepwise clustering procedure which forms clusters by first combining objects and then stepwise combining existing clusters with the lowest distances to each other (Hair et al., 2010).

[23] However, other proximity measures were applied to test for the stability of the clusters. The Rogers & Tanimoto as well as the Russel & Rao similarity measure produced a relatively high matching in the cluster solutions of 77.1% and 76.2%.

solution was chosen according to face validity and theoretical foundation of the objects' characteristics within the clusters (Hair et al., 2010).[24]

3.3.3 Variables

Variables used in the cluster analysis (active variables)

For the research purpose, the question about the financing structure of the firm is of key interest, as it comprises the different financing instruments (see also Appendix 3-1, question Q4). Participants of the survey were asked whether they used different financing instruments during the past six months, did not use them during the past six months but have experience with them, or never used this form of financing. Financing instruments included are (a) retained earnings or sale of assets, (b) grants or subsidized bank loans, (c) bank overdrafts, credit line or credit card overdrafts, (d) bank loans (new or renewal), (e) trade credit, (f) other loans (for instance from a related company or shareholders or from family and friends), (g) leasing, hire-purchase or factoring, (h) debt securities issued, (i) subordinated loans, participating loans, preferred stocks or similar financing instruments and (j) equity (quoted shares, unquoted shares or other forms of equity provided by the owners or external investors such as venture capital companies or business angels). In addition, respondents could indicate that they did not use any external financing in the past six months (l). Using these financing instruments as active variables, a cluster analysis was conducted to develop an empirical taxonomy of SME financing patterns. Due to the low relevance of (h) debt securities issued and (i) subordinated loans, participating loans, preferred stocks or similar financing instruments in the dataset[25], these groups were merged in the analysis. Furthermore, only the financing instruments used over the past six months were considered in the cluster analysis. This approach is chosen as firms might have used different financing instruments in earlier life cycle stages of their company but at the time of the survey, these instruments are of no relevance for the firm. In addition, distortions are minimized by different financing conditions over the economic cycle and the analysis focuses on the current situation.

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[24] The cluster results were validated by using the Test of Mojena and the Elbow Criterion (Backhaus et al., 2013; Mojena, 1977). As both measures did not provide an unambiguous result, different cluster results were analyzed and compared. This approach supported the six cluster solution (Hair et al., 2010).

[25] Less than 2% of SMEs in the sample used these instruments in the past six months and less than 5% had experience with them (see Section 3.4.1 and Table 3-4).

Passive cluster variables

To analyze the composition of the resulting clusters, a number of firm-, product-, industry- and country-specific variables are included as passive variables (see Table 3-2). Previous research has revealed considerable differences in SME financing, based on characteristics such as size, age, profitability, innovativeness, industry and country (Beck et al., 2008; Berger and Udell, 1998; Cosh et al., 2009; Hall et al., 2000; Michaelas et al., 1999). All the variables used were retrieved from the survey.

Firm-specific variables

Firm size: The analysis includes both variables available measuring the size of the firm: the number of employees and annual turnover (reported in categories). Previous research has shown that the size of a company is an important determinant for its financial structure (Ang, 1992; Berger and Udell, 1998). It has been argued that smaller firms are more opaque because the quality and quantity of information available about the firm is typically very low (Artola and Genre, 2011; Berger and Udell, 1998). Empirical results confirmed that the size of a firm is an important determinant of accessing external sources of financing, especially bank financing (Artola and Genre, 2011; Canton et al., 2012; Coluzzi et al., 2012; Holton et al., 2014; Öztürk and Mrkaic, 2014). Furthermore, empirical research reveals that smaller firms hold significantly more short-term debt than larger firms (Holmes and Kent, 1991; Hutchinson, 1995). Therefore, it is expected that smaller firms are more likely to use internal and short-term external financing instruments. However, prior studies have shown that these effects are often not solely related to size, but are also connected to age and the ownership structure (Artola and Genre, 2011; Ferrando and Griesshaber, 2011).

Firm age: In the survey, firm age is reported in the categories less than two years, two to less than five years, five to less than 10 years and 10 years or more. Prior research has shown that the financing instruments used by firms vary over the business life cycle. Informal financing is more important early in the companies' life cycle and will be replaced with more formal financing when companies mature (Berger and Udell, 1998; Carbó-Valverde and Rodríguez-Fernández, 2008; Chavis et al., 2011; Cosh et al., 2009; Huyghebaert and van de Gucht, 2007). This is explained by the growing reputation of lending firms, existing track records and established relationships with capital providers, which reduce information asymmetries and agency risks (Canton et al., 2012; Chavis et al., 2011; Petersen and Rajan, 1994; Walker, 1989).

Table 3-2: Passive variables used (SAFE)

Passive cluster variables[26]	Coding	Comments
Firm size 1: Number of employees How many people does your company currently employ either full- or part-time in [country] at all its locations?	1 = from 1 employee to 9 employees 2 = 10 to 49 employees 3 = 50 to 249 employees 4 = 250 employees or more	Category 4 was excluded from the analysis
Firm size 2: Turnover What was the annual turnover of your company in 2012?	1 = up to € 2m 2 = more than € 2m and up to € 10m 3 = more than € 10m and up to € 50m 4 = more than € 50m	
Firm age In which year was your firm registered?	1 = 10 years or more 2 = 5 years or more but less than 10 years 3 = 2 years or more but less than 5 years 4 = less than 2 years	Recoded in the dataset
Ownership Who are the owners of your firm? Please select the most appropriate category in terms of majority holders if more than one category applies.	1 = public shareholders 2 = family or entrepreneurs 3 = other firms or business associates 4 = venture capital firms or business angels 5 = a natural person, one owner only 7 = other	
Growth in past 1: Employee growth Over the last three years (2010-2012), how much did your firm grow on average per year in terms of employment regarding the number of full-time or full-time equivalent employees?	1 = over 20% per year 2 = less than 20% per year 3 = no growth 4 = got smaller	
Growth in past 2: Turnover growth Over the last three years (2010-2012), how much did your firm grow on average per year in terms of turnover?	1 = over 20% per year 2 = less than 20% per year 3 = no growth 4 = got smaller	
Growth expectation Considering the turnover over the next two to three years (2014-2016), how much does your company expect to grow per year?	1 = grow substantially - over 20% per year 2 = grow moderately - below 20% per year 3 = stay the same size 4 = become smaller	
Profitability Please tell me whether your company's profit margin has decreased, remained unchanged or increased over the past 6 months?	1 = increased 2 = remained unchanged 3 = decreased	
Product-related innovativeness During the past 12 months have you introduced a new or significantly improved product or service to the market?	1 = yes 2 = no	
Main activity What is the main activity of your company?	1 = industry 2 = construction 3 = trade 4 = services	Recoded in the dataset
Country	37 European countries	27 EU countries (excl. Malta) plus Norway as member of the European Economic Area (EEA) included in the analysis[27]

Notes: for all variables 9 = DK/NA (excluded)

Source: SAFE 2013H1

[26] See also Appendix 3-1.

[27] Table A3-1 provides a complete list of countries included in the analysis.

Furthermore, financial institutions have been found to prefer the provision of short-term debt instead of long-term debt in the early stages of a company, as it provides more flexibility to terminate the contract (see Section 2.2.1). Hence, it is expected to observe that the financing of firms changes depending on the firms' age. Whereas younger firms are more likely to use more informal sources and short-term financing, more mature firms are expected to use more formal sources of capital.

Ownership: The SAFE survey includes a number of different ownership structures of SMEs. All ownership types are included in the analysis, as prior research has revealed that the ownership structure of a firm influences which types of financing sources are used (Bathala et al., 2004; Ferrando and Griesshaber, 2011; McMahon and Stanger, 1995; Romano et al., 2001). Families, teams and single-owner firms are more likely to avoid external finance and especially financing instruments, where others gain control rights in the firm (Bathala et al., 2004; Chittenden and Hutchinson, 1996; Cressy, 1995; Romano et al., 2001). Hence, privately held firms are expected to use more flexible financing instruments without others taking control in the company.

Growth: This variable captures the past growth rates as well as future growth expectations of SMEs. Past growth is measured in terms of employment and turnover. Respondents could indicate whether their firm grew more than 20% p.a. over the last three years, between 0 and 20% p.a., stayed the same size or got smaller. Future growth expectations are measured in terms of turnover with the same categories on an annual basis over the next two to three years. Previous research indicates that firms with high growth rates are more likely to require external financing, as internal financing capabilities are not sufficient to finance their growth ambitions (Carpenter and Petersen, 2002b; Cassar, 2004; Rogers, 2014). Therefore, it is expected that firms with high growth in the past and higher growth expectations in the future are more likely to use a broader range of financing instruments.

Profitability: The development of profitability can also be obtained from the survey. Respondents were asked to indicate whether their profit margin increased, remained unchanged or decreased over the past six months. Previous research found that an increase in profitability results in higher retained profits enhancing the self-financing capabilities of the firm. In addition, firms with a higher profitability are likely to substitute long-term debt with internal financing, short-term debt and trade financing to reduce leverage and increase flexibility (Cosh et al., 2009; Demirgüç-Kunt and Maksimovic, 2001). Even though banks

have been found to be less likely to provide credit to unprofitable companies (Ferrando and Mulier, 2013; Walker, 1989), empirical research provides evidence that profitability and debt are negatively related (Cole, 2008; Michaelas et al., 1999; Romano et al., 2001). According to these results, firms with an increase in profitability should be more likely to be internally financed using retained earnings. Furthermore, these firms are expected to use more short-term debt and trade financing.

Product-specific variables

The SAFE survey contains a variable about the product-related innovativeness of the firm by asking if the firm has introduced a new or significantly improved product or service to the market within the past 12 months. This variable is included in the analysis, as previous research has shown that firms with more innovation activity are more risky and hence experience more financial constraints. This is explained by the high failure risk of innovations, the informational opaqueness of the projects for external capital providers and the low diversification possibilities of SMEs (Ang, 1992; Carpenter and Petersen, 2002a; Fazzari et al., 1988; Hall, 2010; Magri, 2009; Mina et al., 2013). Hence, external capital is typically more expensive for these firms and internal resources such as retained earnings are important financing instruments (Hall, 2010; Magri, 2009). However, as internal financing capabilities are often limited, innovative firms are more likely to seek external capital to finance the innovation. It has been shown that high information asymmetries and moral hazard problems make external debt an often unsuitable source of financing for innovative companies[28] (Carpenter and Petersen, 2002a; Jensen and Meckling, 1976; Magri, 2009). High-risk projects increase the probability of bankruptcy of the firm, whereas the higher risks are not offset by potentially higher returns for debt providers (Brown and Degryse, 2012; Magri, 2009). Equity investors, however, participate in the success of the firm and can compensate the higher risks with a potential higher return in the case of success (Carpenter and Petersen, 2002a; Hall, 2010). Furthermore, VC investors have been found to be better equipped to deal with the higher risks due to their comprehensive due diligence procedures, personal contacts with the entrepreneurs and direct involvement in the firm (Carpenter and Petersen, 2002a; Cosh et al., 2009; Hall, 2010; van Osnabrugge, 2000). It is therefore

[28] It has been argued that innovative firms have more incentives to choose high-risk projects instead of low-risk projects after receiving external debt (Carpenter and Petersen, 2002a).

expected that firms with more product and service innovation are more likely to use internal finance and equity, but also to be financed by a larger variety of capital sources.

Industry-specific variables

The SAFE dataset contains information about the main activities of the firms: industry, construction, trade and services. Even though the survey obtains information about a larger number of different industries, this information is merged into these four categories to ensure representativeness and anonymity of the survey (ECB, 2014a).[29] A number of studies in the past were concerned with the industry effect on the capital structure of firms (Degryse et al., 2012; Hall et al., 2000; Harris and Raviv, 1991; La Rocca et al., 2009). It has been shown that different industries vary in asset types, asset risks, requirement for external capital and debt ratios (Hall et al., 2000; Harris and Raviv, 1991; van der Wijst and Thurik, 1993). Furthermore, firms tend to follow the golden rule of capital structure, which means that long-term assets are more likely to be financed with long-term capital and short-term assets with short-term capital (Hall et al., 2000; van der Wijst and Thurik, 1993). As a consequence, capital-intensive industries with more assets (which can also be used as collateral) are expected to use long-term financing, especially bank loans and leasing agreements (Cosh et al., 2009). Industries with higher working capital requirements (i.e., trade and service sector) are expected to use short-term and trade-related financing instruments (Klapper et al., 2002).

Country-specific variables

The SAFE survey used for this chapter comprises 37 European countries. The following analysis considers all countries, where the original weights could be restored (see Section 3.3.1). Hence, 28 European countries are included, where 27 countries are members of the EU (excluding Malta) and Norway, which is a member of the European Economic Area (EEA) and therefore closely linked to the EU. The importance of the macroeconomic, legal and institutional environment and their impact on firm financing has been shown in a number of studies (Cull et al., 2006; Demirgüç-Kunt and Levine, 1999; Levine, 2002; La Porta et al., 1997; Rajan and Zingales, 1995). Previous research found that countries with more developed financial markets and better protection of property rights provide a broader range of financing

[29] See also Appendix 3-1 question D3.

instruments (Beck et al., 2008; Chavis et al., 2011; Jõeveer, 2012). Even though financial markets in Europe have converged, there are still a number of country-specific differences (Guiso et al., 2004; Mullineux and Murinde, 2010). As SMEs are more dependent on national financial markets due to the size of their financial requirements (Guiso et al., 2004), it is expected that there are still significant differences in SME financing across Europe. To investigate these differences, the countries are classified based on several distinguishing factors, which are expected to have an impact on SME financing such as geography, prevailing financial markets systems, the effects of the financial market crisis and financial market integration in Europe.

3.4 Results

3.4.1 Description of the sample

The aim of this chapter is to investigate financing patterns of European SMEs. Hence, using the employee threshold provided by the European Commission to define SMEs, all firms with more than 250 employees are excluded from the analysis (European Commission, 2005) (see Section 2.1). The final sample used consists of 12,726 SMEs in 28 European countries (27 countries in the EU excluding Malta and including Norway). The largest numbers of SMEs are from Italy (17.3%), France (11.3%), Spain (11.1%), Germany (9.2%) and the United Kingdom (7.4%)[30]. Nearly 93% of the companies are micro firms with less than ten employees and about 90% generate an annual turnover of less than EUR 2m (see Table 3-3).[31] Around 64% of the companies are mature with an age of ten years or more and only 3.3% are very young firms. Regarding ownership, very few firms are listed (1.3%) and the majority belongs to families or groups of entrepreneurs (46.6%) or are single-owner companies (45.1%). Only around 25% of the firms hired additional employees but over 40% had a positive turnover development. Future growth expectations are also positive with more than half of the firms expecting a turnover growth over the next two to three years (around 51%). The profit margins of nearly half of the SMEs in the sample decreased over the past six months.

[30] For more details about the country distribution, please compare Table A3-1.

[31] For more details, please compare Tables A3-1 to A3-4.

Table 3-3: Sample description (passive variables)

Variable			N	in %
Number of companies in the sample			**12,726**	
Size	Number of employees	1 - 9 employees	11,794	92.7
		10 - 49 employees	801	6.3
		50 - 249 employees	131	1.0
		Total	**12,726**	**100**
	Turnover	≤ € 2m	11,025	89.6
		> € 2m – € 10m	1,031	8.4
		> € 10m – € 50m	214	1.7
		> € 50m	36	0.3
		Total	**12,306**	**100**
Firm age		≥ 10 years	7,855	64.4
		5 to less than 10 years	2,456	20.1
		2 to less than 5 years	1,487	12.2
		< 2 years	404	3.3
		Total	**12,202**	**100**
Ownership		Public shareholders	163	1.3
		Family or entrepreneurs	5,923	46.6
		Other firms or business associates	686	5.4
		Venture capital firms or business angels	40	0.3
		Natural person, one owner only	5,740	45.1
		Other	166	1.3
		Total	**12,718**	**100**
Past growth rate (average p.a. over past 3 years)	Employee growth	High growth > 20% p.a.	1,122	9.2
		Moderate growth < 20% p.a.	1,885	15.3
		No growth	6,211	50.6
		Got smaller	3,063	24.9
		Total	**12,281**	**100**
	Turnover growth	High growth > 20% p.a.	1,589	12.9
		Moderate growth < 20% p.a.	3,890	31.7
		No growth	3,015	24.6
		Got smaller	3,778	30.8
		Total	**12,272**	**100**
Growth expectation (turnover) (average p.a. over next 2-3 years)		High growth > 20% p.a.	1,296	10.6
		Moderate growth < 20% p.a.	4,888	40.2
		No growth	4,231	34.7
		Got smaller	1,760	14.5
		Total	**12,175**	**100**
Profitability (Profit margin)		Increased	1,691	13.7
		Remained unchanged	4,511	36.6
		Decreased	6,119	49.7
		Total	**12,321**	**100**
Product-related innovativeness (Product or service innovation)		Yes	3,929	31.1
		No	8,721	68.9
		Total	**12,650**	**100**
Main activity		Industry	1,310	10.3
		Construction	2,074	16.6
		Trade	3,607	28.5
		Services	5,735	44.6
		Total	**12,726**	**100**

Source: SAFE 2013H1

Within the past 12 months, around one third (31.1%) brought a new or significantly improved product or service to the market. The largest number of companies is active in the service sector (44.6%), the smallest group has its main activity in industry (10.3%).

The largest number of firms in the sample used short-term financing in form of bank overdrafts, credit card overdrafts and credit lines (34.8%) and trade credit (29.8%) in the past six months. Bank loans were used by 25.3% of the SMEs, 20.4% used leasing, hire-purchase or factoring and 20.0% used retained earnings. The least used financing instruments in the past six months were government subsidies (10.2%), equity (4.4%), debt securities issued (1.6%) and subordinated loans, participating loans, preferred stocks or similar financing instruments (1.4%)[32]. A detailed overview of the financing instruments used by SMEs provides Table 3-4.

Table 3-4: Sample description (active variables)

Source of financing	used in the past 6 months	did not use in the past 6 months but have experience	not relevant to the firm
Retained earnings or sale of assets	20.0%	16.1%	63.9%
Grants or subsidized bank loans	10.2%	25.3%	64.5%
Bank overdraft, credit card overdrafts, credit lines	34.8%	21.0%	44.2%
Bank loans	25.3%	38.5%	36.2%
Trade credit	29.8%	13.9%	56.4%
Other loans	12.4%	15.4%	72.2%
Leasing, hire-purchase or factoring	20.4%	26.7%	52.9%
Equity	4.4%	10.7%	84.9%
Debt securities issued	1.6%	4.6%	93.8%
Subordinated loans, participating loans, preferred stocks or similar financing instruments	1.4%	4.3%	94.3%
No external financing used	26.8%		

Source: SAFE 2013H1

[32] Due to the low relevance of debt securities issued and subordinated loans, participating loans, preferred stocks or similar financing instruments in the dataset, these groups were merged in the analysis into the category ‘Other’ (debt securities, subordinated/participating loans, preferred stock).

3.4.2 Cluster analysis

To identify groups of SMEs with similar financing patterns a cluster analysis was performed using the different financing instruments as active cluster variables (see Section 3.3.3). The final sample for the cluster analysis comprises 12,312 SMEs, as 414 SMEs (around 3.3%) did not provide information on at least one financing instrument. The results of the cluster analysis are summarized in Table 3-5.

Table 3-5: Cluster results

	Clusters						
Financing instruments	**Mixed-financed SMEs**	**State-subsidized SMEs**	**Debt-financed SMEs**	**Flexible-debt-financed SMEs**	**Trade-financed SMEs**	**Internally-financed SMEs**	**Pearson Chi²**
Retained earnings or sale of assets	27.9%	22.7%	20.6%	14.7%	25.5%	14.0%	236.9***
Grants or subsidized bank loans	14.9%	100%	1.6%	0.0%	1.9%	0.0%	8750.7***
Bank overdrafts, credit lines or credit card overdrafts	45.0%	54.0%	56.2%	100%	6.3%	0.0%	6443.2***
Bank loans (new or renewal)	36.3%	55.2%	95.2%	0.0%	0.0%	0.0%	8160.2***
Trade credit	41.3%	32.1%	41.4%	20.8%	70.7%	0.0%	3498.2***
Other loans	72.5%	1.2%	0.0%	0.0%	0.0%	0.0%	8391.2***
Leasing, hire-purchase or factoring	27.9%	24.4%	30.4%	20.4%	41.2%	0.0%	1702.8***
Equity	24.1%	3.6%	0.0%	0.0%	0.0%	0.0%	2387.2***
Other[(a)]	17.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1803.4***
No external finance	0.0%	0.0%	0.0%	0.0%	0.0%	100%	12312.0***
N	2,060	887	1,981	1,627	1,888	3,869	
Percentage of firms	16.7%	7.2%	16.1%	13.2%	15.3%	31.4%	
Description	Firms that use a large variety of financing instruments	Firms that use grants / subsidized loans and other debt	Firms that use all types of debt with a strong focus on bank loans	Firms that use only flexible, short-term debt	Firms that use mainly trade-related types of financing	Firms without external financing	

Notes: N = 12,312; Pearson's chi-square test: ***p < 0.01, **p < 0.05, *p < 0.1.
[(a)] Other financing instruments = debt securities issued, subordinated/participating loans, preferred stocks or similar instruments

Cluster 1 (Mixed-financed SMEs): Firms in this cluster use a broad range of financing instruments. It is the second largest cluster including 2,060 SMEs (16.7%). A large number of SMEs in this group (72.5%) used other loans such as loans from related companies or family and friends. Furthermore, this cluster has the highest percentage of SMEs using retained earnings and sale of assets (27.9%). Bank overdrafts, credit lines or credit card overdrafts (45.0%) as well as bank loans (36.3%) play an important role in this group. In addition, trade related forms of financing such as trade credit (41.3%), leasing, hire-purchase or factoring (27.9%) were used. The mixed-financed SME cluster is the only group where equity (24.1%) and other financing instruments (i.e., debt securities, subordinated and participating loans and preferred stocks) (17.1%) are of importance. Grants and subsidized bank loans were the least important financing instruments in this cluster (14.9%).

Cluster 2 (State-subsidized SMEs): This cluster is characterized by its utilization of government-supported forms of financing. All of the SMEs in this cluster used this type of financing over the previous six months. It is the smallest cluster with 887 SMEs (7.2%). State-subsidized forms of financing were combined in particular with short-term (54.0%) and longer-term bank financing (55.2%). Trade credit (32.1%) and leasing, hire-purchase and factoring (24.4%) were also important sources of financing. Other loans (1.2%) as well as equity (3.6%) were of very little importance.

Cluster 3 (Debt-financed SMEs): SMEs in this group (1,981 firms, 16.1%) used all forms of debt financing but with very little importance of grants and subsidized bank loans (1.6%). This group is characterized by the very large number of SMEs using bank loans (95.2%). They further relied on short-term bank financing (56.2%), trade credit (41.4%) and leasing, hire-purchase or factoring (30.4%). Retained earnings were less important in comparison with the mixed-financed and state-subsidized SME clusters (20.6%).

Cluster 4 (Flexible-debt-financed SMEs): This cluster is characterized by SMEs focusing on short-term debt financing, in particular institutional short-term debt. It is the second smallest cluster with 1,627 SMEs (13.2%). Most important were bank overdrafts, credit lines and credit card overdrafts (100%). In addition, firms in this cluster used to a lesser extent trade credit (20.8%) and leasing, hire-purchase or factoring (20.4%). Retained earnings were only used by 14.7% of SMEs.

Cluster 5 (Trade-financed SMEs): Firms in this group relied in particular on trade credit (70.7%) to finance their operations and 41.2% used leasing, hire-purchase or factoring.

Alongside these sources of financing, retained earnings (25.5%) were important for SMEs in this cluster. 1,888 SMEs (15.3%) belong to this group.

Cluster 6 (Internally-financed SMEs): This cluster is the largest group in the sample with 3,869 SMEs (31.4%). SMEs in this cluster did not use any sources of external financing in the past six month. Furthermore, only a small number of firms in this group used retained earnings or sale of assets (14.0%).

3.4.3 Comparison of clusters

Firm-, product- and industry-specific characteristics

SMEs are not equally distributed across clusters according to their firm-, product- and industry-specific characteristics ($p < 0.01$) (see Table 3-6).[33] To provide a better understanding of the characteristics of the identified financing patterns, these differences are analyzed in the following.[34]

Firm-specific characteristics

Firm size: The cluster analysis reveals that larger SMEs seem to be more likely to use a larger number of financing instruments including bank loans, state-subsidized financing and equity (clusters 1-3) in comparison to smaller SMEs, which are more likely to use internal financing, flexible short-term debt and trade financing (clusters 4-6). This result is in line with the expectation that larger firms have lower information asymmetries and can therefore access a broader range of financing sources, whereas smaller firms are more likely to use less external capital (Artola and Genre, 2011; Berger and Udell, 1998). The largest number of micro firms belongs to the group of internally-financed SMEs. As retained earnings in this cluster tend to be of low importance, other forms of internal financing seem to be predominant. These SMEs can either finance their businesses from running operations or use

[33] Test statistics are provided in form of Pearson's chi-square and Cramer's V. Whereas the Pearson's chi-square test evaluates how likely it is that the observed differences arose by chance or, in other words, whether the distribution across the clusters differs significantly from its distribution in the total sample, Cramer's V measures the strength of association between the passive variable and the cluster affiliation (between 0 and 1) (Backhaus et al., 2013).

[34] To interpret the cluster results, it has to be considered that financing decisions are highly complex and involve a number of demand and supply factors. Hence, the cause-and-effect relationships are not always unambiguous.

financial bootstrapping techniques[35]. The cluster analysis further reveals that larger SMEs seem to be more likely to access state-subsidized financing and bank loans.

Table 3-6: Cluster comparison: Firm-, product- and industry-specific characteristics

Variable	Categories	Total sample[(a)]	N	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
										Pearson Chi²	Cramer's V
	SMEs per cluster			16.7%	7.2%	16.1%	13.2%	15.3%	31.4%		
Firm characteristics											
Size											
Number of employees	1 - 9 employees	92.8%		16.3%	6.9%	15.7%	13.3%	15.2%	32.5%		
	10 - 49 employees	6.2%		20.7%	10.4%	21.4%	12.1%	17.2%	18.1%		
	50 - 249 employees	1.0%	12,312	28.8%	12.8%	21.6%	8.0%	16.0%	12.8%	120.8***	0.070
Turnover	≤ € 2m	89.5%		15.6%	6.6%	16.0%	13.6%	15.4%	32.7%		
	> € 2m - € 10m	8.4%		24.4%	11.6%	19.6%	9.9%	13.9%	20.6%		
	> € 10m - € 50m	1.8%		25.8%	13.4%	17.7%	4.8%	21.1%	17.2%		
	> € 50m	0.3%	11,920	37.1%	2.9%	31.4%	5.7%	8.6%	14.3%	208.4***	0.076
Firm age	≥ 10 years	64.5%		15.4%	7.2%	17.3%	13.5%	14.9%	31.8%		
	5 to less than 10 years	20.1%		17.8%	7.4%	15.4%	15.5%	15.1%	28.9%		
	2 to less than 5 years	12.0%		19.5%	6.9%	13.7%	9.2%	17.8%	33.0%		
	< 2 years	3.3%	11,813	26.1%	9.1%	6.8%	5.8%	10.4%	41.8%	149.7***	0.065
Ownership	Public shareholders	1.2%		47.0%	2.6%	11.3%	4.0%	16.6%	18.5%		
	Family or entrepreneurs	46.6%		18.0%	8.1%	17.5%	12.9%	17.3%	26.2%		
	Other firms or business associates	5.3%		23.4%	5.9%	14.4%	10.3%	18.7%	27.2%		
	Venture capital firms or business angels	0.3%		59.0%	15.4%	12.8%	0.0%	5.1%	7.7%		
	One owner only	45.2%		13.5%	6.4%	15.3%	14.2%	13.1%	37.5%		
	Other	1.3%	12,305	17.1%	9.8%	6.1%	13.4%	12.2%	41.5%	431.6***	0.084
Growth rate p.a. (average p.a. over past 3 years)											
Employment	High growth > 20% p.a.	9.2%		16.9%	10.3%	12.2%	15.5%	17.9%	27.2%		
	Moderate growth < 20% p.a.	15.2%		16.0%	8.6%	19.1%	12.9%	15.3%	27.9%		
	No growth	50.5%		12.1%	6.8%	16.7%	13.3%	15.1%	35.9%		
	Got smaller	25.1%	11,885	25.4%	6.1%	15.4%	13.5%	15.0%	24.5%	365.6***	0.101
Turnover	High growth > 20% p.a.	13.1%		18.6%	8.2%	15.1%	13.6%	15.7%	28.8%		
	Moderate growth < 20% p.a.	31.4%		12.2%	7.9%	17.5%	12.8%	18.5%	31.1%		
	No growth	24.6%		14.1%	6.1%	14.7%	14.6%	13.5%	37.1%		
	Got smaller	30.9%	11,904	21.6%	7.3%	17.5%	13.3%	13.4%	26.9%	237.4***	0.141
Growth rate p.a. - Expectation (next 2-3 years)											
	High growth > 20% p.a.	10.6%		24.6%	9.8%	11.0%	13.0%	14.7%	26.9%		
	Moderate growth < 20% p.a.	40.2%		18.9%	8.7%	15.8%	13.4%	16.0%	27.2%		
	No growth	34.7%		11.3%	5.7%	16.8%	13.2%	16.6%	36.4%		
	Got smaller	14.5%	11,795	19.4%	5.8%	17.2%	14.8%	11.0%	31.8%	300.7***	0.092
Profitability											
Profit margin	Increased	13.6%		21.0%	5.3%	16.9%	13.9%	18.0%	24.9%		
	Remained unchanged	36.5%		14.3%	6.5%	15.4%	12.0%	15.1%	36.7%		
	Decreased	49.9%	11,937	17.7%	8.4%	16.9%	13.9%	15.1%	28.1%	160.5***	0.082
Product characteristics											
	Product or service innovation	31.0%	12,246	19.2%	9.0%	14.1%	13.4%	15.2%	29.0%	67.3***	0.074
Industry characteristics											
	Industry	10.3%		17.3%	8.6%	18.1%	14.8%	16.0%	25.2%		
	Construction	16.6%		19.5%	6.5%	18.6%	12.2%	13.5%	29.8%		
	Trade	28.5%		17.1%	7.0%	16.2%	13.7%	16.4%	29.7%		
	Services	44.6%	12,309	15.3%	7.3%	14.6%	13.0%	15.2%	34.6%	90.9***	0.050

Notes: Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

[(a)] Slight deviations between Table 3-3 and Table 3-6 are explained by the slightly smaller sample used in the cluster analysis (due to missing values, see Section 3.4.2).

[35] Financial bootstrapping involves ways to acquire resources without approaching traditional sources like banks or equity providers (see Section 2.2.2).

This result shows that the utilization of government subsidies and bank loans seems to be positively related to firm size (Beck et al., 2008). In addition, the finding that smaller firms tend to be more likely to use flexible short-term debt is in line with the expectations (Holmes and Kent, 1991; Hutchinson, 1995; Huyghebaert and van de Gucht, 2007). Control aversion, flexibility and information asymmetries have been argued to be the main reasons why small firms and capital providers prefer short-term financing instruments over longer-term financing (Berger and Udell, 1998; Canton et al., 2012; Fraser et al., 2013). However, these effects are directly related to the firms' age and ownership structure.

Firm age: Prior research has shown that access to external debt is positively correlated with the age of firms (Artola and Genre, 2011; Berger and Udell, 1998; Ferrando and Griesshaber, 2011; Ferrando and Mulier, 2013; Huyghebaert, 2009). The cluster analysis reveals that firms with an age of more than five years tend to be more often in the debt-financed SME cluster, using a combination of different forms of institutional debt including bank loans, bank overdrafts, credit lines and credit card overdrafts. This result is in line with the expectation that more mature firms are more likely to access bank financing, as they have established relationships with capital providers, built up a reputation and are able to provide track records, which reduces information asymmetries and agency risks for capital providers (Canton et al., 2012; Chavis et al., 2011; Huyghebaert and van de Gucht, 2007; Petersen and Rajan, 1994; Walker, 1989). The cluster analysis further reveals that younger firms seem to be more likely to be mixed-financed, trade-financed and internally-financed SMEs. Although, SMEs in the mixed-financed cluster seem to be able to access bank financing to some degree, they particularly use other loans provided by family and friends or related companies and tend to combine this financing source with all other financing alternatives. SMEs in the trade-financed cluster used no institutional financing and relied solely on trade credit, leasing and/or factoring. The results confirm the expectation that younger firms are less likely to use external financing sources and if they require external capital, they tend to use informal financing instruments. As discussed in Section 2.2.1, suppliers and specialized firms often have advantages in acquiring information, controlling the lender and salvaging value from existing assets (Eisfeldt and Rampini, 2007; Fraser et al., 2013; Klapper, 2006; Petersen and Rajan, 1997; Schwartz, 1974).

Furthermore, SMEs using equity as a financing instrument seem to be more often younger firms in the mixed-financed SME cluster. Equity can either be personal contributions by the entrepreneur, which are more common in the early stages of a company (see Section

2.2.1) or equity provided by external investors such as VC investors. It has been shown that VC investors have an advantage to mitigate information asymmetries and agency risks due to comprehensive due diligence procedures and close relationships to the entrepreneur (Cosh et al., 2009; van Osnabrugge, 2000). Furthermore, the results support the rationale that 'smart money' in form of management support and establishing networks often provided by VC investors is typically of higher value for younger firms (Hsu, 2004; Landström, 1992; Mason and Harrison, 1996; Zacharakis and Meyer, 2000). Overall, the cluster results indicate that different financing instruments are used differently over the business life cycle of firms and that informal sources seem to be more important in the early stages of a company. Furthermore, the cluster analysis reveals that trade credit, leasing and factoring seem to play an important role over the complete business life cycle but that these financing instruments are also accessible for younger SMEs, especially with an age of more than two years.

Ownership: The cluster analysis reveals that single-owner SMEs are more often internally financed. If they use external financing instruments they are more likely to use flexible short-term debt and bank loans. This financing behavior is in line with the expectations and with the results from previous research (Cressy, 1995; McMahon and Stanger, 1995). As owner-managed firms try to avoid heteronomy through external parties they prefer debt over equity and in particular short-term debt after internal financing capabilities are depleted (Holmes and Kent, 1991; Hutchinson, 1995; Huyghebaert et al., 2007). Short-term financing is typically more flexible, requires less collateral and covenants and is hence, more attractive for smaller, owner-managed firms (Hutchinson, 1995). It is rather interesting that according to the cluster analysis SMEs owned by families and entrepreneurial teams are less likely to be internally-financed SMEs and are more often trade-financed, mixed-financed and even state-subsidized and debt-financed SMEs. It seems that, even though these firms are privately owned, they are more likely to use a larger variety of external financing instruments and other factors might be more important for the financing of these firms. The relatively large number of family owned businesses and entrepreneurial teams in the mixed-financed SME cluster might also be explained by their utilization of loans provided by families and friends and business associates. Romano et al. (2001) found that smaller family firms with less formal planning processes are more likely to use loans provided by family members. Other ownership types, such as public shareholders, other firms or business associates, venture capital firms and business angels seem to be mostly mixed-

financed SMEs. An explanation for this result might be that the type of ownership is directly linked to the financing sources used.

Growth: Past growth rates as well as future growth expectations seem to be closely related to the financing of SMEs. The cluster analysis reveals that firms with high growth rates in the past are more likely to use a broader range of financing instruments and in particular alternative and short-term financing. Hence, they tend to be more often in the mixed-financed, flexible-debt-financed and trade-financed SME cluster. This result is likely to be related to the higher risks of high-growth firms (Degryse et al., 2012; Michaelas et al., 1999; Myers, 1977; Vanacker and Manigart, 2010). Banks have been found to be more reluctant to finance these firms with long-term loans as they prefer companies with a steady income stream which typically are less risky (Vanacker and Manigart, 2010). These arguments are supported by the results of the cluster analysis and in particular the lower growth rates of debt-financed SMEs (Casey and O'Toole, 2014; Cosh et al., 2009; Fraser et al., 2013; Huyghebaert et al., 2007; Lasfer and Levis, 1998). Private equity investors like VC companies are often more interested in innovative, high-growth firms[36] as the higher risks of these ventures are expected to be offset by higher returns (Brown and Degryse, 2012; Carpenter and Petersen, 2002a; Hall, 2010). Furthermore, it has been found that firms backed by VC investors are more likely to grow (Chemmanur et al., 2011). Independent of the cause-and-effect relationship, the use of external equity is likely to be related to firm growth. In addition, the owners of the firm and related parties such as family and friends and associated companies typically have an information advantage in comparison to outside capital providers. The cluster analysis indicates a positive relation between firm growth and these financing instruments, as firms with higher turnover growth rates tend to be in particular mixed-financed SMEs[37] (Hall, 2010; Magri, 2009; Mason and Stark, 2004; Mina et al., 2013).

Noticeable is the result that the number of firms with high and moderate past growth rates is comparatively high in the state-subsized SME cluster. In addition, SMEs in this cluster seem to be very positive about their future growth. This result indicates that firms with considerable past growth rates and high growth ambitions more often seem to be supported by

[36] Tables A3-8, A3-9 and A3-10 indicate that growth and innovation activities are interconnected.

[37] However, it has to be considered, that the number of equity-financed SMEs with 4.3% (see Table 3-4) in the total sample and 24.1% (see Table 3-5) in the mixed-financed cluster are relatively low, which limits the conclusion in relation to equity financing.

the government. In addition, firms without growth in the past and without growth expectations for the future tend to be more often internally-financed SMEs. The low growth rates in this cluster might be the result of difficulties in accessing external finance and insufficient internal financing capabilities (Carpenter and Petersen, 2002b). However, as has been noted in the past, not all SMEs want to grow but are 'mom and pop' firms without any growth ambitions and they may not even consider the use of outside financing[38] (Ang, 1992; Berger and Udell, 1998; Miller et al., 2011; Vanacker and Manigart, 2010).

Profitability: SMEs with a relatively stable development of profitability are more likely to be internally-financed SMEs. This result is likely to be related to the previous argumentation about the growth expectations of 'mom and pop' businesses and their main purpose to achieve a steady income stream. SMEs with a positive development of profitability tend to be more often trade-financed SMEs. This finding is in line with the argumentation that more profitable firms substitute long-term debt with short-term debt and trade financing (Cosh et al., 2009; Michaelas et al., 1999). Additionally, it has been shown that efficient trade credit management can improve a firm's profitability (Martínez-Sola et al., 2013). Looking at the percentage of SMEs in the flexible-debt-financed cluster, a rather mixed picture can be found. The number of SMEs with a positive development of profitability using mainly flexible debt tends to be high but the same seems to be true for SMEs with a decrease in profitability. Interestingly, the same mixed result can be found for the debt-financed and mixed-financed SME clusters. Firms with a distinct decrease in profitability are comparatively more often state-subsidized SMEs. This result indicates that high-growth firms with a negative profitability development are more likely to use grants and government subsidies. To interpret the cluster results, it has to be considered that the use of financing instruments and the development of profitability was measured over a six months period. As the relation between an increase in profitability, the development of retained earnings and the financing decision is likely to be time lagged, an isolated interpretation of profitability is rather difficult. Furthermore, the cause-and-effect relationship is difficult to determine, as for example fixed interest rates related to bank loans might also have an impact on a firm's profitability.

[38] Table A3-7 provides some support for this argument, as access to finance does not seem to be of major concern for the firms in this cluster. Even though access to finance is still an issue, in comparison with other problems the companies are faced with, access to finance seems to be the least pressing.

Product-specific characteristics

The cluster analysis indicates that innovative SMEs are more often mixed-financed SMEs using a large variety of financing instruments. Compared to the other SME financing types, they are more likely to use retained earnings, have a strong preference for loans from related parties such as family and friends or related companies and use equity to finance their company. These findings are in line with prior research, which has shown that innovative firms prefer internal capital over external capital due to high information asymmetries and, consequently, higher costs of external capital (Hall, 2010; Magri, 2009). However, as the capital requirements to finance investments in innovation often surpass the internal financing capabilities of the firm (Carpenter and Petersen, 2002b), innovative firms are likely to be in need of additional sources of capital. Financing provided by related parties can help to overcome these constraints, as information asymmetries between related parties and the firms tend to be lower in comparison to 'anonymous' external capital providers (Berger and Udell, 1998). Furthermore, private equity investors have been found to be better suited to provide financing for high-growth, innovative firms[39] (Brown and Degryse, 2012; Hall, 2010; Vanacker and Manigart, 2010).

In addition, the cluster analysis reveals that innovative firms are more often state-subsidized SMEs. This result indicates that innovative SMEs receiving government support are more likely to utilize a larger variety of financing instruments and seem to be able to access bank loans, which are typically rather difficult to obtain for these firms (Brown and Degryse, 2012; Carpenter and Petersen, 2002a; Magri, 2009). This result supports the argument that government subsidies can have a certification effect for other capital providers, as the screening process of government agencies reduces the perceived information asymmetries and bankruptcy risks (Freel, 2006; Mina et al., 2013; Murray and Lott, 1995). This argument is further supported by the lower percentage of innovative firms in the debt-financed SME cluster.

[39] Please also refer to Tables A3-8, A3-9 and A3-10 and the limitations described in footnote 37.

Industry-specific characteristics

Even though the sector of main activities has a rather low ability to explain the cluster affiliation (Cramer's V = 0.05), the detailed analysis of the results still gives some indication that firms from industries with less fixed assets are, as expected, more often short-term and internally financed (Hall et al., 2000; van der Wijst and Thurik, 1993). Especially service firms seem to rely strongly on internal financing and are less likely to use external financing instruments. As tangible assets and hence capital requirements in the service sector are typically comparatively low, financing from turnover and bootstrapping have been found to be a suitable way to finance these firms (Chavis et al., 2011; Ebben and Johnson, 2006; Klapper et al., 2002). The cluster analysis further reveals that trade financing and flexible debt financing are more common for SMEs in the trade sector. This is in line with previous research, which found that firms with a lower maturity structure of assets and a higher requirement for working capital financing are more likely to be short-term financed (Chavis et al., 2011; Hutchinson, 1995; Klapper et al., 2002; Michaelas et al., 1999; Myers, 1977; Petersen and Rajan, 1997).

Firms from the industry sector are more likely to be debt-financed and state-subsidized SMEs. This again is as expected: firms from capital-intensive industries require longer term financing and—at the same time—can provide more collateral, thereby reducing information asymmetries and agency risks for capital providers, as collateral secures their interests in the case of repayment problems (Degryse et al., 2012; Hall et al., 2000; Michaelas et al., 1999). SMEs from the construction sector frequently seem to be debt-financed SMEs, but also mixed-financed SMEs. Prior research found that the construction sector has relatively low leverage and in particular lower long-term debt compared to other industries (Degryse et al., 2012; Hall et al., 2000; La Rocca et al., 2009). However, the construction sector was found to be more affected by the financial crisis and access to finance was even harder to obtain for construction firms (Artola and Genre, 2011; Coluzzi et al., 2012; Öztürk and Mrkaic, 2014). This might be an explanation why these firms used a broader range of financing instruments. Yet it is nevertheless surprising that in comparison, SMEs from the construction sector more often seem to be debt-financed SMEs. However, the SAFE survey does not reveal the maturity structure of bank loans and it is possible that the bank loans in the construction sector might have a shorter maturity.

Country-specific characteristics

SMEs' financing decisions have been found to be complex and strongly depend on the availability of and demand for specific financing instruments (La Rocca et al., 2009). As analyzed above, firm-, product- and industry-specific characteristics contribute significantly towards an explanation of SME financing patterns. However, as has been discovered in the past, the country-specific environment in which firms operate has a significant influence on the availability of and demand for financing. Macroeconomic, legal, institutional, geographical, cultural and historical aspects have to be considered to explain the financing of SMEs (Beck et al., 2008; Demirgüç-Kunt and Maksimovic, 1999; Kearney et al., 2012; Kiehlborn and Mietzner, 2005). Even though financial integration and convergence in Europe have advanced, there are still country-specific differences in the development of bond and stock markets as well as the quality and importance of the banking sector (Guiso et al., 2004; Mullineux and Murinde, 2010). Especially SMEs are more dependent on national financial markets, as the size of their financial requirement is often too small to facilitate cross-border transactions (Guiso et al., 2004; Jõeveer, 2012; Mullineux and Murinde, 2010). Hence, it is expected that there are still significant differences in SME financing across Europe. Without trying to explain country differences on an individual country level, the exploratory research design is continued by identifying differences in SME financing patterns at country group levels. Countries will be classified according to different distinguishing factors, which are expected to have an impact on SME financing: geography, predominant financial market systems, the financial market crisis and financial market integration in Europe.[40] To investigate the effect of financial market integration, countries will be classified according to their EU membership ('old' versus 'new' EU members) and euro versus non-euro countries.

Regional differentiation of European countries: To differentiate country groups by region, the classification by the United Nations Statistics Division (UNSD) is used. Accordingly, Europe is divided in Eastern Europe, Northern Europe, Southern Europe and Western Europe. Analyzing the six financing clusters using this differentiation reveals that the country groups are not equally distributed in the clusters ($p < 0.01$) (see Table 3-7).

[40] However, it should be considered that the different classification criteria are likely to be interrelated and are not clearly distinct.

Table 3-7: Cluster comparison: Regional differentiation

Groups of countries by region (UNSD)	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
							Pearson Chi²	Cramer's V
Eastern Europe	14.4%	6.3%	11.4%	9.8%	12.3%	45.8%		
Northern Europe	23.7%	3.5%	11.2%	11.6%	22.6%	27.4%		
Southern Europe	16.1%	9.8%	17.3%	12.4%	17.5%	26.8%		
Western Europe	15.6%	6.2%	20.2%	17.4%	10.8%	29.8%		
Total sample	16.7%	7.2%	16.1%	13.2%	15.3%	31.4%	659.0***	0.134

Notes: N = 12,310; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

Internally-financed SMEs are the largest group within each geographical region. However, Eastern European countries stand out, showing a much higher percentage of firms using internal financing (45.8%). As former socialist countries, the financial markets in Eastern Europe were underdeveloped and external financing sources were often not available (Aidis, 2005; Klapper et al., 2002). Even though financial integration in Europe progressed over the last years and financial systems are converging (Guiso et al., 2004; Mullineux and Murinde, 2010; Murinde et al., 2004), it seems that SMEs in these countries still use internal-financing sources comparatively more often. However, it has been found that debt levels seem to increase in Eastern Europe (Haas and Peeters, 2006; Jõeveer, 2013; Nivorozhkin, 2005). The cluster analysis supports these results and indicates that SMEs in Eastern European countries seem to be as likely to be debt-financed (11.4%) as Northern European SMEs (11.2%), even though debt financing is of much less importance in both country groups compared to Southern (17.3%) and Western European SMEs (20.2%). Northern European SMEs are to a large degree mixed-financed SMEs (23.7%). This result is not surprising, considering the fact that Northern European countries tend to have comparably well-organized and efficient financial markets, including stock markets (Guiso et al., 2004). The other country groups show significantly lower percentages of SMEs in this cluster but with relatively similar proportions (between 14% and 16%). Compared to the other country groups, Southern European SMEs more often tend to be state-subsidized SMEs (9.8%). This result might be explained by the fact that a number of countries in this region were particularly affected by the financial market crisis (e.g., Greece, Italy, Portugal, Spain) and financing for SMEs from banks in these countries tended to be more difficult (Belke, 2013; Ferrando and Mulier, 2013). Northern Europe, on the other hand, was much less affected by the crisis (with the exception of Ireland) and the market orientation in these countries tends to be stronger (Allard and Blavy, 2011; Bijlsma and Zwart, 2013; Demirgüç-Kunt and Levine, 1999; Guiso et al., 2004). Hence, state-subsidized SMEs are less likely to be in this region (3.5%).

Western and Southern European SMEs more often tend to be debt-financed SMEs (20.2% and 17.3%). The strong banking system in continental Europe is likely to be an important explanation for this result (Allard and Blavy, 2011; Bijlsma and Zwart, 2013; Demirgüç-Kunt and Maksimovic, 1999). For Western Europe, this finding is supported by the large number of SMEs in the flexible-debt-financed SME cluster (17.4%). In the South, SMEs more often tend to be in the trade-financed SME cluster (17.5%). This result can be explained by the cultural characteristics in these countries, which generally involve longer payment periods (EPI, 2014; Garcia-Teruel and Martinez-Solano, 2010; Marotta, 2005; Psillaki and Eleftheriou, 2014). What is more surprising is the result that 22.6% of SMEs in Northern Europe are trade-financed SMEs. However, this result is in line with the findings of Demirgüç-Kunt and Maksimovic (2001). They have shown that firms in countries with well-developed financial market systems use trade credit comparatively more often (e.g., in Canada, the UK and Ireland). Furthermore, although initial payment periods might be shorter in Northern European countries (Garcia-Teruel and Martinez-Solano, 2010), as long as late payment penalties are not enforced, trade credit might be an attractive option in comparison to other forms of short-term debt financing (Marotta, 2005). In addition, leasing is a financing instrument which is used to a larger degree in some Northern European countries (Oxfort Economics, 2011) and might be a further explanation for this result.

Bank-based, market-based and former socialist countries: The relationship between a country's financial system and its economic development has been widely discussed in the past (Demirgüç-Kunt and Levine, 1999; Levine, 2002; Nyasha and Odhiambo, 2014). However, previous research is indecisive which of the two financial systems—bank-based or market-based—better enhances economic growth (Chakraborty and Ray, 2006; Levine, 2002). In bank-based financial systems, banks play the dominant role in mobilizing and allocating capital, monitoring firms and facilitating risk management systems (Demirgüç-Kunt and Levine, 1999). Proponents of the bank-based view stress the positive role of banks in reducing information asymmetries through long-term relationships, their post-investment monitoring capabilities and their power to reduce market distortions and to achieve economies of scale (Levine, 2002; Rajan and Zingales, 1998). In market-based financial systems, securities markets and their role in allocating capital, exerting control and facilitating risk management are dominant (Demirgüç-Kunt and Levine, 1999). Market-based advocates highlight that markets increase transparency, reduce inefficiencies and hence, enhance economic growth (Demirgüç-Kunt and Levine, 1999; Levine, 2002). Typically, Germany and

Japan are seen as one polar extreme for bank-based systems and the US and the UK as the other extreme for market-based financial systems (Allen and Gale, 2001; Levine, 2002). Results from cross-country research do not support the dominance of either of the two financial systems in relation to economic growth, but found that better developed financial systems with stronger legal systems protecting the interests of investors and creditors positively influence external financing and economic growth (Demirgüç-Kunt and Levine, 1999; Levine, 2002; La Porta et al., 1997).

Even though European economic integration increases convergence in economic and legal systems, it is to be expected that firms in the different financial market systems have access to and a stronger preference for different combinations of financing instruments. Especially SMEs, which are more often dependent on the national financial markets (Guiso et al., 2004; Jõeveer, 2012) are likely to be influenced by the different financial systems. To analyze this relation, European countries are classified according to their prevalent financial market system (Allard and Blavy, 2011; Bijlsma and Zwart, 2013; Demirgüç-Kunt and Levine, 1999; Saillard and Url, 2011).[41] In addition, a third group, the former socialist countries, was included in the analysis. The financial market system in these countries is strongly influenced by their history. State-owned firms and banks, corruption and low levels of investor protection characterized many former socialist countries until the 1990s (Nivorozhkin, 2005). As a consequence, financial markets were underdeveloped, the banking system was inefficient and mostly state-owned (Aidis, 2005; Haas and Peeters, 2006; Klapper et al., 2002). For firms, it was difficult to attract external finance and they often relied on internal financing and loans from related parties like family and friends (Aidis, 2005; Haas and Peeters, 2006; Hutchinson and Xavier, 2006). Even though state-owned enterprise privatization, transformation of the banking system, establishment and enforcement of market-oriented legal systems and financial market integration reduced these differences significantly (Delcoure, 2007; Guiso et al., 2004; Mullineux and Murinde, 2010; Murinde et al., 2004; Nivorozhkin, 2005), it is still expected that differences in SME financing exist.

[41] After reviewing the literature, it was chosen to classify the UK, the Netherlands (NL), Sweden (SE) and Finland (FI) as market-based (Allard and Blavy, 2011; Bijlsma and Zwart, 2013; Demirgüç-Kunt and Levine, 1999; Saillard and Url, 2011). As various countries are neither clearly market- nor bank-based, it was tested to include other countries sometimes classified as market-based, like France and Belgium (Allard and Blavy, 2011). However, results have shown that the inclusion of these countries reduced the association of cluster affiliation, which means that the financing of SMEs in these countries is too different from the initial country group (Cramer's V decreased from 0.149 to 0.129).

The results of the cluster analysis confirm these expectations and reveal that there is a significant distinction in SME financing between bank-based and market-based financial systems and former socialist countries ($p < 0.01$) (see Table 3-8).

Table 3-8: Cluster comparison: Financial market systems

Groups of bank-based, market-based and former socialist countries	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
							Pearson Chi²	Cramer's V
Bank-based countries	15.8%	8.5%	18.6%	14.8%	15.1%	27.1%		
Market-based countries[(a)]	23.7%	2.9%	12.1%	11.4%	21.2%	28.6%		
Former socialist countries	15.0%	6.0%	11.2%	9.6%	12.1%	45.9%		
Total sample	16.7%	7.2%	16.1%	13.2%	15.3%	31.4%	548.8***	0.149

Notes: N = 12,312; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

[(a)] NL, SE, UK, FI (Allard and Blavy, 2011; Bijlsma and Zwart, 2013; Saillard and Url, 2011; Demirgüc-Kunt and Levine, 1999)

As expected, SMEs in former socialist countries more often tend to be internally-financed SMEs. In addition, comparing the cluster distribution of SMEs in this country group shows that their financing behavior is neither bank- nor market-based driven. This result indicates, at least at an aggregated level, that financial markets in former socialist countries are not dominated by either of the two financial systems. What is interesting is the result that SMEs in these countries less often seem to be flexible-debt-financed and trade-financed SMEs. This finding differs from results of previous research, which found that companies in transition economies more often tend to be short-term financed (Delcoure, 2007; Klapper et al., 2002).

Market-based countries significantly more often seem to have mixed-financed SMEs. This result indicates that SMEs in market-based economies are more likely to use a broader range of financing sources, including equity investors and the securities market, to finance their businesses. In addition, SMEs in market-based countries more often tend to be trade-financed SMEs. This result indicates that SMEs in market-based countries seem to prefer covering their financing needs with trade credit, leasing or factoring instead of using institutional sources of financing (Demirgüç-Kunt and Maksimovic, 2001; Oxfort Economics, 2011). SMEs in bank-based countries more often tend to be debt-financed and flexible-debt-financed. This is not surprising, as these economies are characterized by a strong banking sector. Furthermore, SMEs in bank-based economies are more likely to use state-subsidized financing. This finding might be the result of the European financial market crisis, where banks reduced their credit engagement, especially in regard to smaller and riskier creditors

(Casey and O'Toole, 2014; Ferrando and Griesshaber, 2011; Ferrando and Mulier, 2013) and government support was required to overcome these access to finance problems.

Distressed versus non-distressed economies in Europe: The recent economic, financial and debt crisis has affected countries in Europe to varying degrees. Over the last years, especially Cyprus (CY), Greece (GR), Ireland (IE), Italy (IT), Portugal (PT), Slovenia (SI) and Spain (ES) (ECB, 2014b, 2014c) faced many difficulties on the sovereign level but also in the banking sector. Financial distress in the banking sector directly affects the real economy, as it poses a major threat to productivity and investment activities of firms (Drakos, 2012; Ferrando and Griesshaber, 2011). Banks in Europe and in particular in distressed countries reacted with a reduction of their credit risk exposure, which resulted in a decrease of supply and an increase of costs for bank loans (Drakos, 2012; Hempell and Sørensen, 2010). Previous research found that SMEs suffered the most due to their informational opacity and their inherent higher risks (Ferrando and Griesshaber, 2011; Öztürk and Mrkaic, 2014). Furthermore, it has been discovered that firms which are more bank-lending constrained are more likely to use alternative sources of financing such as trade credit (Carbó-Valverde and Rodríguez-Fernández, 2008; Casey and O'Toole, 2014). This effect has been shown to be more prevalent in financial market crises (Psillaki and Eleftheriou, 2014; Taketa and Udell, 2007) and distressed economies (Casey and O'Toole, 2014). To account for this effect, the 28 countries in this analysis were categorized in either distressed or non-distressed (ECB, 2014b, 2014c). The cluster analysis reveals that there are significant differences in the financing behavior of SMEs in both country groups ($p < 0.01$) (see Table 3-9).

Table 3-9: Cluster comparison: Non-distressed versus distressed countries

Groups of non-distressed vs. distressed countries	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
							Pearson Chi²	Cramer's V
Non-distressed countries	17.0%	5.6%	15.4%	13.6%	13.8%	34.6%		
Distressed countries[(a)]	16.3%	9.8%	17.3%	12.6%	17.8%	26.2%		
Total sample	16.7%	7.2%	16.1%	13.2%	15.3%	31.4%	176.0***	0.120

Notes: N = 12,312; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

[(a)] CY, ES, GR, IE, IT, PT, SI (ECB, 2014b, 2014c)

SMEs in distressed economies in particular seem to be more likely to be state-subsidized and trade-financed SMEs. As expected, deteriorations in financial markets seem to increase the utilization of alternative financing instruments such as trade credit, leasing and factoring (Casey and O'Toole, 2014). Furthermore, it is not surprising that SMEs in distressed

countries are more likely to be in need of and receive government support. State-subsidized SMEs are characterized by the utilization of grants and state-subsidized loans, but also by a high degree of institutional debt financing (see Section 3.4.2). The cluster comparison supports the argument that government support is likely to have a positive effect on firms' access to finance (Freel, 2006; Mina et al., 2013; Murray and Lott, 1995). Firms that received government subsidies seem to be more likely to obtain other forms of institutional debt, even under difficult financing conditions (Beck et al., 2008; Demirgüç-Kunt and Maksimovic, 1999).

'Old' versus 'new' EU member states: The aim of this distinction is to shed some light on the financial integration in the European Union[42] and its impact on SME financing (Nivorozhkin, 2005). The European enlargement since 2004 so far comprises the former socialist countries Bulgaria, the Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia as well as Cyprus and Malta[43] ('new' member states or 'accession' countries). The results of the analysis show that significant differences in SME financing exist between the two different country groups ($p < 0.01$) (see Table 3-10).

Table 3-10: Cluster comparison: 'Old' versus 'new' EU member states

Groups of 'old' vs. 'new' EU member countries[(a)]	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
							Pearson Chi²	Cramer's V
EU members before 2004 ('old' members)	16.9%	7.6%	17.6%	14.4%	16.3%	27.3%		
Accession countries since 2004 ('new' members)	15.0%	6.1%	11.2%	9.6%	12.3%	45.8%		
Total sample	16.5%	7.2%	16.2%	13.3%	15.4%	31.4%	354.5***	0.171

Notes: N = 12,165; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.
[(a)] excl. Norway (NO)

The cluster analysis reveals that compared to the 'old' EU members, SMEs in the 'new' member states in particular are more likely to be internally-financed SMEs and have a much lower utilization of institutional debt financing (short- and long-term debt). In addition, they tend to use less trade financing. Government subsidies also seem to be less common (or less available). Even though the EU accession countries (mainly former socialist countries)

[42] Norway was excluded from the analysis as it is not an EU member state.

[43] Due to a lack of data, Malta is not included in the analysis.

typically still have underdeveloped financial markets (Delcoure, 2007; Guiso et al., 2004; Mullineux and Murinde, 2010; Murinde et al., 2004; Nivorozhkin, 2005), a considerable number of SMEs in these countries are mixed-financed firms. This highlights the fact that financing from related parties such as family and friends seem to be an important financing alternative in these countries (Aidis, 2005). Going one step further and separating the members which joined the EU in 2007 and 2013 (Bulgaria, Romania and Croatia), these differences are even more pronounced (Tudor, 2010) (see Table 3-11).

Table 3-11: Cluster comparison: 'Old' versus 'new' (2004 and later) EU member states

Groups of 'old' vs. 'new' EU member countries[(a)]	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
							Pearson Chi²	Cramer's V
EU members before 2004	16.9%	7.6%	17.6%	14.4%	16.3%	27.3%		
Accession countries in 2004	13.7%	6.7%	11.7%	10.3%	13.4%	44.2%		
Accession countries after 2004	19.5%	4.1%	9.2%	7.2%	8.4%	51.6%		
Total sample	16.5%	7.2%	16.2%	13.3%	15.4%	31.4%	389.7***	0.127

Notes: N = 12,165; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

[(a)] excl. Norway (NO)

This distinction supports the argument that the formerly underdeveloped financial markets in former socialist countries are not yet comparable to the EU average (Haas and Peeters, 2006; Nivorozhkin, 2005). However, it seems that the longer the countries are in the EU, financial market integration progresses and access to finance converges towards the 'old' EU member states. The introduction of the single currency might be an additional driver for this development.

Euro versus non-euro countries: One of the main goals of the EU is to establish a single financial market for its member states. The introduction of the common currency has been argued to be a major step to create this single market (Allen and Song, 2005). The euro was launched as a virtual currency on 1 January 1999 and banknotes and coins were introduced on 1 January 2002. The Eurozone consists of those European Union countries that have adopted the euro as their common currency. To be able to join the Eurozone, countries have to fulfill specific economic stability criteria such as a "*high degree of price stability, a sound fiscal situation, stable exchange rates and converged long-term interest rates*"[44].

[44] See https://www.ecb.europa.eu/ecb/history/enlargement/html/index.en.html (accessed 11 April 2015).

Starting with 12 EU member states in 2002, the Eurozone comprises today 19 of the currently 28 EU countries. The non-euro EU member states are: Bulgaria, the Czech Republic, Croatia, Denmark, Hungary, Poland, Romania, Sweden and the UK. In the Eurozone, the ECB acts as the leading financial authority with the main mission *"to safeguard the financial stability and promote European financial integration."*[45] As a result, economic parties within the Eurozone should face identical rules and equal access to financing instruments or services (Baele et al., 2004). Hence, it is expected that access to finance for companies in the Eurozone differs from the financing conditions in non-euro countries, which is supported by the results of the cluster analysis ($p < 0.01$) (see Table 3-12).

Table 3-12: Cluster comparison: Euro versus non-euro countries

Groups of euro vs. non-euro countries[(a)]	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
							Pearson Chi²	Cramer's V
Euro countries	16.4%	8.2%	18.1%	14.5%	14.8%	28.0%		
Non-euro countries	16.8%	4.9%	11.5%	10.5%	16.8%	39.5%		
Total sample	16.5%	7.2%	16.2%	13.3%	15.4%	31.4%	250.3***	0.142

Notes: N = 12,163; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

[(a)] excl. Norway (NO)

The main differences are that SMEs in non-euro countries more often tend to be internally financed and seem to be financed by government subsidies, bank loans and flexible debt financing with less frequency. These differences support the argument that the launch of the euro increased the degree of financial integration among the member states (Baele et al., 2004; Lane and Waelti, 2006). However, looking at the non-euro countries and the specific differences between both country groups, it is unclear whether these differences can be (solely) explained by the Eurozone membership or whether they are the result of the financial systems in the respective countries already discussed in the previous classifications.

[45] See https://www.ecb.europa.eu/ecb/orga/escb/html/mission_eurosys.en.html (accessed 11 April 2015).

3.5 Discussion and conclusion

3.5.1 Summary and implications for theory and practice

Summary of results

The aim of this chapter was to develop an empirical taxonomy of SME financing patterns in Europe. The results show that SME financing is not homogeneous, but that different SME financing types exist. The cluster analysis identified six distinct SME financing types in Europe: mixed-financed SMEs, state-subsidized SMEs, debt-financed SMEs, flexible-debt-financed SMEs, trade-financed SMEs and internally-financed SMEs. These groups of SMEs differ according to the number of different financing instruments used and the combinations of these instruments. Furthermore, it was analyzed how these SME financing types differ according to their firm-, product-, industry- and country-specific characteristics. The results show that mixed-financed SMEs use all types of financing instruments—including equity and market-based financing instruments—but with a strong focus on loans provided by related parties such as family and friends or related companies. In comparison, mixed-financed SMEs are more often younger, small and medium-sized innovative firms with high future growth expectations. The ownership structure is mixed, but with comparatively few single-owner firms. SMEs in this cluster are more likely to be in market-based economies and in Northern Europe. State-subsidized SMEs rely in particular on government subsidies and bank financing. Firms in this group are more often small and in particular medium-sized companies with high to moderate past growth rates and high future growth expectations. SMEs in this cluster show a high level of innovation activities but decreased profit margins. They are more likely to be in bank-based and distressed countries. Debt-financed SMEs use bank loans, short-term bank financing and trade credit to a large extent. More often, they tend to be older firms in family hands or owned by entrepreneurial teams. These firms show comparatively low growth rates and growth expectations and a low level of innovation activities. SMEs in this cluster are more often in bank-based economies and in the ‘old’ EU member countries. SMEs using more flexible forms of debt financing, in particular provided by financial institutions, tend to be more mature micro firms. These companies are more often single-owner firms in bank-based economies and in the ‘old’ EU member states. Trade-financed SMEs rely in particular on their suppliers to finance their operations, but also use leasing and factoring comparatively more often. They tend to be younger and smaller firms with increased profit margins, owned by families or entrepreneurial

teams. Trade-financed SMEs are more likely to be Northern and Southern European companies. Finally, internally-financed SMEs are in particular young micro firms. These SMEs tend to be single-owner companies from the service industry with comparatively low growth expectations. SMEs in this group are more likely to be in Eastern Europe and former socialist countries. Table 3-13 summarizes the results.

Table 3-13: Cluster comparison[46]: Summary

Cluster	Financing in cluster	Characteristics			
		Firm-specific	Product-specific	Industry-specific	Country-specific
Mixed-financed SMEs	SMEs that used a large variety of instruments with a focus on other loans (72%); only cluster with a noteworthy amount of equity financing (24%)	more often younger, small and medium-sized firms with different ownership structures; moderate past growth but with high future growth expectations and more often increased profit margins	more innovation	most likely for construction sector	esp. in Northern European and market-based countries
State-subsidized SMEs	100% of SMEs used subsidized bank loans or grants; large amount of other debt	more often small and in particular medium sized firms; especially family firms or entrepreneurial teams; high to moderate past growth and future growth expectations with decreased profit margins	more innovation	most likely for industry sector	esp. in Southern European, bank-based and distressed countries
Debt-financed SMEs	95% of SMEs used bank loans; all types of debt used	more mature small and medium-sized firms; especially family firms or entrepreneurial teams; low growth in the past and low growth expectations	low innovation	more likely for industry and construction sector	esp. in Western European, bank-based and 'old' EU member countries
Flexible-debt-financed SMEs	100% of group used short-term bank debt; some trade credit and leasing / factoring	more mature micro firms with lower turnover; especially single-owner firms; more often high employee growth; average growth expectations	average innovation	more likely for industry and trade sector	esp. in Western European, bank-based and 'old' EU member countries
Trade-financed SMEs	70% of group used trade credit and 40% leasing / factoring	more often younger (2-5 years), small firms in family hands or entrepreneurial teams; moderate turnover growth; moderate to no growth expectations	average innovation	most likely for trade sector	esp. in Northern and Southern European countries; more often in market-based countries
Internally-financed SMEs	100% of group used no external debt; 14% retained earnings	more often very young, micro, single-owner firms with high and moderate employee growth in the past; no turnover growth and expectation to stay the same size	low innovation	most likely for service sector	esp. in Eastern European, former socialist countries

[46] See also Table 3-6 and A3-5 for a detailed cluster comparison.

Theoretical contributions

The results of this chapter provide three main contributions to the SME finance literature. First, it contributes to the literature focusing on substitutive and complementary effects of different financing sources for SME financing. Prior research on the interaction between firms and their sources of capital are either focused on the basic decision between equity and debt or on a single source of capital. Separate streams of literature have emerged on specific financing instruments (Cosh et al., 2009; Hall et al., 2004; Harris and Raviv, 1991; Hutchinson, 1995; Michaelas et al., 1999; Vanacker and Manigart, 2010). Empirical research considering a larger number of financing instruments and their substitutive and complementary effect is still scarce (Beck et al., 2011; Berger and Udell, 2006; Casey and O'Toole, 2014; Cosh et al., 2009; Huyghebaert and van de Gucht, 2007; Robb, 2002). The analysis in this chapter contributes to this literature by proposing an empirical taxonomy of SME financing patterns with different combinations of various financing instruments.

Second, the analysis contributes to research on firm-, product- and industry-specific characteristics of SMEs and their importance for firm financing (Beck et al., 2008; Hall et al., 2004; Howorth, 2001; Jõeveer, 2012). Empirical studies found that factors such as firm size, firm age, ownership structure, profitability, asset structure and industry are important determinants of the demand for and availability of financing instruments (Chittenden and Hutchinson, 1996; Frank and Goyal, 2007; Howorth, 2001; López-Gracia and Sogorb-Mira, 2008; Michaelas et al., 1999; Romano et al., 2001). In addition, a number of studies focused on the financing determinants of specific types of firms like innovative and high-growth companies (Freel, 2006; Hall, 2010; Mazzucato, 2013; Mina et al., 2013; Vanacker and Manigart, 2010). The results of the cluster analysis contribute to this literature by disclosing that SME financing is not homogeneous, but that different financing patterns according to their utilization of financing instruments exist and that these groups are characterized by specific combinations of firm-, product- and industry-specific factors. Furthermore, the cluster analysis contributes to the life cycle theory of firm financing (Berger and Udell, 1998). The results show that firms tend to use different combinations of financing instruments over the business life cycle. Younger firms seem to be more likely to use informal sources of capital, whereas more mature firms tend to substitute informal sources with more formal sources of capital. However, the cluster analysis indicates that informal sources are still used as complements in later stages of a company's life.

Third, this chapter contributes to cross-country research on SME financing focusing on 28 European countries. Prior empirical research found evidence for the importance of country-specific factors determining the financing of SMEs (Beck et al., 2008; Hall et al., 2004; Jõeveer, 2012). It has been shown that corporate market structures, macroeconomic conditions, legal and tax systems, history and culture, relationships with banks and availability of different financing sources influence the financing of firms (Demirgüç-Kunt and Levine, 1999; Hall et al., 2004; Kiehlborn and Mietzner, 2005). The analysis in this chapter adds to these findings by illustrating differences in the financing patterns of SMEs in different groups of European countries. Without analyzing country-specific determinants on an individual country level, this chapter provides insights that country-specific differences are important drivers for SME financing patterns across Europe.

Policy implications

Research on SME financing has been of great political concern in the past, in particular since the financial market crisis. Significant resources are channeled into financing SMEs with the reasoning that SMEs, especially innovative SMEs, are the drivers of a country's economic development (Block and Sandner, 2009; Rajan and Zingales, 1998; Rothwell, 1989; Wehinger, 2013). It has been argued that due to high information asymmetries, innovative firms often face financial constraints and therefore justify government support programs (Beck and Demirgüç-Kunt, 2006; Beck et al., 2008; Belke, 2013; Coluzzi et al., 2012). However, these programs can only be effective if they support access to financing instruments that consider both the specific characteristics of SMEs and their demand for finance as well as the supply conditions in specific countries. The results of this chapter reveal that SME financing in Europe is not homogenous, but that different financing patterns with different profiles exist. Or to put it differently: various financing instruments are considered as substitutes and complements in SME financing and the different financing patterns are characterized by firm-, product-, industry- and country-specific factors (see Table 3-13).

One finding with particularly high political relevance is the result of the cluster analysis in regard to government support programs. The cluster analysis reveals that these programs seem to have a positive influence on the firms' access to finance. SMEs in the state-subsidized SME cluster seem to complement government subsidies with the use of a large variety of financing instruments, but with a strong focus on institutional debt. The specific characteristics of SMEs in this cluster, especially their high level of innovation activities, high

growth rates and decreased profitability would suggest that access to bank debt for these firms is difficult. Thus, it is very likely that the involvement of government agencies provides a positive signal for other capital providers, especially financial institutions. The cluster comparison also shows that the state-subsidized SME cluster is the smallest group of SMEs, more often comprising small and in particular medium-sized companies and less often micro firms. Micro firms seem to be more likely to finance their firms with internal resources and short-term debt, especially from financial institutions. This financing behavior can have various reasons such as their financing requirements, ownership structure or macroeconomic conditions. To adjust government support to this target group, a deeper analysis of the financing situation of these firms is required. It should be investigated whether the financing of these SMEs is an active choice or the result of financial constraints.[47] This analysis can provide more information whether government support might be of interest for these SMEs, and if so, what types of government programs are appropriate for these firms. Grants and subsidized bank loans might not be the preferable solution in particular for very young, innovative micro firms, but other support mechanisms such as venture capital programs, tax reliefs or the support of alternative financing channels might be more helpful for these companies. The European Union and its executing agencies such as the European Investment Bank Group already provide a number of different support programs such as the 'European Angels Fund', the 'Competitiveness of Enterprises and Small and Medium-sized Enterprises Loan Guarantee Facility (COSME)' or the 'Joint European Resources for Micro to Medium Enterprises (JEREMIE)' initiative (European Investment Fund, 2015). The results of the cluster analysis provide further insights into how to adapt these programs to the needs of the SME financing types and to different European countries. In this context, the cluster analysis further provides information about possible effects of policy changes (e.g., changes in banking regulations) in Europe on SME financing and which groups of SMEs will be particularly affected by these changes.

[47] Table A3-7 provides a first indication that especially the financing of internally-financed SMEs is, at least in part, an active choice by the firms. Internally- and trade-financed SMEs seem to have the lowest concerns about access to finance in comparison to other company challenges such as finding customers, competitive pressure or regulation concerns.

3.5.2 Limitations and future research

Limitations

The analysis in this chapter has some limitations. First, the results are limited by the questions asked and the method used in the SAFE survey. The question about the utilization of financing instruments only relate to the application but not the significance for the firm. Hence, the taxonomy developed does not account for the importance of the financing instruments to each other. Furthermore, in some cases the financing instruments are broad categories (e.g., 'leasing, hire-purchase or factoring' or 'equity'), which makes the interpretation more difficult. As the data is collected via telephone, misunderstandings about what is included in different categories cannot be ruled out. Furthermore, the survey might be affected by a self-reporting bias, as access to finance problems can be a sensitive subject for respondents. A key requirement to apply cluster analysis and develop an empirical taxonomy is the representativeness of the data. Even though the ECB and EC take great care to ensure representativeness of the survey, distortions due to a possible non-response bias cannot be ruled out. An important limitation is the exclusion of firms without employees from the survey.[48] This restriction is likely to exclude most start-ups in their early phases from the survey, as companies typically start without paid employees.

Second, the approach used in the analysis has some limitations. This analysis defined SMEs according to the threshold provided by the European Commission but—due to a lack of data—only used the number of employees (less than 250 employees). Other criteria such as annual turnover and annual balance sheet total were not considered (European Commission, 2005). Furthermore, the financing of SMEs in this analysis was restricted to the six months preceding the survey. Even though this restriction is required to avoid distortions over the business life cycle of firms and changes in macroeconomic conditions, the time frame is likely to be too short to provide a complete picture of the firms' financing patterns.[49] In addition, as some passive variables such as the development of the profit margin are considered over the

[48] The survey considers all SMEs with at least one full- or part-time employee working more than 12 hours per week. Unpaid family members working in the firm are not considered as employees (ECB, 2013).

[49] Table A3-6 provides information about the firms' current debt situation and taking out loans over the past two years. Even though this larger time period supports the general direction of the clusters, it also shows that companies that did not use loans in the past six months are not necessarily without any loans or debt. However, these results can also be caused—at least in part—by different stages in the firms' business cycle and in particular by changing macroeconomic conditions.

same time period, interpretations are difficult due to assumable time lags. Furthermore, cause-and-effect relationships between the utilization of financing instruments and a company's characteristics cannot always be clearly determined.

Finally, some limitations about the method used in the analysis have to be considered. Cluster analysis was applied to develop an empirical taxonomy of SME financing patterns in Europe. The advantage of cluster analysis is that it is an explorative instrument which does not impose predefined assumptions (Hair et al., 2010; Sørensen and Gutiérrez, 2006). However, the taxonomies developed are not fixed but can change if additional data is included in the analysis or other clustering methods are applied. Furthermore, there is no single objective procedure available to determine the correct number of clusters, but a decision has to be made based on a number of different criteria, including face validity and theoretical foundation (Hair et al., 2010). Hence, a different set of financing patterns depending on these decisions is also conceivable.

Future research

The cluster analysis provides first insights into the financing patterns of European SMEs. However, the limitations of the analysis provide interesting research directions to further investigate SME financing patterns.

1. How did the financing patterns of SMEs change over time?

The SAFE survey has been conducted since the early stages of the European financial market crisis in 2009. Different studies have analyzed these data and found, that SMEs are more affected by the tightened financing conditions (Artola and Genre, 2011; Coluzzi et al., 2012; Drakos, 2012; Ferrando and Griesshaber, 2011; Ferrando and Mulier, 2013). However, research on how SMEs reacted to these changing market conditions is still scarce. Even though the cluster analysis provides more information about the financing patterns of SMEs, the results of this chapter are based on the survey results in 2013. To shed more light on the stability of the clusters, a comparison of the taxonomy over time should be performed.

2. How do the profiles of the financing patterns change over time?

Developing an empirical taxonomy of SME financing under consideration of a longer time period can provide more information about the stability of the financing patterns. For a better understanding of the results, the patterns have to be analyzed according to their firm-, product- and industry-specific characteristics. This analysis could give some indication on how the financing of SMEs changes in the presence of different economic conditions. However, to enable an in-depth analysis of the influence factors on SME financing, the SAFE data should be combined with additional financial data of the firms such as their balance sheet information (Ferrando and Mulier, 2013).

In addition, the analysis of different country groups over time could provide further information about the financing patterns of SMEs in Europe. For example, the comparison of distressed versus non-distressed countries can deliver information on how the financing of SMEs changed in response to deteriorated macroeconomic conditions. Furthermore, the comparison of SME financing patterns in former socialist countries and the 'old' EU member countries over time can provide more insights into the impact of financial market integration on SME financing. However, to dig deeper into these differences, additional macroeconomic variables (e.g., GDP, inflation rates, private credit allocation, stock market liquidity and property rights protection information) should be included in the analysis.

3. Are alternative financing instruments a solution for SMEs experiencing financial constraints?

A further interesting research direction is to analyze if financially constrained SMEs switch to alternative financing sources. The comparison of clusters could be one step to shed more light on this question. However, other statistical methods such as time series regressions could be applied using the panel dataset included in the SAFE survey to analyze this question in more detail. Furthermore, the SAFE survey at the time of this research project does not differentiate between some financing alternatives, even though they might have different characteristics. For example, respondents can only state if they used equity as a source of financing without having the possibility to be more precise as to which type of equity they used. However, from a company perspective, there are large differences in using equity provided by the owner or external equity provided by VC companies or business angels. Other instruments like factoring, leasing and hire-purchase are not separated in the dataset, even though the underlying principles of these financing instruments are not identical (see

Section 2.2.1). New financing alternatives like crowdfunding were not (yet) included in the survey. An even greater distinction between different financing instruments and the inclusion of new financing alternatives could further improve the understanding of SME financing patterns.

The understanding of SMEs' access to and choice of finance is an important prerequisite for effective market intervention. Ongoing discussions in the practical and academic world are concerned with the question whether political interventions are appropriate to solve the access to finance problems of SMEs. As discussed, for micro and small firms in their early stages, other financing alternatives might be required or might be more attractive. Crowdfunding is one new, non-bank financing alternative, which could be suitable for these firms. Some researchers claim that this form of financing has the potential to reduce the early-stage financing gap of innovative new ventures (Hemer et al., 2011; Meinshausen et al., 2012; Röthler and Wenzlaff, 2011). The following chapters discuss crowdfunding in more detail to provide new insights into this financing alternative.

4 Crowdfunding: A literature review and research directions[50]

4.1 Introduction and motivation

In the last few years, crowdfunding has emerged as an alternative source of funding for various types of projects. In the beginning, crowdfunding was mainly used to finance artists from different sectors (Agrawal et al., 2014a; Harzer, 2013; Meinshausen et al., 2012). The establishment of various crowdfunding Internet platforms in the music sector (e.g., ArtistShare, SellaBand) made this form of financing interesting for musicians. Subsequently, other artistic and creative areas (e.g., film, journalism) have adopted the idea. Funding of companies through the crowd[51] has been discussed intensively since 2010 and explored in practice and theory. Crowdfunding is seen as a way to reduce the funding gap in the early stages of new ventures (early-stage gap) (Hemer, 2011; Meinshausen et al., 2012; Röthler and Wenzlaff, 2011). Funding from VC companies and banks is usually only available in the later development phases of start-ups (Berger and Udell, 1998; Robb and Robinson, 2014). In the early phases of a company's life cycle (pre-seed/seed stage), funding is typically provided by the founders themselves, by their friends and family and, if possible, by BAs (see Section 2.2). If these funds are insufficient, the venture faces a funding gap (Collins and Pierrakis, 2012; Wilson and Testoni, 2014). This situation has been exacerbated by the financial market crisis (see Chapter 3) (Block and Sandner, 2009; Duygan-Bump et al., 2015; Fink, 2012; Mach et al., 2014).

The high growth rates of crowdfunding over the past few years demonstrate the interest in crowdfunding as an alternative financing instrument. The US crowdfunding market (including all types of crowdfunding), for example, has grown from USD 780m in 2011 to approximately USD 1.6bn in 2012 (Massolution, 2013). Market development of online

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[50] This chapter is a substantially revised version of Moritz and Block (2014) and Moritz and Block (2015).

[51] The 'crowd' refers to a large number of people who come together at a specific location (here, on the Internet; the 'Internet community'). For further details, please refer to Chapter 5.

alternative finance in Europe[52] has increased from EUR 487m in 2012 to EUR 1,211m in 2013 and nearly EUR 3bn in 2014 (average yearly growth rate of 146%). It has been forecasted that the European online alternative finance market alone will reach EUR 7bn in 2015 (Wardrop et al., 2015). However, information about the drivers in crowdfunding, which is the most important online alternative finance market in Europe, is still scarce.

The purpose of this chapter is to provide an overview of crowdfunding research. Given that the term crowdfunding implies raising financial resources from a large number of capital providers (the crowd) without indicating the purpose of the funding, this review encompasses all types of crowdfunding, which includes donation-based, reward-based, lending-based and equity-based crowdfunding[53] (see Section 4.2). Although the chapter accounts for the scope of crowdfunding as well as for the multidisciplinary nature of the subject (Lehner, 2013), the main focus is on the economic literature based on new ventures as the capital-seeking party. This literature review is structured according to the main actors in crowdfunding: capital seekers, capital providers and intermediaries. The results of previous research are then discussed and open research questions are identified.

4.2 Crowdfunding definition, types and process

Definition of crowdfunding

Crowdfunding originated in the US and is derived from the idea of crowdsourcing (Howe, 2006). The term crowdsourcing consists of the words ‘crowd’ and ‘outsourcing’ and implies that certain functions of a company are outsourced to the Internet community (Kleemann et al., 2008). The concept is based on the idea of ‘wisdom of the crowd’ (Surowiecki, 2004). Thus, companies can benefit from the knowledge of a heterogeneous crowd and use it for corporate purposes. The backbone of the idea is the World Wide Web,

[52] The online alternative finance market includes crowdfunding, microfinance/community shares, invoice trading, pension-led funding and debt-based securities. However, the different types of crowdfunding (see Section 4.2) have a market share of more than 80% of the online alternative finance market in Europe. Excluding the UK, the market share of crowdfunding is even higher with around 95% of the total alternative finance market (Wardrop et al., 2015).

[53] In German-speaking countries, the term crowdinvesting is often used to distinguish equity-based crowdfunding from other forms of crowdfunding. In Anglo-Saxon countries, the terms securities-based crowdfunding, equity-based and equity crowdfunding are more common.

which allows new forms of collaboration and communication (Brabham, 2008; Kleemann et al., 2008). Crowdsourcing in an entrepreneurial context can be defined as:

"Crowdsourcing, […], takes place when a profit oriented firm outsources specific tasks essential for the making or sale of its product to the general public (the crowd) in the form of an open call over the Internet, with the intention of animating individuals to make a contribution to the firm's production process for free or for significantly less than that contribution is worth to the firm." (Kleemann et al., 2008, p.6)

Whereas in crowdsourcing the crowd can be tapped for any type of external resource, in crowdfunding—as a sub-type of crowdsourcing—the crowd is primarily used as a source for financing an idea, a project or a company. A widely used definition in the literature of crowdfunding is from the year 2010:

"Crowdfunding involves an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights." (Belleflamme et al., 2010, p.5)

Crowdfunding is an online-based solution for allocating financial resources and is typically intermediated by specialized platforms. A capital-seeking party presents its idea, project or company on a platform's webpage to the crowd. The type of 'reward' capital providers receive for the provision of money depends on the particular crowdfunding model. The funding is realized when a (large) number of capital providers participate in the transaction. Whether this can be done anonymously depends on the crowdfunding model. Under consideration of these different aspects, this dissertation understands crowdfunding as

"… a form of financing via an open call over the Internet, typically involving a specialized crowdfunding platform, to obtain financial resources for a project or a company. Crowdfunding transactions typically involve a large number of individual investors (the 'crowd') who participate as donors or to receive some form of non-tangible or tangible compensation."

This definition also highlights the interdisciplinary nature of crowdfunding (Lehner, 2013). An explanation of the phenomenon requires the interaction of various disciplines, e.g., business and economics, information technology, communications and media studies, psychology and legal studies.

Crowdfunding types

While the term ‘crowdfunding’ is used very frequently, this financing alternative encompasses various heterogeneous financial models, which vary in their complexity and risks. Four basic types[54] of crowdfunding can be distinguished, which differ in the utilization of financial resources by the project initiators and the return to investors (Beck, 2012; Giudici et al., 2012; Leimeister, 2012): (1) donation-based crowdfunding, (2) reward-based crowdfunding, (3) lending-based crowdfunding and (4) equity-based crowdfunding.[55]

(1) Donation-based crowdfunding: This type of crowdfunding differs from the classic collection of donations by its utilization of the Internet to collect the money, typically with the assistance of a specialized platform. The goal remains the same: a large number of typically small donations fund a project. The project initiators do not provide any benefit or compensation for capital providers. Small immaterial rewards such as thank-you notes to capital providers are possible.

(2) Reward-based crowdfunding: This crowdfunding type can be differentiated as crowd-sponsoring on the one hand and pre-selling (or pre-ordering[56]) on the other hand. In crowd-sponsoring, the capital providers do not receive a tangible reward. The benefits for sponsors are created by mentioning their name, for example, in the credits of a film or on the cover of a CD (Belleflamme et al., 2014; Kortleben and Vollmar, 2012). Pre-selling involves financial support by capital providers in return for the early delivery of the product or service produced (e.g., a music album before its official release) (Hemer, 2011; Röthler and Wenzlaff, 2011).

(3) Lending-based crowdfunding: In lending-based crowdfunding, small or micro loans are granted without involving classic intermediaries (such as banks). Capital providers are compensated by receiving a predetermined interest rate and the repayment of the loan at maturity. The loan provision can either be granted to peers

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54 Combinations of specific characteristics of different crowdfunding models are possible and quite common (e.g., equity-based crowdfunding including financial and non-financial rewards for investors).

55 In the crowdfunding literature a breakdown into five different crowdfunding types can also be found. In this case, the reward-based crowdfunding model is differentiated into ‘crowd-sponsoring’ and ‘pre-selling’ (e.g., Griffin, 2012; Röthler and Wenzlaff, 2011).

56 The term used depends on the perspective: whereas capital providers pre-order the product, capital seekers pre-sell it.

(peer-to-peer lending, P2P lending[57]), which means that private individuals provide a loan to other private individuals (Hemer et al., 2011; Kortleben and Vollmar, 2012), or to companies (peer-to-business lending, P2B lending), which involves the financing of (typically small) firms by the crowd (Barasinska and Schäfer, 2010; Mach et al., 2014).

(4) Equity-based crowdfunding: In equity-based crowdfunding, capital providers receive a share in the company and are compensated by a participation in the company's profits (Beck, 2012, 18; Klöhn and Hornuf, 2012).[58]

The crowdfunding process

Crowdfunding is either possible as a direct transaction, where the capital-seeking party tries to obtain the financial resources directly (e.g., by placing a call over social media channels or sending emails to customers) or as an indirect transaction, where an intermediary, typically a specialized crowdfunding platform, is involved (Lambert and Schwienbacher, 2010). The large and further increasing number of crowdfunding platforms (over 500 worldwide, including about 300 in Europe[59]) speaks for the preference of this method. A platform as an intermediary can ensure a standardized procedure of a crowdfunding transaction for the capital-seeking party. At the same time, the platform is an information, communication and management portal for interested capital providers. Platforms enable the reduction of information asymmetries and transaction costs (Allen and Santomero, 1997; Beck, 2012; Berger and Gleisner, 2009; Leland and Pyle, 1977).

Main actors in a crowdfunding transaction are the capital seekers (project initiators such as artists, private individuals or companies), capital providers (the crowd) and intermediaries (usually crowdfunding platforms). An indirect crowdfunding transaction can be briefly described in the following steps (see Figure 4-1).[60] A capital-seeking party sends an

[57] P2P lending has its origin in the fight against poverty, in which case micro loans are provided to people and/or projects in developing countries (Zhang, 2013).

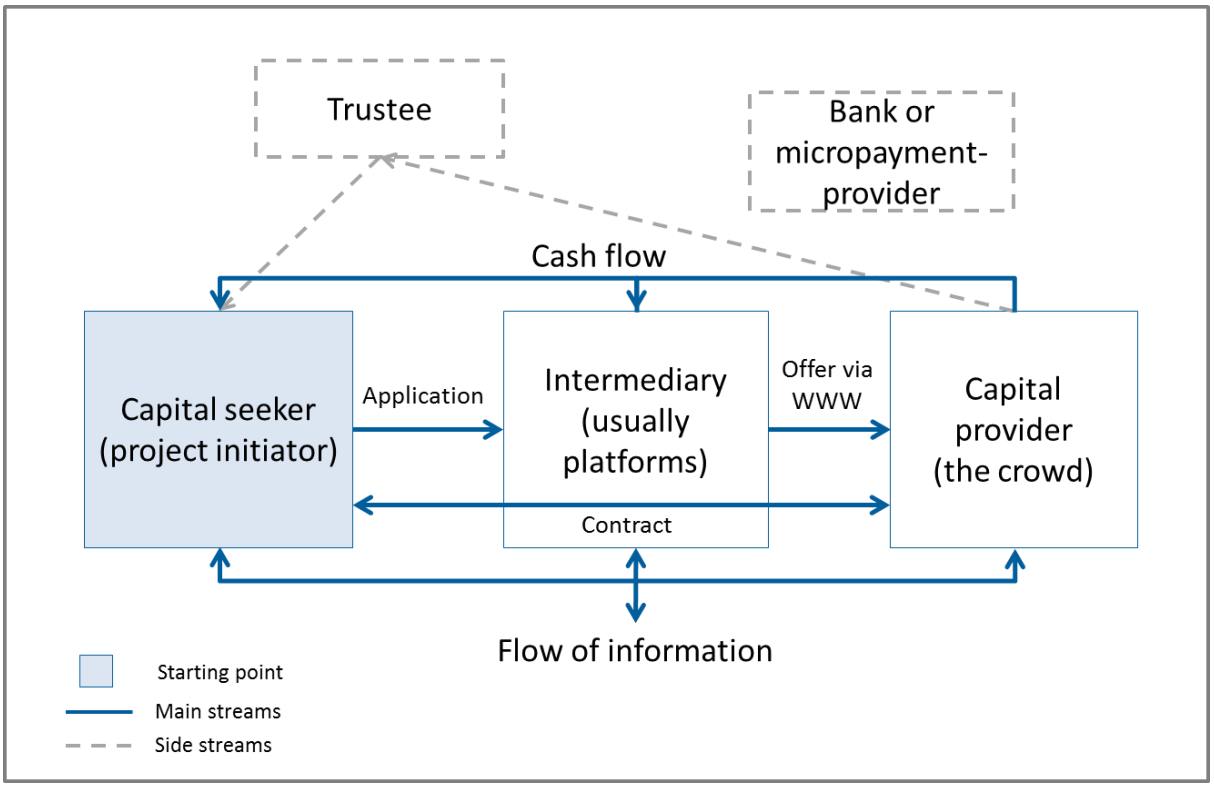
[58] Since in most countries, issuing shares is only allowed by regulated financial institutions, other forms of financial instruments such as mezzanine financing are used in some countries (see Chapter 5).

[59] See Wallstreet Journal, 16 February 2013, http://www.statista.com/statistics/251567/growth-r-of-crowdfunding-platforms-worldwide/ (accessed 7 March 2015) and Wardrop et al. (2015).

[60] Deviations depend on the crowdfunding type and the business model of the platform.

application to a crowdfunding platform.[61] The application contains information about the project, the company and the financing requirements. Registered users receive—upon acceptance by the platform—access to this information and can specify the amount they wish to invest.[62] The platform organizes the contract between capital seekers and capital providers (if required). The capital providers pay the promised amount via bank transfer or micropayment providers (e.g., PayPal). The platform will not hold the money directly, but outsources this task to a trustee[63], who disburses the money to the capital-seeking party.

Figure 4-1: The crowdfunding process



Source: Based on Moritz and Block (2014)

[61] Not all platforms support each project and pre-select the projects.

[62] Platforms typically have minimum investment amounts, specified lot sizes and/or maximum investment amounts.

[63] The administration of the collected amounts by a trustee is required if the platforms are not regulated financial market participants (which is typically the case). In Germany, the regulations of the German Banking Act (KWG) need to be respected. Banks, micropayment providers and trustees are required due to technical and regulatory reasons, but they are not main actors in a crowdfunding transaction (therefore they are labeled as 'side streams' in Figure 4-1).

4.3 Review of the scientific literature on crowdfunding

There are two literature reviews on crowdfunding. Bachmann et al. (2011) discuss the main results of 43 scientific articles on peer-to-peer lending. Feller et al. (2013) structure research on crowdfunding quantitatively according to the different forms of crowdfunding without considering the specific contents of these studies. There is no comprehensive overview of crowdfunding literature focusing on companies as capital-seeking parties. The following review closes this research gap.

4.3.1 Literature research and selection criteria

The scientific articles on crowdfunding were identified in the first step in a Google Scholar title keyword search for the terms ‘crowdfunding’ and ‘crowdinvesting’ (patents and citations excluded). The search returned 566 hits.[64] In the next step, the search was continued based on the references cited in the articles. Afterwards, specific terms, such as peer-to-peer online lending, P2P lending, social lending and person-to-person lending were investigated. A keyword-based search (including the various spellings) in several library catalogues (e.g., local and international library catalogues and electronic journal catalogues) completed the search.

In spite of the high interest in crowdfunding research, there are still few studies published on the subject. To account for this fact, (unpublished) working papers are included in the review. The final selection of articles and working papers is based on the following criteria:

- Only scientific articles and working papers are considered. Practical contributions, information guides and seminars, bachelor’s and master’s theses were excluded.
- The research papers were classified according to the main actors in the crowdfunding process (capital seekers, capital providers and intermediaries). Only those contributions were taken into account that appeared relevant in this context.
- The main focus was on economic research papers.

Using these criteria, 145 articles and working papers[65] were selected for the literature review.

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[64] As of 28 February 2015.

[65] Only articles and working papers in German and English were considered.

4.3.2 Development of scientific research in crowdfunding

Crowdfunding is a recent phenomenon. Thus, many research papers on crowdfunding follow a 'phenomenon-based approach' (von Krogh et al., 2012). This involves developing a definition and description as well as a differentiation to related subjects and concepts. Before the term 'crowdfunding' appeared in the literature, scientific articles on lending-based crowdfunding used the terms 'social lending' (Hulme and Wright, 2006) and 'P2P lending' or 'peer-to-peer' lending (Freedman and Jin, 2008, 2014; Herzenstein and Andrews, 2008; Klafft, 2008).[66]

The first scientific discussions mentioning 'crowdfunding' were mainly focused on the legal issues under US law. In 2009, Kappel analyzed the legal restrictions of crowdfunding under the Securities Act from 1933[67] using the music industry as an example. Subsequently, the legal restrictions of crowdfunding dominated the US legal literature (see Section 4.3.3). Belleflamme, Schwienbacher and colleagues began discussing venture financing through crowdfunding in 2010 and published a number of working papers and articles since then (Belleflamme and Lambert, 2014; Belleflamme et al., 2010, 2013, 2014; Cumming et al., 2014; Hornuf and Schwienbacher, 2014a, 2014b; Lambert and Schwienbacher, 2010; Schwienbacher and Larralde, 2012; Schwienbacher, 2014). A number of scientific contributions have emerged, following a descriptive, explanatory or concept-based approach, often in combination with case studies from the respective national context (Deffains-Crapsky and Sudolska, 2014; Giudici et al., 2012; Hemer, 2011; Ingram et al., 2014; Klaebe and Laycock, 2012; Kortleben and Vollmar, 2012; Martínez-Cañas, 2012; Meinshausen et al., 2012; Mitra, 2012; Rossi, 2014; Tomczak and Brem, 2013; Vitale, 2013; Wheat et al., 2013).

The first empirical studies are qualitative-empirical and describe the phenomenon. Initial market data were analyzed and enhanced with findings from interviews (Aitamurto, 2011; Gerber et al., 2012; Hemer et al., 2011; Ley and Weaven, 2011; Röthler and Wenzlaff, 2011). Research based on quantitative data began to emerge after the platforms established themselves as intermediaries and transaction data became available or first surveys were

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[66] The publication of the data of the P2P lending platform Prosper.com in the US in 2007 made an important contribution to the increasing research volume (Bachmann et al., 2011).

[67] Crowdfunding models in the US, that provide a financial return for capital providers (lending- and equity-based crowdfunding), are in the scope of the Securities Act of 1933 (Bradford, 2012).

conducted (e.g., Ahlers et al., 2015; Burtch et al., 2013; Kuppuswamy and Bayus, 2013; Mollick and Kuppuswamy, 2014; Mollick, 2014; Pierrakis and Collins, 2013).

This chapter analyzes the content of the articles identified, structured according to the main crowdfunding actors (capital seekers (focusing on companies), capital providers and intermediaries), classified according to their research priorities.

4.3.3 Crowdfunding literature with a focus on capital seekers

Crowdfunding literature focusing on the capital-seeking party is predominantly concerned with the motivations for crowdfunding, the determinants of success and the legal restrictions of equity-based crowdfunding (see Table 4-1).

Table 4-1: Crowdfunding literature with a focus on capital seekers

Author(s)	Content	Method	Source	Country of origin (source)
Agrawal et al. (2011, 2014b)	Importance of geographical proximity between entrepreneur and capital providers.	Quantitative	SellaBand	Germany
Barbi and Bigelli (2015)	Determinants of successful crowdfunding campaigns across countries.	Quantitative	Kickstarter	United States
Belleflamme et al. (2014)	Choice of crowdfunding type as a decision problem (pre-ordering vs. profit-sharing).	Model-based approach	-	-
Belleflamme et al. (2013)	Motivations for entrepreneurs and importance of enterprise type to funding success.	Quantitative	44 direct crowdfunding transactions; questionnaires	Global
Belleflamme et al. (2010)	Crowdfunding vs. traditional sources of funding; price discrimination possibilities; enterprise type (profit vs. non-profit).	Model-based approach	-	-
Bradford (2012)	Exemption proposals from the Securities Act for smaller companies through equity-based crowdfunding.	Legal analysis	Securities Act	United States
Burtch et al. (2014a)	Importance of cultural similarities and differences in the investment behavior of capital providers.	Quantitative	KIVA	United States
Cohn (2012)	Critical consideration of the provisions of the JOBS Act.	Legal analysis	JOBS Act	United States
Crosetto and Regner (2014)	Determinants of successful crowdfunding campaigns.	Quantitative	Startnext	Germany
Cumming et al. (2014)	Chances of success for crowdfunding projects choosing the 'all-or-nothing' (AON) or 'keep-it-all' (KIA) model.	Quantitative	IndieGoGo	United States
Cumming and Johan (2014)	Race-to-the-bottom or race-to-the-top debate in equity-based crowdfunding regulation.	Quantitative	Survey	Canada
Dorfleitner et al. (2014)	Suitability of crowdfunding for financing SMEs in Germany.	Market analysis, quantitative	Seedmatch, Companisto, Innovestment, Bankless24	Germany

Table 4-1: Crowdfunding literature with a focus on capital seekers (continued)

Author(s)	Content	Method	Source	Country of origin (source)
Fink (2012)	Relationship between employment and crowdfunding.	Legal analysis	Securities Act, JOBS Act	United States
Frydrych et al. (2014)	Establishing organizational legitimacy in reward-based crowdfunding.	Quantitative	Kickstarter	United States
Gerber et al. (2012)	Motivations of capital seekers and capital providers for crowdfunding.	Qualitative	Interviews	United States
Giudici et al. (2013)	Influence of social capital on the success of crowdfunding projects.	Quantitative	11 Italian platforms	Italy
Griffin (2012)	Critical analysis of H.R. 2930 (later JOBS Act).	Legal analysis	Securities Act, H.R. 2930	United States
Hazen (2012)	Disclosure obligation under the JOBS Act under consideration of investor protection.	Legal analysis	Securities Act, JOBS Act	United States
Hekman and Brussee (2013)	Social network analysis; relationship between the success of crowdfunding projects, social networks of initiators and media activities.	Quantitative	Kickstarter, Facebook	United States
Hemer et al. (2011)	Theoretical and practical analysis of crowdfunding as an alternative to early-stage financing of start-ups.	Qualitative, literature review	Interviews, case studies	Global
Heminway (2013a)	Proposal for the reformation of US financial market regulations; regulation of risks.	Legal analysis	Securities Act	United States
Heminway and Hoffman (2011)	Analysis of the financial instruments used in crowdfunding and legal classification.	Legal analysis	Securities Act	United States
Hu et al. (2014)	Optimal product and pricing decision in a reward-based crowdfunding mechanism.	Model-based approach	-	-
Hui et al. (2013)	Identification of challenges of network capabilities, activating network connections and expanding network reach.	Qualitative	Interviews (Kickstarter, IndieGoGo, Rockethub)	United States
Hui et al. (2012)	Analysis of the required effort for the capital-seeking party to prepare and execute a crowdfunding transaction.	Qualitative	Interviews (Kickstarter, IndieGoGo, Rockethub)	United States
Huili and Zhang (2014)	Determinants of success of crowdfunding campaigns.	Quantitative	Dian Ming Shi Jian (platform)	China
Joenssen et al. (2014)	Success determinants in crowdfunding and link to new product pre-announcements.	Quantitative	Kickstarter	Global
Kappel (2009)	Possibilities of ex ante crowdfunding (compared to ex post facto) in the US record market under consideration of the legal restrictions.	Market and legal analysis	Case studies; US laws	United States
Kassinger et al. (2013)	Short overview of the CROWDFUND Act and its main points of criticism; description of various US platforms.	Market and legal analysis	CROWDFUND Act	United States
Kim and Hann (2013)	Examination of how geography affects crowdfunding projects; significance of crowdfunding as an alternative to traditional sources of finance.	Quantitative	Kickstarter	United States

Table 4-1: Crowdfunding literature with a focus on capital seekers (continued)

Author(s)	Content	Method	Source	Country of origin (source)
Klöhn and Hornuf (2012)	Analysis of the German equity-based crowdfunding market with a focus on platforms; analysis of the German and US legal situation for equity-based crowdfunding.	Market and legal analysis	German and US laws	Germany
Kortleben and Vollmar (2012)	Equity-based crowdfunding and agency conflicts; comparison of legal forms and its suitability for crowdfunding.	Classification and description	Case studies	Germany
Lehner (2014)	Process of opportunity recognition, formation and exploitation in crowdfunding for social ventures.	Qualitative	36 crowd-funded social cases	Global
Lehner (2013)	Crowdfunding in the context of social entrepreneurship; derivation of research questions.	Literature analysis	-	-
Ley and Weaven (2011)	Analysis of agency dynamics and requirements for equity-based crowdfunding.	Qualitative	Interviews (11 venture capital companies)	Australia
Mach et al. (2014)	Analysis of small business loans using P2P lending.	Quantitative	LendingClub	United States
Macht and Weatherston (2014)	Framework of crowdfunding benefits.	Literature review with framework development	-	-
Martin (2012)	Analysis of the JOBS Act and its key provisions; motives for crowdfunding from a business perspective and its possible consequences for a company.	Legal analysis	JOBS Act	United States
Mollick (2014)	Success factors in crowdfunding.	Quantitative	Kickstarter	United States
Mollick and Kuppuswamy (2014)	Outcomes of crowdfunding campaigns; advantages of crowdfunding beyond financing.	Quantitative	Survey (capital seekers on Kickstarter)	United States
Pope (2011)	Proposals for Securities Law adjustments in the US to enable equity-based crowdfunding.	Legal analysis	Securities Act and its exemptions	United States
Saxton and Wang (2013)	Analysis of the relevant factors for online donations via social media.	Quantitative	Data of 66 non-profit organisations using Facebook	United States
Schlegel and Hakenes (2014)	Microeconomic model to assess the value of crowdfunding for companies.	Model-based approach	-	-
Schwienbacher and Larralde (2012)	Crowdfunding as an alternative to classical start-up financing sources; requirements for companies.	Qualitative and quantitative	Case study, interviews, questionnaires and blog contributions	France
Stemler (2013)	Equity-based crowdfunding before and after the JOBS Act.	Legal analysis	Securities Act, JOBS Act	United States
Wroldsen (2013)	Regulations of the downside risks; proposals for regulations of upside risks.	Legal analysis, VC comparison	JOBS Act	United States

Motivations of companies for crowdfunding

In their interviews with crowdfunding-experienced entrepreneurs, Belleflamme et al. (2013) identify three main reasons for choosing crowdfunding to finance projects. All of the respondents stated that collecting funds was the main reason for using crowdfunding. Other motives mentioned were attracting the public's attention and receiving feedback for their products or services. Gerber et al. (2012) come to very similar conclusions. They performed semi-structured interviews with market participants and identified five categories of motivation: financing, forming relationships and networks, self-affirmation, replication of success stories and increased awareness of the product. Crowdfunding offers, according to Hemer et al. (2011), the ability to obtain funding in the early stages of a company's life cycle and thus an opportunity to close the early-stage gap. Further motives for crowdfunding that were identified were the speed and flexibility of the funding, few formal obligations, testing the product on the market, multiplier effects, positive signaling effects[68] and the use of the wisdom of the crowd for various company tasks (Hemer et al., 2011; Hienerth and Riar, 2013; Macht and Weatherston, 2014; Schlegel and Hakenes, 2014; Surowiecki, 2004).

In recent years, companies have begun using their customers' knowledge for company purposes (Kleemann et al., 2008). Crowdfunding now offers consumers the chance to adopt the role of investors (Ordanini et al., 2011). Those who are willing to invest are largely those who believe in the success of the company and its products or services. The company is legitimized by the market if crowdfunding is successful and at the same time it helps to build a customer base (Martin, 2012). Burtch et al. (2013) confirm with empirical data that crowdfunding leads to increased visibility and higher product consumption. Mollick and Kuppuswamy (2014) found that crowdfunding is more than just a financing method for companies because it facilitates better access to customers, more press coverage and greater interest from potential employees and outside funders.

In addition, crowdfunding allows companies to exploit their market potential more effectively (Belleflamme et al., 2010; Hu et al., 2014). Belleflamme et al. (2010) and Hu et al. (2014) show in a theoretical model that reward-based crowdfunding (pre-selling) allows for price discriminations. Companies have difficulty identifying customers who are willing to pay

[68] A successful crowdfunding transaction sends a positive signal about the venture to various market participants.

a premium for a product being available earlier. These customers can be identified through crowdfunding, which allows companies to skim the market for these premiums. Later, Belleflamme et al. (2014) expanded their model and included a decision problem for companies to choose between crowdfunding as a pre-selling model and a profit-sharing model.

Determining factors for successful crowdfunding

Companies or projects with a social or non-profit oriented background have a higher probability of receiving crowdfunding. This relationship has been confirmed both theoretically (Belleflamme et al., 2010, 2014) and empirically (Belleflamme et al., 2013). Capital providers are primarily interested in the realization of the project (Belleflamme et al., 2013). According to Belleflamme et al. (2013), non-profit organizations have a higher credibility in fulfilling this expectation, in contrast to profit-oriented organizations. Thus, Lehner (2013) suggests that crowdfunding and social entrepreneurship[69] should harmonize.

By analyzing the data from the reward-based crowdfunding platform Kickstarter, it has been found that the probability of a successful crowdfunding transaction decreases as the funding amount and duration increases (Barbi and Bigelli, 2015; Crosetto and Regner, 2014; Mollick, 2014). The size of the capital seeker's social network, the presence of a product video and geographical proximity to capital providers, however, increase the likelihood of successful funding (Barbi and Bigelli, 2015; Crosetto and Regner, 2014; Frydrych et al., 2014; Giudici et al., 2013; Hekman and Brussee, 2013; Mollick, 2014; Saxton and Wang, 2014). In line with these results, Mollick and Kuppuswamy (2014) found that successful capital seekers had many Facebook friends (as a proxy for the social network), outside endorsements and appropriate backgrounds.

Geographical proximity was also analyzed by Agrawal et al. (2011). The authors found while analyzing the archival data from the music platform SellaBand that in funded projects, the average distance between the musicians and capital providers was 3,000 miles. However, at the start of funding, a greater proximity between the parties could be determined. Agrawal

[69] A social entrepreneur is *"a person who establishes an enterprise with the aim of solving social problems or effecting social change"*. http://www.oxforddictionaries.com/definition/english/social-entrepreneur (accessed 11 April 2015).

et al. (2011) explained this result as a family and friends effect.[70] The positive influence of geographic proximity on funding success was also found in P2P lending markets (Burtch et al., 2014a; Lin and Viswanathan, 2014). However, this home bias could not be explained by a family and friends effect. Emotional (Lin and Viswanathan, 2014) and cultural (Burtch et al., 2014a) factors, such as strong preferences for local products and services, seemed to be responsible.

Legal framework

Equity-based crowdfunding has been discussed by US legal scholars since 2009. This discussion was triggered by the question of the legality of some business models of crowdfunding platforms and the scope of application of the Securities Act of 1933 (Kappel, 2009). The legal issues, combined with the tremendous speed of growth of crowdfunding and the liquidity shortage caused by the financial market crisis, led to a change in US legislation (Fink, 2012; Stemler, 2013). In 2011, a legislative proposal to increase access to capital for new and small ventures was developed and came into force on 5 April 2012. The main objective of the 'Jumpstart our Business Startups Act' (JOBS Act) is to make it easier and cheaper for new and small companies to raise equity capital. Title III of the JOBS Act, called the CROWDFUND Act ('Capital Raising Online while Deterring Fraud and Unethical Non-Disclosure Act'), determines the rules and requirements for issuers of equity, investors and platforms (Martin, 2012; Wroldsen, 2013). The liberalization of the Securities Act of 1933 is heavily discussed in legal literature (Bradford, 2012; Cumming and Johan, 2013; Griffin, 2013; Hazen, 2012; Heminway and Hoffman, 2011). Although the JOBS Act came into force in 2012, the market is still awaiting the final specifications from the Securities and Exchange Commission (SEC) (Heminway, 2013a, 2014a).[71]

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[70] This result confirms the assumption that the first people to participate in a crowdfunding transaction are typically family and friends. They know the entrepreneur and want to support the venture and its team (Agrawal et al., 2011).

[71] The proposal for these specifications was released by the SEC in October 2013 in a 585-page document for public comments. Since the period for comments expired in February 2014, the market has been awaiting final SEC specifications under Title III of the JOBS Act. The proposal is available at http://www.sec.gov/rules/proposed/2013/33-9470.pdf (accessed 9 March 2015). For further discussion of the proposal, see Guzik (2014). A new rulemaking agenda of the SEC further delayed the release (Heminway, 2014b) and it is now expected that the final SEC specifications will not be released before the end of the year 2015, see http://dealbook.nytimes.com/2014/11/18/s-e-c-s-delay-on-crowdfunding-may-just-save-it-2/?_r=0 and http://www.entrepreneur.com/article/240558 (accessed 28 February 2015).

Legal provisions for equity-based crowdfunding are country-specific and very heterogeneous. In most countries—among others in the EU—issuing shares through equity-based crowdfunding is either prohibited or, due to stringent legal requirements, associated with high transaction costs for the issuer.[72] The measures required to implement equity-based crowdfunding in the EU is discussed by De Buysere et al. (2012), Klöhn and Hornuf (2012) and Röthler and Wenzlaff (2011). A proposal for regulation at the EU level does not yet exist.

4.3.4 Crowdfunding literature with a focus on capital providers

The behavior of capital providers is crucial for the success of crowdfunding. Several scientific research papers have focused on the motives of capital providers for participating in crowdfunding and the factors that influence the investment decision. Table 4-2 summarizes the studies focusing on capital providers.

Table 4-2: Crowdfunding literature with a focus on capital providers

Author(s)	Content	Method	Source	Country of origin (source)
Ahlers et al. (2015)	Identification of signals that facilitate the investment decision.	Quantitative	ASSOB	Australia
Allison et al. (2015)	Importance of intrinsic and extrinsic cues in entrepreneurial narratives in microlending markets.	Quantitative	KIVA	United States
An et al. (2014)	Analysis of pledging behavior of crowd investors and development of recommendation strategies.	Quantitative	Kickstarter, Twitter	United States
Bachmann et al. (2011)	Literature review on P2P lending until 2010.	Literature review	-	-
Barasinska and Schäfer (2010, 2014)	Investigation of whether women are disadvantaged in online credit markets analogous to traditional credit markets.	Quantitative	Smava	Germany
Berger and Gleisner (2009)	Importance of intermediaries (group leaders) in P2P lending markets; relevance for granting loans and interest rates.	Quantitative	Prosper	United States
Berkovich (2011)	Herding behavior in P2P lending markets; significance of hard and soft facts for the investment decision.	Quantitative	Prosper	United States
Böhme and Pötzsch (2010)	Significance of soft facts in P2P lending and consideration of data privacy protection.	Quantitative	Smava	Germany

[72] A discussion of the legal situation in different European countries can be found in Hornuf and Schwienbacher (2014b). The German situation is discussed in Klöhn and Hornuf (2012) and the publication of the BaFin (BaFin, 2012). The draft of the 'Kleinanlegerschutzgesetz', which is meant to come into force on 1 July 2015, includes specific regulations for equity-based crowdfunding in Germany (Bundesregierung, 2014; Bundesverband Deutsche Startups, 2014; Wardrop et al., 2015).

Table 4-2: Crowdfunding literature with a focus on capital providers (continued)

Author(s)	Content	Method	Source	Country of origin (source)
Brem and Wassong (2014)	Analysis of the factors determining the investment decision of individual investors in crowdfunding.	Quantitative, case studies	Survey (students)	Germany
Burtch et al. (2014b)	Analysis of privacy concerns of investors and investment behavior.	Quantitative	Platform data reward-based	Global
Burtch et al. (2013)	Interdependency of investment decisions of capital providers.	Quantitative	Platform for online journalism	United States
Cholakova and Clarysse (2015)	Analysis of motivations of investors in reward- and equity-based crowdfunding.	Quantitative, quasi-experiment	Symbid	Netherlands
Colombo et al. (2015)	Analysis of the role of early capital providers and social capital for the success of crowdfunding campaigns	Qualitative	Kickstarter	United States
Duarte et al. (2012)	Trust building through image/appearance and its impact on lending probability and interest rates in P2P lending markets.	Quantitative	Prosper	United States
Everett (2010)	Reduction of information asymmetries through relationship building; consequences for default risk and interest rates.	Quantitative	Prosper	United States
Freedman and Jin (2008, 2014)	Significance of social networks in reducing information asymmetries in P2P lending markets and its effect on loan performance.	Quantitative	Prosper	United States
Gao and Lin (2014)	Analysis of the relationship between linguistic styles of borrower-supplied texts and quality of loans.	Quantitative	Prosper	United States
Greenberg and Mollick (2014)	Analysis of choice homophily and the success of female founders in crowdfunding.	Quantitative	Kickstarter	United States
Herzenstein and Andrews (2008)	Influence of demographic characteristics, financial strength and borrowers' efforts on lending probability.	Quantitative	Prosper	United States
Herzenstein, Dholakia et al. (2011)	Herding behavior in P2P lending markets and its economic efficiency.	Quantitative	Prosper	United States
Herzenstein, Sonenshein et al. (2011)	Significance of borrowers' descriptions for the investment decision of lenders and the probability of loan defaults.	Quantitative	Prosper	United States
Hildebrand et al. (2014)	Importance of incentives in P2P lending markets; significance of recommendations and prior investments for subsequent investors.	Quantitative	Prosper	United States
Hulme and Wright (2006)	Relevance of social lending through P2P lending platforms; benefits and future prospects.	Qualitative, quantitative	Interviews, online questionnaire	United Kingdom
Iyer et al. (2009)	Influence of borrowers' credit rating on funding success; relevance of soft facts.	Quantitative	Prosper	United States
Kawai et al. (2013)	Analysis of how signaling affects the functioning of markets for unsecured loans.	Quantitative	Prosper	United States
Kim and Viswanathan (2013)	Analysis of the influence of early investments by experts (quality signals) on subsequent investments.	Quantitative	Appbackr	United States

Table 4-2: Crowdfunding literature with a focus on capital providers (continued)

Author(s)	Content	Method	Source	Country of origin (source)
Koning and Model (2013)	Analysis of the relationship between the number of donations at the beginning of a funding period and funding success.	Quantitative	DonorsChoose	United States
Kuppuswamy and Bayus (2013)	Analysis of social behavior in crowdfunding transactions; interrelation of investment decisions (herding).	Quantitative	Kickstarter	United States
Lee and Lee (2012)	Analysis of herding behavior in P2P lending markets.	Quantitative	Popfunding	South Korea
Li and Duan (2014)	Role of network externalities and time effects in crowdfunding.	Quantitative	US reward-based platform	United States
Lin et al. (2014)	Identification of crowdfunder archetypes and their distinct reaction to social influences and signals of quality.	Quantitative	Kickstarter	United States
Lin et al. (2013)	Importance of social networks for lending outcomes in P2P lending markets.	Quantitative	Prosper	United States
Lin et al. (2009)	Significance of social networks for lending probability, interest rates and default probability.	Quantitative	Prosper	United States
Lin and Viswanathan (2014)	Relevance of geographical proximity in crowdfunding markets; explanation of the home bias.	Quantitative	Prosper, quasi-experiment	United States
Liu et al. (2014)	Role of friendships (online and offline) in P2P lending markets.	Quantitative	PPDai	China
Lu et al. (2014)	Analysis of the correlation between social promotion through social media and fundraising results.	Quantitative	Kickstarter	United States
Marom et al. (2014)	Investigation of gender dynamics in crowdfunding campaigns.	Quantitative	Kickstarter	United States
Michels (2012)	Relevance of voluntary, unverifiable information in P2P lending markets.	Quantitative	Prosper	United States
Mild et al. (2015)	Development of a decision support tool to assist investors in their lending decision.	Quantitative	Myc4.com	Denmark
Mollick (2013)	Analysis of whether investors in crowdfunding markets have the same quality signals as VC investors.	Quantitative	Kickstarter	United States
Mollick and Nanda (2014)	Comparison between crowd and expert evaluations of projects relying on taste and judgment.	Quantitative	Kickstarter, interviews	United States
Moritz et al. (2015)	Role of investor communication to reduce information asymmetries between crowd investors and new ventures.	Qualitative	Interviews	Germany
Moss et al. (2015)	Signaling effect of narratives used on funding and repayment of microloans.	Quantitative	KIVA	United States
Ordanini et al. (2011)	Role of customers and service providers (platforms) in crowdfunding.	Qualitative	Interviews, case studies	Germany, Italy, United Kingdom
Parker (2014)	Relationship between informed investors, information cascades and the success of crowdfunding transactions.	Model-based approach	-	-

Table 4-2: Crowdfunding literature with a focus on capital providers (continued)

Author(s)	Content	Method	Source	Country of origin (source)
Pope and Sydnor (2011)	Importance of soft facts (e.g., age, race, gender) and discrimination in P2P lending markets.	Quantitative	Prosper	United States
Qiu (2013)	Analysis of public good and informational advertising issues in crowdfunding.	Model-based approach, quantitative	Kickstarter, Twitter	United States
Ravina (2012)	Importance of soft facts (e.g., beauty, race, age) for lending probability and interest rates.	Quantitative	Prosper	United States
Smith et al. (2013)	Analysis of crowding in and crowding out effects in donation-based crowdfunding.	Quantitative	JustGiving, Virgin Money	United Kingdom
Ward and Ramachandran (2010)	Relevance of peer effects in reward-based crowdfunding.	Model-based approach, quantitative	SellaBand	Germany
Wash (2013)	Relationship between probability of donation and target achievement (funding goal).	Quantitative	DonorsChoose	United States
Weiss et al. (2010)	Investigation of the relationship between screening of P2P lending platforms and adverse selection.	Quantitative	Prosper	United States
Xu et al. (2014)	Development of taxonomy of project updates used in crowdfunding campaigns.	Quantitative	Kickstarter	United States
Yang (2014)	Evaluation of the role of photographs in online peer-to-peer lending markets.	Qualitative	Experiment	China
Yum et al. (2012)	Analysis of the significance of the wisdom of the crowd in P2P lending markets.	Quantitative	Popfunding	South Korea
Zhang et al. (2014)	Role of rewards and dynamic changes of incentive structures on capital providers' behavior.	Quantitative	Kickstarter	United States
Zhang and Liu (2012)	Analysis of herding behavior in P2P lending markets and the rationality of this behavior.	Quantitative	Prosper	United States
Zheng et al. (2014)	Investigation of the antecedents of crowdfunding project success.	Quantitative	Demohour	China
Zvilichovsky et al. (2013)	Impact of the activities of capital seekers as capital providers for the success of their own crowdfunding projects (reciprocity).	Quantitative	Kickstarter	United States

Motivations of capital providers

Capital providers in crowdfunding are not just financially motivated. Social reputation and intrinsic motives play a significant role (Allison et al., 2015; Lin et al., 2014). The motives to participate in crowdfunding are heterogeneous and depend on the respective crowdfunding model (Cholakova and Clarysse, 2015; Lin et al., 2014; Ordanini et al., 2011). Interviews with founders and employees of three crowdfunding platforms show that capital providers have some common characteristics: they are innovation-oriented, are interested in interacting with others, identify themselves with the company or the product, and are interested in the financial or non-financial result (Ordanini et al., 2011). These motives were also confirmed by Gerber et al. (2012) in interviews with capital seekers and capital

providers. The latter strive for financial and non-financial rewards, they like to support the project or company and they want to be active in social networks. Hemer et al. (2011) further identify the interest in using the product or service and the attainment of self-affirmation and fun, which is associated with this type of investment. Others found that investors were mainly interested in receiving rewards (Cholakova and Clarysse, 2015) and a need to trust in the entrepreneurs (Cholakova and Clarysse, 2015; Huili and Zhang, 2014). Cholakova and Clarysse (2015) discovered that non-financial motives such as helping others, supporting ideas or being part of a community were less important. Especially in equity-based crowdfunding they found that capital providers were solely driven by financial return motives (Cholakova and Clarysse, 2015).

Importance of social networks

The desire to interact in social networks has been identified as a key motive for capital providers to participate in crowdfunding transactions. Several studies examine the effect of social networks on the decision behavior of capital providers. It has been shown that social networks reduce information asymmetries and thus, increase funding probability (Everett, 2010; Freedman and Jin, 2008, 2014; Lin et al., 2009, 2013; Zvilichovsky et al., 2013). One possible consequence of this social network effect for capital providers is the mimicking of others' behavior ('herding') (Herzenstein, Dholakia, et al., 2011; Lee and Lee, 2012; Yum et al., 2012; Zhang and Liu, 2012). Herzenstein, Dholakia, et al. (2011) and Zhang and Liu (2012) found that herding behavior in P2P lending markets contrasts with findings in online auction markets, such as Ebay. They conclude that herding behavior in lending-based crowdfunding is strategic and rational because it seems to reduce the default rates of loans. In reward-based crowdfunding it has been found that projects typically have a U-shaped pattern of project support (Crosetto and Regner, 2014; Kuppuswamy and Bayus, 2013). According to Kuppuswamy and Bayus (2013), herding behavior in reward-based crowdfunding is due to payoff externalities. Capital providers tend to support projects closer to their funding goals as they are more likely to succeed and thus, capital providers expect their contribution to have a higher impact. In addition, Kuppuswamy and Bayus (2013) found that investments by family and friends as well as promotional activities have a positive influence on the funding process, particularly at the beginning and end stages of the funding. The importance of social capital and the importance of early contributions for the success of crowdfunding campaigns has also been shown by Colombo et al. (2015) and Li and Duan (2014). According to Lu et al. (2014), promotional activities are important when the funding starts but later in the process interaction

between participants is the main driver for funding success. However, Lin et al. (2014) identified different archetypes of crowdfunders which seem to react differently to social influences and signals of quality.

Signals in crowdfunding transactions

The importance of the timing of investments has also been studied in donation-based crowdfunding. The results are consistent. The behavior of peers seems to provide a signal to subsequent capital providers (Burtch et al., 2013; Koning and Model, 2013; Smith et al., 2013; Wash, 2013). This signaling effect of peer behavior has also been studied by Ward and Ramachandran (2010) in the reward-based experience goods market. In a theoretical model, they showed the impact of peer behavior and test their results using archival data from the platform SellaBand. Ward and Ramachandran (2010) identified a positive correlation of an investment decision with the results of similar, already-funded projects, the actions of other capital providers, popularity rankings and blog posts. Qiu (2013) also found that blog posts (word-of-mouth effect measured by tweets), media coverage and, in particular, features of the promoting platform, have a positive effect on crowdfunding transactions. Kim and Viswanathan (2013) studied crowdfunding in the mobile application market and find that early investments by experts send positive signals and increase the likelihood of subsequent funding from the crowd. Furthermore, recommendations from friends and acquaintances can also send positive signals and increase funding probability (Lin et al., 2013; Liu et al., 2014; Moritz et al., 2015). Hildebrand et al. (2014) found that endorsements from peers are only understood as credible signals if the endorsements are linked with investments of the respective person (‘skin in the game’).

Ahlers et al. (2015) investigated which signals are relevant for investment decisions in equity-based crowdfunding markets. The authors analyzed archival data from the Australian platform ASSOB. They found that human capital (measured by the number of MBA degrees held by the board members), retaining of equity and the provision of financial projections are effective signals in equity-based crowdfunding. Intellectual capital (i.e., patents) and social capital (i.e., alliances) had no or only a small impact on the funding success.

According to Mollick (2013), capital providers in crowdfunding markets and traditional VC investors trust in similar quality signals (e.g., previous successes of entrepreneurs, external references). This result is rather surprising because crowd investors are usually not professional investors with the same degree of know-how (Agrawal et al., 2014a; Fink, 2012;

Heminway, 2014a; Kim and Viswanathan, 2013; Macht and Weatherston, 2014; Mollick, 2013; Schwienbacher and Larralde, 2012). Distortions in venture capital financing created by the location of companies (Tyebjee and Bruno, 1984) and the preference for male entrepreneurs (Harrison and Mason, 2007) could not been found in crowdfunding markets (Barasinska and Schäfer, 2010, 2014; Mollick, 2013). In fact, it has been shown that female entrepreneurs were more successful in their crowdfunding campaigns and that they were more likely to be funded by female capital providers (Greenberg and Mollick, 2014; Marom et al., 2014).

In P2P lending markets, capital seekers often voluntarily provide personal information, such as marital status, number of children, photos, personal descriptions and descriptions of the project. It has been found that these soft facts have a positive effect on establishing trust and thus influence the likelihood of successful financing, lower interest rates and a decrease in the probability of loan defaults (Berkovich, 2011; Duarte et al., 2012; Gao and Lin, 2014; Herzenstein, Sonenshein, et al., 2011; Pope and Sydnor, 2011; Ravina, 2012; Yang, 2014). Iyer et al. (2009) found that, similarly to banks, capital providers in P2P lending markets primarily rely on hard facts (i.e., credit ratings) to make investment decisions. But, the poorer the credit ratings, the more soft facts are taken into account (Berkovich, 2011; Iyer et al., 2009; Michels, 2012). However, in light of data protection, potential capital seekers should weigh exactly what and how much personal information they need to disclose to achieve their goals (Böhme and Pötzsch, 2010). In addition, it has been found that the narratives used by microenterprises provide a signal for capital providers about the entrepreneurial intentions and characteristics and influence the crowds' funding behavior (Allison et al., 2015; Moss et al., 2015).

4.3.5 Crowdfunding literature with a focus on the intermediary

The involvement of a crowdfunding platform as an intermediary in crowdfunding transactions offers advantages for both capital seekers and providers. In addition to providing a standardized process, platforms act as an information, communication and execution portal. Accordingly, platforms can reduce information asymmetries and thus the risks involved for the participating parties (Allen and Santomero, 1997; Berger and Gleisner, 2009; Elsner, 2013; Haas et al., 2014; Leland and Pyle, 1977). Platforms can furthermore enable market participants to build trust (Burtch et al., 2013; Greiner and Wang, 2010; Wang et al., 2014). Up to date, very different business models of crowdfunding platforms exist (Ordanini et al.,

2011). There is still little research into which of these business models is best suited for successful crowdfunding. Table 4-3 summarizes the identified research on the intermediary-based crowdfunding literature.

Table 4-3: Crowdfunding literature with a focus on the intermediary

Author(s)	Content	Method	Source	Country of origin (source)
Ashta and Assadi (2010)	Analysis of business models and regulatory environment of P2P microlending platforms in Europe.	Market analysis	Case studies	Europe
Chen et al. (2014)	Analysis of the auction model in P2P lending markets.	Game theoretical analysis	-	-
Doshi (2014)	Analysis of the impact of high-performing superstar (highly successful) agents on the other side of the market.	Quantitative	Kickstarter, IndieGoGo	United States
Giudici et al. (2012)	Important research questions; business models of Italian platforms.	Literature, market analysis	Case studies	Italy
Gonzalez and McAleer (2011)	Illustration of the similarities and differences of listed loans on Zopa.uk and Prosper.com.	Market analysis	300 randomly chosen cases on two platforms	United Kingdom, United States
Greiner and Wang (2010)	Analysis of trust-building mechanisms of crowdfunding platforms.	Quantitative	Prosper	United States
Haas et al. (2014)	Empirical taxonomy of crowdfunding intermediaries; identification of three archetypes of crowdfunding platforms.	Quantitative	127 crowd-funding platforms	Global
Heminway (2013b)	Role of platforms in crowdfunding markets and the requirements of the CROWDFUND Act.	Legal analysis	CROWD-FUND Act	United States
Hornuf and Klöhn (2013)	Brief comparison of two exit models in equity-based crowdfunding: EBIT or revenue multiples vs. enterprise value.	Market analysis	Case studies	Germany
Maeschle (2012a)	Analysis of the 'first come, first served' model of crowdfunding platforms.	Model-based approach	-	-
Maeschle (2012b)	Impact of platform competition in equity-based crowdfunding markets on disclosure requirements for companies.	Model-based approach	-	Germany
Wang et al. (2014)	Importance of trust in lending platforms for funding success.	Quantitative	Survey, model	China
Wash and Solomon (2013)	Comparison of the models 'all-or-nothing' and 'keep-what-you-get'.	Qualitative	Experiment	United States

Wash and Solomon (2014) analyzed which funding design should be chosen by crowdfunding platforms: the return rule ('all-or-nothing') or the direct donation model ('keep-what-you-get'). In the case of the return rule, payments to capital seekers are only made if a predefined threshold is achieved. Otherwise, the funds will be returned to the capital

providers. The direct donation model implies that all money collected will be paid out to the capital seeker. Wash and Solomon (2014) performed a crowdfunding experiment with a total of 168 participants in 14 experimental sessions. The players showed a tendency to contribute higher amounts in the case of a return rule in comparison to the direct donation model. However, fewer projects achieved the predefined funding threshold because funds were split between more projects. As a result, Wash and Solomon (2014) recommended the return rule for platforms that offer high-risk projects to the crowd. However, in order to avoid heavy distributions and increase the chances of reaching the threshold amounts, few projects should be offered simultaneously. The timing of projects being published was also studied by Doshi (2014). He found that crowdfunding platforms should try to attract superstar sellers because superstars increase the overall transaction volume on the platform relative to other platforms ('halo effect') and the funding volume of other projects that are similar to the superstar ('crowding in effect'). Consequently, platforms should distribute the timing and diversity of superstars evenly in order to achieve an optimal outcome for the platform (Doshi, 2014).

Chen et al. (2014) investigated whether using an auction model in crowdfunding markets leads to an optimal result for market participants. To this end, they analyzed the results of the auction model used on Prosper.com until 2010. This model implied that the interest rate for a loan is determined by the number of bids from interested capital providers. Chen et al. (2014) found that the auction process does not generate results in the best interest of capital seekers. In addition, this method is more complicated and less transparent than a fixed-rate model for capital providers (Chen et al., 2014). Platforms, which are perceived as easy to use and as valuable in the lending process have been found to increase lenders' trust and the adoption of the platform (Wang et al., 2014).

Maeschle (2012a) studied the 'first come, first served' funding principle often used on crowdfunding platforms. This model implies a 'hard end' of the funding as soon as the funding limit[73] is reached. In the case of excess demand[74] to finance a specific project, there are several arguments as to why this method does not lead to an optimal economic result. Quick and well-informed crowd investors can prevent a spread of company shares by investing large sums. Thus, there is a possible risk of the entrepreneur losing control in his/her

[73] Crowdfunding platforms often determine a maximum funding amount per transaction (funding limit).

[74] The funding is closed the moment it reaches the funding limit, even if more capital providers would be willing to invest.

company. Slower and less informed capital providers are at a disadvantage. Furthermore, early capital providers are treated equally even though they face much higher information costs than subsequent capital providers. The possibility of a 'free-rider' strategy could restrain capital providers in taking the role of 'first-mover'. Consequently, crowdfunding projects may not get funded due to a lack of initial investments.

In a second study, Maeschle (2012b) examines whether the increasing competitive pressure of crowdfunding platforms affects disclosure requirements for companies. Based on prior empirical research on the success factors of start-ups (Harhoff et al., 1998; Prantl, 2003), Maeschle (2012b) derives a list of information that should be provided to reduce information asymmetries of capital providers. According to this study, platforms should publish business information about the company (particularly firm size, legal form, ownership structure, industry and location), the company's finances (especially the balance sheet) and the company's management (particularly team structure, education and age) (Kraus et al., 2008).

4.4 Summary and open research questions

This chapter provides an overview of the existing research on crowdfunding. The focus lies on start-ups as the capital-seeking party. Academic research on crowdfunding for new ventures has recently increased due to various market developments: the necessity for (innovative) start-ups to find alternative funding possibilities, particularly in the early stages of a company's development (fuelled by the financial crisis, see Chapter 3), the recent success stories of crowdfunding for new ventures and the adoption of the JOBS Act in 2012 in the United States.

This review has identified a number of research priorities in academic literature. The motives for participating in crowdfunding markets for capital seekers and capital providers have been of major academic interest. Several, mainly qualitative, studies which try to answer this research question have been identified. In addition, identifying success factors for crowdfunding transactions and analyzing different national legal frameworks were of major interest to the researchers. The crowdfunding market is characterized by strong information asymmetries between market actors. Quality signals and the existence of social networks can reduce these information asymmetries and are the subjects of several research papers (see also Chapter 5). Studies focusing on the role of crowdfunding platforms and their optimal business models remain scarce.

Scientific research on crowdfunding is still in its infancy. Quantitative studies based on empirical market data are still rare, even though the research interest in crowdfunding is very high and the number of studies is increasing rapidly. As a result, based on the literature review and the chosen structure focusing on capital seekers, capital providers and intermediaries, a number of research directions can be derived. Similar to the review, the focus is on new ventures as the capital-seeking party.

Research questions focusing on capital seekers

1. For which ventures is crowdfunding a suitable financing alternative?

Crowdfunding is a new financing alternative for new ventures. The special characteristics of crowdfunding give reason to assume that this financing instrument is not appropriate for all companies and types of entrepreneurs (Davidson and Poor, 2014). For which ventures and entrepreneurs crowdfunding is a suitable alternative and what effects it has on a company's success should be investigated.

2. To what extent does crowdfunding help to close the early-stage financing gap?

Whether crowdfunding can have the desired effect of closing the early-stage financing gap for new ventures is not yet clear due to the relatively young market. Cause-and-effect relationships have yet to be uncovered to prevent market failure due to inefficiencies or the loss of reputation. The interaction of crowdfunding and traditional sources of finance plays an important role in this context (Hornuf and Schwienbacher, 2015; Ibrahim, 2015; Salomon, 2014; Schwienbacher, 2014). The circumstances under which professional investors, such as venture capital companies or banks, are willing to finance ventures that have received funding from the crowd should be explored.

3. To what extent should crowdfunding markets be regulated?

The growth of crowdfunding markets in the last years and the increasing number of crowdfunding platforms could prompt more companies to choose this type of financing (Klöhn and Hornuf, 2012). Critics emphasize the growing risk of fraud through this development (Hazen, 2012; Hornuf and Klöhn, 2013; Wroldsen, 2013). The extent to which the market can regulate itself (Fink, 2012) or whether external regulation is required (Cumming and Johan, 2013) remains unclear.

Research questions focusing on capital providers

1. What selection criteria do capital providers in crowdfunding markets use to base their investment decision on?

Research on the criteria relevant to the investment decisions of capital providers is thus far in its infancy. Venture capital and business angel research may provide some ideas about the decisive factors. However, whether crowd investors use similar decision criteria as professional investors is still unclear. The entrepreneurial team, the protection of intellectual property through patents and the newness of the business model or the product are important for professional investors (Baum and Silverman, 2004; Franke et al., 2008; Jell et al., 2011). Whether these factors are also crucial for the crowd or whether the investment decision is instead influenced by emotions, herd instinct or altruistic motives (Bretschneider et al., 2014) has yet to be explored (see also Chapter 5).

2. What quality signals can reduce information asymmetries between the participating parties?

The maximum default risk for a capital provider is total loss. It is extremely difficult to estimate the default probability in crowdfunding markets because of high information asymmetries between the participating parties. Typical risk reduction strategies of private equity investors, such as in-depth screening processes or individual contract negotiations, are not available to the crowd (see Chapter 5 and Moritz et al. (2015)). The results of venture capital research indicate various alternatives for reducing information asymmetries (Audretsch et al., 2012; Baum and Silverman, 2004; Block et al., 2014). The communication of quality signals (e.g., patents, trademarks, alliances and education) by the capital-seeking party can help overcome this hurdle (Agrawal et al., 2014a; Ahlers et al., 2015; Moritz et al., 2015). Identifying the relevant quality signals in order to facilitate the investment decision can make an important contribution to the future success of venture financing through the crowd.

3. What is the role of social networks for crowdfunding?

Empirical studies of lending- and reward-based crowdfunding have identified social networks as important in the crowd's investment decisions (Freedman and Jin, 2014; Mollick and Kuppuswamy, 2014). Social networks help inform and motivate capital providers and thus can facilitate investment decisions (Hekman and Brussee, 2013; Lu et al., 2014;

Naroditskiy et al., 2014). However, thus far, little is known about the importance of social networks in equity-based crowdfunding.

Research questions focusing on intermediaries

1. What business models of crowdfunding platforms facilitate an optimal result for capital seekers and capital providers?

Platforms, as intermediaries, play an important role in reducing information asymmetries (Belleflamme et al., 2014) and building trust in crowdfunding markets (Agrawal et al., 2014a; Heminway, 2013b; Vass, 2013; Wang et al., 2014). If high losses and failure rates occur, a loss of confidence in crowdfunding and the respective platform is to be expected. However, thus far, little is known about which platform business models are the most suitable for facilitating positive results for the market participants (Hornuf and Schwienbacher, 2014a).

2. Which disclosure requirements should the platforms demand from capital seekers?

Capital seekers should provide information that will allow the platforms and capital providers to assess the risks associated with the investment. In this context, it should be identified if and how crowd investors evaluate information disclosed by new ventures (Heminway, 2014a). Furthermore, the disclosure of sensitive information contains risks for the capital-seeking party (i.e., the risk of imitation by competitors) (Agrawal et al., 2014a). In the interest of all market participants, the optimal amount of information disclosed by capital seekers should be identified.

This literature review shows that from a scientific perspective, little is known about crowdfunding and further research is required to better understand the drivers in this market. From a practical perspective, it is necessary to fill this gap in order to develop this new form of financing further. Crowdfunding offers several links to other research areas, such as entrepreneurial and innovation financing, and can thus build on existing theories. The next chapter builds on the results of the literature review and the identified research gaps by analyzing the role of investor communication in equity-based crowdfunding as a way to reduce the perceived information asymmetries of crowd investors and to increase the likelihood of their investment.

5 Investor communication in equity-based crowdfunding[75]

5.1 Introduction

Investor communication has been demonstrated to reduce information asymmetries between companies and investors in various financial markets (Bassen et al., 2010; Hoffmann and Fieseler, 2012). Currently, however, little is known about the role of investor communication in crowdfunding. This chapter attempts to fill this gap with a focus on equity-based crowdfunding.

Investor communication, often referred to as investor relations, is understood as the disclosure of financial and non-financial historic, current and future information about a company through different media to establish or maintain relationships with prospective and present investors, analysts and stakeholders (Dolphin, 2004; Hoffmann and Fieseler, 2012). Most investor communication research focuses on the formalized, mostly anonymous communication between publicly traded companies and their investors or financial analysts (Bassen et al., 2010; Dolphin, 2004; Kollmann and Kuckertz, 2006). The results from this line of research cannot be used to inform new ventures about their investor communication strategy. With regard to new ventures, investor communication must cope with high uncertainty regarding performance, technology and market demands (Parhankangas and Ehrlich, 2013; Shane and Cable, 2002). To reduce information asymmetries in new venture financing, investor communication is characterized by interpersonal relationships between the entrepreneur and the venture's investors (Kollmann and Kuckertz, 2006; Landström, 1992; Parhankangas and Ehrlich, 2013; Sapienza and Korsgaard, 1996).

Crowdfunding democratizes new venture financing and seeks to obtain financial resources through an open call over the Internet—typically organized by a crowdfunding platform—from a large number of individual investors[76] (the 'crowd') (see Section 4.2)

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[75] This chapter is a revised version of Moritz, Block and Lutz (2015). The paper was presented at the 2. Crowdinvesting Symposium in Munich 2014, the G-Forum 2014 (annual conference of the FGF) and the Crowdfunding Conference of the Institut für Mittelstandsforschung (IfM) Bonn in 2015.

[76] Capital providers in lending- and equity-based crowdfunding 'invest' money with the expectation to obtain an interest or profit. As this chapter is focused on equity-based crowdfunding, it refers to capital providers as (crowd) investors.

(Belleflamme et al., 2014; Hemer et al., 2011). The crowd acts in the same context as 'traditional' private equity investors such as BAs or VC companies; it invests in new ventures with little verified information, low transparency and high risks. However, the crowd differs from BAs or VC companies in the sense that it forms a large group of heterogeneous and often anonymous investors (Heminway, 2014a; Mollick, 2013), investing mostly small amounts of money through the Internet. They are characterized by their preference to participate in innovative behavior and are attracted by the usage of interactive tools such as social media channels (Ordanini et al., 2011). The combination of investment context and investor characteristics challenges new ventures seeking finance through crowdfunding to find appropriate strategies to communicate their legitimacy and credibility (Frydrych et al., 2014; Parhankangas and Ehrlich, 2013; Shepherd et al., 2003; Zimmerman and Zeitz, 2002).

Currently, little is known about how new ventures can master this important challenge. Providing an answer to this question is relevant because financing through crowdfunding has gained importance in recent years (see Section 4.1). The European crowdfunding market—especially in Austria, Finland, Germany, Spain, Sweden and the UK—shows particularly dynamic developments in equity-based crowdfunding (ECN, 2014). In total, the equity-based crowdfunding market in Europe increased from EUR 84.5m in 2013 to EUR 193.6m in 2014 (Wardrop et al., 2015).[77] The research focus of this chapter is on German equity-based crowdfunding, which grew from EUR 0.5m in 2011 to around EUR 35m in 2014 (Crowdinvesting-Monitor, 2015). Although the volume of the crowdfunding market is still small compared to other sources of new venture financing (EVCA, 2014; OECD, 2014)[78], crowdfunding offers new ventures the opportunity to close the crucial early-stage financing gap, which has evoked particularly great interest in theory and practice (Belleflamme et al., 2014; Cumming and Johan, 2013; Hemer et al., 2011; Mollick, 2014; Moritz and Block, 2014; Ordanini et al., 2011).

This chapter theorizes on the role of investor communication in equity-based crowdfunding as a way to reduce the perceived information asymmetries of crowd investors. Based on a qualitative research design, a conceptual model (summarized in six propositions)

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[77] Almost 60% of the equity-based crowdfunding volume was realized in the UK. The rest of Europe generated EUR 82.6m in 2014, with an average annual growth rate over the past three years of 116%.

[78] The early-stage investment market in Europe was estimated for 2013 with around EUR 7.5bn (EVCA, 2014; Wardrop et al., 2015).

of investor communication in equity-based crowdfunding is developed. The exploratory research is based on 24 in-depth interviews with the key market participants in equity-based crowdfunding: investors (13), new ventures (six) and third parties (five), such as platforms. By analyzing the views of the different market participants, a triangulation of the results across different perspectives was enabled, leading to a deep understanding of the phenomenon.

The results of this chapter contribute to four different research directions in entrepreneurial finance. First, it contributes to the scarce research on investor communication for new ventures (Kollmann and Kuckertz, 2006; Landström, 1992; Mason and Harrison, 2003). Second, it extends the literature on herding behavior in financial markets (Banerjee, 1992; Bikhchandani et al., 1992; Devenow and Welch, 1996; Shiller, 2000; Steiglitz and Shapiro, 1998). Third, it contributes to the literature on certification and reputation in financial markets (Block et al., 2014; Chemmanur and Fulghieri, 1994; Dranove and Jin, 2010; Hsu, 2004; Kim and Viswanathan, 2013; Megginson and Weiss, 1991; Stuart et al., 1999) and fourth to the emerging literature on crowdfunding as a new form of early-stage venture financing (Ahlers et al., 2015; Belleflamme et al., 2014; Cumming and Johan, 2013; Frydrych et al., 2014; Mollick, 2014; Ordanini et al., 2011).

The chapter is structured as follows: Section 5.2 reviews prior research on investment decisions in crowdfunding, focusing on the literature adding value to the specific research context of this chapter.[79] Section 5.3 describes the data and method used, including the sample, the interview process and data analysis. Section 5.4 presents the findings and discusses them in regard to prior research. The findings are used to develop a conceptual model of investor communication in equity-based crowdfunding, which is summarized in six propositions. Section 5.5 summarizes the results in a conceptual model, presents the theoretical and practical implications and discusses further research directions.

[79] Even though Chapter 4 provides a comprehensive literature review, it is structured according to the three main parties involved in crowdfunding: capital seekers, capital providers and intermediaries. This chapter briefly reviews the main findings of studies that are relevant to the specific research context of investor communication in equity-based crowdfunding.

5.2 Review of the literature

In recent years, particularly since 2010, equity-based venture financing through an online crowd has undergone a rapid development (Tomczak and Brem, 2013). Other forms of crowdfunding, distinguished by their aims and modes of return—donation-based, reward-based and lending-based crowdfunding (peer-to-peer (P2P) lending) (see Section 4.2)—already started to emerge in the year 2000, with 'ArtistShare' being the first online crowdfunding platform in the creative industry. Irrespective of the particular crowdfunding model, crowd investors are faced with high uncertainties about the project outcomes and the reliability and credibility of the project initiators (Moss et al., 2015). Prior research has demonstrated that crowd investors utilize information provided by the project initiator or by third parties to facilitate investment decisions.[80]

Different studies focusing on information provided by the project initiator found that the preparedness of the entrepreneur, visible, for example, through the quality of the information material provided or through regular updates on the project, positively influences the financing decisions of investors in reward-based crowdfunding (Mollick, 2014; Ward and Ramachandran, 2010). In equity-based crowdfunding, it was found that ventures with more board members with higher levels of management education are more successful in the funding process (Ahlers et al., 2015). Other factors that influence funding success are retaining equity and providing financial projections (Ahlers et al., 2015). Cumming and Johan (2013) studied the desired level of regulation and disclosure for equity-based crowdfunding in Canada. They conclude that the ease of cross-jurisdictional investments through the Internet is likely to enforce investors' demands with the consequence of more regulation and disclosure in the market.

However, as prior research shows, not only hard facts about the projects but also soft facts are important to reduce information asymmetries in crowdfunding. In P2P lending and microfinance, for example, the communication of soft facts provided by the borrower and the narratives employed play an important role in the financing decision (Allison et al., 2015; Berkovich, 2011; Duarte et al., 2012; Herzenstein, Sonenshein, et al., 2011; Michels, 2012; Moss et al., 2015; Ravina, 2012). It has been found that borrowers who appear more

[80] See also Chapter 4.

trustworthy by providing voluntary information about themselves or the funding request tend to have a higher funding probability and lower interest rates.

Other studies have demonstrated that communication activities by peers are relevant for the investment decision of crowd investors (Burtch, 2011; Herzenstein, Dholakia, et al., 2011; Smith et al., 2013; Ward and Ramachandran, 2010; Zhang and Liu, 2012). Furthermore, herding behavior in P2P lending markets has been identified (Herzenstein, Dholakia, et al., 2011; Zhang and Liu, 2012). These studies concluded that this behavior is the result of observational learning because it reduces the default rates of loans. In addition, peer effects can be the result of direct endorsements by invested peers ('skin in the game') or friends of the project initiators and by the size of their social network (Hildebrand et al., 2014; Lin et al., 2009; Liu et al., 2014; Mollick, 2014). The amount of accumulated capital (Agrawal et al., 2011) and the number of capital providers, especially early in the funding process, have been found to be good predictors for funding success (Colombo et al., 2015). In addition to studies on social influence, it has been demonstrated that crowd investors are affected by third parties who are perceived to be better informed about the project. Reputable investors investing in a project (Kim and Viswanathan, 2013) and established crowdfunding platforms publishing and pushing the project were identified as positive indicators for funding success (Belleflamme et al., 2014; Heminway, 2013b).

Even though crowd investors share some common characteristics such as utilizing the Internet regularly, enjoying participating in innovative behavior, being attracted by the usage of interactive tools like social media and expecting a financial or non-financial return, the motives of crowd investors depend on the particular crowdfunding model and result in different information needs (Cholakova and Clarysse, 2015; Gerber et al., 2012; Ordanini et al., 2011). Furthermore, different business models of platforms (Chen et al., 2014; Cumming et al., 2014; Wash and Solomon, 2014) and specific project characteristics influence the funding decisions of investors (Belleflamme et al., 2013; Lehner, 2013; Ordanini et al., 2011). However, even if crowd investors are acting in the same context and on the same platform, their different motives to participate in crowdfunding can result in different information strategies and behavior (Lin et al., 2014).

In sum, although the literature offers perceptions about the crowd and how it might reduce information asymmetries, academic research of crowdfunding is still in its infancy. This is even truer for equity-based crowdfunding. Most of the published studies focus on donation-, reward- and lending-based crowdfunding (see Chapter 4). Yet, equity-based

crowdfunding might be driven by different dynamics. In particular, the drivers of investment decisions can be different compared to other crowdfunding models. To date, little research has been undertaken to understand how investor communication works, especially in equity-based crowdfunding. This chapter attempts to fill this gap by identifying the information requirements of the crowd facilitating their investment decisions.

5.3 Data and method

5.3.1 Data collection and sample

The analysis in this chapter employs an exploratory (Strauss and Corbin, 1996) and inductive research design and moves from specific observations to a more generalized view to understand the behavior of market participants in equity-based crowdfunding. The data was gathered through interviews with key market participants, that is, crowd investors, new ventures and third parties (equity-based crowdfunding platforms and market experts). This facilitated the triangulation of the findings and to assess whether the explanations are congruent across market participants or whether differences exist between interviewee groups (Denzin, 1978). In addition, secondary data was gathered on equity-based crowdfunding development to reflect and support the results. This approach allowed to generate an understanding from empirical data to explain, predict and interpret market behavior (Glaser and Strauss, 1967). Consistent with the idea of building theory, the interview sample was chosen based on theoretical principles rather than statistical considerations (Strauss and Corbin, 1996), especially in gathering material from different market players with different characteristics (i.e., stock market and crowdfunding experience, industry and investment characteristics). The interview process was continued until the emergent categories and relationships tended to converge and a status of saturation was reached (Glaser and Strauss, 1967).

To identify interviewees, different strategies were applied and combined. Possible interviewees were contacted directly or recommendations of others were used. New ventures were identified through their crowdfunding activities on the three major German equity-based

crowdfunding platforms[81]. Altogether, 24 interviews with 13 investors, six representatives of new ventures and five third parties including three representatives of platforms and two market experts were performed. The interviewed investors had been involved in between one and over 30 equity-based crowdfunding projects. Most of the investors had prior experience with stock market investments. Of 24 interview partners, 23 were male[82] and 18 were under 40 years old. Furthermore, the interview partners differed in their academic and professional education, employment status and industry environment. Table 5-1 summarizes the characteristics of the interviewees.

5.3.2 Interview process

Semi-structured interviews with open-ended questions were conducted to ensure a free expression of the views and experiences of market participants.[83] To develop the interview guideline and to challenge and triangulate the initial findings, market cases of already completed and ongoing equity-based crowdfunding projects and prior research on crowdfunding were studied. Furthermore, evidence of decision criteria and communication requirements from related research fields, such as research about the decision criteria of VC companies and business angels, was drawn upon. In a nutshell, it was tried to identify possible influence factors for the investment decisions of investors in equity-based crowdfunding and these were included in a predefined interview guide[84] (Miles and Huberman, 1994). First, it was asked about the interviewee's relation to crowdfunding and the main motives for getting involved in crowdfunding to obtain a deeper understanding of the respondent's motivation and role regarding crowdfunding. Instead of presenting a fixed set of investment criteria, the respondent was initially asked openly about the perception of key drivers and influence factors for investing in ventures seeking equity-based crowdfunding.

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[81] Equity-based crowdfunding models differ between countries in their investment design due to different national regulations (Hornuf and Schwienbacher, 2014b). To maintain the same preconditions throughout the analysis, the focus was on the German market.

[82] Seedmatch, the largest German equity-based crowdfunding platform for venture financing, reports that approximately 90% of its investors are male. See http://blog.seedmatch.de/2014/07/02/seedmatch-quartal-2-2014/ (accessed 3 April 2015). For Innovestment (the third largest equity-based crowdfunding platform), nearly 94% of investors are male (Klöhn and Hornuf, 2012).

[83] All interviews were conducted in German. The author later translated the statements of the respondents from German into English.

[84] Please refer to Appendix 5-1a and 5-1b.

Table 5-1: Characteristics of interviewees

Type	Industry	Profession	Employment	Education / Schooling	Age Category	Gender	Stock Market Experience	Crowd-funding Experience	Length of the Interview (in Minutes)
Investor 1	n.a.	Managing Director	Self-employed	Certificate of Secundary Education	50+	M	No	> 10	20:01
Investor 2	Transportation & Public Utilities - Transportation by Air	Flight Attendant	Employee	Business Administration (MBA)	30-40	M	Yes	> 10	25:22
Investor 3	Services - Computer Programming Services	Administrator Product Marketing & Services	Employee	Business Administration & Computer Science (VWA)	30-40	M	Yes	> 30	59:18
Investor 4	Finance, Insurance, Real Estate	Relationship Manager Bank	Employee	Business Adminstration (BA)	20-30	M	Yes	Several	28:24
Investor 5	Services - Computer Programming Services	IT Specialist	Employee	n.a.	30-40	M	No	4	24:06
Investor 6	Services - Business Consulting Services	Consultant	Employee	Mathematician (Dipl.)	20-30	M	Yes	> 15	28:43
Investor 7	Services - Financial Services	CFO	Employee	Computer Science (Dipl.; MBE)	40-50	M	Yes	3	33:08
Investor 8	Manufacturing - Chemical / Pharmaceutical	IT Controller	Employee	Finance & Accounting (MA)	20-30	M	Yes	> 20	25:11
Investor 9	Services - Electronic Shopping	Online Marketing	Employee	Business Administration (Dipl.)	40-50	M	Yes	> 10 (D) > 20 (UK)	47:16
Investor 10	Education; Insurance	Student	Student	Business Administration (MA)	20-30	M	Yes	> 30	40:34
Investor 11	Education	University Professor	Employee	Industrial Engineer / Business Informatics	40-50	M	Yes	1	39:45
Investor 12	Services - Business Consulting Services	Consultant	Self-employed	Business Administration (Dipl.)	30-40	M	Yes	> 30	36:58
Investor 13	Industry - Engineering	Electrical Engineer	Employee	Certification as Electrial Engineer	30-40	M	Yes	> 30	24:36
Venture 1	Retail Trade - Food Stores	Founder & Managing Director	Self-employed	Management Master	30-40	M			37:18
Venture 2	Services - Miscellaneous (Internet Information Platform)	Founder & Managing Director	Self-employed	PhD Business Adminstration; Mathematician (Dipl.)	30-40	M			28:50
Venture 3	Services - Miscellaneous (Tourism)	Founder & Managing Director	Self-employed	Politics/History (BA)	30-40	M			41:39
Venture 4	Services - Computer Programming Services	Founder & Managing Director	Self-employed	Business Informatics (BA); General Management (MBA)	30-40	M			32:17
Venture 5	Services - Personal Services	Founder & Managing Director	Self-employed	Business Administration (BA)	30-40	M			52:11
Venture 6	Retail Trade - Hobby, Toy and Game Shop	CFO, Co-Founder	Self-employed	Industrial Engineer (Dipl.)	30-40	M			51:17
Third Party 1	Services - Personal Services	Founder & Managing Director	Self-employed	PhD	40-50	M			14:34
Third Party 2	Services (Crowdfunding Platform)	Corporate Communications	Employee	Communication Management (MA)	20-30	F			25:55
Third Party 3	Education	University Professor; Managing Director of Start-up Center	Employee	Computer Science (Dipl.); PhD	50+	M			34:00
Third Party 4	Services (Crowdfunding Platform)	Founder & Managing Director	Self-employed	Business Informatics (Dipl.)	30-40	M			24:53
Third Party 5	Services (Crowdfunding Platform)	COO	Employee	Corporate Management and Economics (MA)	30-40	M			44:40

Afterwards, it was delved deeper into these unprompted drivers mentioned by the interviewees and further investigated the opinions of the interview partners by requesting further elaborations on specific aspects. Then, it was enquired about criteria from the interview guide that were not already mentioned by the respondent. This approach not only made sure that the respondent was not influenced by the researcher's prior convictions but also that all pre-determined issues were covered in the interview (Gioia et al., 2012; Miles and Huberman, 1994).

Because qualitative research is an iterative process and different types of interviewees were questioned, the wording changed slightly over time and in relation to the respondent (Mayring, 2010). Furthermore, new questions were added during the interview process to cover important issues that surfaced in earlier interviews (Gioia et al., 2012). Interviews were conducted by the same researcher during two rounds. In the first round, the interviews took place both in person (on two occasions) and by telephone (on 15 occasions) from April 2013 to August 2013. In the second round, an additional seven interviews were performed by telephone in August and September 2014. The interviews lasted between 14 and 60 minutes, and a total of more than 14 hours of interview material was recorded and later transcribed.

5.3.3 Data analysis

In the course of the research, material was simultaneously gathered, coded and categorized (Glaser and Strauss, 1967). For this purpose, the software program MaxQDA, which supports qualitative research, was used. The initial list of codes was based on the researcher's prior knowledge (Miles and Huberman, 1994). While working with the material, the initial coding system was extensively expanded to cover all relevant aspects mentioned by the respondents. In the next step, similar codes were combined and others were neglected that were found not to be informative for the emerging concepts (Gioia et al., 2012). Overall, the researcher followed an iterative, inductive and ongoing process to develop the final coding system[85] and the codes were finally aggregated into a meaningful system of higher-dimensional categories (Mayring, 2010; Miles and Huberman, 1994). The coding of the data ranged from short phrases to whole paragraphs to keep the statements of the respondents in

[85] Please refer to Table A5-1.

their original context. Data sampling continued until theoretical saturation was achieved (Glaser and Strauss, 1967).

Great care was taken to ensure the reliability of the coding. Once the first draft of the final categorization scheme was developed, a second person who was not involved in the research but informed about the coding scheme independently coded approximately 60% of the interview material of the first round. After a comparison of the results, further discussions about the categorization scheme were held, resulting in modifications to the scheme. To further strengthen the reliability of the research, considerable time was spent discussing and interpreting the data. This resulted in further adaptations of the categorization scheme.

The coded and categorized data were used to conduct a thematic content analysis through an inductive process (Mayring, 2010), in which it was progressed from coding and categorization to abstraction to develop a *"theoretical framework—the core of the emerging theory"* (Glaser and Strauss, 1967, p.40). The theory is presented by formulating a set of six propositions (Whetten, 1989) on the role of communication to reduce the information asymmetries of investors in equity-based crowdfunding.

5.4 Findings and discussion

5.4.1 The importance of pseudo-personal communication

Prior research shows that investor communication can reduce information asymmetries between a company and its investors. The findings of investor communication research for publicly traded companies emphasize that it should not just be the disclosure of mandatory financial information but a two-way communication process that creates transparency for investors and helps the company to obtain a reputation of trustworthiness and accountability (Dolphin, 2004; Gabbioneta et al., 2007; Highhouse et al., 2009; Laskin, 2009; Mazzola et al., 2006). Although investor communication of new ventures lacks the required information to employ such methods, it still follows the same objectives. New ventures must convince investors of their quality and legitimacy to gain their trust (Aldrich and Fiol, 1994; Clark, 2008; Feeney et al., 1999; Hall and Hofer, 1993; Mason and Stark, 2004; van Osnabrugge, 2000). Consequently, communication between new ventures and traditional risk capital providers is characterized by establishing personal relationships to communicate on a frequent and open basis that is time-consuming for all participants (Kollmann and Kuckertz, 2006; Landström, 1992; Sapienza and Korsgaard, 1996). In equity-based crowdfunding, however,

new ventures are faced with a large group of heterogeneous and often anonymous investors who typically do not have the resources and expertise to evaluate the risks of investment proposals in detail (Kim and Viswanathan, 2013; Mollick, 2013). In addition, they possess a specific set of characteristics like the preference to utilize new technologies to gather information and to invest money (Ordanini et al., 2011). However, how should a venture seeking equity financing through the crowd communicate with the large number of (potential) investors who typically provide only small amounts of money but nevertheless face high information asymmetries that need to be reduced to facilitate an investment?

All interviewees stressed that a business description and a business plan is needed to make an investment decision. A set of standard information has to be provided to convince investors of the preparedness and credibility of the new venture. Still, it remains questionable whether the content is in fact digested in detail and of actual importance for the investment decision (Kirsch et al., 2009; Nagy et al., 2012; Parhankangas and Ehrlich, 2013; Pollack et al., 2012) (see Table 5-2).

Table 5-2: Anonymous communication

Construct	Group	Level of importance			Quote
		low	moderate	high	
	Total (24)	**8**	**9**	**7**	
Anonymous communi-cation	Ventures (6)	2	3	1	*Everyone who reads the business plan can see that this is our capital requirement until the end of the year. It is written everywhere…Everyone can read it. But nobody does.* (Venture 6)
	Investors (13)	5	4	4	*I have a look at the business model and the valuation and need to be convinced that they did their homework. But I think the business plan is just bullshit. They prepare their financials in a way that they can get a successful funding. It is somehow legitimate but to project turnover in the future, at this early stage, just makes no sense.* (Investor 9)
	Third parties (5)	1	2	2	*A crowd investor has some distance and his decision is based on records. He can only watch—the Internet provides more possibilities—it is not just a written document but audio, video, press reports, references that is pretty good. But in general he does not know the team personally.* (Third Party 3)

Looking at the speed of some equity-based crowdfunding transactions, it is evident that a detailed analysis of the business plan, at least prior to the investment decision, could not have been performed. For example, the venture Refined Investment collected EUR 100,000 from 140 crowd investors in just 52 minutes. Protonet convinced 220 investors to contribute a total of EUR 200,000 in only 48 minutes. This anecdotal evidence is consistent with prior

research of decision making by VC investors demonstrating that such investors employ particular heuristics because of time and knowledge limitations, to evaluate investment opportunities (Maxwell et al., 2011; Olsen, 2010). However, the question remains regarding which heuristics are used by investors in equity-based crowdfunding and how they can be influenced by the entrepreneur.

Prior research from other sources of new venture financing reveals that direct personal communication facilitates investment decisions (Landström, 1992; Sapienza and Korsgaard, 1996). Direct communication, however, is difficult to implement in crowdfunding. The entrepreneurs in the sample stressed that only approximately 10% of investors can be considered active investors, seeking involvement and communication on a personal level. However, even maintaining direct communication with a relatively small group of investors can be difficult and time-consuming, as the respondent from Venture 4 explained:

"10% of our investors are active investors, they want to be involved and maintain a personal and direct contact, but this is extremely time-consuming. We have to steer them into channels so that we do not have to spend the whole day on the phone."

The investors in the sample confirm that they rarely use direct personal communication channels, like face-to-face meetings, telephone calls or even emails. While they appreciate the opportunity of getting in contact with the entrepreneur and having the perception of being involved in the business, the investment stakes of investors in equity-based crowdfunding are in many cases not high enough to justify considerable investments in time and effort. Investor 6 noted, *"I would like to meet the people face-to-face. But regarding the size of the investment, it is just not profitable."*

Overall, the data support the view that direct communication with the crowd is not feasible in equity-based crowdfunding and that alternative means of communication are employed instead to reduce information asymmetries. The Internet serves as a platform to enable point-to-point communication and broadcast capabilities within a single network (DiMaggio et al., 2001; Russ, 2007). Investors in equity-based crowdfunding take advantage of this setup and appear to compensate for the lack of personal communication with the entrepreneur through pseudo-personal communication. Tools like investor relations and social

media channels[86] are not only interactive but also in most cases fully transparent for all investors. As Investor 11 emphasized:

"I worked through the questions and answers completely. And it was one of the major decision criteria, because for me it is very important how the venture answers the questions. The most important issue is that the ventures provide fast and credible answers."

Investor relations channels allow investors to receive an impression about the people involved, without the necessity to engage directly, as Investor 12 noted, *"There are always the same people actively asking questions. Typically, I just read along as I do not have the time to ask questions directly."* The data suggest that pseudo-personal communication tools provide investors with a personal impression and simulate direct contact with the entrepreneur. Therefore, the new venture's presentation video published on the crowdfunding platform plays a particularly important role in the communication with the crowd (see Table 5-3). It can address common questions asked by potential investors and hence can substitute for a private conversation between investor and investee. The respondent from Venture 6 believes that *"90% of investors decided whether or not to invest after watching our video."* Investors in equity-based crowdfunding feel that a presentation of the entrepreneurial team offers valuable information, even more than a detailed written business plan. As Investor 1 mentioned, *"I like to see how the people present themselves. This gives me more information than what they write."*

However, the presentation of the entrepreneur must be convincing, but the video production should be of high quality as well. As Venture 3 noted, *"If an entrepreneur produces a shaky video somewhere in a dark cellar, I would not invest one euro in this venture."* Respondents from Ventures 3 and 4 both stressed the importance of high-quality videos in equity-based crowdfunding and underlined that they put great effort and costs into the production. However, new ventures face a trade-off decision while preparing their crowdfunding campaigns. Expensive campaigns make equity-based crowdfunding unattractive for ventures that seek only relatively small funding volumes. Rather than investing in a crowdfunding campaign, entrepreneurs could use the funds internally to support business growth and follow bootstrapping financing strategies foregoing external financing

[86] The importance of social media channels in reducing an audience's uncertainties about quality and distinctiveness and establishing the perceived legitimacy of new ventures has been demonstrated recently (Fischer and Reuber, 2014).

sources (see Section 2.2). Regardless of the funding volume, spending large amounts for their campaigns might be understood as a waste of money, particularly if the fundraising turns out to be unsuccessful.

Table 5-3: Pseudo-personal communication

Construct	Group	Level of importance			Quote
		low	moderate	high	
Pseudo-personal communication	**Total (24)**	**1**	**3**	**20**	
	Ventures (6)	0	0	6	*Well, I guess it is decisive as how authentic you are perceived in the video and I do not think that we as a team are better than others. I think we succeeded in bringing across our authenticity, that it does not look like an act and that you are able to get a good mix between the idea of the crowd and a professional presentation of the team and the financials... because, to be honest, in the end 80% of investors decide based on the video and they do not read the business plan. Hence, it absolutely makes sense to invest a lot of energy in producing the video.* (Venture 4)
	Investors (13)	1	2	10	*I watch the video. And you can use the investor relations channel on the platform to ask questions. I like to look through the questions and answers because it is very important how the entrepreneurs react to get an impression of their competence.* (Investor 8)
	Third parties (5)	0	1	4	*Well, I think what we have here are investors, investing through the Internet in ventures they do not know personally. It is important how trustworthy the company presents itself on the platform...This is, on the one hand the business idea but on the other hand, the people behind the venture, thus their appearance and how they communicate.* (Third Party 4)

The importance of pseudo-personal communication is directly related to the finding that most investors in equity-based crowdfunding appear to base their investment decision strongly on an evaluation of the management team. Although hard facts such as work experience or education are considered important, investors need to be convinced of the trustworthiness and reliability of the entrepreneurial team. Personality factors such as sympathy and authenticity and the level of perceived information sharing seem to be key criteria for investors in equity-based crowdfunding (see Table 5-4). This finding is consistent with research in related areas such as P2P lending and the importance of soft facts in uncertain environments (Berkovich, 2011; Duarte et al., 2012; Ravina, 2012). The data indicate that investors eventually need to have trust in the abilities of the company's management to be prepared to invest in the venture (Cholakova and Clarysse, 2015; Huili and Zhang, 2014). As Investor 5 noted, *"It has a lot to do with gut feeling. Thus, does it appeal to me?"* This result is similar to the decision criteria of other early-stage investors, particularly

business angels (Hall and Hofer, 1993; Mason and Stark, 2004; Olsen, 2010; van Osnabrugge, 2000).

Table 5-4: Soft facts

Construct	Group	Soft facts			Quote
		Personality (i.e., sympathy, authenticity)	**Openness (i.e., truthfulness, transparency)**	**Trust**	
Important soft facts in pseudo-personal communication	**Total (24)**	**20**	**11**	**14**	
	Ventures (6)	5	3	4	*Well, I think you have to be honest. It does not make sense to tell stories you cannot accomplish. You have to be open and honest otherwise you upset your investors instead of gaining their support.* (Venture 5)
	Investors (13)	12	7	5	*I definitely watch the pitch video several times. And I am particularly interested in soft facts, how do I feel about the people.* (Investor 10)
	Third parties (5)	3	1	5	*And this can certainly help, to bridge the media gap, that is, the Internet, if you do not know the people in person, it is important to see them in a video. This makes it much easier to build trust and confidence.* (Third Party 4)

The findings of this chapter extend prior research on the importance of impression management by new ventures (Clark, 2008; Mason and Harrison, 2003; Nagy et al., 2012; Parhankangas and Ehrlich, 2013). Nagy et al. (2012, p.944) define impression management as a *"behavior enacted to create, protect, maintain, or alter an image of oneself held by a target audience so as to highlight one's abilities and to manage the perceptions of others"* (Bolino et al., 2008; Jones and Pittman, 1982). Mason and Harrison (2003) examine the influence of an entrepreneur's presentation on business angels' investment decisions. They find that the better the entrepreneur's oral presentation, the more willing BAs are to invest in business proposals (Clark, 2008; Mason and Harrison, 2003), even though investors were unaware of this influence (or reluctant to acknowledge it) and stated the reasons for their investment were based on substance-oriented non-presentational criteria (i.e., business model, product, market and financial issues) (Clark, 2008). The data show a similar pattern in equity-based crowdfunding. Although most investors stated that substance-oriented criteria are very important, the impression of the entrepreneur delivered through pseudo-personal communicative actions seem to be crucial for their investment decisions. This conclusion was affirmed by the statements of the respondents from the different ventures. Based on the quality of the questions asked by investors, most of them are convinced that not more than

10–20% of investors actually read the business plan (critically) and base their investment decision on detailed company information.

In summary, the data demonstrate that even though hard facts are considered important by investors in equity-based crowdfunding, the overall impression given by the entrepreneur seems to be the determining factor to signal the venture's credibility, legitimacy and trustworthiness. In equity-based crowdfunding, pseudo-personal communication, for example, through presentation videos and social media channels, appears to be the key method to transmit relevant information. This finding leads to the first proposition:

> **Proposition 1:** Pseudo-personal communication by a new venture increases its credibility and legitimacy in equity-based crowdfunding and thus reduces the perceived information asymmetries of investors toward the venture.

5.4.2 The importance of third-party communication

The role of peer principal endorsements

Peer effects apply to any social process in which the behavior of a group influences the individual (Hirshleifer and Hong Teoh, 2003; Olsen, 2010; Ward and Ramachandran, 2010). Prior research shows that peer effects are more likely to occur if specific market conditions—such as uncertain environments, significant information asymmetries, the observability of others' behavior and fixed price settings—are met (Banerjee, 1992; Bikhchandani et al., 1992; Cipriani and Guarino, 2005; Devenow and Welch, 1996; Dholakia et al., 2002; Fernández et al., 2011). In crowdfunding, often all of these criteria apply, and peer effects appear to play a major role (see Table 5-5).

According to the data, market participants are convinced that the investment decisions are strongly influenced by the behavior of others. However, they provide different explanations for their views. One group of investors believes in the intelligence of the crowd. As Investor 4 noted,

"And there is the intelligence of the crowd as an important part of equity-based crowdfunding… and if the crowd states that it is not convinced, I reevaluate my opinion or even decide against an investment due to my gut feeling… if the crowd is not convinced, perhaps I shouldn't be, either."

This behavior fits with the idea of the wisdom of the crowd, which argues that a large number of people with different sources of information, opinions and expertise can reach better decisions than an individual (Budescu and Chen, 2014; Larrick et al., 2012; Surowiecki, 2004). As Investor 13 pointed out, *"The funding development is decisive, even if I think it is a good investment. If the crowd is not investing, I think about it because the crowd has a 'good nose' for good projects."* However, it is questionable if the prerequisites for exploiting crowd wisdom are met in equity-based crowdfunding. Although the crowd is heterogeneous, it is unclear whether the composition of the crowd assures well-informed investment decisions, especially as the investments in crowdfunding are typically small and the incentives to gather information are low (Ibrahim, 2015; Mollick and Nanda, 2014). Following others in their investment decisions is time efficient and reduces the information costs for the individual (Duan et al., 2009; Hirshleifer and Hong Teoh, 2003). However, if no investor has an incentive to gather information, a situation of crowd wisdom is unlikely to emerge. The statement of Investor 4 is typical in this regard: *"If you have the time, you can gather the information yourself. But, as I said, I would like to, but I do not have the time."*

Prior research shows that when investors think that others have more or better information, they tend to ignore or at least reevaluate their own private information, which can lead to information cascades (Banerjee, 1992; Bikhchandani et al., 1992; Fernández et al., 2011). As long as potential investors do not passively mimic the choices of other investors with the goal of acting in conformity or as an emotional response (Hirshleifer and Hong Teoh, 2003; Zhang and Liu, 2012), this type of investor behavior can be rational (Banerjee, 1992; Bikhchandani and Sharma, 2001). However, the interviews suggest that some investors, respondents from ventures and market experts believe that the market is driven by irrational herding behavior (Shiller, 2000; Simonsohn and Ariely, 2008; Steiglitz and Shapiro, 1998). It is suggested that crowdfunding is currently well publicized in different media channels, which can lead to the initiation of social contagion processes and implies that investors follow others without considering facts or their own experience (Bikhchandani et al., 1992; Russ, 2007; Shiller, 2000). The behavior of the crowd is to some degree exploited by the business model of equity-based crowdfunding platforms through short investment periods, funding limits and high transparency of the funding process. These elements generate a feeling of urgency for investors to act, as Third Party 1 explained, *"It is important to create a feeling of urgency. To tell the crowd that it can lose the opportunity to invest because 500 investors are keen to do so. It is like a closing out sale—only three more are available."* In addition, investors react to

these mechanisms, even though they seem to be aware of their existence. As Investor 7 described,

"Herding behavior definitely exists in equity-based crowdfunding, but I think there are two possible explanations: the rational one where people think it must be good when so many others invest and a more irrational explanation, where people are afraid to lose the opportunity to invest as the commodity is scarce. I think even though you are aware of the herding effect, you cannot ignore it."

However, if individuals have a choice to delay their investment decision, there can be long periods without investments (Hirshleifer and Hong Teoh, 2003). As Investor 11 emphasized *"I think I would never be among the first ones to invest. I would always wait and see what happens."* Hence, first movers are required to stimulate investments by subsequent investors (Bikhchandani and Sharma, 2001; Hirshleifer and Hong Teoh, 2003; Russ, 2007). According to the interviews, all groups of market participants are convinced that in equity-based crowdfunding the funding dynamic at the funding start is of high importance. Market evidence supports this assessment. New ventures such as Protonet, Refined Investment, Smarchive, Lingoking and Erdbär were able to complete their funding (up to the record sum of EUR 1.5m involving 1,047 investors) in less than 12 hours, which indicates that the reaction time of other investors appears to play an important role in the individual investment decision.

New ventures try to build and preserve a positive funding momentum by activating their own social networks to invest in their crowdfunding campaigns as the respondent from Venture 6 noted: *"And to give away secrets, I think that 100,000 are from our family and friends. We have an enormous network and we mobilized it to invest in our crowdfunding campaign."* This behavior also seems to reflect market expectations, as Investor 9 explained:

"For me it is important to have a good funding dynamic right from the start. Because if someone wants to convince the crowd to invest, he must at least be able to motivate his friends and family. These people are the most likely to invest and if they don't, I am suspicious. If nothing happens at the funding start, I do not invest."

These results are in line with prior findings about P2P lending and reward-based crowdfunding. It has been shown that endorsements by peer investors and family and friends and a dynamic funding start are important factors for ultimate funding success (Colombo et

al., 2015; Hildebrand et al., 2014; Lin et al., 2009; Liu et al., 2014; Ward and Ramachandran, 2010).

Table 5-5: Peer principal endorsements

Construct	Group	Number of Evidence	Quote
Direct influence on perceived information asymmetries (P2a)	**Total (24)**	**20**	
	Ventures (6)	5	*Someone will have studied the business plan, than I don't have to do that. That is why I can invest—the others cannot all be stupid.* (Venture 1)
	Investors (13)	12	*Well, I directly check who is already invested and which amounts were contributed. If, for example, an investment proceeds fairly sluggishly and only small amounts are contributed, I'm critical... It is some sort of herd instinct.* (Investor 2)
	Third parties (5)	3	*I'm convinced that a herding effect exists… they think that why should I have the ability to better assess the success chances of a venture than the crowd as a whole? The collective of the crowd has much more experience than I do.* (Third Party 5)
Construct	**Group**	**Number of Evidence**	**Quote**
Influence on evaluation of personal information (P2b)	**Total (24)**	**16**	
	Ventures (6)	3	*At one point in our funding it stopped for three days at EUR 42,000. I asked my family to invest EUR 1,000, just to see if this helps. And then, the funding continued… Well, my gut feeling tells me that it is important, that investors monitor what happens... They have to see that others have trust in the venture. Well, I think it is very, very important.* (Venture 3)
	Investors (13)	11	*Well, I like to inform myself… But if I see that there are already large investments made, than I am more interested.* (Investor 5)
	Third parties (5)	2	*Absolutely. The business plans are read by the investors. And critically, very critically... But, then, it is very important to have a good funding dynamic, especially in the beginning. We saw that if the funding has a very good start, other investors are convinced that the investment must be good and the funding will be successful.* (Third Party 2)

In summary, it is theorized from the data that peer effects are important drivers in equity-based crowdfunding. Evidence is found that the investment choices of others seem to reduce the perceived information asymmetries of investors. Furthermore, investors ignore or reevaluate their own private information due to the investment decisions of others (see Table 5-5). Consequently, it is further theorized that the importance of pseudo-personal communication by the venture is reduced by peer behavior. The Internet intensifies this influence, allowing investors to not just observe others but to directly communicate with them (Ward and Ramachandran, 2010). Therefore, the following is proposed:

> **Proposition 2a:** Endorsements by peer principals (i.e., peer investors) reduce the perceived information asymmetries of investors in equity-based crowdfunding.
>
> **Proposition 2b:** Endorsements by peer principals decrease the importance of pseudo-personal communication to reduce the perceived information asymmetries of investors in equity-based crowdfunding.

The role of superior principal endorsements

In markets with high information asymmetries, decision makers are susceptible to any type of quality disclosure to reduce their risks (Dranove and Jin, 2010; Kim and Viswanathan, 2013). This disclosure can be provided by the venture itself, through peer opinions and behavior, or through quality assurance measures provided by third parties (Dranove and Jin, 2010). Based on the data, it is theorized that superior principals exist that influence the decision making of investors in equity-based crowdfunding (see Table 5-6). Superior principals are single investors or other third parties with specific expert knowledge about the company and/or its products. Endorsements of such superior principals can take various forms, such as the involvement of or investments by professional and experienced investors, customer experiences, company alliances and professional certifications (Chemmanur and Fulghieri, 1994; Dranove and Jin, 2010; Hsu, 2004; Iyengar et al., 2011; Kim and Viswanathan, 2013; Megginson and Weiss, 1991; Nahata, 2008; Nair et al., 2010; Stuart et al., 1999).

Both, investors and new ventures emphasized the positive influence of investments already made by formal and informal capital providers such as VC companies and BAs. As Investor 3 noted, *"if business angels have already invested, there must be more behind it. They have a deeper look into the company, as they are directly investing thousands of euros"* and Investor 13 pointed out,

"I'm not a professional investor, therefore I always feel good when a BA has already invested. Then I know that the company gained the interest of a professional investor and this is always a good sign. The same is true for the involvement of VC companies."

This effect can be explained by trust in the abilities of professional investors to choose only reliable and trustworthy ventures with high growth potential (Stuart et al., 1999). In addition, VC companies have the potential to add value through their own experiences and networks, which further increases the chances of success for new ventures (Baum and Silverman, 2004; Hsu, 2004). Prior research confirms the positive effect of VC company participation in achieving follow-up financing (Alexy et al., 2011; Megginson and Weiss, 1991; Nahata, 2008; Stuart et al., 1999). Although investments by VC companies in new ventures employing crowdfunding are rare, the data reveal that BA investments can have a similar influence on investors in equity-based crowdfunding. New ventures seem to be convinced of this positive effect. Market data shows that new ventures that received prior

funding from either VC companies or BAs tend to promote this information very actively in their equity-based crowdfunding campaign. An exemplary analysis of actual market data from Companisto, the second largest equity-based crowdfunding platform for new ventures in Germany, demonstrates that new ventures are utilizing the statements of prior investors and customers as external credentials in more than 65% of their presentation videos.[87]

Crowd investors have difficulties in distinguishing between different types of investors while equity-based crowdfunding is in progress. They can only trace usernames, times and the sizes of predecessors' investments. It is theorized from the interviews that the size of prior investments is an indicator of the perceived degree of professionalism or information advantages of other investors: *"And if I see large amounts in the thousands, then I am more interested"* (Investor 2). Looking at the data, a similar effect related to the usernames of investors with high equity-based crowdfunding activity is identified. Some equity-based crowdfunding platforms encourage this effect by awarding batches for investors if they reach a certain investment frequency or cumulative amount invested. These batches are attached to the username and, therefore, transparent for others. It seems that the investments of highly active crowd investors can have a positive influence on others, as Investor 4 explained:

"I have noticed investor X because he is a very active investor. And then I stumbled over his name on XING [a German professional online network] *and Facebook and I thought, OK, I should make contact with him to exchange information. He often has more information, as he is in direct contact with the entrepreneurs, and sometimes he recommends an investment."*

These peers can be understood as opinion leaders. They are a minority of individuals with great influence on the opinions of a large number of peers and are important drivers of public opinion (Watts and Dodds, 2007). The role of opinion leaders is well established in diffusion and marketing research (Iyengar et al., 2011; Nair et al., 2010; Watts and Dodds, 2007). According to this research, the influence can be rooted in higher usage volumes, experience, intensive network activities, or past successes (Iyengar et al., 2011; Nair et al., 2010).

[87] The analysis was conducted for equity-based crowdfunding transactions on Companisto between 31 October 2011 and 31 July 2013.

Such opinion leader effects are not restricted to investments by other market participants. The interview data suggest that investors in equity-based crowdfunding are also affected by customer opinions, business partners and other external credentials. Customer comments about product quality, company communication, or the reliability of product delivery provide potential investors with information about a company's reliability and sustainability (Dranove and Jin, 2010). As Investor 4 explained,

"I would like to see that the ventures already have customers and that you can see feedbacks and how the company communicates on Facebook. You should see that they have started their business and that the product is well received by the market."

Other factors, such as having reputable business partners and external credentials (e.g., awards), were also mentioned as positive quality indicators, as Investor 3 noted,

"They received a subsidy from the German government (EXIST[88]) and you know that the company is not an empty shell. You have more trust if the ventures already received rewards through business plan competitions or you know them through pitches or press reports."

One very specific affiliation and quality indicator is the promoting equity-based crowdfunding platform. The interview data suggest that crowd investors have a high degree of trust in the screening and evaluating abilities of specific platforms. This is rather surprising because equity-based crowdfunding platforms bear little risk regarding the crowdfunding transaction. Furthermore, their remuneration is directly linked to the funding success leading to a potential conflict of interest. The investors in the dataset appear not to be very concerned about this situation and argue that the platforms' reputation is also at risk. As Investor 10 stated, *"And I trust in the platform, that they can make a more objective decision than me."*

This positive influence of reputation at risk leading to careful selection is demonstrated to have been of high influence in different contexts in past research (Chemmanur and Fulghieri, 1994; Dranove and Jin, 2010; McLaughlin et al., 2000; Stuart et al., 1999). Although trust in the platform does not have a direct influence on individual deal selection, it

[88] EXIST is a government support program in Germany which aims to improve the entrepreneurial environment at universities and research institutions and to increase the number of technology and knowledge based business start-ups. See http://www.exist.de/EN/Home/home_node.html (accessed 4 April 2015).

influences the choice of the intermediary and the set of ventures from which an investor makes his or her choices (Burtch et al., 2013; Greiner and Wang, 2010; Wang et al., 2014).

Table 5-6: Superior principal endorsements

Construct	Group	Number of Evidence	Quote
Direct influence on perceived information asymmetries (P3a)	**Total (24)**	**16**	
	Ventures (6)	3	*The longer the investment is at the same level, the less likely it is to get fully funded. Unless they publish something really important, like acquiring a big customer or similar references. In this case they might kick-start again.* (Venture 1)
	Investors (13)	10	*Especially in B2C* [Business-to-Consumer], *where people use the product on a daily basis, it is important to see how customers react.* (Investor 6)
	Third parties (5)	3	*Satisfied customers are a fantastic element to take away the fears of investors.* (Third Party 1)
Construct	**Group**	**Number of Evidence**	**Quote**
Influence on evaluation of personal information (P3b)	**Total (24)**	**14**	
	Ventures (6)	3	*We took great care to produce the video and to prepare the documents… We already have customers, we already have another investor, a local venture capital fund, and these are important factors. This helps investors to make a decision.* (Venture 3)
	Investors (13)	9	*If I see that an external investor already participated like a business angel or a public development bank, than I am more interested as the company already has a proof-of-concept.* (Investor 11)
	Third parties (5)	2	*External references. Someone must help them to make the decision and to say, yes, this is good.* (Third Party 3)

Third-party endorsements can provide a venture with legitimacy and hence reduce its liability of newness (Rao et al., 2008; Stinchcombe, 1965; Zimmerman and Zeitz, 2002). The interview partner Third Party 3 nicely summarized the positive effects of superior principal endorsements: *"External references. Someone must help them to make the decision and to say, yes, this is good."* The findings suggest that endorsements through the investments of reputable investors such as VC companies, BAs and opinion leaders, positive feedback from external stakeholders of the venture such as customers, suppliers or business partners and external certifications reduce the perceived information asymmetries of investors in equity-based crowdfunding. This chapter refers to these endorsements as superior principal endorsements. Moreover, investors seem to ignore or reevaluate their own private information if these endorsements are available (see Table 5-6). Therefore, the following is proposed:

> **Proposition 3a:** Endorsements by superior principals reduce the perceived information asymmetries of investors in equity-based crowdfunding.

Proposition 3b: Endorsements by superior principals decrease the importance of pseudo-personal communication to reduce the perceived information asymmetries of investors in equity-based crowdfunding.

5.4.3 Opinion leaders and investor communication

New ventures think that few investors are interested in being involved in the venture and in seeking personal communication. As the interview partner from Venture 1 noted,

"I think there are different groups of investors. I speak about the majority, but there are some investors who are interested in being involved and in communicating directly. But 90% of investors make their decision based on the video."

Thus, next to the rather 'passive' crowd, there exists a specific group of very active peer investors that resemble opinion leaders. The interview data suggest that opinion leaders have different communication requirements than the majority of the crowd in equity-based crowdfunding. As Investor 3 stated,

"I am interested in getting to know the entrepreneur. I have a direct contact with nearly every new venture I invested in. I often have a direct contact by phone; sometimes I meet them in person."

Even though pseudo-personal communication may still play a role in the investment decisions of such investors, other communication methods seem to be more effective for this particular group. As the respondent from Venture 2 noted, *"I think that there are different types of investors who require different communication strategies. But the questions asked came from a small group of investors."*

Prior communication research shows that social networks are characterized by asymmetric peer effects (Nair et al., 2010). Opinion leaders are influenced to a lesser extent than other individuals by peer behavior and, instead, trigger social contagion processes themselves (Iyer et al., 2009; Nair et al., 2010; Watts and Dodds, 2007). The same effects seem to be present in equity-based crowdfunding. As Investor 12 emphasized, *"There are people who are opinion leaders. And then there are many investors who just follow the opinion leaders. They think this guy cannot be wrong."*

The data suggest that opinion leaders in equity-based crowdfunding try to make their investments based on informed decisions: *"I prefer to take some time to have a look at the*

venture, at the business plans and I ask questions. The pressure to invest is not so pronounced anymore so I can take my time to decide" (Investor 3). Thus, it is proposed that peer principal endorsements and pseudo-personal communication by the venture are of lesser importance for opinion leaders.

> **Proposition 4:** The importance of pseudo-personal communication of new ventures and peer principal endorsements as a means to reduce perceived information asymmetries is less pronounced for opinion leaders.

5.5 Conclusion

5.5.1 Summary and limitations

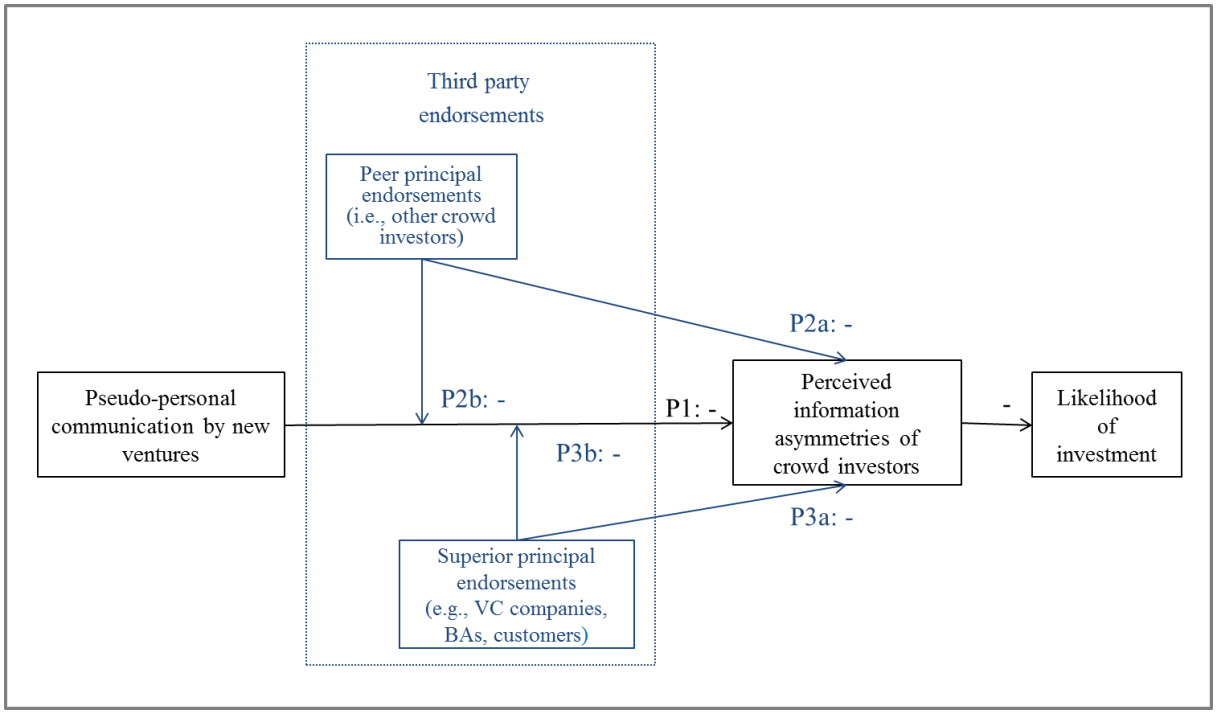
Summary of main results and conceptual model

The aim of this chapter is to explore how investor communication can help to reduce information asymmetries and facilitate the investment decisions of investors in equity-based crowdfunding. Crowdfunding has undergone a dynamic development in recent years and is established as an alternative financing instrument for some (new) ventures. Despite its practical relevance, to date, little research has been conducted to fully comprehend the drivers of the investment decisions of crowd investors, particularly in equity-based crowdfunding. The analysis in this chapter taps into this research gap and utilizes a qualitative research design based on 24 in-depth interviews with investors, entrepreneurs, respondents from equity-based crowdfunding platforms and market experts.

A key result of the analysis is that the overall impression of the management team—especially their perceived sympathy, openness and trustworthiness—plays an important role in reducing the perceived information asymmetries and in increasing the likelihood of investments in equity-based crowdfunding. To communicate these soft facts, alternative ways of communication that can be characterized as pseudo-personal seem to be used. In addition, it is found that the communications of third parties influence the decision-making process of individual investors in equity-based crowdfunding. In the interview data, two groups of third parties emerge: peer principals (i.e., peer investors) and superior principals (e.g., other professional or experienced investors and external stakeholders). The communications and behavior of both groups appear to have a direct impact in reducing the perceived information asymmetries of crowd investors. In addition, the importance of pseudo-personal

communication by the venture is reduced if third-party endorsements are available. Investors seem to reevaluate or even ignore their own assessments following this information. These findings are summarized in the conceptual model shown in Figure 5-1.

Figure 5-1: Conceptual model for investor communication in equity-based crowdfunding



Furthermore, as a boundary condition for the proposed relations, there seems to exist a minority group of investors in equity-based crowdfunding that resembles opinion leaders for whom other communication requirements apply.

Limitations

The analysis in this chapter has some limitations. First, the analysis is focused on the German equity-based crowdfunding market, and hence, the analysis is based on a specific institutional context. As regulations and market structures are heterogeneous across countries, the business models of equity-based crowdfunding platforms (i.e., funding limits, financial instruments employed) vary considerably between countries. In addition, motivations and information requirements of crowd investors are likely to differ between different crowdfunding models (Cholakova and Clarysse, 2015; Ordanini et al., 2011). As Investor 10 noted, *"In reward-based crowdfunding, it is different. Either I invest in products which are really cool or I invest in projects where I have a personal relationship with the initiators."* In philanthropic projects, the crowds' motives to participate are likely to differ even more and

money is given for intrinsic motivations like the desire to help others, increase peoples' self-esteem, or to have positive social network effects (Burtch et al., 2014b; Gerber et al., 2012; Saxton and Wang, 2014; Smith et al., 2013). Overall, because of the specific research context, which implies certain motivations of crowd investors to participate, market characteristics and cultural differences, generalizations to other crowdfunding markets should not be undertaken without further research.

Second, the findings are limited to a qualitative and explorative research design. The researcher's request to take part in the survey was placed as appeals in social media channels, by emails or personally. Around 40% of the interview requests placed by email ended with a positive response. Comparing this response rate to usual response rates in survey-based studies, the response rate is satisfying. Even though a connection between the refusal to participate and the characteristics of the potential interview partner or the project was not detected, it could still be the case that the people not willing to participate would have responded differently. A very humble indication is that one interviewee was contacted multiple times and only then decided to participate. His responses were consistent with those from the other interviewees, which could be interpreted as a positive sign following the late-respondent-logic applied in survey-based studies. Although great care was taken in selecting interview partners and employing well-established methods of theoretical sampling and triangulation, the results should only be considered as preliminary insights. The findings cannot be generalized to the entire equity-based crowdfunding market, even though some supporting evidence for the main findings was found in actual market cases. Furthermore, with the approach applied in this chapter, it is not possible to specify in a quantitative way which factor or combination of factors has the largest impact in reducing the perceived information asymmetries of investors in equity-based crowdfunding.

5.5.2 Implications for theory and practice and future research directions

Theoretical contributions

This chapter contributes to the existing research in entrepreneurial finance in four aspects. First, it contributes to the scarce research on investor communication for new ventures (Bassen et al., 2010; Kollmann and Kuckertz, 2006). Equity-based crowdfunding adds a new and, thus far, largely neglected group of risk capital providers for new ventures: the crowd. The crowd is a large group of heterogeneous, mostly anonymous investors

characterized by their preference to utilize new technologies to gather information, to communicate and to invest. However, the crowd in equity-based crowdfunding acts in a similar context as traditional risk capital providers. It invests in risky and often innovative new ventures, which are characterized by a lack of information and a liability of newness (Rao et al., 2008; Stinchcombe, 1965; Zimmerman and Zeitz, 2002). To reduce information asymmetries, traditional equity providers such as VC companies or BAs establish interpersonal relationships with the entrepreneurs (Landström, 1992; Sapienza and Korsgaard, 1996). Crowdfunding, however, involves a large number of (small) investors, which makes personal relationships with all investors virtually impossible. It is contributed to the existing research by proposing an alternative communication strategy for equity-based crowdfunding that can be characterized as pseudo-personal. This chapter thus extends the growing literature on the relevance of impression management by entrepreneurs to convince investors of their legitimacy and credibility (Nagy et al., 2012; Parhankangas and Ehrlich, 2013). It is found in the interview data that investors in equity-based crowdfunding can be persuaded to invest—similar to business angels—by a positive impression of the entrepreneur. In particular, sympathy and trust seem to play an important role in the investment decisions of investors. These soft facts can typically only be communicated through direct personal contacts. In equity-based crowdfunding, investors appear to replace personal contacts with pseudo-personal communication.

Second, this chapter contributes to the literature on herding behavior in financial markets (Banerjee, 1992; Bikhchandani and Sharma, 2001; Devenow and Welch, 1996; Shiller and Pound, 1989; Steiglitz and Shapiro, 1998), where equity-based crowdfunding has not played a major role so far. According to the interview data, the investments of peer principals play an important role for the funding decision of subsequent investors in equity-based crowdfunding and can trigger herding effects. However, the data do not permit to differentiate whether this herding behavior is based on rational judgments following the idea of the wisdom of crowds (Larrick et al., 2012; Surowiecki, 2004) or is the result of irrational exuberance (Shiller, 2000; Simonsohn and Ariely, 2008; Steiglitz and Shapiro, 1998). Although it is questionable whether the prerequisites for exploiting crowd wisdom are met in crowdfunding, prior research found some evidence of crowd wisdom in reward-based and lending-based crowdfunding (Herzenstein, Dholakia, et al., 2011; Mollick and Nanda, 2014; Zhang and Liu, 2012). Irrespective of the motivations of herding in equity-based crowdfunding, it is theorized from the data that the perceived information asymmetries of

crowd investors and the importance of pseudo-personal communication by the venture are reduced in the presence of peer endorsements.

Third, the chapter contributes to the literature on certification and reputation in financial markets (Block et al., 2014; Chemmanur and Fulghieri, 1994; Dranove and Jin, 2010; Hsu, 2004; Megginson and Weiss, 1991; Stuart et al., 1999). Prior research has shown that the participation of reputable investors or intermediaries such as VC companies or investment banks have positive effects on follow-up financings of ventures (Alexy et al., 2011; Chemmanur and Fulghieri, 1994; Hsu, 2004; Megginson and Weiss, 1991; Nahata, 2008; Stuart et al., 1999). According to the data, similar mechanisms apply in equity-based crowdfunding. Crowd investors appear to be positively influenced by experienced investors and platform reputation. In addition, the perceived information asymmetries of crowd investors are reduced by opinion leader participation and by other external credentials like press coverage or granted awards (Dranove and Jin, 2010; Iyengar et al., 2011; Nair et al., 2010; Watts and Dodds, 2007).

Finally, the analysis in this chapter contributes to crowdfunding research and the decision criteria of the crowd. Prior research has identified various drivers of fundraising success in different crowdfunding models such as presenting the pitch and disclosure of information (Ahlers et al., 2015; Burtch et al., 2014b; Duarte et al., 2012; Michels, 2012), the importance of the fundraisers' social network (Lin et al., 2014; Mollick, 2014) and peer behavior (Herzenstein, Dholakia, et al., 2011; Kim and Viswanathan, 2013; Zhang and Liu, 2012). This analysis is one of the first empirical studies on investor decision criteria in equity-based crowdfunding. It is found that the entrepreneur's personality and overall impression are particularly important and are actively communicated by the venture with pseudo-personal communication tools. Furthermore, the impact of third-party communication or endorsements with regard to the perceived information asymmetries of investors in equity-based crowdfunding is considered.

Practical implications

The findings in this chapter have practical implications for the different market participants in equity-based crowdfunding. Investor communication appears to be an important tool for convincing crowd investors of a venture's legitimacy and credibility. However, new ventures need to be aware of the specific characteristics of the communication requirements of the different types of investors in equity-based crowdfunding. Furthermore,

they need to consider the impacts through third-party communication. New ventures and equity-based crowdfunding platforms can utilize the results to optimize the process to support a successful crowdfunding campaign. Entrepreneurs should recognize the importance of how their personality is perceived by investors in equity-based crowdfunding. Hence, in addition to explaining their business model, they need to focus on their media behavior and on presenting themselves as sympathetic and trustworthy. In addition, they should actively communicate the engagement of prior external equity investors and reference statements from key customers and suppliers. Furthermore, new ventures should be aware of possible differences in the crowds' communication expectations based on different product characteristics or platform specific criteria like minimum investment amounts. Investors in equity-based crowdfunding should ensure that their investment decision is driven by the success potential of the venture. Their own personal impression of the entrepreneurial team might hinder them from investing in promising projects or attract them to unpromising projects. Furthermore, trusting peer principal or superior principal endorsements could lead to a lack of analysis of fundamental company data.

Future research agenda

Based on the findings in this chapter about investor communication in equity-based crowdfunding, four promising research areas for further research are identified.

1. What is the exact role of pseudo-personal communication and social media in reducing information asymmetries of investors in equity-based crowdfunding?

A structured analysis of the different tools employed to communicate in equity-based crowdfunding could help in understanding their impact on funding success. Through an in-depth analysis of particular investor relations channels provided by the platforms, it becomes possible to investigate the importance of reaction times or particular narratives or wordings utilized to achieve funding success. The role of social media channels in achieving funding success is another promising area of interest. The development of Facebook 'likes' before, during and after a funding campaign, a verbal analysis of commentaries and twitter messages could give further insights into how the use of social media influences information asymmetries and ultimately funding success. Another line of research could be a detailed analysis of the product videos provided by the ventures on the platforms. How is the making of and the content of such videos related to funding success, and what content is particularly important for crowd investors?

2. What is the role of investor communication in other crowdfunding models?

Similar to previous research on reward- and donation-based crowdfunding (Mollick, 2014; Saxton and Wang, 2014), this chapter highlights that pseudo-personal communication tools such as the product video and social media matter also for attracting investors in equity-based crowdfunding. However, the exact communication styles and contents are expected to differ between the different crowdfunding models. For example, in reward-based crowdfunding it is likely that the presentation of the product features is very important and that in donation-based crowdfunding the presentation of the social value of the project matters in particular. Future research could be conducted to find out more about such differences. Furthermore, it would be interesting to compare the role of third-party communication across the different crowdfunding models.

3. To what extent do the business models of equity-based crowdfunding platforms influence investor communication by the ventures?

The role of equity-based crowdfunding platforms in reducing information asymmetries is still evolving and, so far, has not yet received extensive research attention. What information must be provided to platforms, and how do platforms as intermediaries shape the information that is disclosed by the venture to the crowd? In other words, how do platform-specific characteristics such as disclosure requirements, communication tools provided, allowed funding limits and minimum investment amounts shape the investor communication policy of new ventures in equity-based crowdfunding and/or other crowdfunding models?

4. How heterogeneous are investors in equity-based crowdfunding, and what are the consequences for investor communication by new ventures?

Prior research shows that the different motivations of crowd investors are reflected in different investment strategies and behavior (Lin et al., 2014). These differences are not only related to different crowdfunding models but also exist on the same platform (Lin et al., 2014). The interviews conducted for this analysis indicate that opinion leaders have different communication requirements. The same might be true for other groups such as early adopters or user innovators.

Crowdfunding offers the opportunity for new ventures to reduce the early-stage financing gap and increases the chances that innovative ideas are brought to the market (Mason and Harrison, 2003). The democratization of new venture financing increases the

awareness of society concerning new ventures and their importance for the economy. However, the liberty to invest in high-risk ventures is of large regulatory concern, especially regarding investor protection. It can be expected that the future of equity-based crowdfunding depends largely on the default rates of funded ventures, the reputation of the platforms and, in particular, on future market regulations. For future regulation efforts, it is relevant to better understand the crowd in equity-based crowdfunding, and hence, future research should aim to depict relevant factors that help to explain crowd investor behavior. The results of this chapter are a first step in understanding investor communication requirements.

6 Summary, implications and outlook

6.1 Summary and limitations

Summary

Today, it is widely accepted that SMEs are not 'scaled-down versions' of large firms (Cressy and Olofsson, 1997). SMEs are different in many respects. Especially their ownership structure affects their business strategy, but also their business financing (Ang, 1992; Chittenden and Hutchinson, 1996; Michaelas et al., 1999). In addition, SMEs are more dependent on private and national financial markets, as their financing requirements and their informational opacity typically make public markets inaccessible and cross-border financing transactions uneconomical (Berger and Udell, 1998; Jõeveer, 2012). The focus of this dissertation is on European SMEs, as they are of particular importance for the European economy and have been hit hard by the financial market crisis. The aim of this dissertation was twofold: First, a holistic and integrative approach was used to investigate SME financing patterns in Europe. Second, this dissertation looked deeper into crowdfunding as one new way of business financing. Thereby, this dissertation used an exploratory approach to provide first insights into these different aspects of business financing.

This dissertation started by providing a basic understanding of the various financing sources and instruments available to SMEs in their different life cycle stages. It was distinguished between traditional and alternative sources of financing and their main characteristics. Afterwards, current trends in SME financing were discussed. Even though research on SME financing has increased significantly over the past years, little is known about the financing patterns of SMEs. Prior empirical studies have shown that firm-, product-, industry- and country-specific factors influence the financing of SMEs. However, they mainly investigate the influence of one or a few factors on a single financing instrument or focus on a single country (Berger and Udell, 1998; Cosh et al., 2009). This is, however, unsatisfactory as various substitutive and complementary effects exist between different financing instruments and their determinants. The aim of this dissertation was to tap into this research gap by using the firm level data of the SAFE survey, which is compiled on behalf of the ECB and the EC to develop an empirical taxonomy of SME financing patterns. The survey is well-suited for the research purpose, as it comprises a large sample of European SMEs and contains information

on a large number of financing instruments. To identify financing patterns of European SMEs these financing instruments were used as active variables in a cluster analysis, including 28 European countries and 12,726 SMEs. The results of this analysis distinguished six SME financing types: mixed-financed, state-subsidized, debt-financed, flexible-debt-financed, trade-financed and internally-financed SMEs. These SME financing types differ according to the number of financing instruments used and the combinations thereof. In addition, the SME financing types can be profiled according to their firm-specific (i.e., firm size, firm age, ownership, growth and profitability), product-specific (i.e., innovativeness), industry-specific (i.e., main activity) and country-specific (e.g., geography, financial market systems) characteristics (see Table 3-13).

The results of this analysis provide some support for prior findings that smaller, younger and innovative SMEs suffer from a financing gap (see Section 3.5). One recent trend which has been argued to be able to close this gap is crowdfunding (Hemer et al., 2011; Röthler and Wenzlaff, 2011). Crowdfunding was defined in this dissertation as a form of financing via an open call over the Internet, typically involving a specialized platform, to obtain financial resources for a project or a company. Crowdfunding transactions typically involve a large number of individual investors (the 'crowd'), who participate as donors or to receive some form of non-tangible or tangible compensation (see Section 4.2). This definition shows that crowdfunding is not a single financing instrument, but encompasses various heterogeneous financial models, which vary in their complexity and risks. It can be distinguished between donation-based, reward-based, lending-based and equity-based crowdfunding. The different crowdfunding models vary in the utilization of the financial resources and the returns to investors. After scrutinizing and organizing prior research on crowdfunding according to the main actors, capital seekers (with a focus on companies), capital providers and intermediaries (platforms), the main research interests and results were presented. Based on this in-depth literature review, a number of further research directions were discussed.

The literature review revealed that to date little is known about the drivers in equity-based crowdfunding. This most recent and complex form of crowdfunding might be driven by different dynamics, as capital providers are investors in companies with a financial return interest. Crowd investors in equity-based crowdfunding act in the same context as 'traditional' private equity providers such as BAs and VC companies and invest in companies with very little verified information, low transparency and high risks. The crowd differs from traditional

private equity providers in the sense that it is a large group of heterogeneous and often anonymous investors investing small amounts of money through the Internet. The challenge for new ventures is to find appropriate strategies to communicate their legitimacy and credibility to this new type of investor. The purpose of this dissertation was to provide insights into the role of investor communication in equity-based crowdfunding as a way to reduce the perceived information asymmetries of crowd investors and to increase the likelihood of their investment. Based on a qualitative research design using 24 in-depths interviews with market participants, six propositions about the role of investor communication in equity-based crowdfunding were developed and summarized in a conceptual model. The results of this analysis show that the overall impression of the management team such as the perceived trustworthiness, openness and sympathy seem to be of particular importance to convince the crowd to invest. In contrast to traditional private equity investors, crowd investors seem to replace personal contacts with alternative ways of communicating, which can be characterized as pseudo-personal. In addition, it was found that the communication of third parties influences the decision-making process of crowd investors. The interviews revealed two groups of third parties: peer principals (i.e., other crowd investors) and superior principals (i.e., professional and experienced investors and external stakeholders). The communication of these parties has a direct and an indirect influence on the perceived information asymmetries of crowd investors. As a boundary condition, the interviews revealed that a minority group of investors (e.g., opinion leaders) seems to exist for whom the proposed relations seem to be of less importance.

Limitations

The interpretation of the results comes with some limitations. With respect to the SAFE survey, which was used to develop the empirical taxonomy, it has to be noted that the analysis is based on a single period considering only the financing instruments used by the surveyed SMEs over the past six months. Other financing instruments might have been important for the firms, but have not been used in the past six months. Furthermore, no information is available about the significance of the financing instruments for the firms and the relative importance to each other. Another limitation is related to the firms' decision-making process to utilize specific financing instruments. The analysis cannot determine whether the financing patterns are based on an active choice by the firms or due to the accessibility of specific financing instruments. An additional limitation of the survey is in relation to companies being

young and small as firms without employees are not included in the sample. Start-ups in their early phases typically start without employees, leading to an exclusion of this group of firms from the analysis.

In regard to the investigation of investor communication in crowdfunding, the institutional context used for the analysis needs to be considered. It was only focused on the German equity-based crowdfunding market, which implies certain motivations of crowd investors to participate and specific market and cultural characteristics. This particular research context limits the transferability of the results to other crowdfunding markets or national contexts. Furthermore, the conceptual framework developed is primarily based on interview data that does not specify in a quantitative way the factors or combination of factors most important for investor communication in equity-based crowdfunding.

Hence, the results provided in this dissertation should be understood as preliminary insights in the respective research contexts. Additional research is required to provide more generalizable results. Some future research directions will be provided in Section 6.3.

6.2 Implications

6.2.1 Theoretical implications

This dissertation contributes to different literature streams of SME financing, the emerging field of crowdfunding research and to the behavioral finance literature.

SME financing literature: This dissertation contributes to the literature focusing on the financing of SMEs in several ways. The SME financing literature is highly fragmented, as separate literature streams emerged focusing on specific financing instruments and its characteristics (Berger and Udell, 1998; Cosh et al., 2009). Empirical research considering a larger number of financing instruments and their substitutive and complementary effect is still scarce (Beck et al., 2011; Berger and Udell, 2006; Casey and O'Toole, 2014; Cosh et al., 2009; Huyghebaert and van de Gucht, 2007; Robb, 2002). Furthermore, prior research focused on the influence of firm-specific, product-specific and industry-specific characteristics on SME financing (Chittenden and Hutchinson, 1996; Frank and Goyal, 2007; Freel, 2006; Hall, 2010; Howorth, 2001; López-Gracia and Sogorb-Mira, 2008; Mazzucato, 2013; Michaelas et al., 1999; Mina et al., 2013; Romano et al., 2001; Vanacker and Manigart, 2010). This dissertation contributes to these research streams by taking a holistic and

integrative approach and by revealing that different SME financing types exist which are characterized by specific combinations of financing instruments and profiled by their firm-, product- and industry-specific characteristics.

Furthermore, this dissertation contributes to cross-country research on SME financing. Prior research has shown that national corporate market structures, macroeconomic conditions, legal and tax systems, history and culture and the availability of different financing sources influence the financing of firms (Demirgüç-Kunt and Levine, 1999; Hall et al., 2004; Kiehlborn and Mietzner, 2005). It has been found that SMEs depend strongly on national financial markets, as the sizes of their financial requirements are often too small to facilitate cross-border transactions. Therefore, country-specific factors are likely to be more important for SMEs than for larger firms (Guiso et al., 2004; Jõeveer, 2012). This dissertation contributes to this research by showing that SMEs in Europe have different financing patterns depending on the countries' geography, their prevailing financial market system, the countries' financial stability and their degree of financial market integration in the EU.

Crowdfunding literature: This dissertation contributes to the evolving literature on crowdfunding (Agrawal et al., 2014a; Ahlers et al., 2015; Belleflamme et al., 2014; Mollick, 2014; Ordanini et al., 2011) in several ways. The approach of systematically analyzing the literature on crowdfunding (with a focus on the economic literature) provides a structured overview of the current knowledge about this financing alternative. Furthermore, this overview helped to identify gaps in the current research and to provide a number of interesting future research directions.

In addition, this dissertation contributes to the scarce research on equity-based crowdfunding. Prior crowdfunding research mainly focused on donation-, reward- and lending-based crowdfunding. Even though this literature offers some perceptions about the crowd and how it might reduce its information asymmetries (Allison et al., 2015; Berkovich, 2011; Colombo et al., 2015; Herzenstein, Dholakia, et al., 2011; Kim and Viswanathan, 2013; Michels, 2012; Mollick, 2014; Ravina, 2012; Zhang and Liu, 2012), equity-based crowdfunding might be driven by different dynamics (Ahlers et al., 2015; Cholakova and Clarysse, 2015). This dissertation has shown that investor communication in equity-based crowdfunding seems to be an important tool to help crowd investors to reduce their perceived information asymmetries. It has been found that similar to traditional capital providers such as BAs and VC companies, the personal impression of the entrepreneur is of particular importance (Clark, 2008; Mason and Harrison, 2003). Hence, this dissertation also extends

prior research on the importance of impression management by new ventures (Nagy et al., 2012; Parhankangas and Ehrlich, 2013).

Furthermore, the results of this dissertation show that some findings from other crowdfunding models also seem to apply to equity-based crowdfunding. Research on lending-based crowdfunding found that soft facts such as sympathy and perceived trustworthiness (Berkovich, 2011; Duarte et al., 2012; Michels, 2012; Ravina, 2012) are important drivers for the investment decision of the crowd. Similar results were found for equity-based crowdfunding. In addition, prior studies have shown that herding behavior in lending-based crowdfunding exists (Herzenstein, Dholakia, et al., 2011; Zhang and Liu, 2012). The results in this dissertation also identified herding behavior in equity-based crowdfunding. However, contrary to prior findings, the results leave some doubt if herding behavior is based on a rational decision and the wisdom of the crowd or if herding is due to irrational exuberance (Shiller, 2000; Simonsohn and Ariely, 2008; Steiglitz and Shapiro, 1998). Finally, the importance of certification and reputation effects found in reward-based crowdfunding (Kim and Viswanathan, 2013; Wang et al., 2014) were also found in equity-based crowdfunding. The argument that crowdfunding is not just a financing instrument, but rather a way to involve the investor in the firm and use the wisdom of the crowd for company purposes (Gerber et al., 2012; Hemer et al., 2011; Hienerth and Riar, 2013; Macht and Weatherston, 2014; Schlegel and Hakenes, 2014; Surowiecki, 2004) could only be partially confirmed for equity-based crowdfunding. Even though investors seem to be interested to be involved in the firm, their personal time constraints in combination with small investment amounts often do not seem to justify the effort (see Section 5.4). In fact, the interview data provide support for the results of prior studies which found that the motivations of crowd investors depend on the specific crowdfunding model and that investors in equity-based crowdfunding seem to be primarily driven by financial return motives (Cholakova and Clarysse, 2015; Ordanini et al., 2011).

Behavioral finance literature: Equity-based crowdfunding adds a new group of risk capital providers for new ventures. The crowd is a large group of heterogeneous, mostly anonymous investors characterized by their preference to utilize new technologies to gather information, to communicate and to invest. To reduce information asymmetries, the crowd seems to apply various methods, which are well-known from ‘traditional’ financial markets and discussed intensively in the behavioral finance literature. The results of this dissertation contribute to literature related to the application of decision-making heuristics (Maxwell et al.,

2011; Tversky and Kahneman, 1974; Tversky, 1972), herding in financial markets (Banerjee, 1992; Bikhchandani and Sharma, 2001; Devenow and Welch, 1996; Shiller and Pound, 1989; Shiller, 2000; Steiglitz and Shapiro, 1998) and the effects of certification and reputation on investors choices (Chemmanur and Fulghieri, 1994; Dranove and Jin, 2010; Hsu, 2004; Megginson and Weiss, 1991; Stuart et al., 1999). It was found that these concepts also seem to apply to the crowd as a new type of private equity investor.

6.2.2 Practical implications

This dissertation provides practical implications for SMEs, policy makers, crowd investors and equity-based crowdfunding platforms.

SMEs: SMEs in Europe strongly depend on bank loans to finance their operations (Kraemer-Eis et al., 2015), even though various financing instruments are available for SMEs. It has been argued in the past that small firms are often not aware of the financing alternatives available and the suitability of these instruments for their businesses (Ebben and Johnson, 2006; Holmes and Kent, 1991; Romano et al., 2001; Vanacker et al., 2011). The results of this dissertation can help to increase the awareness and knowledge of SMEs about various financing instruments and how these instruments are used as complementary and substitutive forms of financing.

The results in regard to equity-based crowdfunding provide information about the utilization of this alternative form of financing. Firms can utilize the results to optimize their communication processes to convince the crowd of the venture's legitimacy and credibility. They should be aware of how their personality communicated via pseudo-personal communication tools such as the product video, social media and investor relation channels is perceived by crowd investors. Furthermore, they should be conscious of the fact that their communication with the crowd does not happen in isolation, but that several interfering factors such as the communication of other crowd investors, customers and platforms exist. The knowledge about these different influence factors can help firms to optimize their crowdfunding campaign by providing information about possible strategies to influence the campaign results.

Policy makers: The EU Framework Programme for Research and Innovation ('Horizon 2020')[89] aims to secure the innovativeness and global competiveness of the European Union. To be able to achieve this goal, one important objective is to provide easier access to finance for innovative and growth-oriented firms. For government support to be effective, SMEs need to be aware of the available programs. Furthermore, the programs need to be of interest for the firms, suitable for their specific business needs and appropriate in the respective national context. The results of this dissertation reveal that SME financing in Europe is not homogeneous, but that different financing patterns with different characteristics exist. This finding can help policy makers to assess possible impacts of intended policy changes on SME financing prior to their implementation. In addition, the results can support policy makers to tailor access to finance programs to the specific context and needs of SMEs.

Furthermore, this dissertation provides information about equity-based crowdfunding as a new, at present mostly unregulated, form of alternative financing. Policy makers can use the information about the decision-making and communication processes to decide about regulation requirements and its suitability for the functionality of the market. For example, the first draft of the 'Kleinanlegerschutzgesetz' in Germany leaves some doubt whether advertisements by platforms about equity-based crowdfunding campaigns in social media channels will still be allowed in the future (Bundesregierung, 2014; GCN, 2014). The findings of this dissertation show that social media channels are important for crowd investors to communicate and to gather information about the projects. This raises the question whether the intended rule actually protects investors or whether this regulation disturbs the functionality of the market (Bundesverband Deutsche Startups, 2014; GCN, 2014).

Crowd investors: Equity-based crowdfunding enabled the emergence of a new type of risk capital investor. The democratization of new venture financing allows 'everybody' to participate in high-risk investments. Therefore, investors should be aware of their own decision-making process and how they are persuaded to invest in a project. They should ensure that their investment decision is not solely driven by their personal impression of the entrepreneurial team, by gut feeling or by trusting 'blindly' in the crowd or in superior principals. Even though all of these factors can help investors in their decision-making process, an analysis of fundamental company data should not be neglected. However, as start-

[89] See http://ec.europa.eu/programmes/horizon2020/en/ (accessed 12 March 2015).

ups typically lack reliable fundamental data, investors need to be aware of the investment risks and alternative risk management strategies such as portfolio diversification should be applied.

Crowdfunding platforms: The results of this dissertation have shown that the product video and investor relations channels are important tools in equity-based crowdfunding. Crowdfunding platforms—as a new type of intermediary—can use these results to adapt their business model and implement these tools accordingly. Furthermore, the reputation of and trust in equity-based crowdfunding platforms seems to be an important criterion to reduce the perceived information asymmetry of investors. Hence, platforms should use this information to enhance their trust-building mechanisms. One possibility could be to increase the transparency of their selection process. As crowd investors often do not have the ability and incentive to evaluate the investment proposals themselves, trust in the competency of the intermediary seems to be an important element in equity-based crowdfunding.

6.3 Directions for further research

The results of this dissertation reveal promising avenues for further empirical research. One interesting research direction is to look deeper into the financing patterns of European SMEs. The analysis in this dissertation is focused on the SAFE survey from a single period with the aim to provide a first holistic perspective of SME financing patterns and their characteristics. The inclusion of additional firm-specific and country-specific data such as balance sheet information and macroeconomic data could provide a deeper understanding of these financing patterns. In addition, the stability of the financing patterns over time and in particular under different macroeconomic conditions should be analyzed.

Another avenue of research would be to focus on alternative financing instruments. The identification of the characteristics and drivers in the different alternative finance markets could provide information about the potentials of these markets to close the financing gap of SMEs. As crowdfunding is currently the largest online-based alternative finance market in Europe (Wardrop et al., 2015), more research in this area could facilitate this market to develop further and to gain a more prominent position in relation to traditional financing instruments and other more common alternatives such as trade credit and leasing. Especially large scale data provided by the crowdfunding platforms could help to answer questions such as: What are the differences between successful and unsuccessful crowdfunding campaigns?

Or, to be more precise, what are the differences in the specific characteristics of these projects (e.g., BA investments, patents, higher management education)? What narratives did these projects use in their communication? What are the differences in the product videos? How did the crowdfunding platform promote the project and what was the reaction of the crowd?

Furthermore, crowdfunding and in particular equity-based crowdfunding so far has mainly been used to finance relatively small amounts for innovative start-up firms. However, recent developments indicate that this financing instrument is not restricted to start-ups but could also be a financing alternative for more established SMEs.[90] The increasing amounts and successful follow-up financings provided by the crowd are a promising development to satisfy larger capital needs of firms. For example, the company Protonet in Germany was able to convince 1,826 investors in less than 14 hours to invest EUR 3m in their second equity-based crowdfunding campaign to finance the development of their new personal server.[91] These developments show that this new financing trend might not be 'a flash in the pan' but a shift of the well-known financing paradigm with a high potential for the future. It opens new ways, in particular for innovative firms, to overcome their financing constraints. Policy makers can further this process through supportive guidelines and laws that enable the market to exploit the potential of these financing alternatives and provide SMEs with a real competitive edge—with the ultimate goal to realize their respective country's innovation and growth potential.

[90] See http://www.faz.net/aktuell/finanzen/cfo/finanzierung-crowdfunding-draengt-in-den-mittelstand-13025171 (accessed 12 March 2015).

[91] See http://www.faz.net/aktuell/wirtschaft/netzwirtschaft/crowdfunding-stellt-neuen-rekord-auf-13038525 (accessed 12 March 2015).

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Appendix

Appendix Chapter 3

3-1 Excerpt SAFE survey (2013H1)[92]

Section 1: General characteristics of the firm (*Demographic part, common*)

[COMMON][93] D1. How many people does your company currently employ either full or part time in [YOUR COUNTRY] at all its locations? PLEASE DON'T INCLUDE UNPAID FAMILY WORKERS AND FREELANCERS WORKING REGULARLY FOR YOUR COMPANY.

NUMERICAL ANSWER [1-999999]
[IF 0 EMPLOYEES or IF DK/NA[94] → STOP INTERVIEW → INTERVIEW NOT VALID]

- From 1 employee to 9 employees 1
- From 10 employees to 49 employees 2
- From 50 employees to 249 employees 3
- 250 employees or more 4
- [DK/NA] 9

[D2] not included

[COMMON] D3. What is the main activity of your company?

- Mining 1
- Construction 2
- Manufacturing [INCLUDING ELECTRICITY, GAS AND WATER SUPPLY] 3
- Wholesale or retail trade 4
- Transport 5
- Real estate 6
- Other services to businesses or persons 7

INTERVIEW NOT VALID FOR:

- *Agriculture 8*

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[92] For the complete questionnaire, please refer to https://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html (accessed 12 March 2015).

[93] [COMMON] and [ECB] questions are asked every 6 months, while [ENTR] questions are only asked every two years. [ECB] questions are only asked in the euro area.

[94] DK/NA = Don't know / No answer

- *Public Administration*.....*9*
- *Financial services*.....*10*
- *[None of these cases] [SPECIFY→IF RECODING NOT POSSIBLE STOP INTERVIEW]* *11*
- *[DK/NA]* *99*

[COMMON] D4. What was the annual turnover of your company in [YOUR COUNTRY] in 2012?[95]

- Up to € 2 million.....1
- More than € 2 million and up to € 10 million.....2
- More than € 10 million and up to € 50 million.....3
- More than € 50 million.....4
- [DK/NA].....9

[COMMON] D5. In which year was your firm registered?*[96] [97] [98]

- 10 years or more 1
- 5 years or more but less than 10 years.....2
- 2 years or more but less than 5 years.....3
- Less than 2 years 4
- [DK/NA].....9

[COMMON] D6. Who are the owners of your firm? Please select the most appropriate category in terms of majority holders if more than one category applies.

- Public shareholders, as your company is listed on the stock market.....1
- Family or entrepreneurs [MORE THAN ONE OWNER].....2
- Other firms or business associates.....3
- Venture capital firms or business angels 4
- A natural person, one owner only.....5
- Other.....7
- [DK/NA].....9

[D6b] not included

[95] [For non-euro countries the amounts in euro will be converted to national currency.]

[96] NUMERICAL ANSWER [1700-2013] (four digits, less or equal than [YEAR OF SURVEY])

[97] In case of a past acquisition, please refer to the year when the acquiring company was registered, or, in case of a merger, of the largest company involved (in terms of employees).

[98] For reference purposes, here are the categories that are used for the analysis. The age of the firm is calculated as 2013 minus the year of registration.

Section 2: General information on the type and situation of the firm

We will now turn to your company's current situation. When asked about the changes experienced by your company over the last six months, please report just the changes over this period.

[COMMON] Q0b. On a scale of 1-10, where 10 means it is extremely pressing and 1 means it is not at all pressing, how pressing are each of the following problems that your firm is facing?

- Finding customers 1-10
- Competition 1-10
- Access to finance 1-10
- Costs of production or labour 1-10
- Availability of skilled staff or experienced managers 1-10
- Regulation [EUROPEAN AND NATIONAL LAWS, INDUSTRIAL REGULATIONS, ETC.] .. 1-10
- Other 1-10

[Q0c] not included

[ENTR] Q1. During the past 12 months have you introduced...?

(1 = Yes, 2 = No, 9 = DK/NA)

- … a new or significantly improved product or service to the market 1 2 9
- … a new or significantly improved production process or method 1 2 9
- … a new organisation of management 1 2 9
- … a new way of selling your goods or services 1 2 9

[COMMON] Q2. The following indicators are relevant for the income generated by your firm. Please tell me whether the following indicators have decreased, remained unchanged or increased over the past 6 months in your company?

(1 = Increased, 2 = Remained unchanged, 3 = Decreased, 9 = DK/NA)

- Turnover 1 2 3 9
- Labour cost (including social contributions) 1 2 3 9
- Other cost (materials, energy, other) 1 2 3 9
- Net interest expenses [=WHAT YOU PAY IN INTEREST FOR YOUR DEBT MINUS WHAT YOU RECEIVE IN INTEREST FOR YOUR ASSETS] 1 2 3 9
- Profit [= NET INCOME AFTER TAXES] 1 2 3 9
- Profit margin [= THE DIFFERENCE BETWEEN THE SELLING PRICE AND THE COST PRICE FOR EACH UNIT] 1 2 3 9

[COMMON] Q3. Would you say that the amount of debt compared to the assets of your company has decreased, remained unchanged or increased over the past 6 months?

- Increased.....1
- Remained unchanged.....2
- Decreased 3
- [NOT APPLICABLE, THE FIRM HAS NO DEBT] 7
- [DK].....9

Section 3: Financing of the firm

[COMMON] Q4. Turning to the financing structure of your firm, to finance normal day-to-day business operations or more specific projects or investments, you can use internal funds and external financing.

For each of the following sources of financing, could you please say whether you used them during the past 6 months, did not use them but have experience with them, or did not use them because this source of financing has never been relevant to your firm?

(1 = Used in the past 6 months, 2 = Did not use in the past 6 months, but have experience with this source of financing, 7 = Did not use as this source of financing has never been relevant to my firm, 9 = DK)

a) Retained earnings or sale of assets [INTERNAL FUNDS LIKE CASH OR CASH EQUIVALENT RESULTING FOR INSTANCE FROM SAVINGS, RETAINED EARNINGS, SALE OF ASSETS]..... 1 2 7 9
b) Grants or subsidized bank loan [INVOLVING SUPPORT FROM PUBLIC SOURCES IN THE FORM OF GUARANTEES, REDUCED INTEREST RATE LOANS, ETC.]..... 1 2 7 9
c) Bank overdraft, credit line or credit cards overdraft [*BANK OVERDRAFT* = NEGATIVE BALANCE ON A BANK ACCOUNT WITH OR WITHOUT SPECIFIC PENALTIES; *CREDIT LINE* = PRE ARRANGED LOAN THAT CAN BE USED, IN FULL OR IN PART, AT DISCRETION AND WITH LIMITED ADVANCE WARNING; *CREDIT CARD OVERDRAFT* = NEGATIVE BALANCE ON THE CREDIT CARD] 1 2 7 9
d) Bank loan (new or renewal; excluding overdraft and credit lines) 1 2 7 9
e) Trade credit [= PURCHASE OF GOODS OR SERVICES FROM ANOTHER BUSINESS WITHOUT MAKING IMMEDIATE CASH PAYMENT]..... 1 2 7 9
f) Other loan (for instance from a related company or shareholders, excluding trade credit; from family and friends) 1 2 7 9
g) Leasing or hire-purchase or factoring [LEASING AND HIRE-PURCHASE = OBTAINING THE USE OF A FIXED ASSET (E.G., CARS OR MACHINERY) IN EXCHANGE OF REGULAR PAYMENTS, BUT WITHOUT THE IMMEDIATE OWNERSHIP OF THE ASSET. FACTORING = SELLING YOUR INVOICES TO A FACTORING COMPANY. THIS COMPANY GETS YOUR DEBT AND HAS

TO COLLECT IT. IT WILL MAKE A PROFIT BY PAYING YOU LESS CASH THAN THE FACE VALUE OF THE INVOICE] 1 2 7 9

h) Debt securities issued 1 2 7 9

i) Subordinated loans, participating loans, preferred stocks or similar financing instruments [=ALL TYPES OF MEZZANINE FINANCING THAT CONTAIN CHARACTERISTICS OF BOTH DEBT AND EQUITY – FOR EXAMPLE, A LOAN THAT RANKS BELOW OTHER DEBTS IF A COMPANY GOES INTO LIQUIDATION OR FILES FOR BANKRUPTCY, OR A LOAN THAT GIVES THE LENDER THE RIGHT TO CONVERT THE LOAN TO AN OWNERSHIP OR EQUITY INTEREST IN THE COMPANY UNDER SPECIFIED CLAUSES AND CONDITIONS] 1 2 7 9

j) Equity [QUOTED OR UNQUOTED SHARES OR OTHER FORMS OF EQUITY PROVIDED BY THE OWNERS THEMSELVES OR BY EXTERNAL INVESTORS, INCLUDING VENTURE CAPITAL OR BUSINESS ANGELS. BUT EXCLUDING MEZZANINE FINANCING IN TERMS OF PREFERRED STOCKS] 1 2 7 9

l) [DID NOT USE EXTERNAL FINANCING][99] 1 2 7 9

[Q5 – Q11] not included

[ENTR] Q12. What is the size of the last loan, of any kind, that your firm has obtained in the last two years?[100]

- We did not take a loan 1
- Smaller than €25,000 2
- €25,000- €99,999 3
- €100,000 - €249,999 6
- €250,000 - €1 million 7
- Over €1 million 5
- [DK/NA] 9

[Q13- Q14] not included

[99] [IF NONE OF THE FINANCING SOURCES IS SELECTED AS USED, PLEASE CONFIRM BY ASKING: "BASED ON THE REPLY TO THIS QUESTION, CAN YOU CONFIRM THAT YOUR FIRM HAS NOT USED ANY SOURCE OF FINANCING IN THE PAST 6 MONTHS, NEITHER INTERNAL NOR EXTERNAL?" AND RE-CODE THE CATEGORY WHERE APPROPRIATE.]

[100] [FOR NON-EURO COUNTRIES THE AMOUNTS IN EURO WILL BE CONVERTED TO NATIONAL CURRENCY.]

Section 4: Future, growth and obstacles to growth

[ENTR] Q16. Over the last three years (2010-2012), how much did your firm grow on average per year …?

(1 = Over 20% per year, 2 = Less than 20% per year, 3 = No growth,

4 = Got smaller, 7 = NOT APPLICABLE, THE FIRM IS TOO RECENT, 9 = DK/NA)

a) … in terms of employment regarding the number of full time or full-time equivalent employees? 1 2 3 4 7 9
b) … and in terms of turnover? 1 2 3 4 7 9

[ENTR] Q17. Considering the turnover over the next two to three years (2014-2016), how much does your company expect to grow per year?

- Grow substantially - over 20% per year in terms of turnover 1
- Grow moderately - below 20% per year in terms of turnover 2
- Stay the same size 3
- Become smaller 4
- [DK/NA] 9

[Q19 - Q24] not included

Tables A3-1 – A3-10

Table A3-1: Country distribution

Country		Number of SMEs	in percent
Austria	AT	171	1.3
Belgium	BE	311	2.4
Bulgaria	BG	278	2.2
Cyprus	CY	26	0.2
Czech Republic	CZ	549	4.3
Germany	DE	1,176	9.2
Denmark	DK	118	0.9
Estonia	EE	30	0.2
Spain	ES	1,419	11.1
Finland	FI	127	1.0
France	FR	1,436	11.3
Greece	GR	511	4.0
Croatia	HR	93	0.7
Hungary	HU	313	2.5
Ireland	IE	86	0.7
Italy	IT	2,196	17.3
Lithuania	LT	64	0.5
Luxembourg	LU	16	0.1
Latvia	LV	46	0.4
Netherlands	NL	445	3.5
Norway	NO	152	1.2
Poland	PL	834	6.6
Portugal	PT	489	3.8
Romania	RO	253	2.0
Sweden	SE	353	2.8
Slovenia	SI	65	0.5
Slovakia	SK	230	1.8
United Kingdom	UK	937	7.4
	Total	**12,726**	**100**

Source: SAFE 2013H1

Table A3-2: Cross table turnover and number of employees

	Annual turnover				Test Statistic	
Number of employees	**≤ € 2m**	**> € 2m - € 10m**	**> € 10m - € 50m**	**> € 50m**	**Pearson Chi²**	**Cramer's V**
1 - 9 employees	93.1%	5.9%	0.8%	0.2%		
10 - 49 employees	52.0%	39.3%	8.1%	0.6%		
50 - 249 employees	7.8%	39.1%	43.8%	9.4%		
Total	**89.6%**	**8.4%**	**1.7%**	**0.3%**	**3265.4*** **	**0.364**

Notes: N = 12,306; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

Source: SAFE 2013H1

Table A3-3: Cross table company age and number of employees

	Firm age				Test Statistic	
Number of employees	**≥ 10 years**	**5 to less than 10 years**	**2 to less than 5 years**	**< 2 years**	**Pearson Chi²**	**Cramer's V**
1 - 9 employees	63.2%	20.7%	12.7%	3.4%		
10 - 49 employees	78.5%	13.9%	5.7%	1.8%		
50 - 249 employees	86.4%	9.6%	3.2%	0.8%		
Total	**64.4%**	**20.1%**	**12.2%**	**3.3%**	**104.8*** **	**0.066**

Notes: N = 12,204; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

Source: SAFE 2013H1

Table A3-4: Cross table company ownership and number of employees

	Main owner of the firm						Test Statistic	
Number of employees	Public shareholders, as your company is listed on the stock market	Family or entrepreneurs	Other firms or business associates	Venture capital firms or business angels	A natural person, one owner only	Other	**Pearson Chi²**	**Cramer's V**
1 - 9 employees	1.1%	45.9%	4.9%	0.3%	46.6%	1.2%		
10 - 49 employees	3.1%	55.5%	10.3%	0.8%	28.2%	2.1%		
50 - 249 employees	6.9%	51.5%	20.0%	2.3%	15.4%	3.8%		
Total	**1.3%**	**46.6%**	**5.4%**	**0.3%**	**45.1%**	**1.3%**	**279.7*** **	**0.105**

Notes: N = 12,718; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

Source: SAFE 2013H1

Table A3-5: Within cluster comparison

Variable	Categories	Total sample[(a)]	N	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs	Test Statistic	
										Pearson Chi²	Cramer's V
Firm characteristics											
Size											
Number of employees	1 - 9 employees	92.8%		90.5%	89.2%	90.4%	93.7%	92.0%	96.0%		
	10 - 49 employees	6.2%		7.7%	9.0%	8.3%	5.7%	7.0%	3.6%		
	50 - 249 employees	1.0%	12,312	1.7%	1.8%	1.4%	0.6%	1.1%	0.4%	120.8***	0.070
Turnover	≤ € 2m	89.5%		84.3%	82.9%	87.5%	92.9%	89.8%	93.4%		
	> € 2m - € 10m	8.4%		12.4%	13.7%	10.1%	6.3%	7.6%	5.5%		
	> € 10m - € 50m	1.8%		2.7%	3.3%	1.9%	0.6%	2.4%	1.0%		
	> € 50m	0.3%	11,920	0.7%	0.1%	0.6%	0.1%	0.2%	0.1%	208.4***	0.076
Firm age	≥ 10 years	64.5%		59.4%	63.8%	69.2%	66.3%	63.6%	64.7%		
	5 to less than 10 years	20.1%		21.4%	20.5%	19.2%	23.8%	20.0%	18.3%		
	2 to less than 5 years	12.0%		14.0%	11.5%	10.2%	8.4%	14.1%	12.5%		
	< 2 years	3.3%	11,813	5.2%	4.2%	1.4%	1.5%	2.3%	4.4%	149.7***	0.065
Ownership	Public shareholders	1.2%		3.5%	0.5%	0.9%	0.4%	1.3%	0.7%		
	Family or entrepreneurs	46.6%		50.1%	52.4%	50.5%	45.5%	52.5%	38.9%		
	Other firms or business associates	5.3%		7.5%	4.4%	4.8%	4.2%	6.5%	4.6%		
	Venture capital firms or business angels	0.3%		1.1%	0.7%	0.3%	0.0%	0.1%	0.1%		
	One owner only	45.2%		36.4%	40.3%	43.1%	48.6%	38.5%	53.9%		
	Other	1.3%	12,305	1.4%	1.8%	0.5%	1.4%	1.1%	1.8%	431.6***	0.084
Growth rate p.a. (average p.a. over past 3 years)											
Employment	High growth > 20% p.a.	9.2%		9.4%	13.0%	6.8%	10.5%	10.7%	8.0%		
	Moderate growth < 20% p.a.	15.2%		14.8%	18.1%	17.8%	14.6%	15.2%	13.7%		
	No growth	50.5%		37.2%	47.7%	51.7%	49.7%	49.7%	58.5%		
	Got smaller	25.1%	11,885	38.6%	21.1%	23.7%	25.2%	24.5%	19.8%	365.6***	0.101
Turnover	High growth > 20% p.a.	13.1%		14.9%	14.7%	12.0%	13.2%	13.4%	12.2%		
	Moderate growth < 20% p.a.	31.4%		23.4%	34.1%	33.4%	29.8%	37.9%	31.6%		
	No growth	24.6%		21.1%	20.4%	21.9%	26.5%	21.7%	29.4%		
	Got smaller	30.9%	11,904	40.6%	30.8%	32.7%	30.5%	27.0%	26.8%	237.4***	0.141
Growth rate p.a. - Expectation (next 2-3 years)											
	High growth > 20% p.a.	10.6%		15.4%	14.1%	7.4%	10.2%	10.2%	9.2%		
	Moderate growth < 20% p.a.	40.2%		44.8%	47.8%	40.1%	40.0%	41.8%	35.2%		
	No growth	34.7%		23.2%	26.8%	36.8%	33.9%	37.7%	40.8%		
	Got smaller	14.5%	11,795	16.6%	11.4%	15.7%	15.9%	10.4%	14.8%	300.7***	0.092
Profitability											
Profit margin	Increased	13.6%		16.9%	9.9%	14.0%	14.4%	15.9%	11.0%		
	Remained unchanged	36.5%		30.9%	32.5%	34.3%	33.1%	35.6%	43.5%		
	Decreased	49.9%	11,937	52.2%	57.6%	51.7%	52.5%	48.6%	45.5%	160.5***	0.082
Product characteristics											
	Product or service innovation	31.0%	12,246	35.4%	38.7%	27.2%	31.5%	30.9%	28.6%	67.3***	0.074
Industry characteristics											
	Industry	10.3%		10.6%	12.3%	11.6%	11.6%	10.7%	8.2%		
	Construction	16.6%		19.3%	14.9%	19.1%	15.2%	14.6%	15.7%		
	Trade	28.5%		29.1%	27.5%	28.8%	29.4%	30.5%	26.9%		
	Services	44.6%	12,309	40.9%	45.3%	40.5%	43.8%	44.2%	49.1%	90.9***	0.050

Notes: Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.

[(a)] Slight deviations between Table 3-3 and Table A3-5 are explained by the slightly smaller sample used in the cluster analysis (due to missing values, see Section 3.4.2).

Table A3-6: Cluster comparison: Firm debt and loan taken

	Mixed-financed SMEs	State-subsidized SMEs	Debt-financed SMEs	Flexible-debt-financed SMEs	Trade-financed SMEs	Internally-financed SMEs
Firm has no debt (Q3)	9.0%	1.5%	3.7%	5.8%	20.2%	59.8%
Firm did not take a loan (in the last 2 years) (Q12)	11.5%	3.2%	7.7%	12.9%	19.2%	45.5%

Source: SAFE 2013H1

Table A3-7: Cluster comparison: Most pressing problems

Respondents were asked the following question (Q0b): "On a scale of 1-10, where 10 means it is extremely pressing and 1 means it is not at all pressing, how pressing are each of the following problems that your firm is facing." (ECB, 2013) (see also Appendix 3-1)

Most pressing problems	Mixed-financed SMEs		State-subsidized SMEs		Debt-financed SMEs		Flexible-debt-financed SMEs		Trade-financed SMEs		Internally-financed SMEs		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Finding customers	6.40	2.82	6.32	2.67	6.62	2.58	6.52	2.80	6.35	2.84	6.10	2.91	6.34	2.81
Competition	6.17	2.59	6.19	2.60	6.37	2.47	6.11	2.66	6.10	2.53	5.94	2.74	6.11	2.62
Access to finance	**6.25**	**3.15**	**6.23**	**2.96**	**6.25**	**2.95**	**6.15**	**3.14**	**4.96**	**3.29**	**4.49**	**3.21**	**5.49**	**3.24**
Costs of production or labour	6.15	2.53	6.53	2.64	6.59	2.53	6.31	2.64	5.86	2.86	5.43	2.86	6.00	2.72
Availability of skilled staff or experienced managers	5.13	2.98	5.33	3.04	5.04	3.02	5.13	3.06	5.06	2.98	4.75	3.09	5.00	3.04
Regulation	5.77	2.87	6.03	2.95	5.97	2.90	5.77	2.91	5.97	2.99	5.56	2.99	5.79	2.93

Notes: Likert scale 1 to 10: 1 not at all pressing, 10 extremely pressing; SD = standard deviation.

Source: SAFE 2013H1

Table A3-8: Cross table past growth (employees) and innovation

	Past growth (number of employees; past 3 years)				Test Statistic	
	high growth (> 20% p.a.)	moderate growth (< 20% p.a.)	no growth	got smaller	Pearson Chi²	Cramer's V
Innovation[(a)]	12.7%	18.3%	46.7%	22.3%		
No innovation	7.5%	14.1%	52.3%	26.1%	139.8***	**0.107**

Notes: N = 12,219; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.
[(a)] New or significantly improved product or service introduced to the market (past 12 month).

Source: SAFE 2013H1

Table A3-9: Cross table past growth (turnover) and innovation

	Past growth (turnover; past 3 years)				Test Statistic	
	high growth (> 20% p.a.)	**moderate growth (< 20% p.a.)**	**no growth**	**got smaller**	**Pearson Chi²**	**Cramer's V**
Innovation[(a)]	19.7%	34.1%	21.5%	24.7%		
No innovation	10.0%	30.8%	25.6%	33.6%	281.5***	**0.152**

Notes: N = 12,205; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.
[(a)] New or significantly improved product or service introduced to the market (past 12 month).

Source: SAFE 2013H1

Table A3-10: Cross table future growth expectation and innovation

	Future growth expectation (turnover)				Test Statistic	
	high growth (> 20% p.a.)	**moderate growth (< 20% p.a.)**	**no growth**	**got smaller**	**Pearson Chi²**	**Cramer's V**
Innovation[(a)]	17.6%	44.3%	28.2%	9.9%		
No innovation	7.5%	38.4%	37.7%	16.4%	417.4***	**0.186**

Notes: N = 12,109; Pearson's chi-square test and Cramer's V for categorical variables. ***p < 0.01, **p < 0.05, *p < 0.1.
[(a)] New or significantly improved product or service introduced to the market (past 12 month).

Source: SAFE 2013H1

Appendix Chapter 5

5-1a Interview guidelines (German)

Interviewleitfaden Investoren

Allgemeine Fragen

- Wie sind Sie darauf gekommen, sich an Finanzierungen über Crowdfunding zu beteiligen? Machen Sie nur Crowdinvesting, oder auch andere Formen des Crowdfunding z.B. über Kickstarter oder andere?
- An wie vielen Crowdinvesting und Crowdfunding-Finanzierungen haben Sie schon teilgenommen?
- Können Sie mir bitte sagen, was Ihr beruflicher Hintergrund ist?
- Investieren Sie auch in traditionellen Finanzmärkten? In welche Finanzinstrumente investieren Sie?
- Darf ich nach Ihrer Altersgruppe fragen [Kategorien, 10er Schritte]?

Einstiegsfrage zum Crowdinvesting

- Welche Faktoren sind für Sie bei Ihren Investitionsentscheidungen relevant? Worauf schauen Sie im Besonderen? [zunächst freie Erzählung, dann entsprechend Guideline hinterfragen]

Produkt / Geschäftsmodell / Markt

- Produkt: Ist es für Sie wichtig, welches Produkt / Dienstleistung das Unternehmen anbietet? Möchten Sie das Produkt auch selbst nutzen können?
- Branche: Spielt die Branche, in der das Unternehmen tätig ist, für Sie eine Rolle?
- Welche anderen Faktoren sind relevant? (z.B. Skalierbarkeit, Patent oder Trademark, Standort)
- Unternehmensphase: In welcher Phase investieren Sie? Muss bereits ein Prototyp vorliegen oder sogar bereits erste Umsätze generiert werden?

Gründerteam

- Was ist für Sie beim Gründerteam wichtig? (z.B. Bildungsgrad, Branchenerfahrung, Geschlecht, weiche Faktoren)

Motivation für ein Investment

- Beteiligungsform (z.B. stille Beteiligung, Genussscheine): Spielt die Art der Beteiligung für Sie eine Rolle? Wenn ja, warum?
- Mitwirkungsgrad der Investoren (aktiv / passiv): Möchten Sie aktiv in das Unternehmen eingebunden sein?
- Investition gekoppelt mit Rewards: Ist es für Sie wichtig, dass es auch eine „Belohnung“ für Ihre Investition gibt – neben dem möglichen finanziellen Ertrag?

Kommunikation

- Business Plan: Welche Rolle spielt der Business Plan für Ihre Entscheidung?
- Produktvideo: Schauen Sie sich das Produktvideo an? Ist es wichtig für Ihre Investitionsentscheidung? Was ist hier für Sie besonders wichtig?
- Social Media Präsenz (z.B. Facebook, Twitter): Muss das Unternehmen auf Social Media Kanälen aktiv sein? Wenn ja, warum?
- Eigenes Kommunikationsverhalten:
    - Kommunizieren Sie aktiv mit den Unternehmen und wenn ja, in welcher Form? (z.B. persönlich, telefonisch, per Email)
    - Informieren Sie sich mittels Social Media Kanälen über das Unternehmen? Kommunzieren Sie mit dem Unternehmen auf diesem Weg?
    - Sind Sie auf den Investor Relations Kanälen aktiv? In welcher Form [aktiv/passiv]?
- Kommunikationsverhalten anderer
    - Wann investieren Sie in ein Unternehmen? Schauen Sie was andere machen oder investieren Sie, nachdem Sie sich eine Meinung über das Unternehmen gebildet haben?
    - Ist es für Sie wichtig, wer schon investiert hat und in welchen Größenordnungen investiert wurde?
    - Spielt es für Sie eine Rolle, ob z.B. schon Business Angels investiert sind? Wenn ja, warum?

Plattform

- Plattform auf der Projekt gepostet wird: Welche Rolle spielt für Sie die Plattform, auf der das Projekt gepostet wird? [Frage wurde meist kombiniert mit der Frage nach der Plattform zu Beginn bzw. als Reaktion auf erwähnte Aspekte des Interviewpartners]

Zusätzliche Frage in der zweiten Interviewrunde [sofern gegeben]

- Sie haben zu Beginn erwähnt, dass Sie auch schon Crowdfunding [reward-based oder andere, anpassen an Investor] gemacht haben, war der Entscheidungsprozess hier ein anderer? Worauf kam es Ihnen hier besonders an bzw. was war Ihnen besonders wichtig?

Interviewleitfaden Unternehmen

Allgemeine Fragen

- Aus welchen Gründen haben Sie entschieden, eine Crowdinvesting-Finanzierung durchzuführen anstatt traditionelle Finanzierungsquellen zu nutzen?
- Warum haben Sie sich für die [Plattform xxx] entschieden? Was hat bei der Entscheidung eine besondere Rolle gespielt?

Einstiegsfrage zum Crowdinvesting

- Welche Informationen des Unternehmens spielen aus Ihrer Sicht für die Investitionsentscheidung der Crowd eine besonders große Rolle? [zunächst freie Erzählung, dann entsprechend Guideline hinterfragen]

Produkt / Geschäftsmodell / Markt

- Produkt: Glauben Sie, dass Ihr Produkt / Dienstleistung für die Investoren wichtig war? Aus Ihrer Erfahrung: Wollen die Investoren das Produkt auch selbst nutzen können?
- Branche: Spielt die Branche, in der das Unternehmen tätig ist, für Investoren eine Rolle?
- Prototyp des Produktes: Bei Ihrem Unternehmen ist bereits [ein Prototyp vorhanden / macht bereits erste Umsätze / ist bereits seit x Jahren am Markt - anpassen an Unternehmen]. Ist das für die Investoren ein wichtiger Aspekt?
- Welche anderen Faktoren glauben Sie, sind relevant z.B. Skalierbarkeit, Patent oder Trademark, Standort? [gegebenenfalls anpassen an Unternehmen]

Gründerteam

- Was denken Sie, welche Faktoren beim Gründerteam wichtig sind? (z.B. Geschlecht, Bildungsgrad, Branchenerfahrung, weiche Faktoren)

Motivation für ein Investment

- Beteiligungsform (z.B. stille Beteiligung, Genussscheine): Spielt die Art der Beteiligung für Investoren eine Rolle? Wenn ja, warum?
- Mitwirkungsgrad der Investoren (aktiv / passiv): Haben Sie den Eindruck, dass Investoren sich aktiv einbinden möchten? Nutzen Sie die Crowd für spezifische unternehmerische Fragestellungen?
- Investition gekoppelt mit nicht-finanziellen Rewards: War es für den Erfolg Ihrer Kampagne wichtig, dass Sie auch einen nicht-finanziellen Reward angeboten haben [sofern für Unternehmen zutreffend]?

Kommunikation

- Business Plan: Welchen Eindruck haben Sie, welche Rolle der Business Plan für die Entscheidung der Investoren gespielt hat?
- Produktvideo: Schauen sich die Investoren das Produktvideo an? Was denken Sie, ist hier besonders wichtig?
- Social Media Präsenz (z.B. Facebook, Twitter): Waren Sie auf Social Media Kanälen aktiv? In welcher Form? Glauben Sie, dass das für die Investoren wichtig ist?

- Kommunikationsverhalten der Investoren:
    - Können Sie bitte kurz beschreiben, wie Sie das Kommunikationsverhalten der Investoren in der Fundingphase erlebt haben? Waren hier viele Investoren aktiv? Welche Medien wurden hier genutzt? (persönlicher Kontakt, telefonisch, per Email, Social Media, Investor Relations Kanal, sonstige)

- Kommunikationsverhalten anderer

  Es würde mich sehr interessieren, wie Sie folgende Aspekte einschätzen bzw. erlebt haben:
    - Wann investieren Investoren in das Unternehmen? Schauen sie was andere machen oder investieren sie, nachdem sie sich eine Meinung über das Unternehmen gebildet haben?
    - Ist es für Investoren wichtig, wer schon investiert hat und welche Größenordnungen investiert wurden? Konnten Sie hier vielleicht selbst auch eine Reaktion erkennen?
    - Spielt es für Investoren eine Rolle, ob z.B. schon Business Angels investiert sind? [Sofern für das Unternehmen vorhanden] Was glauben Sie, welche Rolle Ihr bereits investierter Angel [oder mehrere] für den Erfolg der Kampagne spielte?

Abschlussfragen

- Welche Fragen sind schwerpunktmäßig durch die Investoren gestellt worden? Welche Fragen haben Sie besonders gewundert / überrascht?
- Was haben Sie aus der ersten Runde gelernt? Würden Sie sich nochmal über Crowdinvesting finanzieren? [Wenn ja:] Was würden Sie bei einer zweiten Runde gegebenenfalls anders machen?

Interviewleitfaden Plattformen

Allgemeine Fragen

- Können Sie mir bitte kurz beschreiben, was die [Plattform xxx] besonders auszeichnet?
- Welche Arten von Unternehmen und Investoren wollen Sie ansprechen?

Einstiegsfrage zum Crowdinvesting

- Welche Informationen der Unternehmen spielen aus Ihrer Sicht für die Investitionsentscheidung der Crowd eine besonders große Rolle? [zunächst freie Erzählung, dann entsprechend Guideline hinterfragen]

Produkt / Geschäftsmodell / Markt

- Produkt: Ist es wichtig, welches Produkt / Dienstleistung das Unternehmen anbietet? Wenn ja, warum?
- Branche: Spielt die Branche, in der das Unternehmen tätig ist, für Investoren eine Rolle?
- Prototyp des Produktes / der DL vorhanden: Ist es für Investoren wichtig, dass das Unternehmen bereits einen Prototyp hat bzw. bereits Umsätze generiert?
- Welche anderen Faktoren sind relevant z.B. Skalierbarkeit, Patent oder Trademark, Standort?

Gründerteam

- Was denken Sie, welche Faktoren beim Gründerteam wichtig sind? (z.B. Geschlecht, Bildungsgrad, Branchenerfahrung, weiche Faktoren)

Motivation für ein Investment

- Beteiligungsform (z.B. stille Beteiligung, Genussscheine): Spielt die Art der Beteiligung für Investoren eine Rolle? Wenn ja, warum?
- Mitwirkungsgrad der Investoren (aktiv / passiv): Möchten Investoren aktiv in das Unternehmen eingebunden sein?
- Investition gekoppelt mit Rewards: Glauben Sie, dass es für den Erfolg einer Crowdinvesting-Kampagne wichtig ist, dass auch eine nicht-finanzielle „Belohnung“ angeboten wird?

Kommunikation

- Business Plan: Welche Rolle spielt der Business Plan für die Entscheidung der Investoren?
- Produktvideo: Schauen sich die Investoren das Produktvideo an? Was denken Sie ist hier besonders wichtig?
- Social Media Präsenz (z.B. Facebook, Twitter): Muss das Unternehmen auf Social Media Kanälen aktiv sein?

- Kommunikationsverhalten der Investoren:
    - Aus Ihrer Erfahrung: Kommunizieren Investoren aktiv mit dem Unternehmen und wenn ja, in welcher Form? (z.B. persönlich, per Telefon, Emails)
    - Glauben Sie, dass Investoren Social Media Kanäle nutzen, um sich über das Unternehmen zu informieren bzw. mit diesem zu kommunizieren?
    - Welche Bedeutung haben Investor Relations Kanäle?
- Kommunikationsverhalten anderer [Einschätzung des Interviewpartners]
    - Wann investieren die Investoren in ein Unternehmen? Schauen sie was andere machen oder investieren sie, nachdem sie sich eine Meinung über das Unternehmen gebildet haben?
    - Ist es für Investoren wichtig, wer schon investiert hat und in welchen Größenordnungen investiert wurde?
    - Spielt es für Investoren eine Rolle, ob z.B. schon Venture Capital Geber oder Business Angels investiert sind?

Abschlussfragen

- Welche Rolle spielen die Plattformen im Crowdinvesting? Was ist für Investoren hier besonders wichtig?
- Wie glauben Sie, wird sich Crowdinvesting in den nächsten Jahren entwickeln und wie wird sich Ihre Plattform positionieren?

Der Interviewleitfaden der anderen Drittparteien ist zu großen Teilen identisch mit den Fragen an die Plattformen. Er weicht in folgenden Fragen ab:

Allgemeine Frage

- Können Sie mir bitte kurz beschreiben, welche Erfahrungen Sie im Bereich Crowdinvesting haben bzw. welche Berührungspunkte Sie hier schon hatten?

Abschlussfragen

- Welche Rolle spielen die Plattformen im Crowdinvesting? Was ist für Investoren hier besonders wichtig?
- Was ist Ihre persönliche Meinung zum Crowdinvesting? Welche Zukunft sehen Sie für diese Finanzierungsform?

5-1b Interview guidelines (English)[101]

Interview guideline: Investors

General questions

- How did you learn about crowdfunding and why did you decide to participate? Do you only invest in equity-based crowdfunding or do you also participate in other forms of crowdfunding, e.g., using Kickstarter or other?
- How many investments have you already made?
- Could you please tell me what your professional background is?
- Are you also investing in more traditional capital markets? If yes, in what types of financing instruments?
- May I ask you what your age group is (categories of 10)?

Open question in regard to crowdinvesting

- Which are the relevant factors for your investment decision in equity-based crowdfunding? What are you looking for in particular? [first free narrative, then the researcher asked questions according to the explained factors and the interview guideline]

Product / business model / market

- Product: Is it important for you which type of product or service the company is offering? Do you want to use the product yourself?
- Industry: Is it important for you in which industry or sector the company is active? If yes, could you please explain?
- What other factors are relevant for you, e.g., scalability, patent or trademark, location of the firm?
- Life cycle stage of the firm: In which stage of the company life cycle do you invest? Is it important that the firm already has a prototype or generates turnover?

Team

- What is important about the start-up team? (e.g., education, industry experience, gender, soft facts)

Motivation for an investment

- Form of participation (e.g., silent partnership, profit-participating loan): What type of participation do you prefer? Why?
- Involvement (active / passive): Are you interested in being actively involved in the firm?

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[101] As all interviews were conducted in German, only the German interview guidelines were used. The interview guidelines were translated by the author.

- Rewards: Do you expect a reward (other than the financial return) for your investment? Is this important for your investment decision?

Communication

- Business plan: How important is the business plan for your investment decision? (Why?)
- Product video: Do you watch the product video? How important is it for your investment decision? What is of particular importance?
- Social Media (e.g., Facebook Twitter): Is it important for you that the company is active on social media channels? If yes, why?
- Own communication behavior
    - Are you communicating directly with the firm / the entrepreneur? If yes, how? (e.g., face-to-face, on the phone, via email)
    - Do you use social media channels to get information about and/or to communicate with the firm?
    - Are you active on investor relations channels? Do you ask questions yourself?
- Communication behavior of others
    - At what point are you investing in a firm? Are you looking what others are doing or do you invest after you formed an opinion about the firm?
    - Is it important for you who already invested in the firm and what amounts were invested before?
    - Is it important for you if business angels or VC companies already invested in the company? If yes, why?

Platforms

- Is it important for you on which platform the offer is made? If yes, why? [this question was typically asked in combination with the question about platforms at the beginning or in relation to points already mentioned by the respondent]

Additional question asked in the second round of interviews [if applicable]

- You mentioned at the beginning that you had already invested in other forms of crowdfunding [reward-based or other; dependent on investor]. Was your investment decision different in comparison to your equity-based investments? What were the important factors that motivated you to support these projects?

Interview guideline: Companies

General questions

- Why did you decide in favor of a crowdinvesting campaign instead of using more traditional financing instruments?
- Why did you decide to use platform [xxx]? What was most important for your decision?

Open question in regard to crowdinvesting

- From your experience, what do you think are the most important factors for the investment decision of the crowd? What are investors looking at? [first free narrative, then the researcher asked questions according to the explained factors and the interview guideline]

Product / business model / market

- Product: Do you think that crowd investors are interested in the type of product or service the company is offering? From your experience, do investors want to use the product themselves?
- Industry: Do you think that it is important for crowd investors in which industry or sector the company is active?
- Life cycle stage of the firm: Your company already has [a (first) prototype, already generates turnover, is already on the market since xxx – adapt to respondent]. Is this an important aspect for crowd investors?
- What other factors are relevant from your perspective, e.g., scalability, patent or trademark, location of the firm? (if applicable, adapt to respondent)

Team

- What do you think is important about the start-up team? (e.g., education, industry experience, gender, soft facts)

Motivation for an investment

- Form of participation (e.g., silent partnership, profit-participating loan): Do you think that the type of participation is important? If yes, why?
- Involvement (active / passive): From your experience, are investors interested in being actively involved in the firm? Do you use the crowd for company purposes, e.g., marketing, feedback, etc.?
- Rewards: Was it important for the success of your equity-based crowdfunding campaign that you offered an additional non-financial reward? [if applicable]

Communication

- Business plan: What is your impression about the importance of the business plan for the investment decision of the crowd?
- Product video: Do crowd investors watch the product video? What do you think is of particular importance about the video?

- Social Media (e.g., Facebook, Twitter): Have you been active on social media channels during your campaign? If yes, how? Do you think that this was important for the investors?
- Communication behavior of the crowd
    - Could you please describe the communication of the crowd during the crowdfunding campaign? How many investors actively communicated with you? Which types of media did they use? (e.g., face-to-face, on the phone, via email, social media, investor relations channels, other)
- Communication behavior of others
    - At what point do you think investors invest in a firm? Are they looking at the behavior of others or do they invest after they formed an opinion about the firm?
    - Do you think that it is important for investors who already invested in the firm and what amounts were invested before? Could you see reactions related to investments by others during your campaign?
    - Is it important for investors that business angels or VC companies already invested in the company [adapt to firm]? Which role did your angel [angels] have for the success of your campaign?

Closing questions

- What type of questions did investors ask during your campaign? What questions were surprising for you?
- What did you learn from your first round of crowdfunding? Would you use equity-based crowdfunding again? [If yes] Is there anything you would do differently and why?

Interview guideline: Platforms

General questions

- Could you please describe what distinguishes your platform from other platforms?
- What type of investors and companies would you like to address?

Open question in regard to crowdinvesting

- What do you think are the most important factors for the investment decision of the crowd? What are investors looking at? [first free narrative, then the researcher asked questions according to the explained factors and the interview guideline]

Product / business model / market

- Product: Do you think that crowd investors are interested in the type of product or service the company is offering? Do investors want to use the product themselves?
- Industry: Do you think that it is important for crowd investors in which industry or sector the company is active?
- Life cycle stage of the firm: Is it important for investors that a company already has a prototype or generates turnover?
- What other factors are relevant from your perspective, e.g., scalability, patent or trademark, location of the firm?

Team

- What do you think is important about the start-up team? (e.g., education, industry experience, gender, soft facts)

Motivation for an investment

- Form of participation: Do you think that the type of participation is important? If yes, why?
- Involvement (active / passive): From your experience, are investors interested in being actively involved in the firm?
- Rewards: Do you think that it is important for the success of an equity-based crowdfunding campaign that companies also offer non-financial rewards?

Communication

- Business plan: What is your impression about the importance of the business plan for the investment decision of the crowd?
- Product video: Do crowd investors watch the product video? What do you think is of particular importance about the video?
- Social Media (e.g., Facebook, Twitter): Is it important that a firm is active on social media channels during an equity-based crowdfunding campaign?
- Communication behavior of the crowd
    - From your experience: Do crowd investors communicate with the entrepreneur? If yes, how? (e.g., face-to-face, on the phone, via email)

    - Do you think that investors use social media channels to get information about and/or to communicate with the firm?
    - Do crowd investors use investor relations channels?

- Communication behavior of others
    - At what point do you think investors invest in a firm? Are they looking at the behavior of others or do they invest after they formed an opinion about the firm?
    - Do you think that it is important for investors who already invested in the firm and what amounts were invested before?
    - Is it important for investors that business angels or VC companies already invested in the company?

Closing questions

- What do you think is the role of platforms in equity-based crowdfunding? What is important for investors about the platform?
- How do you think equity-based crowdfunding will develop over the next years and how will your platform position itself?

The interview guideline of the other third parties was mainly identical with the questions presented to the platform representatives. The following questions were different:

General question

- Could you please explain what your experiences with crowdfunding are and which points of contact you had?

Closing questions

- What do you think is the role of platforms in equity-based crowdfunding? What do you think is important for investors?
- What is your personal opinion about equity-based crowdfunding? What future do you see for this form of financing?

Table A5-1

Table A5-1: Coding scheme

General factors			Communication		
100	**Product**		**700**	**Company communication**	
	110	Innovation		710	Direct communication
	120	Usefulness			711 Personal
	130	Proof-of-concept			712 Telephone
200	**Market**				713 Email
300	**Financials**			720	Indirect communication
	310	Revenue / return potential			721 Business plan / written information
	320	Valuation			722 Product video
400	**Management team**				723 Investor relations channel
	410	Hard facts			724 Social media channels
	420	Soft facts			725 Marketing / media / PR
500	**Motivations**		**800**	**Third-party communication**	
	510	Financial		810	Peer investors
	520	Rewards		820	Superior principals
	530	Involvement			821 Customers
	540	Direct benefit (product)			822 Platforms
600	**Emotional factors**				823 VC companies / BAs
					824 Opinion leaders