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May the resources be with you: a systematic review and framework of startup funding options

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Abstract

The funding landscape for startups has recently changed significantly. Not only have new funding partners emerged but established funding partners have also changed their behaviors. Startups can choose among different sources and regularly ask for more than monetary investment such as guidance and coaching. While numerous studies investigate the multitude of funding partners, offered funding instruments, and startups' needs, the combination and integration of those perspectives have been under-researched in the entrepreneurial finance literature. To address this issue, we conduct a systematic literature review of 149 articles on startup funding. We find that startups possess different monetary and non-monetary needs depending on their life cycle stage, which influences their search for and selection of appropriate investors. In addition, we find numerous established and newly emerged equity and debt providers and their respective offerings. Based on our review, we propose a framework for allocating suitable investors to a startup's life cycle stage and specific needs. We therefore extend the current dominant startup funding logics to incorporate a complementary view rather than understanding investors as substitutes. Hence, we contribute theoretically to the entrepreneurial finance literature and provide practical guidance for startups and investors.

Keywords Startup · Startup funding · Funding partner · Entrepreneurial finance

JEL Classification G20 · L26 · M13

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1 Introduction

New ventures and startups are essential sources of innovation (Nanda and Rhodes-Kropf 2013; Weiblen and Chesbrough 2015), job creation (Adelino et al. 2017), and regional development (Lamine et al. 2018; Neumann 2021). Appropriate funding is a central element of an entrepreneur's work and of entrepreneurial finance research (e.g., Sharma et al. 2021). Indeed, startup funding is at the forefront of this research field given its relevance to the survival of new ventures (Drover et al. 2017). The emergence of a potentially groundbreaking idea developed and represented by an entrepreneur (Drucker 2014) requires adequate funding to be successful (Kaiser and Berger 2021). However, numerous young and innovative firms suffer owing to their limited capability to accumulate capital (Neuhaus et al. 2022; Thies et al. 2019). Limited cash flow capabilities, high degrees of uncertainty, and agency issues form core parameters of startup funding issues (Block et al. 2018; Hatzijordanou et al. 2019; Ismayil and Tunçalp 2023).

The funding landscape for startups has changed significantly in recent years. During the global financial crisis of 2008/2009, the already existing funding gap[1] widened as the investment behavior of established equity and debt financiers began to change noticeably (Block et al. 2018). Debt providers such as banks have been forced to cope with more restrictive legal responsibilities and regulations that have resulted from their behavior that led to the financial crisis (Hornuf et al. 2021; Thies et al. 2019). Furthermore, venture capitalists and business angels have significantly adapted their investment behaviors in terms of life cycle investments, risk preferences, and preferred investment targets (Block and Sandner 2009; Radojevich-Kelley and Hoffman 2012). Moreover, new funding partners and possibilities have recently emerged (Block et al. 2018). Traditional funding partners now face new competitors such as crowdfunding and initial coin offerings (ICOs) (Cumming et al. 2022; Schückes and Gutmann 2021). Overall, the changing behavior of established equity and debt providers and emergence of new funding partners have increased the variety of funding options.

Over recent decades, entrepreneurial finance studies of startup funding have examined both established capital providers such as venture capital (Köhn 2018) and business angels (e.g., Drover et al. 2017) and newly emerging players in the financing landscape, exemplary accelerators (Mohammadi and Sakhteh 2022) and crowdfunding (Böckel et al. 2021). Such studies have identified and analyzed most of the funding instruments (e.g., Thies et al. 2019), investment preferences (e.g., Block and Sandner 2009), investment scopes (e.g., Kolokas et al. 2022), and investment behaviors (e.g., Colombo 2021) of funding sources. Another stream of the literature covers the systematization of startups, their unique characteristics (e.g., Luger and Koo 2005), their life cycles (e.g., Berger and Udell 1998), and their accompanying needs (e.g., Baum and Silverman 2004). Regarding the latter, increasing efforts are being made to include non-monetary needs in funding

[1] Funding gaps refer to market situations in which startups cannot receive financing and thus face threatening capital shortages (Block et al. 2018; Block and Sandner 2009).

considerations (e.g., Cohen et al. 2019; Nicholls-Nixon and Maxheimer 2022). Furthermore, some studies match certain capital providers with startups' specific needs (e.g., Pasquini et al. 2019). In particular, research has elaborated on the satisfaction of an individual need by certain capital providers (e.g., Svetek 2022) and examined the simultaneous fulfillment of startups' multiple needs by one capital provider (e.g., Blaseg et al. 2021).

However, the aforementioned knowledge streams coexist rather than forming a holistic picture of startup funding. For example, the extent to which a startup's needs evolve during its life cycle remains unclear. Moreover, a more complete categorization and comparison of the non-monetary offerings of funding providers would extend the current body of knowledge, while a startup's needs throughout its life cycle could be matched with such non-monetary offerings. This integration of the literature would transform the current static perspective into a dynamic one that reflects startups' development, including their changing (non-monetary) needs over time. The literature could also benefit from the introduction of more dynamic perspectives, as startup funding does not occur in isolation in reality, but rather includes various variables and their interactions (Moritz et al. 2016). For example, startups usually work with more than one investor, resulting in the need for funding partners to interact and collaborate (Block et al. 2018; Kumar et al. 2020a, b). These considerations have rarely been addressed in the current literature.

Against this background, we review the literature on startup funding. We structure and synthesize existing publications on startup funding and provide a framework that matches new ventures' life cycle-specific needs with funding partners' offerings. More precisely, we attempt to answer the following research questions:

(1) What are startups' (non-) monetary needs during their various life cycle stages?
(2) Which funding partners are available and what do they offer?
(3) Which funding partners are more suitable in certain life cycle stages and why?
(4) What must future research investigate to improve our understanding?

The presented systematic literature review provides new insights that contribute to the entrepreneurial finance literature. First, we clarify and categorize startups' monetary and non-monetary needs over their life cycle and assess their role in funding considerations. Second, we review the various equity and debt providers based on their ability to meet startups' non-monetary needs. This bridges a gap in the literature, as although previous studies do include overviews of capital providers for startups and their offerings (e.g., Block et al. 2018), they overlook the perspective of startups and their needs, retaining a rather investor-centered perspective. Third, we offer a combined framework that matches startups' life cycle-specific needs with capital providers' offerings, thereby systematizing the entirety of the rich literature on startup funding. Finally, using a combined framework, we map future research avenues in the field of startup funding. Our study also serves as a guide for startups in different life cycle stages to help them target the right investors with the right offerings for their specific situations.

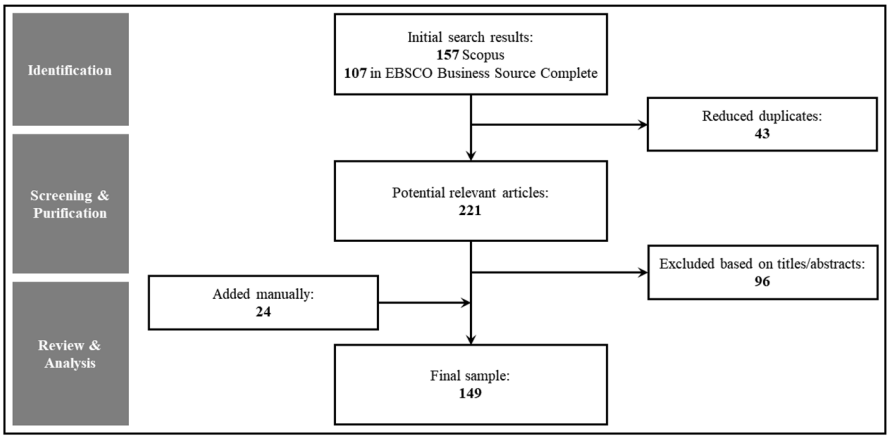

Fig. 1 Flowchart of the systematic search

2 Method

In this study, we examine the literature on startup funding and derive a combined framework of extant knowledge following the rationales of hybrid narrative-based systematic literature reviews (e.g., Kumar et al. 2020a, b). Hybrid reviews combine two or more reviews in a specific domain. They represent a methodical patterning to accomplish the fundamental purposes of reviews, reflect the prevailing state of the literature, highlight research gaps, and demonstrate future research directions (Paul and Criado 2020). In our review, we capture the dominant themes in the field of startup funding by following the rationales of theme-based literature reviews (e.g., Mishra et al. 2021). In addition, we synthesize the extracted information into a combined framework to derive future research avenues by applying framework-based literature review logic (e.g., Södergren 2021). Following best-practice examples of hybrid literature reviews in various research fields (e.g., Dabić et al. 2020; Kumar et al. 2020a, b), this approach enables us to capture the most relevant themes in the literature while providing framework-based guidance for future research (Rebouças and Soares 2021).

2.1 Identification of relevant studies

To provide comprehensive high-quality results and ensure the transparency of our review process, we employ Callahan's (2014) 6 Ws (Who, When, Where, hoW, What, and Why) to explain the sample articles targeted in our analysis. Figure 1 illustrates the process from the initial search to the final sample.

2.1.1 Who conducted the search?

Each of the three authors individually conducted a search within the same period. The initial results were independently verified and suitable articles were selected.

This assessment was based on mutually agreed-upon inclusion criteria. When different individual assessments of suitability arose, the three authors debated and resolved any discrepancies.

2.1.2 When was the sample collected?

We searched for research published between January 1998 and December 2022, as the number of publications on this topic began to increase in the late 1990s. Nevertheless, we also included two articles published before 1998 (Marsh 1982; Stinchcombe 1965) because these publications are frequently cited in entrepreneurial finance research.

2.1.3 Where were the articles collected?

To ensure the high quality of our sample, we followed established best-practice examples from other literature reviews in entrepreneurial finance (e.g., Colombo 2021; Drover et al. 2017; Mochkabadi and Volkmann 2020). More precisely, we adopted the recommendations of a previous study (e.g., Drover et al. 2017) and limited our search for relevant articles to leading management journals. We used the VHB JOURQUAL 3 expert ranking of the German Academic Association for Business Research to identify high-quality journals (Graf-Vlachy et al. 2020; Paul and Criado 2020). We only selected journals with an A+, A, B, or C ranking in VHB JOURQUAL 3. Hence, 22 top-ranked journals were included in the initial stage of our literature review.[2]

2.1.4 How were the articles found (database and keywords)?

We systematically searched the EBSCO Business Source Complete and Scopus databases. We checked for articles in which the terms "entrepreneurial finance," "equity financing," "equity funding," "debt financing," or "debt funding" were included in the title or abstract combined with the keyword "startup" or "new venture" in all categories. We also checked other variations of our search terms such as plurals (e.g., "startups" and "new ventures") and received congruent results. The primary search of Business Source Complete resulted in 107 articles, whereas the search of Scopus resulted in 157 articles. An initial comparison revealed that 43 articles were identical.

[2] Academy of Management Journal, Academy of Management Review, Administrative Science Quarterly, Entrepreneurship Theory and Practice, International Small Business Journal, Journal of Banking and Finance, Journal of Business Finance and Accounting, Journal of Business Venturing, Journal of Corporate Finance, Journal of Financial Economics, Journal of Management, Journal of Management Studies, Journal of Small Business Management, Management Review Quarterly, Management Science, Organization Science, Small Business Economics, Strategic Entrepreneurship Journal, Strategic Management Journal, The Journal of Finance, The Review of Financial Studies, and Venture Capital.

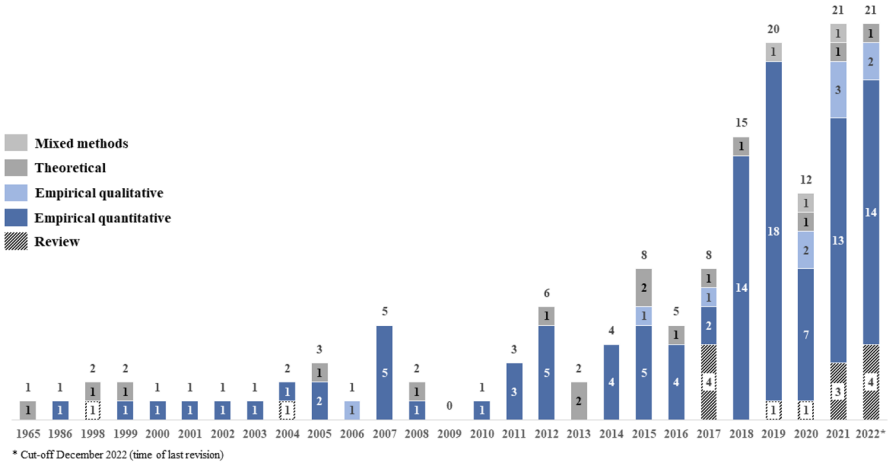

Fig. 2 Publication trend per research type over time

2.1.5 What was included and excluded (first selection criteria)?

We included research in the field of startup funding, which belongs to the domain of entrepreneurial finance. After investigating the titles and abstracts, we excluded 96 articles for one or more of the following reasons: (1) the article was not academic (e.g., practical reports); (2) the keywords "equity financing," "equity funding," "debt financing," or "debt funding" were not related to startups or new ventures; (3) the keywords "startup" or "new venture" were used in different contexts than funding; and (4) the article was targeting a different research field (e.g., family firms, family firm succession, CEO succession, succession financing, or product innovation).

2.1.6 Why did we choose the final sample (final selection criteria)?

After applying the first criteria, we identified a remarkable number of publications on startup funding in our sample (e.g., startup characteristics, funding issues, and capital providers). Because we aimed to provide a holistic perspective of the field of startup funding, we retained all those articles directly associated with startup financing. Of these, 31 articles focus on startup characteristics and their connections to funding, 27 publications address the current funding issues of startups such as regulatory focus and regional differences, and 67 articles address specific or bundled capital providers in the debt or equity sphere. Furthermore, we manually added 24 frequently cited articles of startup funding that were not included in our initial sample. The final sample comprised 149 articles published in 26 journals plus one book.

2.2 Sample description

Figure 2 illustrates the number of articles published per year for the 149 articles in our sample. The number of publications on startup funding has increased

Table 1 Journals publishing the articles in the final sample (alphabetical order)

Journal	Number	Percentage (%)
Administrative Science Quarterly	1	1
Book	1	1
Entrepreneurship Theory and Practice	12	8
Harvard Business Review	1	1
International Business Research	1	1
International Small Business Journal	4	3
Journal of Banking and Finance	5	3
Journal of Business Economics	1	1
Journal of Business Finance and Accounting	2	1
Journal of Business Venturing	12	8
Journal of Corporate Finance	8	5
Journal of Financial Economics	5	3
Journal of International Finance Management and Accounting	1	1
Journal of Management	2	1
Journal of Small Business and Entrepreneurship	1	1
Journal of Small Business Management	10	7
Management Science	5	3
Organization Science	1	1
Small Business Economics	35	23
Strategic Entrepreneurship Journal	4	3
Strategic Management Journal	1	1
Sustainability	1	1
Technology Innovation Management Review	1	1
The Journal of Finance	1	1
The Journal of Technology Transfer	1	1
The Review of Financial Studies	3	2
Venture Capital	29	19
Total	149	100

steadily over the past 10 years, particularly those focusing on online platforms (e.g., crowdfunding and blockchain financing) and their operationalization. Most of the studies in our review have an empirical focus, as shown in Fig. 2.

Table 1 lists the number of publications in each of the 27 research outlets (26 journals and one book) included in the search. Most of the articles in our sample are published by a small number of journals, including *Small Business Economics* (35), *Venture Capital* (29), *Journal of Business Venturing* (12), *Entrepreneurship Theory and Practice* (12), and *Journal of Small Business Management* (10). Nevertheless, the inclusion of 27 research outlets in the sample demonstrates that startup funding has been a topic for numerous journals in recent years.

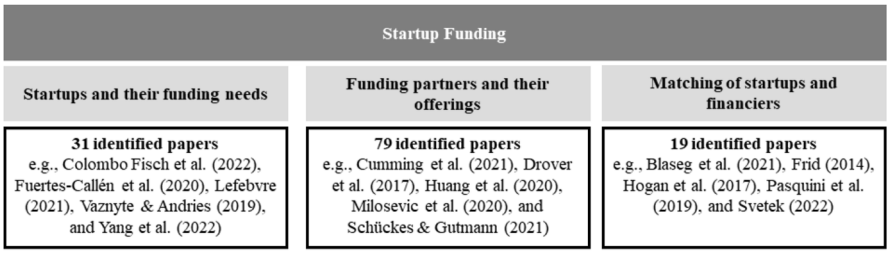

Fig. 3 Derived categories of the startup funding literature

3 Findings, analysis, and synthesis of existing research

To analyze the identified articles, we read the publications, searched for major themes, and classified them into three predominant areas: (1) startups and their funding needs depending on their life cycle stage; (2) funding partners and their offerings; and (3) matching of startups and financiers. Figure 3 illustrates the categories derived for the analysis. We then synthesized the identified themes into a combined framework to derive future research directions for the field of startup financing.

Publications on startup financing essentially concern the relationship between investors and investees (e.g., Pasquini et al. 2019). Numerous studies discuss the characteristics of startups, their needs, and how these needs change as startups mature (e.g., Thies et al. 2019), especially needs regarding funding partnerships (e.g., Block et al. 2018). These publications belong to the first category in Fig. 3. The actors eligible for financing startups, their offerings, and the capital instruments used are the subjects of our second category. These funding partners are usually categorized into the equity and debt domains (e.g., Hogan et al. 2017). Various studies have attempted to address the relationships between investors and investees and their complementary effects by comparing startups' life cycle-specific needs with investors' offerings (e.g., Schückes and Gutmann 2021). In this context, needs and offerings are discussed situationally using matching logic (Conti et al. 2010). Hence, the matching between startups and funding partners forms the third category, which connects the first and second categories. Based on these three categories, we propose a holistic framework that depicts startups' needs according to the different stages of their life cycle and the available funding partners and their offerings.

3.1 Startup definition and conceptualization

In the literature, the terms "young SME," "new SME," "startup," and "new venture" are virtually synonymous (Parker and Van Praag 2012; Pena 2004; Simón-Moya et al. 2016). Numerous studies define and classify startups by analyzing quantitative indicators (Cantamessa et al. 2018) such as revenue and number of employees (Fuertes-Callén et al. 2022). Another frequently cited stream of the literature employs focused or compact startup definitions. For example, Yang et al. (2019)

include the formula of Blank (2013) to regard a startup as an organizational entity that strives for scalable, profitable, and repeatable business processes. Tailoring their definition criteria explicitly to startups, other research streams regard new ventures as multidimensional networks.

This procedure is essential to ensure the explanatory power of the definition and, more precisely, understand startups' needs (Luger and Koo 2005). Luger and Koo (2005) summarize previous research and find that startups are characterized by three main interdependent factors: *novelty*, *activeness*, and *independence*. Extending Luger and Koo (2005), we identify other frequently cited characteristics for defining startups. First, most startups begin their business activities on a basic scale and hence can be characterized as *small*. The startup process is accompanied by (high) initial costs with low or no revenue (Montani et al. 2020), resulting in a (great) need for external capital. Second, startups are characterized by *negative financial results*. Third, the startup process is associated with high *uncertainty* because no evidence or data are available to calculate business scenarios (Thies et al. 2019). Combining the definition of Luger and Koo (2005) with these frequently cited characteristics leads to the following more precise description and characterization of startups:

> A startup is a recently founded company (**novelty**) that possesses no or few assets (**small**) and is not strategically linked to an established company (**independence**). Its initial investments cannot yet be compensated by cash inflows and this results in large negative cash flows (**negative financial results**). The unknown technological, financial, and general development of a startup leads to a high level of uncertainty (**uncertainty**).

3.2 Startups' needs over the life cycle

During a startup's life cycle, its needs (both financial and non-financial) and available information vary. Organizational evolution theory suggests that every organization emerges, grows, and matures (Freeman and Engel 2007). Berger and Udell (1998) divide a startup's life cycle into three stages (early, mid, and late) based on its financial needs and capabilities at those times. However, while there is general agreement in the literature on the designation and understanding of the early and late stages, the mid-stage seems to be less established. For example, some studies either omit the mid-stage (e.g., Block et al. 2018) or regard it as part of the early stage (e.g., Svetek 2022). Nevertheless, we consider the implementation of an intermediate stage between the early and late stages as essential for at least two reasons. First, startups' needs vary significantly based on their maturity level. The development of these needs is steady over time. Applying only two stages would thus oversimplify their development process and might lead to a lack of fit between startups' needs and funding partners. Our argument is in line with Picken (2017), who considers the existence of a bridge between the loosely structured early stages and disciplined later stages as essential. Second, adding a mid-stage into the startup life cycle and clearly defining this stage can benefit research on startup financing because a common understanding of startups' different maturity levels, needs, and challenges

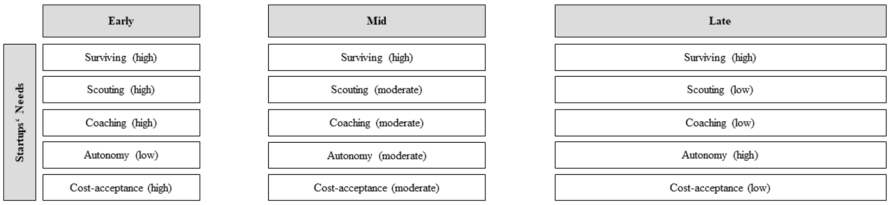

Fig. 4 Startups' needs over the life cycle

can foster more precise investigations and answers. Figure 4 illustrates the life cycle stages of a startup and its accompanying needs.[3]

At the different stages of a startup's life cycle, its different needs go beyond mere funding. Negative cash flow, a lack of experience, and an inadequate partner network (Pasquini et al. 2019; Thies et al. 2019) characterize early-stage startups. Ideally, a potential funding partner should satisfy the need for capital (e.g., Cumming and Johan 2017). Baum and Silverman (2004) categorize the offerings of venture capitalists by function and thus startups' needs into surviving, scouting, and coaching. The need for surviving is predominant in every life cycle stage as startups strive to remain operational and continue their existence (Block et al. 2018). Scouting occurs when investors scan the market for suitable investment options to identify startups with hidden value and potential ((Baum and Silverman 2004). Startups display a high need for scouting in their early stage since they have limited partner networks (Amit et al. 1998). The need for scouting decreases over time as startups form their own networks and capabilities by generating cash flow (Berger and Udell 1998). Furthermore, early-stage startups need extensive coaching to avoid making mistakes in major business decisions and compensate for their lack of experience (Fraser et al. 2015; Quas et al. 2021). In mid- and late-stage startups, the need for guidance gradually diminishes and is replaced by the increasing pursuit of autonomy (Berger and Udell 1998; Gras et al. 2017).

Although the need for coaching seems to be negatively related to the need for autonomy, we do not treat these factors as opposite ends of a continuum; rather, we add the factor of a startup's willingness to accept autonomy trade-offs since it must consider the costs of its partner choices and adjust to the current situation throughout its life cycle. In this case, autonomy trade-offs refer to a startup's willingness to give up a certain degree of autonomy to obtain funding (Berger and Udell 1998; Thies et al. 2019). This relationship between autonomy and financing includes not

[3] We divide startups' needs into the levels of low, moderate, and high. Following the literature, we state that a startup's needs are high and low when the articles include clear findings and arguments on the manifestations of those needs. On the contrary, when either opposing arguments or arguments in perspective to other findings are presented, we state that a startup's needs are moderate (e.g., when startups lack experience in the early stage and require extensive coaching) (e.g., Quas et al. 2021). In the late stage, startups gain a significant amount of experience, consequently displaying a low need for coaching (e.g., Gras et al. 2017). Startups in the mid-stage are in a transition process, possessing higher degrees of experience than the early stage, but lower degrees than late-stage startups (e.g., Picken 2017), resulting in a moderate needs assessment.

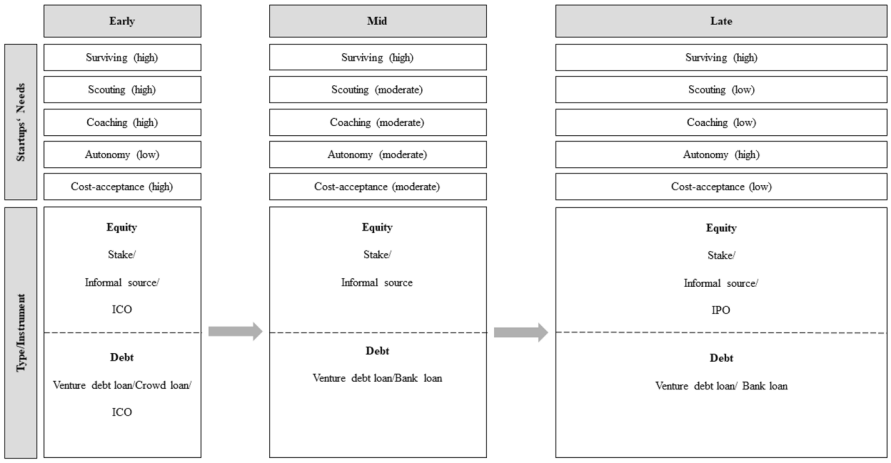

Fig. 5 The startup life cycle, startups' needs, and funding instruments

only obvious costs of capital such as interest rates and profit-sharing, but also variables such as shifting ownership rights (e.g., Colombo et al. 2022a, b). During the early and mid-stages, most startups are willing to accept greater autonomy trade-offs to find the necessary funding partners to ensure their survival (Gras et al. 2017; Vaznyte and Andries 2019). Consequently, a startup strives for higher levels of autonomy as it matures and therefore become less willing to accept autonomy trade-offs. In the following section, we review and discuss funding instruments and partners.

3.3 Startups' funding instruments and choice of capital

Theoretically, startups can choose between equity and debt financing (Dudley 2021), but this decision involves more than merely the price of capital. Previous studies have attempted to analyze and calculate the optimal (venture) capital structure (e.g., Robb and Robinson 2014). While the prices of different types of capital are the result of past security prices and current market conditions (Marsh 1982), the decision to use different types is also affected by entrepreneurs' mindsets, specifically their preferences and acceptance of certain capital sources (or reluctance to use them) (Vaznyte and Andries 2019). Nevertheless, a comparison of these factors and the determination of how they change during a startup's life cycle are lacking in previous research. Figure 5 displays startups' different funding instruments during their life cycle stages and accompanying needs.

Equity instruments are a preliminary source of capital for startups in the early and mid-stages of their life cycle. The most typical equity instrument for startups are stakes (Drover et al. 2017). Startups predominantly sell stakes to raise the capital they need, particularly during the early stage of their development (Svetek 2022). Typically, investors who purchase such stakes include owners' friends and family, angel investors, and corporations (Drover et al. 2017; Huang and Pearce

2015). Furthermore, theoretically, startups can raise capital through initial public offerings (IPOs) (Blomkvist et al. 2022). However, while conducting an IPO might be a theoretical alternative during the early stage of a startup, it is regarded with caution due to its high degrees of regulation and complexity (Colombo et al. 2022a; Stevenson et al. 2019).

Startups' use of debt instruments such as bank loans, bonds, leases, and informal sources (Berger and Udell 1998; Takahashi 2015; Yang et al. 2023) is limited, especially during the early and mid-stages of their life cycle. Indeed, most debt instruments such as bonds and bank loans are only obtained after intensive reviews (Block et al. 2021a, b; Thies et al. 2019). During such reviews, financial institutions gather firms' past financial data (e.g., they perform a cash flow analysis) to ensure the security of their lent funds and determine the conditions imposed on the extension of their credit (Fryges et al. 2015; Hogan et al. 2017). However, startups, especially early-stage startups, cannot always provide such data because they have not yet conducted profitable operations (Bellavitis et al. 2017). Nonetheless, as startups develop and become profitable, debt instruments become increasingly usable, especially for rapidly maturing startups (De Rassenfosse and Fischer 2016).

Hence, startups must weigh up different arguments when choosing an appropriate capital structure. Since the offerings of both equity and debt funding partners differ, so do their applicability to the various stages of a startup's life cycle. Therefore, equity and debt providers should not be treated as homogeneous. In the following section, to ensure precise matching, we review the various equity and debt providers individually and match them to the different stages of the startup life cycle.

3.4 Equity providers and their additional offerings

3.4.1 Friends and family

In addition to the entrepreneur's savings, relatives and close friends are often used as equity financiers in the early stage of a startup. Indeed, borrowing money from friends and family is the most common form of equity financing (Ahmed and Aassouli 2022; Bellavitis et al. 2017), which can be necessary to raise the startup's initial chance of survival. However, although they are reliable sources of capital for startups, entrepreneurs consciously or unconsciously know that every decision they make influences the wealth of their friends and family, which can result in limited autonomy and moral issues (Frid 2014; Gregson et al. 2017; Nguyen and Canh 2021). Moreover, Chua et al. (2011) argue that borrowing money from family members and close friends may change the previous social interactions among the parties. In summary, friends and family are an (often-used) early-stage source of equity (contributing to a high survival rate) with few or no additional offerings such as business advice and business networking opportunities (i.e., low coaching) (Chua et al. 2011). Additionally, related moral obligations can influence an entrepreneur's decision-making (moderate autonomy trade-offs).

3.4.2 Venture capital

Venture capitalists represent a major source of capital for startups as well as provide additional services such as consulting (Quas et al. 2021). They tend to invest longer than other capital providers because venture capital investments typically raise investee performance (Andrieu and Groh 2012; Manigart et al. 2002). The termination of their engagement is mostly executed through an exit event (Miloud et al. 2012).

In terms of consulting services, venture capitalists carefully scout the market before buying an equity stake in a startup to determine its potential and, more precisely, its likelihood of survival (Baum and Silverman 2004; Milosevic et al. 2020). Further, intensive coaching typically accompanies such investment (Quas et al. 2021), but this may limit a startup's autonomy (Riding et al. 2012a, b). In addition, venture capitalists often receive significant company stakes and thus control rights, resulting in considerable autonomy trade-offs for startups (Bengtsson 2011). Hence, venture capitalists are early-, mid-, and late-stage equity providers capable of making large investments (high survival) that provide consulting services (intensive coaching) and market scanning for investment alternatives (through scouting). They expect a considerable return on investment, which they try to ensure using their influence (causing substantial autonomy trade-offs). Given the major autonomy trade-offs and high required return on investment demanded by venture capitalists, late-stage startups might refrain from using venture capital, especially when cheaper debt funding alternatives are available (Berger and Udell 1998).

3.4.3 Angel investors

Angel investors are well-situated individuals who serve as informal equity investors (Kerr et al. 2014) and offer limited capital and additional support. The term "angel investor" normally refers to wealthy individuals who invest some of their accumulated monetary wealth in startups (Hellmann et al. 2021). A typical angel investor is approximately 50 years old, well educated, and a successful entrepreneur themselves (Block et al. 2019a, b; Drover et al. 2017). According to Huang and Pearce (2015), the average angel investment is between $10,000 and $20,000 per startup. Kerr et al. (2014) reveal that angel investors also consider non-monetary motives such as social and personal motives when evaluating startup investments.

Angel investors try to share their previously gained entrepreneurial experience with investees. Normally, they offer seed capital and consulting services to startups (Drover et al. 2017). Nevertheless, the support of angel investors is predominantly unstructured, which may limit their involvement (Huang and Pearce 2015). Angel investors are often compared with venture capitalists because they offer similar services. However, angel investors mostly provide less structured support, have more informal investment procedures, show lower levels of due diligence, and adopt less formalized control mechanisms than venture capitalists (Drover et al. 2017; Hellmann et al. 2021; Svetek 2022). By contrast, they might grant more autonomy to their investments than venture capitalists would by virtue of their entrepreneurial experience (Block et al. 2019a, b; Hellmann et al. 2021).

Consequently, angel investors are early-, mid-, and late-stage equity providers who supply limited amounts of capital (moderate survival), scan the market for new investments (high scouting), and provide non-monetary services to startups (moderate coaching), while providing limited autonomy at certain costs (moderate autonomy trade-offs). In contrast to venture capitalists, the investment and coaching scope seems to be rather limited (Drover et al. 2017). Hence, angel investors are an equity source that can be used in conjunction with other capital sources, especially in the early and mid-stages of a startup's life cycle.

3.4.4 Family offices

Owing to the unpredictability of public stock markets and lack of investment alternatives, family offices can also act as equity investors. Since the global financial crisis of 2008/2009, families who own established and successful firms have more frequently begun to create family offices as management vehicles to govern their fortune (Zellweger and Kammerlander 2015). According to Block et al. (2018), family offices have reached a 5% market share in the startup funding market. Family office investors normally offer equity and have long-term investment interests (Block et al. 2019a, b). In contrast to the unstructured support of angel investors, they can provide equity stakes and coaching by experienced managers (Block et al. 2018), but they seem to be less effective at scouting. Moreover, family offices have opposing political and socioemotional wealth and financial targets, which increases the probability of agency conflicts and limits their scouting abilities (Colombo et al. 2022a). According to Block et al. (2018), family offices tend to favor late-stage startups. As a result of socioemotional wealth considerations, family offices are more secretive and cautious than angel investors and venture capitalists (Zellweger and Kammerlander 2015). In summary, family offices provide extensive equity (high survival) and professional consultancy services (high coaching), which reduce a startup's autonomy (large autonomy trade-offs). Because they are less effective at scouting (moderate scouting) and have higher risk aversion than other equity providers, they seem less interested in buying early-stage equity shares. Nevertheless, family offices are beneficial for startups in the mid- and late stages of their life cycle.

3.4.5 Accelerator and incubator programs

Accelerator and incubator programs have emerged since the global financial crisis as new funding partners that accentuate the coaching aspect of startup partnerships (Yu 2020) in response to early-stage startups increasingly experiencing difficulties locating suitable financiers (Cumming et al. 2019; Fraser et al. 2015). Hence, the number of studies of these institutions has rapidly increased over the past decade (Drover et al. 2017). Accelerators are a collective of experienced managers who offer consultancy services, physical space, personal guidance, contacts, and expertise to support startups' survival and success (Cumming et al. 2019; Yu 2020). Incubators and accelerators work similarly (Isabelle 2013) and some authors use the terms quasi-synonymously (Bellavitis et al. 2017). Isabelle (2013) notes that incubator

programs generally last longer than accelerator programs, which is the main difference between the two.

Accelerators and incubators are generally designed to pass on knowledge and experience. They scan the market and collaborate with startups to improve their skills, accentuating the coaching aspect of their partnerships with these organizations (Fraser et al. 2015). Although accelerators and incubators obtain equity stakes for their services, funding seems to play a secondary role (Cumming et al. 2019). Given the influence of accelerators and incubators on investees, startup autonomy is low (e.g., Yu 2020). Despite the large number of studies investigating accelerator and incubator programs, quantitative data on their effectiveness remain insufficient (Drover et al. 2017; Fraser et al. 2015). This lack of data, combined with their limited equity investments, indicates moderate survival support. In summary, accelerator and incubator programs scan the market for new investment opportunities (high scouting) and offer a broad range of coaching services (high coaching). While the cost of this arrangement seems beneficial for startups, the resulting limited autonomy may lead to conflicts during later stages (moderate autonomy trade-offs). Hence, incubators and accelerators are good complementary partners for early- and mid-stage startups.

3.4.6 Governmental venture capital

Governmental venture capital funds have evolved to fill this gap. A lack of capital can result in a decreasing number of early-stage startups (Block et al. 2018; Drover et al. 2017), which in turn can lead to long-term socioeconomic challenges (Cumming and Vismara 2017). Governments worldwide are thus attempting to revitalize entrepreneurship and promote startups by establishing governmental venture capital funds (Colombo et al. 2016).

While such funds offer equity and additional services, their reputation seems ambivalent owing to the inclusion of political and social agendas within allocation considerations (Bertoni et al. 2019). They typically buy equity stakes in startups and offer additional services (Colombo et al. 2016). Although the coaching activities of governmental venture capital funds are more limited than those of regular venture capital funds (Block et al. 2018), they remain controversial (Bertoni et al. 2019). Colombo et al. (2016) find that regular venture capital funding results in higher exit performance than governmental venture capital funding. Furthermore, financiers' political motives could limit a startup's autonomy and flexibility, resulting in increased autonomy trade-offs (Bertoni et al. 2019; Block et al. 2018). In summary, while the offering of governmental venture capital funds is suitable throughout the life cycle of a startup, they focus on the late stage (moderate survival) (Block et al. 2018) as well as scout the market for new investment opportunities (moderate scouting) and offer consulting services (moderate coaching). Considering their political biases and the effectiveness of their non-monetary services, governmental venture capital funds seem to be beneficial only for the survival needs of a startup (i.e., during the late stage of its life cycle) if the related trade-offs regarding autonomy and costs (high autonomy trade-offs) are acceptable.

3.4.7 Corporate venture capital

Corporate venture capital refers to when large companies make equity investments in startups to acquire external resources. Established firms frequently invest in new external technologies and startups to increase their strategic portfolios and capabilities (Kang et al. 2021). This investment route also offers large firms a way to acquire knowledge, namely, by providing equity to another legally independent firm, which, in most cases, is a young and innovative startup (Drover et al. 2017). Corporate venture capital activities are generally regarded as complementary to firm-level innovation (Dushnitsky and Lenox 2005). Corporate venture capital funds peaked in the early 2000s at a volume of $16 billion. However, established firms such as Google and Samsung still use corporate venture capital to improve their innovation pipelines (Drover et al. 2017).

While corporate venture capital funds can ensure the short-term survival of a startup by injecting new capital, the cost might be future revenue and value. Faced with the challenge of finding suitable startups, corporate venture capital funds struggle to integrate the knowledge they acquire into their established organizations (Jeon and Maula 2022). Hence, corporate venture capitalists are regarded as exclusively late-stage investors (Block et al. 2018). Such companies also face difficulties in scouting new external technologies (Benson and Ziedonis 2010). Corporate venture capitalists grant less autonomy to their investees than regular venture capitalists (Block et al. 2018). Additionally, even if corporate venture capital funds find a suitable technology, they encounter difficulties operationalizing it (Benson and Ziedonis 2010). Corporate venture capital funds offer additional services similar to those of regular venture capitalists, but are criticized for creating tensions that may damage the relationship (Hallen et al. 2014). The experienced managers tasked with coaching new startups must decide to promote either internally developed or externally acquired technologies, which can result in a conflict of interest (Benson and Ziedonis 2010; Jeon and Maula 2022). In summary, corporate venture capital funds can satisfy startups' need for capital (high survival). In addition, they scan the market for new potential external opportunities and offer other non-monetary services. Nevertheless, because of the inherent potential conflicts of interest and tensions, some of their activities are limited, including scouting, coaching, and autonomy. Therefore, corporate venture capital funds seem beneficial only for the survival of late-stage startups.

3.4.8 Investment-based crowdfunding

Investment-based crowdfunding, also known as equity crowdfunding, has emerged from the growing possibilities of digitalization and opened new funding gateways for startups. Online equity crowdfunding platforms such as Seedrs and Crowdcube have been the subject of numerous discussions in recent entrepreneurial finance studies (e.g., Ralcheva and Roosenboom 2020; Vismara 2016). Cumming et al. (2022) highlight the importance of equity crowdfunding studies in the fields of procedural execution and campaign dynamics. Equity crowdfunding operates under the rationale that startups raise funding from a group of geographically dispersed

investors (crowd) in exchange for an ownership stake (limited autonomy) (Cumming et al. 2021; Mochkabadi and Volkmann 2020). In contrast to other equity providers such as business angels and venture capitalists, crowd investors are not professional financiers (Cumming et al. 2022), which might lead to lower scouting and coaching abilities (limited scouting and coaching). Interestingly, however, their non-expert status does not lead to inferior predictions of financial startup development (Cumming et al. 2021; Estrin et al. 2022). In this vein, crowds can also serve as a valuable source of organizational learning given their ability to provide startups with broad feedback (Walthoff-Borm et al. 2018). Furthermore, because of the short time needed to access crowd money and rapid growth in equity crowdfunding, it has become a reliable source of early-stage funding (Hornuf and Schwienbacher 2018). In the eyes of startups, the reliability of this alternative is reflected in the growing number of investors and amounts on equity crowdfunding platforms (Blaseg et al. 2021). Nevertheless, crowdfunding bears the risk of know-how diffusion and the success or failure of a campaign might be the result of herding behavior in the investment community rather than the trust and belief of individual investors (Mochkabadi and Volkmann 2020). Consequently, equity crowdfunding platforms are reliable sources of funding in the early stage (high surviving), whereas scouting and coaching are limited owing to the investor community structure (i.e., no experts). Similarly, crowdfunding also leads to limited autonomy, as the startup has to distribute its stakes in return for money. Equity crowdfunding also seems suitable for mid-stage startups but does not fit the developed autonomy aspirations of late-stage startups.

3.5 Debt providers and their additional offerings

3.5.1 Banks

Loans are among the most frequently used debt instruments that require securities from borrowers and past performance data. Bank loans are usually linked to the need for intensive reviews (Thies et al. 2019) during which financial institutions apply predefined evaluation methods. Such methods include examinations of past performance data and cash flow analyses (Cline et al. 2020) to calculate credit risk and loan conditions. Few early-stage startups can provide such data (Hornuf et al. 2021; Thies et al. 2019). This phenomenon is often referred to using Arthur Stinchcombe's term "the liability of newness" (Chen 2023; Nguyen and Canh 2021; Stinchcombe 1965). Indeed, bank loans can ensure startup survival (Chen et al. 2016). As banks are usually approached by an entrepreneur (representing the startup) to provide capital (De Rassenfosse and Fischer 2016; Denis 2004), they typically neither scout (low scouting) nor coach (low coaching) debtors. This makes banks an unsuitable funding partner for startups in the early and mid-stages of their life cycles since scouting and coaching are regarded as vital for their initial survival (e.g., Baum and Silverman 2004). During the late stage, banks can become beneficial funding partners, as such startups still need capital (high survival), but desire and relish a high level of decision autonomy (Berger and Udell 1998). In summary, bank loans offer vital

capital for startups, but do not affect the ownership structure of the firm. Furthermore, they are likely to offer more beneficial interest rates than equity instruments (low autonomy trade-offs) (Block et al. 2018), especially during the late stage of a startup's life cycle (Thies et al. 2019). Therefore, bank loans are suitable instruments for late-stage startups because they allow the entrepreneur the necessary autonomy.

3.5.2 Lending-based crowdfunding

Similar to equity crowdfunding, debt crowdfunding (or more precisely lending-based crowdfunding) has emerged as an important funding source. Historically, lending-based crowdfunding raised the highest amount of crowdfunded capital (high survival) (Block et al. 2018). In contrast to equity crowdfunding, it centers on the provision to startups of short- and medium-term loans at fixed interest rates (Huang et al. 2020; Polzin et al. 2018). Loan prices are determined through pre-campaign pricing (posted prices) and auction mechanisms under the principle of supply and demand (Riding et al. 2012a, b). The involved investment crowd predominantly displays financial motivators (i.e., no coaching) (Block et al. 2018). Consequently, investors are unlikely to offer additional (non-monetary) services. Nonetheless, a crowdfunding campaign can improve the visibility of startups and thus partially replace the scouting function (moderate scouting) (Polzin et al. 2018). Lending-based crowdfunding is thus one of the only feasible alternatives to raise external debt for startups rejected by common debt providers such as banks (Guenther et al. 2018; Yang et al. 2023), making it especially suitable for early-stage startups (Block et al. 2018). In summary, early-stage startups can use lending-based crowdfunding to gain attention and capital. However, no coaching services are offered (low coaching), and startups' (technological) know-how is made public, which might negate the positive effect of autonomy (Polzin et al. 2018). Overall, debt crowdfunding campaigns seem beneficial for early-stage startups with existing equity partners.

3.5.3 Mini bonds

The post-financial crisis capital gap, when startups began to struggle to obtain traditional bank financing (Boccaletti et al. 2022), resulted in the introduction of new debt sources such as mini bonds, smaller versions of regular bonds used by startups and other small firms as debt vehicles (Mietzner et al. 2018). Bond sizes can vary significantly, ranging from $2 million to over $100 million (Mietzner et al. 2018). The introduction of mini bonds as an instrument to raise capital implies the increasing tendency of startups to gain independence from traditional debt providers such as banks (Block et al. 2018). Similar to bank loans, raising debt through mini bonds does not include additional services such as coaching and scouting (low coaching and scouting) (Boccaletti et al. 2022; Mietzner et al. 2018). Hence, Block et al. (2018) argue that mini bonds are only suitable for mid- and late-stage startups. Furthermore, developments in the mini bond market such as investor inexperience and rising demand have resulted in rating inflation, which does not reflect issuer risks (Mietzner et al. 2018). Thus, mini bonds are a late mid-stage and late-stage debt

source (high survival) that does not provide additional services, but also does not restrict a startup's autonomy (low autonomy trade-off).

3.5.4 Venture debt lenders

Venture debt lenders have identified the liability of being new and offer financing services to those with limited past performance data (De Rassenfosse and Fischer 2016). As noted before, early-stage startups often struggle to provide capital providers with cash flow data and securities to signal their creditworthiness (Chua et al. 2011; Lehnertz et al. 2022). The increasing number of startup activities and their importance to the economy have thus paved the way for the evolution of new intersectional debt partners such as venture debt lenders (Block et al. 2018). Following the traditional patterns of banks, these institutions offer loans to startups without requiring positive past performance data or securities (De Rassenfosse and Fischer 2016). Although research on venture debt lenders is increasing, our understanding of venture loans remains mixed (Lehnertz et al. 2022). De Rassenfosse and Fischer (2016) reveal that venture debt is a complementary instrument to venture equity that can be used if more capital is required. Recent estimations place the US venture debt market at approximately $3 billion per year (Block et al. 2018). Again similar to banks, venture debt lenders do not provide additional non-monetary services (low coaching and scouting) (Lehnertz et al. 2022). In summary, venture debt lenders are suitable debt providers for startups in all stages (high survival), as they can support startups' pursuit of autonomy and low capital costs (low autonomy trade-offs). Furthermore, because of their openness to lending to early-stage startups, venture debt lenders can provide additional monetary leverage, for instance, when a strong equity partner has already satisfied their needs for coaching and scouting.

3.6 Intermediate providers and their additional offerings

3.6.1 ICOs

With the advancement of blockchain technology, new funding instruments have emerged that are neither unequivocally equity nor unequivocally debt. ICOs have recently evolved to solve the early-stage funding issues of startups. The expansion of ICOs worldwide is also reflected in the growing research interest in the entrepreneurial finance literature (Bellavitis et al. 2022; Fisch 2019). Schückes and Gutmann (2021) emphasize the growing importance of ICOs for early-stage startups by demonstrating the $31 billion of funding collected since 2016. ICOs are defined as an open call (online) for financing and mostly refer to weakly regulated token sales in exchange for funding by a group of investors (Fisch 2019; Howell et al. 2020). Crafting tokens and enabling the intended investment procedure are possible through distributed ledger technology in the form of blockchain (Block et al. 2021a, b). Tokens are units of value that can be acquired with cryptocurrency (Fisch 2019). Two types of tokens have been developed in recent years: security and utility. Security tokens, also called equity or investment tokens, follow the rationale of common stocks and

enable demands concerning ownership or dividends (Fisch 2019; Schückes and Gutmann 2021). Utility tokens are perceived as digital media that allow the exchange of utilities (Fisch 2019). Common examples are the potential admission to prospective products (Schückes and Gutmann 2021) or reshape the token as a specific startup cryptocurrency (Fisch 2019). Owing to the ambivalence of ICOs and their dependence on their intended purpose, it is difficult to determine their allocation to either the debt or the equity funding categories (Howell et al. 2020).

ICOs have the potential to reduce the importance of a startup's geographical location given that market-specific restrictions such as the availability of financial intermediaries do not affect their success (Huang et al. 2020; Schückes and Gutmann 2021). Furthermore, ICOs are perceived as faster, more efficient, and less tedious for startups than other funding instruments (high surviving) (Schückes and Gutmann 2021). Despite the potential of blockchain-based solutions, cryptocurrencies and connected technologies are accompanied by high levels of investor autonomy, creating barriers for startups to identify and communicate with their financiers (low coaching/high autonomy) (Block et al. 2021a, b; Fisch 2019). Moreover, increasing regulations, the fear of security threats (hacking, cyber criminals), the complexity of the required infrastructure, and uncertainty about the future of blockchain technology (moderate costs) might result in the unavailability of ICOs for startups (Bellavitis et al. 2022). In summary, ICOs are a novel instrument for early-stage startups to raise capital with large potential but high uncertainty.

Table 2 provides an overview of the funding partners, their offerings,[4] and the stages to which they are assigned. In the next section, we match startups' needs with the funding partners deemed the most suitable for satisfying those (non-) monetary needs.

3.7 Ideal funding partners for startups

The distinctions between equity and debt providers makes individual assessments at the funding partner level necessary. Building on Figs. 4 and 5 and considering startups' needs and investors' offerings, Fig. 6 synthesizes the ideal partners for startups based on the life cycle stage, startups' needs, and available capital types/instruments.

Startups require more than investment during the early stage of their life cycle. To compensate for their lack of experience, visibility, and business networks, scouting and coaching are important inputs (Baum and Silverman 2004). In particular, venture capitalists and angel investors are suitable partners for early-stage startups (Drover et al. 2017). Accelerators and incubators can also satisfy their scouting and coaching needs; however, their equity stakes do not seem sufficient to enable a startup's survival without additional investors (Block et al. 2018). Venture debt lenders,

[4] The satisfaction of a funding provider's needs was assessed similarly to the rationale behind the evaluation of startups' needs. For example, corporate venture capitalists grant their investments only a limited degree of autonomy (e.g., Block et al. 2018), while business angels also control their investments, but allow certain freedoms (e.g., Hellmann et al. 2021). Hence, while we assess the autonomy of corporate venture capitalists as low, we assess that of business angels as moderate.

Table 2 Funding partners and their characteristics

Partner	Stage	Type of capital	Instrument	Need satisfaction				
				Surviving	Scouting	Coaching	Autonomy	Cost
Accelerator/incubator	Early and mid-stage	Equity	Stake	Moderate	High	High	Moderate	Low
Angel investor	Early, mid-, and late stage	Equity	Stake	Moderate	High	Moderate	Moderate	High
Corporate venture capital	Late stage	Equity	Stake	High	Moderate	Moderate	Low	High
Equity crowdfunding	Early and mid-stage	Equity	Stake	High	Moderate	Moderate	Moderate	Moderate
Family office	Mid- and late stage	Equity	Stake	High	Moderate	High	Low	High
Friends and family	Early stage	Equity	Stake/loan	High	Low	Low	Moderate	High
Governmental venture capital	Late stage	Equity	Stake	Moderate	Moderate	Moderate	Low	High
Venture capital	Early, mid-, and late stage	Equity	Stake	High	High	High	Low	High
Bank	Mid- and late stage	Debt	Loan/bond	High	Low	Low	High	Low
Debt crowdfunding	Early stage	Debt	Loan	High	Moderate	Low	Moderate	Low
Mini bond	Mid- and late stage	Debt	IPO	Debt	Low	Low	High	Low
Venture debt lender	Early, mid-, and late stage	Debt	Loan/bond	High	Low	Low	High	Low
ICO	Early stage	Equity/debt	Token	High	Low	Low	High	Moderate

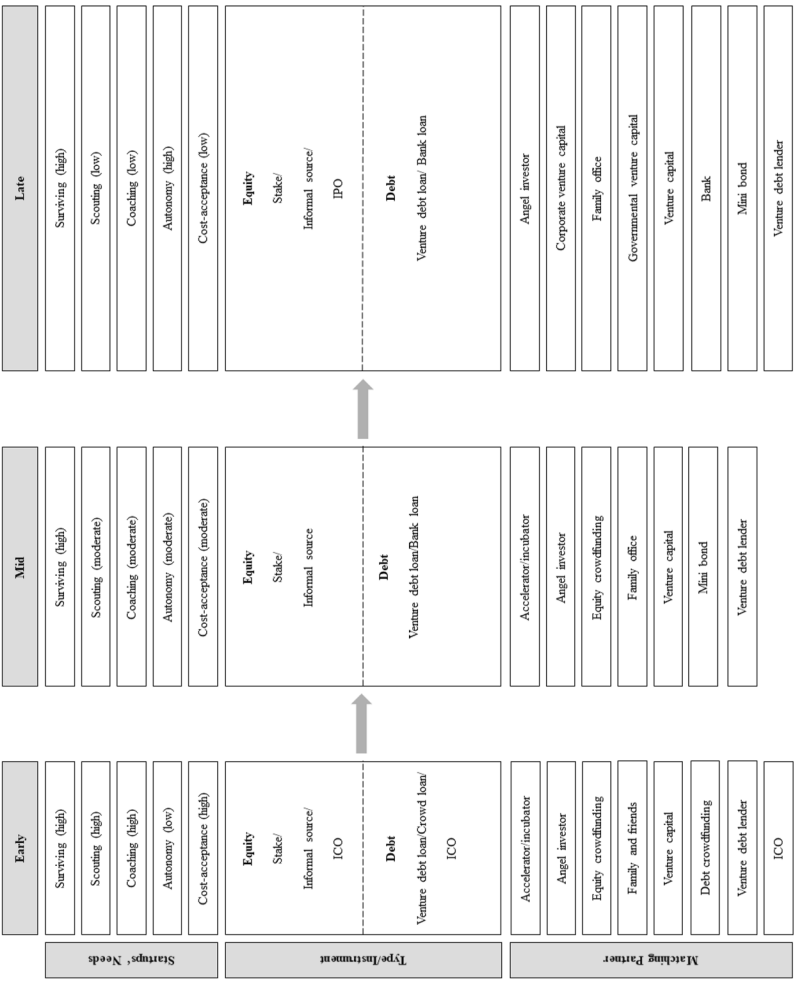

Fig. 6 Startup life cycle, startups' needs, funding instruments, and ideal partners

as debt partners, represent a possible alternative, although they cannot provide the essential scouting and coaching services needed in this stage (Lehnertz et al. 2022). Hence, they should only be used to supplement existing equity investment or by startups with high levels of experience and market visibility. For example, the German startup Zalando (under its previous corporate label, ifansho GmbH) started its fashion e-commerce platform with limited offerings and capabilities in 2008. As early-stage startups require both monetary and non-monetary services (Baum and Silverman 2004), Zalando partnered with the specialized e-commerce incubator Rocket Internet in 2009 (Gründerszene.de 2018; Hofmann 2014). However, since incubators provide limited capital, Zalando sold additional stakes to the venture capitalist Holtzbrick Ventures (Gründerszene.de 2018; Hofmann 2014). According to our model, both choices seem adequate for this early-stage startup because they satisfied its scouting, survival, and coaching needs.

A startup's visibility and experience increase during its mid-stage, widening the availability of funding options (Berger and Udell 1998; Thies et al. 2019). While venture capitalists, angel investors, accelerators, and incubators still seem good partners, family offices become another alternative (Block et al. 2019a, b). Theoretically, bank loans and crowdfunding projects are also suitable alternatives when a startup has more levels of experience. Indeed, debt providers mostly base their investment decisions on past performance data, which mid-stage startups usually cannot provide (Hornuf et al. 2021; Lehnertz et al. 2022; Yang et al. 2023). Although debt and equity instruments can be combined, most startups rely on the latter (Polzin et al. 2018; Thies et al. 2019). Using the above example again, Zalando partnered with the family office Tengelmann E-Commerce in 2010 (Gründerszene.de 2018; Hofmann 2014) and two angel investors (Gründerszene.de 2018; Hofmann 2014) during its mid-stage. This step secured additional capital and knowledge transfer. Again, this step is in line with our model since these additional investors satisfied the firm's survival and coaching needs. Interestingly, Rocket Internet sold its shares in Zalando to the company's remaining shareholders in 2013 (Gründerszene.de 2018; Hofmann 2014). Hence, this early-stage partner (an incubator) was replaced by more stage-appropriate partners during the mid-stage (family offices and business angels), which corresponds to our proposition on a startup's suitable funding partners throughout its life cycle.

Finally, debt instruments become important as startups strive for autonomy. Startups should now be able to provide the required data for bank audits (Berger and Udell 1998). In addition, the issuance of mini bonds might now be suitable (Boccaletti et al. 2022; Mietzner et al. 2018). While startups can still raise additional capital by selling stakes to equity providers, this becomes less likely and advisable, considering that those transactions also change the ownership structure (e.g., Drover et al. 2017). Similarly, an IPO process to raise capital would be theoretically possible, but would also induce significant organizational change and lower flexibility (Colombo et al. 2022a; Stevenson et al. 2019). Nevertheless, an extraordinarily well-performing startup could conduct an IPO when a large amount of capital is required to rapidly scale its business model and secure a leading market position (Drover et al. 2017). For example, Zalando conducted an IPO at the end of its mid-stage or the beginning of its late stage in Q4 2014 (Gründerszene.de 2018; Hofmann

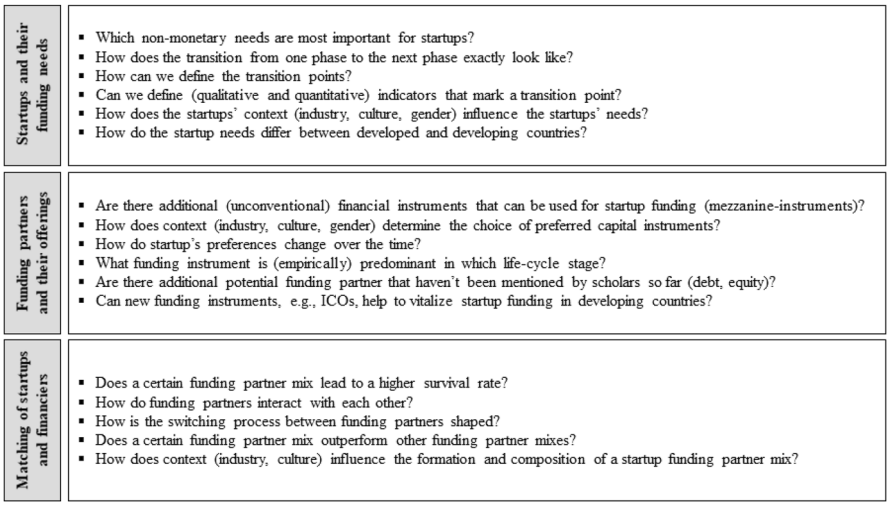

Fig. 7 Future research questions

2014). Additionally, the company began to raise external debt. Since late-stage startups strive to obtain additional autonomy and capital at favorable costs (decreasing their autonomy trade-offs), this increased use of bank funding is also in line with our model (Berger and Udell 1998). Zalando's partners are thus a good example of suitable funding partners at various points in the startup life cycle.

4 Future research directions

In this study, we review the startup funding literature and propose a holistic framework that can guide startups through their maturation process. Nevertheless, research gaps remain that highlight the need for further work. Figure 7 summarizes several potential future research questions.

First, we suggest future research directions on startups and their funding requirements. From the literature, we identify some prominent needs for startups, namely, scouting, surviving, coaching, cost, and autonomy (e.g., Amit et al. 1998; Baum and Silverman 2004; Berger and Udell 1998). However, future studies could additionally explain the relationships among these needs more concretely as well as their potential complements. Does one need dominate all others or are they equal? Furthermore, ongoing research should focus on new potential needs, especially with reference to current megatrends such as sustainability and digitalization.

Second, we divide the startup life cycle into the early, mid-, and late stages according to Berger and Udell's (1998) financial growth cycle. However, this division is inconsistent in the literature, particularly with respect to the early and late stages and their transitions. Numerous conceptualization attempts for such models exist (e.g., Lefebvre 2021), which all show the evolution of a startup based on different stages. However, the mid-stage is often referred to and understood differently.

For example, some publications either omit the mid-stage (e.g., Block et al. 2018) or regard it as part of earlier stages (e.g., Svetek 2022). Future research could thus aim to clarify the exact composition of life cycles as well as their transition points and gatekeeping events.

Third, the reviewed equity and debt partners could be expanded because of the rapidly changing nature of the funding landscape. Block et al. (2018) list new entrants in the funding sphere; for example, university-based funds, social venture capital funds, and intellectual property-based investment funds are interesting niche funding partners that are expanding the funding landscape. However, few studies examine these niche partners. Furthermore, emerging technological developments and possibilities through blockchain (Fisch 2019; Schückes and Gutmann 2021) must be constantly monitored to derive potential startup funding mechanisms. Future studies could thus investigate the development of the aforementioned niche players and their offerings for startups as well as the future implications of blockchain technology for startup funding.

Fourth, the vast majority of the studies in our sample were conducted in developed countries (North America and Europe). Only 11 articles had a developing country context (e.g., Nguyen and Canh 2021; Pereiro 2001), which all offered highly similar information. Nevertheless, our results should be validated in a variety of contexts. Future research could, for example, test startups' needs, capital instruments, partner characteristics, and the assumed relationships identified in developing country settings.

Fifth, we suggest that startups should ideally have more than one funding partner in a specific life cycle stage. Our guidelines are intended to show which investors are suitable in which stages and how an optimal funding partner mix could be created (i.e., there is no single optimal composition). Consequently, an empirical examination of the startup–funding partner combination that results in superior performance would be interesting. Do some combinations raise short-term performance more than others? Further, while different funding partners often interact with each other, how these interactions occur remains underexplored. Future research could thus clarify alternative startup–funding partner combinations in specific life cycle stages as well as their interactions.

5 Limitations

The emergence of new findings and insights from our review should be interpreted in light of the limitations of the method and analysis. To enhance validity and minimize subjective assessments, we employed a structured approach, namely, the 6 Ws search protocol, to build our sample. However, as we only searched for target articles in two electronic databases comprising publications from 22 high-ranking management journals published in English, there is some risk of missing important articles not included in those sources. Furthermore, the classification and evaluation of funding partners were based on the literature and relation of the information. Moreover, to avoid subjectivity in our methodology and analysis, we based our decisions on collective judgment. Nevertheless, certain degrees of subjectivity naturally

persist. Similarly, we assessed whether and to what extent the funding instruments satisfy startups' needs. Although our assessment derived from the reviewed literature, it is still the result of our subjective analysis of the arguments to some degree.

6 Practical implications

The results provide valuable insights for startups and investors. Knowing funding partners' offerings is essential for startups to select suitable capital providers. However, most contemporary startups are unaware of the countless financing options available because of the high level of industry complexity, while few know how to attract suitable investors. Further, some startups may never find suitably matching investors despite possessing all the necessary requirements. Indeed, this situation could widen rather than bridge the existing funding gap, which is why startups require further guidance. The developed model can help startups identify investors and assess their suitability depending on their life cycle stage. With this information, startups can then adapt their signaling activities to address the desired investor. Furthermore, funding partners typically collaborate with other investors and do not invest in isolation. Such networked collaborations increase the probability of investment success. The proposed model can thus help financiers identify other complementary investors that may yet be unknown, thereby increasing interactions between established and new funding parties.

7 Conclusion

As young innovative startups are indispensable for the world to face major societal challenges such as climate change and digital transformation, they will continue to be a subject of interest in research and practice. The issue of insufficient funding is a well-known problem that often leads to failure. However, given that previous studies have not thus far provided a holistic overview of the matching of startups' needs with investors' offerings, this study offers several new insights that contribute to the literature on startup funding.

First, we find that startups possess several monetary and non-monetary needs that change in accordance with their life cycle stages. In the early stage, startups display a high need for scouting and coaching, whereas the desire for autonomy and low costs seems to be less important. During the mid-stage, startups' preferences begin to shift. As the importance of scouting and coaching decreases, startups increasingly consider autonomy and costs. In the late stage, startups develop strong preferences for autonomy and costs, with a more limited focus on scouting and coaching. Nonetheless, the desire for surviving remains constant throughout the life cycle.

Second, we comprehensively overview the numerous established equity and debt providers for startups. Equity investors provide several non-monetary benefits such as scouting and coaching. By contrast, debt providers focus on the provision of monetary services, which results in lower capital costs and higher levels of autonomy. We contribute to the entrepreneurial finance literature, more precisely, the debate on

funding alternatives for startups, by providing a comprehensive picture of the existing funding landscape. We extend the studies of Block et al. (2018) and Drover et al. (2017) by combining new and established players from both the equity and the debt domains. Moreover, we introduce the perspective of startups' needs into the classification of investors.

Third, we find that the offerings of equity and debt providers match startups' specific needs throughout the life cycle. Equity financiers are particularly suitable for early-stage startups because their additional services lessen the vulnerability of such new startups, whereas debt providers seem to match the autonomy and cost considerations of late-stage startups. Both groups of financiers can meet the needs of mid-stage startups during this transitional stage. We therefore contribute to the entrepreneurial finance literature by providing a more holistic investor/investee funding logic. Instead of viewing different funding partners as substitutes, we identify their offerings and potential to be complements to suggest that a combination of funding partners might be optimal. Our study also serves as a guide for startups in different life cycle stages to help them target the right investors with the right offerings for their specific situations. Startups are central to the economic progression of societies and often fail owing to their inability to accumulate the necessary capital. This study shows that this need not be the case.

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Declarations

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